



Instituto
de Medicina
Molecular

Scientific Report 2015

Lisbon, April 2016

Contents

Contents	2
Structure and Organisation.....	5
Evaluation Reports 2015.....	8
2013 Evaluation of FCT Research and Development Labs.....	8
Research Funding.....	9
Expenditure in 2015 by Funding Source	9
Number of Ongoing Research Grants in 2015	10
Number of Research Grants initiated at IMM from 2003 to 2015	10
Research Funding Initiated in 2015	10
iMM Applications and Secured Competitive Funding	13
Funding Sources of iMM Applications	14
2015 iMM Activities Highlights	17
People 2015	17
Selection of Prizes and Awards	17
Productivity at a glance.....	18
iMM Publications in International Journals.....	19
10 Most Cited Articles 2002-2015.....	20
Most Relevant Papers 2015 (Journal IF>10).....	21
Seminars & Workshops.....	23
iMM Education and Advanced Training.....	49
Research Activity.....	54
Barata, João T.....	55
Bernardes, Gonçalo J.L.....	63
Carmo-Fonseca, Maria.....	68
Castanho, Miguel	79
Costa, Luis	91
De Almeida, Sérgio.....	100
De Carvalho, Mamede	105
Dias, Sérgio.....	126
Ferreira, Joaquim J.....	130

Ferro, José	151
Figueiredo, Luisa	170
Filipe, Paulo	177
Fonseca, João Eurico	182
Franco, Cláudio A.	206
Gomes, Edgar	209
Graça, Luis	213
Henrique, Domingos	220
Lacerda, João F.	225
Lopes, Luisa V.	230
Morais, Nuno	239
Morais, Vanessa	245
Mota, Maria M.	248
Oliveira, Sofia A.	255
Prata, Diana	260
Prudêncio, Miguel	265
Ramirez, Mário	272
Remondes, Miguel	282
Saldanha, Carlota	286
Santos, Nuno C.	292
Saúde, Leonor	304
Sebastião, Ana	309
Silva-Santos, Bruno	328
Simas, Pedro	338
Sousa, Ana E.	341
Veiga - Fernandes, Henrique	358
Facilities	365
Technical Facilities	365
Animal Facility	365
Biobank	367
Bioimaging	369
Biosafety Level 3 Laboratory	372

Flow Cytometry	374
Histology and Comparative Pathology Laboratory	376
Information Systems	378
Quality and Safety in Laboratory	380
Zebra Fish Facility.....	382
Administrative Facilities.....	384
Communication.....	384
Education & Advanced Training.....	385
Funding Programs Office.....	387
Management.....	389
Startups.....	391
GENOMED	391
LYMPHACT	395
RoPlaVac	397
StemCell2MAX	401
TECHNOPHAGE	403

Structure and Organisation

Research and development in the Biomedical Sciences plays a central role in generating knowledge and in the application of this knowledge to improving the quality of life. ***The mission of the Instituto de Medicina Molecular (iMM Lisboa) is to foster basic, clinical and translational biomedical research*** with the aim of contributing to a better understanding of disease mechanisms, developing novel predictive tests, improving diagnostics tools and developing new therapeutic approaches.

Located on the campus of the Faculdade de Medicina da Universidade de Lisboa (FMUL), iMM Lisboa is a Laboratory Associated to the National Ministry of Science and Higher Education. iMM Lisboa is mainly supported by national public funds and European Union funds. The research expenditure includes additional funds obtained from peer reviewed competitive grants, private donations and industrial partnerships.

Created in December 2002, iMM Lisboa results from the association of 5 former research units from the FMUL: the Biology and Molecular Pathology Centre, the Lisbon Neurosciences Centre, the Microcirculation and Vascular Pathobiology Centre, the Gastroenterology Centre and the Nutrition and Metabolism Centre. The Institute is a Private, Non-profit Association.

iMM Lisboa Associate Members

- Universidade de Lisboa
- Faculdade de Medicina da Universidade de Lisboa
- Hospital de Santa Maria
- Associação para a Investigação e o Desenvolvimento da Faculdade de Medicina
- Fundação Oriente

Board of Trustees

The Board of Trustees is composed by representatives of associate members and meets at least once per year to analyse the scientific and finance report and to approve the plan of activities and budget for the next year.

Board of Directors

The Board of Directors is responsible for the management of the Institute according to the plans approved by the Trustees. The Board of Directors is elected by the Trustees.

M. Carmo-Fonseca, MD, PhD (President)

Maria M. Mota, PhD (Executive Director)

Bruno Silva-Santos, PhD (Vice-President)

Administration Board

The Administration Board is composed by the Directors, the Research Programme Coordinators, and the Directors of the FMUL and Santa Maria Hospital. It meets at least twice a year to define scientific strategies and actions, administrative organization plans and budgetary priorities.

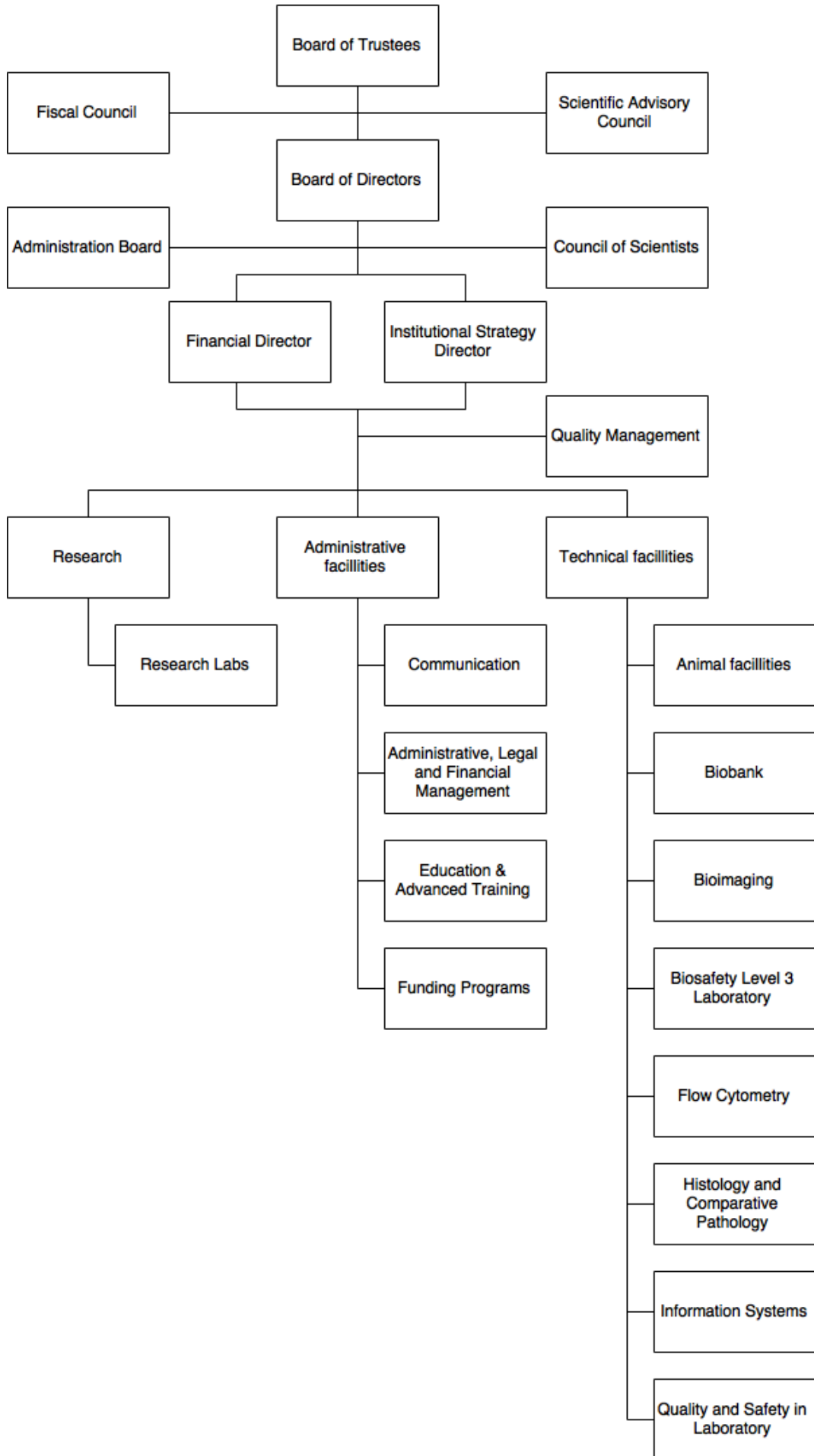
Council of Scientists

The Council of Scientists is composed by all Group Leaders. It meets at least once per year to discuss the scientific strategies and plan of actions proposed by the Board of Directors. This Council elects two representatives to participate in the meetings of the Board of Trustees.

Scientific Advisory Board

Undertake periodic evaluations to the IMM Lisboa specific programmes and include international experts of scientific fields analysed:

- **Carlos Caldas**, MD, PhD (Cambridge Cancer Centre, UK);
- **Philippe Sansonetti**, MD, PhD (Pasteur Institute, France);
- **Gustave Moonen**, MD, PhD (Université de Liège, Belgium);
- **Caetano Reis e Sousa**, PhD (Francis Crick Institute, London, UK);
- **Paul Peter Tak**, MD, PhD (University of Amsterdam, Netherlands);
- **Maria da Graça Carvalho** (European Parliament)



Evaluation Reports 2015

2013 Evaluation of FCT Research and Development Labs

Period of evaluation:

2008 – 2012: Scientific and technological activities (performance indicators);

2015 – 2020: Research strategies and planned work for the next six years (2015-2020), consolidated as a strategic programme.

Evaluation Panel:

Panel 3: Health and Life Sciences

Final Classification: Excellent

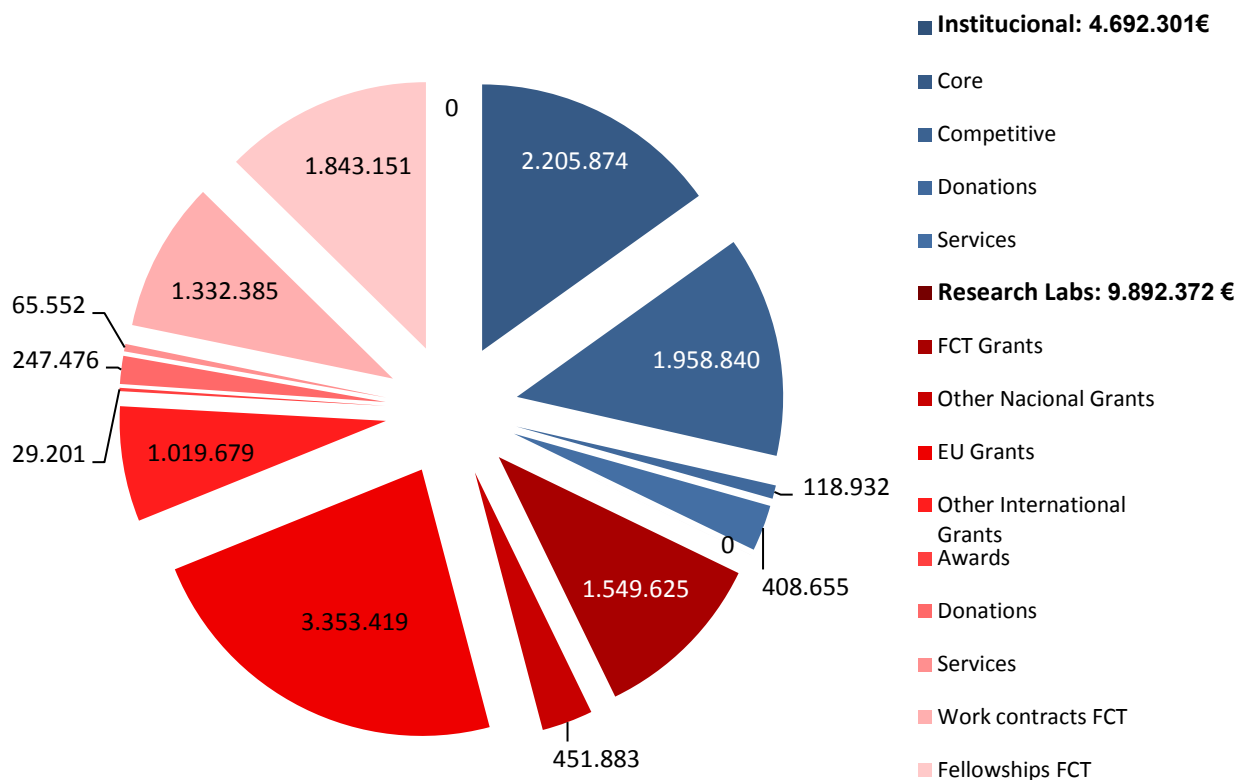
Panel's overall comments (Stage 2):

The site visit confirmed to a large extent the conclusions of the initial assessment that the unit has an excellent overall standing. It pointed out to some insufficiencies in the scientific output of a significant fraction of the integrated members listed in the initial application, and in the intensity of technology transfer that were openly discussed with both the unit leaders and the active group of students and postdocs. The site visit team recommended (i) a redefinition of the role of the less productive integrated members in research, teaching or management tasks that should lead to a reduction in the number of integrated members and independent groups; (ii) increased efforts in securing substantial financial resources through contracts with industry. It was satisfied with the clarification of the novel management and governance processes that have been established and praised Prof Maria Carmo-Fonseca, the Principal Investigator of the proposal and the Executive Director of IMM Lisboa since 2002, to have promoted Dr. Maria Mota as the unit Director. Prof Maria Carmo-Fonseca now serves as IMM Lisboa President in an oversight role with veto power on strategic decisions, and a focus on international development. Dr Maria Mota is supported on her role as Executive Director by two Vice Directors, Dr Henrique Veiga-Fernandes and Bruno Silva-Santos, and an experienced Finance Director, Mrs Margarida Pinto-Gago. In order to achieve this in a transition period of reorganization of its staff dedicated to research and a context of potential shortage of public funding, the new IMM Lisboa Board of Directors will require strong financial and managerial support from the University of Lisbon and the Faculty of Medicine. The Panel considered that the proposed strategic programme provides a solid basis for the future development of the unit in the next period, and that the budget requested was adequate, but recommended that the full executive power should be endowed to the coordinator during her term for its implementation, while the former director and President takes charge of international cooperation.

Research Funding

Expenditure in 2015 by Funding Source

Total Expenditure: **14.584.673 €**



2015 EXPENDITURE

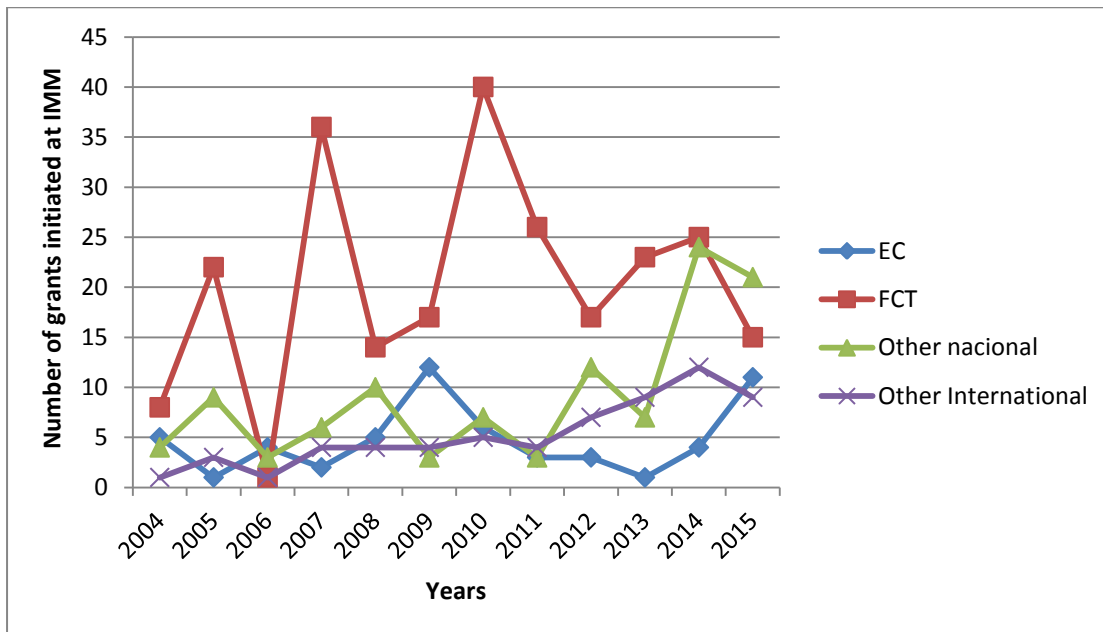
		(EUROS)
Institucional	Core	2.205.874
	Competitive	1.958.840
	Donations	118.932
	Services	408.655
		4.692.301
Research Labs	FCT Grants	1.549.625
	Other Nacional Grants	451.883
	EU Grants	3.353.419
	Other International Grants	1.019.679
	Awards	29.201
	Donations	247.476
	Services	65.552
	Work contracts FCT	1.332.385
	Fellowships FCT	1.843.151
		9.892.372
TOTAL		14.584.673

Number of Ongoing Research Grants in 2015

292 Research Grants:

- Public National FCT – 81
- Public Other National - others - 11
- Public European Commission - 25
- Public Other International - others - 4
- Private National – 127
 - of which, with the industry - 77
- Private International – 44
 - of which, with the industry -14

Number of Research Grants initiated at IMM from 2003 to 2015



Research Funding Initiated in 2015

Research Grants (56)

- European Commission – 11
- Other International – 9
- FCT – 15
- Other National - 21

Projects

Agency	Researcher	iMM Budget
Comissão Europeia	Diana Prata	100.000,00
Fundação para a Ciência e a Tecnologia, IP	Luis Graça	180.672,00
EMBO	Nuno Morais	150.000,00
Comissão Europeia	João Forjaz de Lacerda	1.547.895,00
Gilead Sciences, Lda	Ana Crist. Gomes Espada Sousa	20.000,00
Gilead Sciences, Lda	Ana Crist. Gomes Espada Sousa	20.000,00
Comissão Europeia	Miguel Rico Botas Castanho	463.500,00
Fundação para a Ciência e a Tecnologia, IP	Mamede Alves Carvalho	140.000,00
Joan Sanford I. Weill Medical College of	Nuno Santos	60.492,86
Amgen Inc.	Luís Costa	29.105,60
Comissão Europeia	Joaquim Ferreira	187.083,00
José de Mello Saúde S.G.P.S.	Maria Carmo Fonseca	12.500,00
Center of Molecular Immunology	Luis Graça	43.700,00
Liga Portuguesa Contra o Cancro	Ana Rita Fragoso	15.000,00
Comissão Europeia	Henrique Veiga Fernandes	2.270.000,00
Comissão Europeia	Bruno Silva Santos	2.000.000,00
Laço Associação de Solidariedade Social	Maria Carmo Fonseca	75.000,00
Comissão Europeia	Luis Graça	433.512,72
Comissão Europeia	Gonçalo Bernardes	741.939,79
Comissão Europeia	Joao Pedro Taborda Barata	1.988.125,00
Comissão Europeia	Gonçalo Bernardes	230.148,36
Fundação para a Ciência e a Tecnologia, IP	Luis Graça	27.000,00
Kenneth Rainin Foundation	Henrique Veiga Fernandes	90.818,27
PATH	Miguel Prudêncio	99.845,56
Fundação para a Ciência e a Tecnologia, IP	Luis Graça	200.000,00
Cytokinetics, Inc.	Mamede Alves Carvalho	6.000,00
Astrazeneca-Produtos Farmacêuticos	Bruno Silva Santos	6.000,00
Fundação para a Ciência e a Tecnologia, IP	Bruno Miguel Bernardes de Jesus	49.961,00
Fundação para a Ciência e a Tecnologia, IP	Diana Prata	50.000,00
Fundação para a Ciência e a Tecnologia, IP	Vanessa Morais	50.000,00
Fundação para a Ciência e a Tecnologia, IP	Nuno Morais	50.000,00
Fundação para a Ciência e a Tecnologia, IP	Simão José Teixeira da Rocha	50.000,00
Fundação para a Ciência e a Tecnologia, IP	Ana Rita Fialho Grosso	50.000,00
Fundação para a Ciência e a Tecnologia, IP	Luísa Figueiredo	46.000,00
Fundação para a Ciência e a Tecnologia, IP	Julie Ribot	50.000,00
Fundação para a Ciência e a Tecnologia, IP	Karine Serre	50.000,00
Instituto de Biologia Experimental e Tecnológica	Miguel Prudêncio	75.000,00

Protocols, Donations & Awards

Agency	Researcher	iMM Budget
PeproTech EC; BioLegend UK; Stemcell Technologies; Roche Sistemas de Diagnóstico; Fundação Luso Americana; Grupo Taper; FCT	Natacha Sousa	5.515,00
Courtesyland	Mamede Alves Carvalho	3.197,38
Fundação AstraZeneca	Catarina Vale	3.000,00
ALLERGAN, S.A.	Joaquim Ferreira	4.945,89
TOPPARTNER	Joaquim Ferreira	9.000,00
Sociedade Port. Reumatologia	João Eurico Fonseca	10.000,00
AIDFM	Maria Carmo Fonseca	1.000,00
Fundação Merck Sharp & Dohme	Joaquim Ferreira	6.000,00
Sociedade Portuguesa de Pediatria	Ricardo Fernandes	10.000,00
Janssen-Cilag Farmacêutica,Lda	Paulo Filipe	5.000,00
Università di Perugia	Maria Mota	56.000,00
Astrazeneca-Produtos Farmacêuticos	Sérgio Jerónimo Rodrigues Dias	8.000,00
Sociedade Port. Reumatologia	João Eurico Fonseca	5.000,00
Laço Associação de Solidariedade Social	iMM	44.011,36
Ricardo Miguel Ribeiro Marques Cunha Fernandes	Ricardo Fernandes	1.500,00
Sociedade Portuguesa do Acidente Vascular Cerebral	Diana Aguiar Sousa	1.500,00

Special Project

Agency	Researcher	iMM Budget
Fundação para a Ciência e a Tecnologia, IP - Integrado	iMM	2.910.485,00
Comissão Europeia- EXCELlence and INNOVation	iMM	2.777.183,75

iMM Applications and Secured Competitive Funding

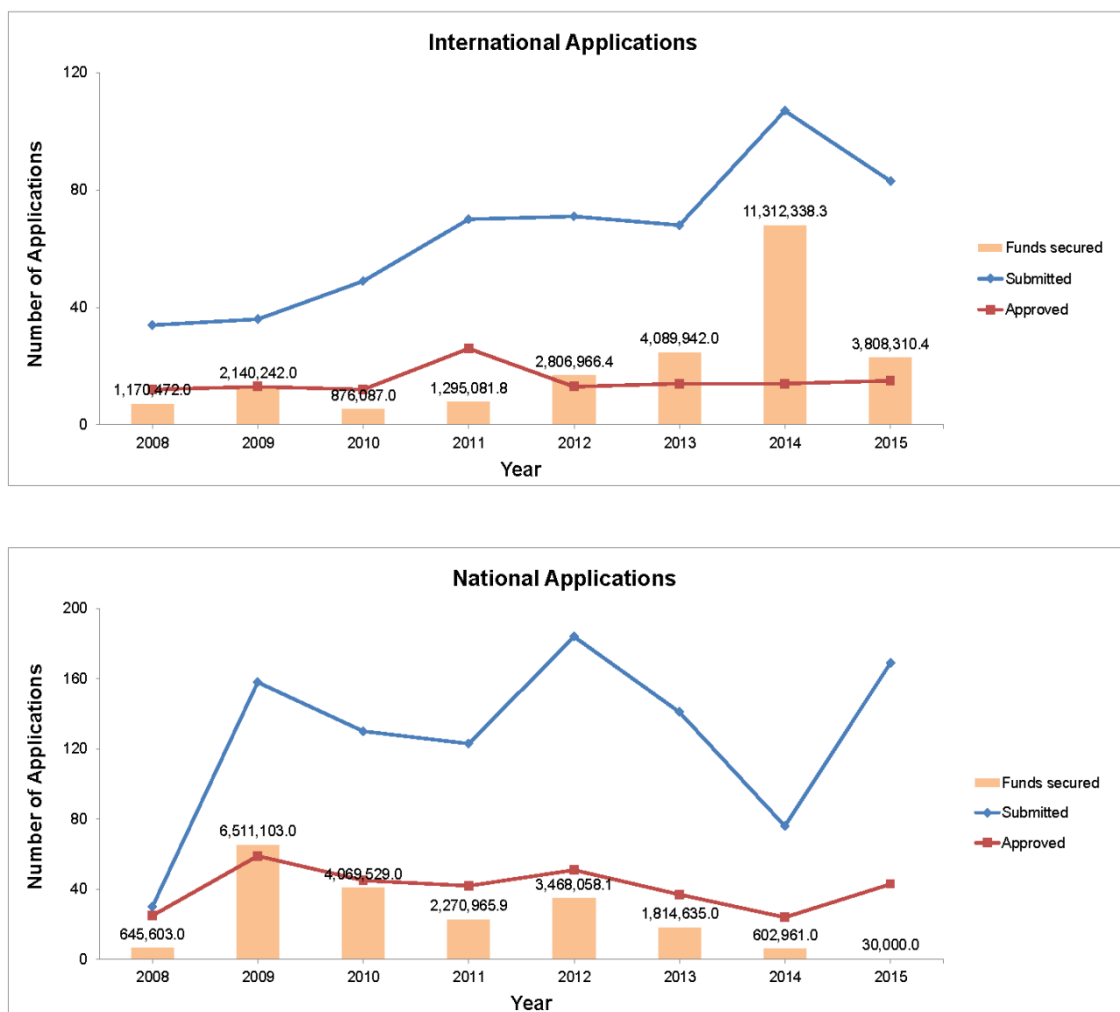


Figure 1. Submitted and approved applications, as well as total funds secured by iMM (in €) in international and national competitive funding schemes since 2008. The number of submitted applications corresponds to those effectively communicated to the Funding Programs Office. Secured funds per year correspond to the sum of the iMM budget of the approved applications submitted in the corresponding year (irrespectively to the starting year of the project). The total number of approved applications for 2015 corresponds to those with determined results by February 2016 (80.7% of the international applications; and 89.9% of the national applications). Accordingly, the secured funds for 2015 correspond that of the approved applications started until February 2016 (46.7% of approved international applications and 2.3% of approved national applications).

Funding Sources of iMM Applications

In 2015, iMM researchers and staff have submitted grants to the following funding schemes:

International	
Public	Private
Department of Defense (DOD) Congressionally Directed Medical Research Programs (CDMR)	Alzheimer's Association - New Investigator Research Grant (NIRG)
ERA-Net E-Rare	AXA Research Fund - Post-doctoral Fellowship
ERA-NET Infect-Era	Brain & Behavior Research Foundation – NARSAD Independent Investigator Grants
ERA-Net Neuron II	BirghtFocus Foundation
ERA-Net Transcan-2	Bristol Meyers Squibb – The Partnering for Cure Programme
European Cooperation in Science and Technology (COST)	Concern Foundation – The Conquer Cancer Now Award
European & Developing Countries Clinical Trials Partnership (EDCTP2)	European Calcified Tissue Society (ECTS) / Amgen Bone Biology Fellowship
European Food Safety Authority (EFSA)	European Foundation for the Study of Diabetes (EFSD) ad Sanofi Programme for Collaborative Clinical Diabetes Research between European and Non-European Countries
European Molecular Biology Organization (EMBO) Installation Grant	European Hematology Association (EHA) - Non-Clinical Advanced Research Fellowships
European Molecular Biology Organization (EMBO) Short-Term Fellowship	GlaxoSmithKline Discovery Fast Track Challenge
Horizon 2020 - European Research Council (ERC) Consolidator Grant	Institut Merieux – Mérieux Research Grants
Horizon 2020 - European Research Council (ERC) Proof of Concept Grant	International Foundation for Research in Paraplegia (IRP)
Horizon 2020 - European Research Council (ERC) Starting Grant	Leukemia Research Foundation – New Investigator Grants
Horizon 2020 – Future and Emerging Technologies (FETs)	Mizutani Foundation for Glycoscience
Horizon 2020 - Health, demographic change and wellbeing - Personalising Health and Care (PHC)	National Ataxia Foundation
Horizon 2020 – Leadership in Enabling and Industrial Technologies (LEITs) – Biotechnology (BIO)	The Association Française contre les Myopathies (AFM) Téléthon
Horizon 2020 - Leadership in enabling and industrial technologies (LEITs) - Information and Communications Technologies (ICT)	The Bill & Melinda Gates Foundation - New Interventions for Global Health
Horizon 2020 - Marie-Sklodowska-Curie Actions - Individual Fellowships (IF)	Morton Cure Paralysis Fund
Horizon 2020 - Marie-Sklodowska-Curie Actions - Innovative Training Networks (ITN)	
Horizon 2020 - Marie-Sklodowska-Curie Actions - Research and Innovation Staff Exchange (RISE)	

Horizon 2020 - Spreading Excellence and Widening Participation - Twinning
INTERREG SUDOE V
National Institutes of Health – Exploratory/ Developmental Research Grant Award (R21)
National Institutes of Health – Research Project Grant Program (R01)

National	
Public	Private
Autoridade para as Condições do Trabalho (ACT) – Programa Operacional de Apoio à Promoção da Segurança e Saúde no Trabalho (PROAP)	AstraZeneca / Faculdade de Medicina, Universidade de Lisboa - Bolsa de Investigação Fundação AstraZeneca / Faculdade de Medicina da Universidade de Lisboa
Fundação Para a Ciência e Tecnologia (FCT) - 2014 Call for SR&TD Project Grants	Fundação Gonçalo Silveira
Fundação Para a Ciência e Tecnologia (FCT) – FCT Investigator Programme	Gilead – Programa Gilead GÉNESE
Fundação Para a Ciência e Tecnologia (FCT) - Scientific Community Support Programme (FACC)	José de Mello Saúde – Bolsa D. Manuel de Mello
INFARMED – Fundo para a Investigação em Saúde	Santa Casa da Misericórdia de Lisboa – Prémios Santa Casa Neurociências: Prémio Mantero Belard
POR Lisboa – QREN: Sistema de Apoio a Infraestruturas Científicas e Tecnológicas	Sociedade das Ciências Médicas de Lisboa (SCML) / Laboratórios Pfizer – Prémios de Investigação Pfizer
PORLisboa2020 – Portugal 2020: SI/11/2015: Sistema de Incentivos à Investigação e Desenvolvimento Tecnológico (SI I&DT) – Internacionalização I&D	Sociedade Portuguesa do Acidente Vascular Cerebral - Bolsa de Investigação em Doenças Vasculares Cerebrais
Projectos conjuntos de Investigação Científica e Desenvolvimento Tecnológico – TÛBITAK	

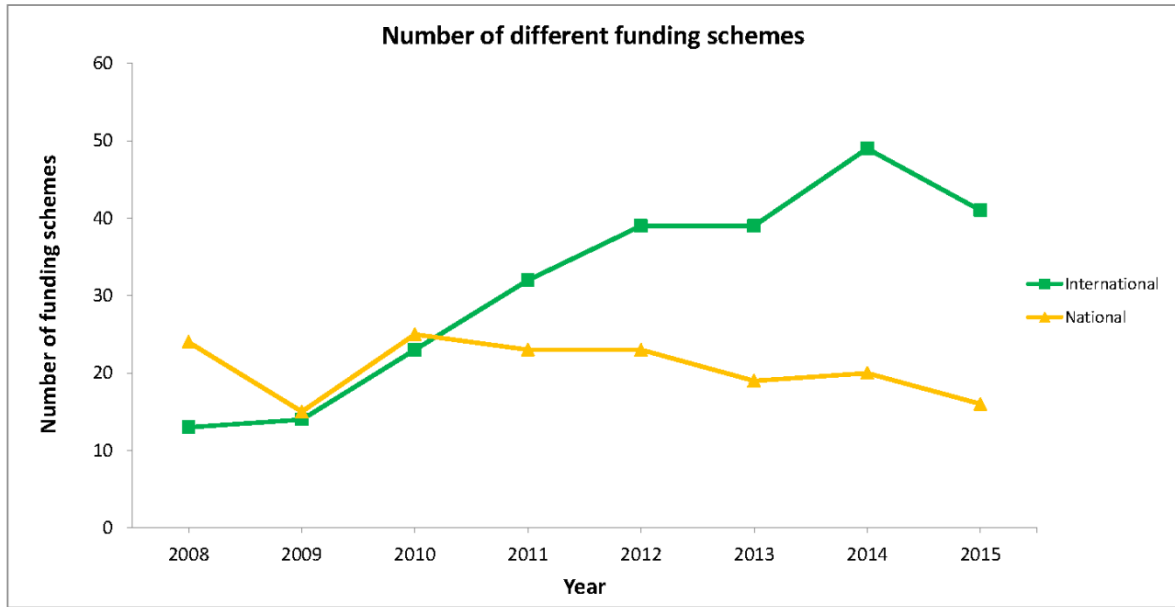


Figure 2. Diversity of international and national funding schemes with known submitted applications by IMM researchers since 2008.

2015 iMM Activities Highlights

People 2015

		2014	2015
Researchers		496	536
	PhD researchers	202	195
	PhD Students	82	89
	M.Sc Students	85	94
	Master	61	84
	Graduate	56	54
	Other	10	20
Technical staff		97	86
	PhDstaff	7	6
	Master	29	26
	Graduate	44	38
	Other	17	16
Administrative staff		24	29
	PhD staff	3	6
	Master	2	3
	Graduate	14	15
	Other	5	5
Total		617	651

Selection of Prizes and Awards

- A. **European Research Council (ERC) Consolidator Grants** - Bruno Silva-Santos, Henrique Veiga-Fernandes, João Barata
- B. **European Research Council (ERC) Starting Grants** - Vanessa Morais, Cláudio Franco
- C. **Horizon 2020 – Health Project** - Joaquim Ferreira (Participant)
- D. **Horizon 2020 – ITN – Innovative Training Network** - Gonçalo Bernardes (Coordinator), Ana E. Sousa, Luis Graça, Gonçalo Bernardes (Participant)
- E. **Horizon 2020 – ERA Chair Project** - Maria Mota (Coordinator)
- F. **Horizon 2020 – Twinning** - Maria Mota, Edgar Gomes, Ana Sebastião (Coordinator)
- G. **Teaming Project**, with the participation of iMM Lisboa in this project coordinated by the University of Minho.

H. European Food Safety Authority (EFSA) Project – João Carriço (Participant)

- I. **INFARMED** - Scientific Area Oncobiology –Julie Ribot / Scientific Area Cerebrovascular Diseases – Ana Catarina Fonseca
- J. **Fundo iMM-Laço** – A Caminho da Cura
- K. **Programa Gilead GÉNESE** - Helena Cabaço
- L. **LPCC-NRS-Terry Fox 2015/2016** - Ana Rita Fragoso
- M. **Horizon 2020 – Proof of Concept** – Edgar Gomes

Productivity at a glance

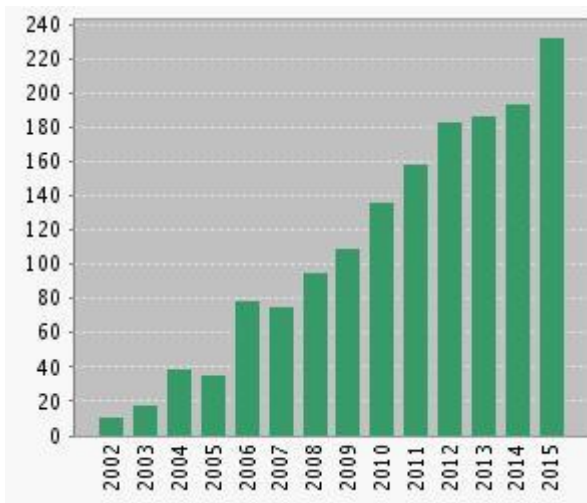
Publications International Journals	232
...in journals with an impact factor higher than 10	11
...in journals with an impact factor between 5 – 10	56
Other publications	83
Communications in International Conferences	247
Communications in National Conferences	243
Seminars and Invited Lectures	271
Organization of Conferences	243
Prizes	72
PhD Theses	14
Master Theses	68

iMM Publications in International Journals

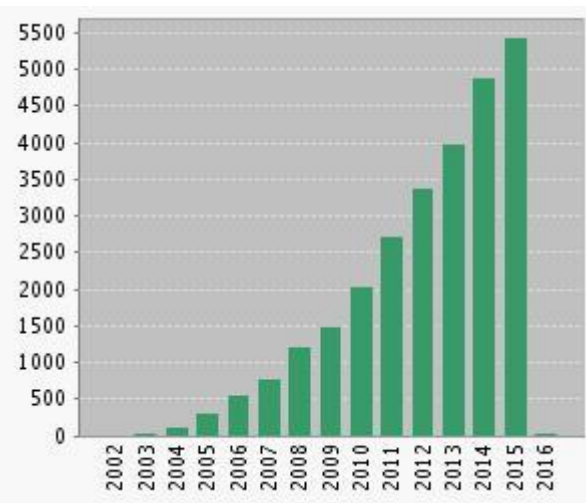
Citation Report

(Source: Web of Science™)

Published papers in each year



Citations in each year



232 papers in 2015

1.556 since 2002

Sum of the Times Cited: **27059**

Average Citations per Item: **17.39**

h-index : **69**

Query: AD=(Inst Med Mol SAME Portugal) OR AD=(Mol Med Inst SAME Portugal) OR AD=(Inst Mol Med SAME Portugal)

Refined by: (Excluding) Document Type=(REVIEW OR EDITORIAL OR CORRECTION OR ABSTRACT OR MEETING OR BOOK)

All Databases

Note: This data is based on the information available on the Web of Science; hence it is not an exhaustive analysis of iMM publications

10 Most Cited Articles 2002-2015

Healy, Daniel G.; Falchi, Mario; O'Sullivan, Sean S.; et al. (2008), Phenotype, genotype, and worldwide genetic penetrance of LRRK2-associated Parkinson's disease: a case-control study. *LANCET NEUROLOGY*. **7** (7) 583-590 (Citation: 435) (Journal IF: 21.896)

Henry, David H.; Costa, Luis; Goldwasser, Francois; et al. (2011) Randomized, Double-Blind Study of Denosumab Versus Zoledronic Acid in the Treatment of Bone Metastases in Patients With Advanced Cancer (Excluding Breast and Prostate Cancer) or Multiple Myeloma. *JOURNAL OF CLINICAL ONCOLOGY*. **29** (9) 1125-1132 (Citation: 337) (Journal IF: 18.443)

Sousa, AE; Carneiro, J; Meier-Schellersheim, M; et al. (2002) CD4 T cell depletion is linked directly to immune activation in the pathogenesis of HIV-1 and HIV-2 but only indirectly to the viral load. *JOURNAL OF IMMUNOLOGY*. **169** (6) 3400-3406 (Citation: 311) (Journal IF: 4.922)

Duarte, A; Hirashima, M; Benedito, R; et al. (2004) Dosage-sensitive requirement for mouse D114 in artery development. *GENES & DEVELOPMENT*. **18** (20) 2474-2478 (Citation: 297) (Journal IF: 10.798)

Di Fonzo, A; Rohe, CF; Ferreira, RJ; et al. (2005) A frequent LRRK2 gene mutation associated with autosomal dominant Parkinson's disease. *LANCET*. **365** (9457) 412-415 (Citation: 289) (Journal IF: 45.217)

Ostrowski, M; Carmo, NB; Krumeich, S; et al. (2010) Rab27a and Rab27b control different steps of the exosome secretion pathway. *NATURE CELL BIOLOGY*. **12** (1) 19-30 (Citation: 270) (Journal IF: 19.679)

Hansen, C; Angot, E; Bergström, AL; et al. (2011) α -Synuclein propagates from mouse brain to grafted dopaminergic neurons and seeds aggregation in cultured human cells. *JOURNAL OF CLINICAL INVESTIGATION*. **121** (2) 715-725 (Citation: 243) (Journal IF: 13.262)

Pamplona, A; Ferreira, A; Balla, J; et al. (2007) Heme oxygenase-1 and carbon monoxide suppress the pathogenesis of experimental cerebral malaria. *NATURE MEDICINE*. **13** (6) 703-710 (Citation: 240) (Journal IF: 28.223)

Robinson, MJ; Osorio, F; Rosas, M; et al. (2009) Dectin-2 is a Syk-coupled pattern recognition receptor crucial for Th17 responses to fungal infection. *JOURNAL OF EXPERIMENTAL MEDICINE*. **206** (9) 2037-2051 (Citation: 211) (Journal IF: 12.515)

Ribot, JC; deBarros, A; Pang, DJ; et al. (2009) CD27 is a thymic determinant of the balance between interferon-gamma- and interleukin 17-producing gammadelta T cell subsets. *NATURE IMMUNOLOGY*. **10** (4) 427-436 (Citation: 202) (Journal IF: 20.004)

Most Relevant Papers 2015 (Journal IF>10)

Nojima T, Gomes T, Grosso AR, Kimura H, Dye MJ, Dhir S, Carmo-Fonseca M, Proudfoot N. (2015) Mammalian NET-seq reveals genome-wide nascent transcription coupled to RNA processing. *Cell* **161**:526-540. (Journal IF: 32.242, Citations: 8)

Ferreira JJ, Lees A, Rocha JF, Poewe W, Rascol O, Soares-da-Silva P; Bi-Park 1 investigators. (2015) Opicapone as an adjunct to levodopa in patients with Parkinson's disease and end-of-dose motor fluctuations: a randomised, double-blind, controlled trial. *Lancet Neurol* doi: 10.1016/S1474-4422(15)00336-1. (Journal IF: 21.896, Citations: 1)

Freischmidt A, Wieland T, Richter B, Ruf W, Schaeffer V, Muller K, Marroquin N, Nordin F, Hubers A, Weydt P, Pinto S, Press R, Millicamps S, Molko N, Bernard E, Desnuelle C, Soriani M-H, Dorst J, Graf E, Nordstrom U, Feiler MS, Putz S, Boeckers TM, Meyer T, Winkler AS, Winkelmann J, de Carvalho M, Thal DR, Otto M, Brannstrom T, Volk AE, Kursula P, Danzer KM, Lichtner P, Dikic I, Meitinger T, Ludolph AC, Strom TM, Andersen PM, Weishaupt J. (2015) Haploinsufficiency of TBK1 causes familial amyotrophic lateral sclerosis and fronto-temporal dementia. *Nat Neurosci* **18**:631-636. (Journal IF: 14.976, Citations: 0)

Herman JD, Pepper LR, Cortese JF, Estiu G, Galinsky K, Zuzarte-Luis V, Derbyshire ER, Ribacke U, Lukens AK, Santos SA, Patel V, Clish CB, Sullivan Jr WJ, Huihao Zhou, Selina E. Bopp, Paul Schimmel, Susan Lindquist, Jon Clardy, Mota MM, Keller TL, Whitman M, Wiest O, Wirth DF, Mazitschek R. (2015) The cytoplasmic prolyl-tRNA synthetase of the malaria parasite is a dual-stage target of febrifugine and its analogs. *Sci Transl Med* **7**:288ra77. doi: 10.1126/scitranslmed.aaa3575. (Journal IF: 14.41, Citations: 0)

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Seminars & Workshops

iMM Internal Seminar

14-01-2015

"When stress messes up memory - can we revert it back?"

Luisa Lopes, Head of Lab

11-02-2015

"T cell differentiation and tumor targeting"

Bruno Silva – Santos, Head of Lab

11-03-2015

"Chemistry on proteins and cells"

Gonçalo Bernardes, Head of Lab

25-03-2015

"How a Master student becomes first author of a Cell paper"

Maria Carmo – Fonseca, Head of Lab

08-04-2015

"Streptococcus pneumoniae phenotypes: Melting pot or segregated populations?"

Mário Ramirez, Head of lab

22-04-2015

"R-loops: A Dr Jekyll and Mr Hyde tale that threatens genome stability"

Sérgio de Almeida, Head of Lab

06-05-2015

"Genetics of ulcers from top to bottom"

Sofia Oliveira, Head of Lab

20-05-2015

"The power of rethinking methodologies: the case of the action of antibacterial agents studied by time-resolved flow cytometry"

Miguel Castanho, Head of Lab

24-06-2015

"Mechanisms of nuclear positioning during cell migration and muscle formation"

Edgar Gomes, Head of Lab

08-07-2015

"Human erythrocyte nitric oxide in healthy and disease"

Carlota Saldanha, Head of Lab

14-10-2015

"Uncovering strategies of the immune system to deal with HIV infection"

Ana E. Sousa, Head of Lab

28-10-2015

"Strategies of parasitism: antigenic variation and beyond"
Luisa Figueiredo, Head of Lab

14-11-2015

"Bridging the regeneration gap: insights from the zebrafish"
Leonor Saúde, Head of Lab

25-11-2015

"A mechanism to position nuclei at the periphery of skeletal muscle"
Edgar Gomes, Head of Lab

09-12-2015

"The role of Notch signaling in the regulation of retinal neurogenesis"
Domingos Henriques, Head of Lab

Neuroscience Seminar

05-01-2015

"Influence of BDNF on the effect of amyloid-beta peptide upon calcium signaling in rat cortical primary astrocytes."
Pedro Avelar, Master student
Ana Sebastião Lab

12-01-2015

"mGluR5-mediated calcium signaling in rat primary astrocytes: modulation by adenosine A1 and A2A receptors."
Haíssa de Castro, Master student
Ana Sebastião Lab

19-01-2015

"Exploring the modulatory role of A2A receptors in oligodendrogenesis derived from neural stem/progenitor cells of the subventricular zone"
Ana Moreira, Master student
Ana Sebastião Lab

26-01-2015

"Unveiling the role of A2A receptors on neurogenesis induced by activation of cannabinoid receptors in rat stem/progenitor cell cultures"
Rui Rodrigues, Master student
Ana Sebastião Lab

02-02-2015

"Functional and molecular characterization of adenosine receptors on an age-dependent epilepsy model."
Mariana Oliveira, PhD student
Ana Sebastião Lab

09-02-2015

"Study the function of the newly discovered TrkB receptor fragment (TrkB-ICD) formed by calpain cleavage."

João Gomes, Master student
Ana Sebastião Lab

23-02-2015

"Exploring the glycine effect upon ATP-induced intracellular calcium transients in rat cortical astrocytes."

Tatiana Morais, Master student
Ana Sebastião Lab

02-03-2015

"Neurogenesis in the postnatal brain: the role of adenosine A2A receptors."

Filipa Ribeiro, PhD student
Ana Sebastião Lab

09-03-2015

"Impact of in vivo administration of adenosine on BDNF-mediated signaling in Rett Syndrome."

Catarina Lourenço, Master Student
Ana Sebastião Lab

16-03-2015

"Astrocytes, gliotransmitters and BDNF: working together to shape synaptic plasticity? "

Sandra H. Vaz, PhD
Ana Sebastião Lab

16-03-2015

"Astrocytes, gliotransmitters and BDNF: working together to shape synaptic plasticity? "

Sandra H. Vaz, PhD
Ana Sebastião Lab

23-03-2015

"Deciphering the mechanisms underlying the loss of BDNF neuroprotection in an Alzheimer's Disease model"

Sara Tanqueiro, Master student
Ana Sebastião Lab

13-04-2015

"The potential neuroprotective action of Kyotorphin-derivatives in an Alzheimer's Disease rat model."

Margarida Martins, Master student
Ana Sebastião Lab, and Miguel Castanho Lab

20-04-2015

"A toolbox for wiring Drosophila's brain."

Tiago Rodrigues, Medical student
Ana Sebastião Lab

27-04-2015

"Targeting selected synapses to develop new antiepileptic drugs with minimal side effects."

Cátia Domingos, Master student

Ana Sebastião Lab

04-05-2015

"Exploring the impact of murine T cell subsets on physiological aspects of brain function."

Miguel Ribeiro, Master student

Bruno Silva-Santos Lab

11-05-2015

"A2AR overexpression and synaptic transmission."

Mariana Ferreira, PhD Student

Luisa Lopes Lab

18-05-2015

"Avanços e retrocessos no diagnóstico e terapêutica da doença de Alzheimer."

Alexandre de Mendonça MD, PhD

José Ferro Lab

01-06-2015

"Contribution of different cellular subsets to the adenosine A2A receptor overexpression in the rat brain."

Inês Morgado, Master student

Ana Sebastiao Lab

08-06-2015

"On the variability of temporal discounting: motivational confounds, costs of delay, cultural effects, and time perception."

Fabio Paglieri, PhD

Istituto di Scienze e Tecnologie della Cognizione, CNR Roma, Italy

15-06-2015

"Targeting selected synapses to develop new antiepileptic drugs with minimal side effects"

Cátia Domingos, Master Student

Ana Sebastião Lab

22-06-2015

"Understanding and controlling astroglia for neural repair."

Federico Herrera

Investigador FCT, ITQB

29-06-2015

"Tackling S100B in Multiple Sclerosis"

Adelaide Fernandes iMedLisboa

06-07-2015

"Cannabinoid induced memory impairments are prevented by chronic and acute adenosine A2AR blockade in a novel object recognition paradigm"

Francisco Mouro
Ana Sebastião Lab

13-07-2015

"Neuromolecular mechanisms of social learning in zebrafish."

Júlia Pinho
Instituto Gulbenkian de Ciência and ISPA-Instituto Universitário

07-09-2015

"Unveiling the role of A2A receptors on neurogenesis induced by activation of cannabinoid receptors in rat SVZ and DG stem/progenitor cell cultures"

Rui Rodrigues, Master student
Ana Sebastião Lab

14-09-2015

"Characterization of neuromodulatory dysfunction in Amyotrophic Lateral Sclerosis (ALS)."

Nádia Rei , PhD student
Ana Sebastião Lab

21-09-2015

"Role of a bile acid in improving survival and function of neural stem cells"

Rita Soares, Master Student in Biomedical Engineering
Cellular Function and Therapeutic Targeting; imed.ulisboa

28-09-2015

"Adenosine A2A receptor: a promising target in synucleinopathies?"

Diana Ferreira, PhD Student
Luisa Lopes Lab

05-10-2015

"Cortico-hippocampal interactions as a neural substrate for the retrieval of contextual memories in choice behavior"

Emanuel Ferreira Fernandes, PhD Student
Miguel Remondes Lab

12-10-2015

"Exploring the modulatory role of A2A receptors in oligodendrogenesis derived from neural stem/progenitor cells of the subventricular zone"

Ana Moreira, Master Student
Ana Sebastião Lab

19-10-2015

"The interaction of A1R signalling with CB1R in hippocampal pyramidal cells"

Armando Cruz PhD Student
Ana Sebastião Lab

26-10-2015

"Synaptic Dysfunction In Early Encephalopathies: From Genes to Function"
Sofia Duarte, PhD Student
Ana Sebastião Lab and Domingos Henrique Lab

02-11-2015

"Inhibition of extrasynaptic NMDA receptors restores BDNF function"
Rita Ramalho, PhD
Ana Sebastião Lab

09-11-2015

"Erythropoietin: shaping synapses to keep them talking"
Raquel Dias, PhD
Ana Sebastião Lab

16-11-2015

"Design, synthesis and evaluation of new potentials A2A antagonists"
Romain Duroux, PhD Student
"Onco and NeuroChemistry", Jean-Pierre Aubert Research Center UMR-S1172, Faculty of
Pharmaceutical and Biological Sciences, University of Lille

23-11-2015

"Study the function of the newly discovered TrkB receptor fragment (TrkB-ICD) formed by calpain
cleavage"
João Gomes, Master Student
Ana Sebastião Lab

30-11-2015

"Glycation in Neurodegenerative diseases: Sweeter can be bitter"
Hugo Miranda, PhD
Luisa Lopes Lab

07-12-2015

"Glycine receptor in rat cortical astrocytes: expression and function"
Tatiana Morais, Master student
Ana Sebastião Lab

14-12-2015

"Blood-brain barrier: a new player in neonatal and ageing-associated brain disorders"
Alexandra Brito, PhD
iMed.Ulisboa, Faculdade de Farmácia/ULisboa

Monday Lectures

05-01-2015

News from the RNA world
Maria Carmo-Fonseca
Head of Lab

12-01-2015

"Molecular genetics of T-cell acute lymphoblastic leukemia"

Jan Cools, PhD

Vlaams Instituut voor Biotechnologie (VIB) Center for the Biology of the Disease, Belgium

Host: João Barata

19-01-2015

"Early stages of paramyxovirus entry"

Matteo Porotto, PhD

Cornell University New York, USA

Host: Nuno santos

26-01-2015

"Cell and tissue mechanics in zebrafish gastrulation"

Carl Philipp Heisenberg, PhD

Institute of Science and Technology Austria

Host: Leonor Saúde

02-02-2015

"Thymic Epithelial Cell Differentiation and Function: The foundation of Immunity and Tolerance induction"

Nuno Alves, PhD

Instituto de Biologia Molecular e Celular, Portugal

Host: Henrique Veiga-Fernandes

09-02-2015

"Bacteria, their genomes, and the limits of the microbiome"

Bill Hanage, PhD

Harvard T. H. Chan School of Public Health, USA

Host: João Carriço

16-02-2015

"Genetics of Psychosis; recent developments"

Evangelos Vassos, PhD

King's College London, IoPPN, London, UK

Host: Diana Prata

23-02-2015

"Immune Reconstitution after Allogeneic Stem Cell Transplantation – How to Improve Clinical Outcomes."

Jerome Ritz, MD

Dana-Farber Cancer Institute, USA

Host: João Lacerda

02-03-2015

"A driver pathway for establishing ovarian cancer cells at the metastatic niche"

Ahmed Ashour Ahmed, MD, PhD

University of Oxford - Oxford - United Kingdom

Host: Nuno Morais

09-03-2015

"The mammalian circadian timing system: how does the brain talk to peripheral organs?"

JUeli Schibler, PhD

University of Geneva - Geneva - Switzerland

Host: Luísa Figueiredo

16-03-2015

"Common mechanisms for the development of Innate Lymphocytes"

Albert Bendelac, MD PhD

University of Chicago - Chicago - USA

Host: Henrique Veiga - Fernandes

23-03-2015

"Collective cell migration: an emergent property"

Roberto Mayor, PhD

University College London

Host: Leonor Saúde

30-03-2015

"Surviving pluripotency: Understanding how cellular fitness is monitored during early embryonic development"

Tristan Rodriguez, PhD

Imperial College London UK

Host: Domingos Henrique

06-04-2015

"Roles of the PD-1 pathway in humoral and tumor immunity"

Arlene Sharpe, PhD

Harvard Medical School, Boston, USA

Host: Luís Graça

13-04-2015

"Cancer inflammation: a double-edged sword"

Max Mazzone, PhD

Vesalius Research Center - Leuven - Belgium

Host: Cláudio Franco

20-04-2015

"New insights in spondyloarthritis: gut, microbes and stress"

Dirk Elewaut, PhD

Gent University - Gent - Belgium

Host: João Eurico-Fonseca

27-04-2015

"Neuroinflammation in Parkinson's disease: beyond innate immune responses"

Stephane Hunot, PhD

Hôpital Pitié- Salpêtrière - Paris - France

Host: Luisa Lopes

04-05-2015

"Neuron-glia metabolic coupling : Role in neuronal plasticity and functional imaging"

Pierre Magistretti, PhD

École polytechnique fédérale de Lausanne - Lausanne - Switzerland

Host: Ana Sebastião

11-05-2015

"Symmetry breaking and pattern formation in ensembles of mouse ES cells"

Alfonso Martinez-Arias, PhD

Dept Genetics, Cambridge, UK

Host: Domingos Henrique

18-05-2015

"The nature of chemistry publishing"

Dr. Stuart Cantril

Chief Editor of Nature Chemistry

Host: Gonçalo Bernardes

25-05-2015

"Layers of regulation and windows of opportunity in autoimmunity"

Jocelyne Demengeot, PhD

Instituto Gulbenkian de Ciência

Host: Luís Graça

01-06-2015

"Non-coding RNA in cancer - a role for small RNA host genes"

Anders H. Lund, PhD

Biotech Research and Innovation Centre, University of Copenhagen, Denmark

Host: Marina Ferreira Costa

08-06-2015

"Opening the endothelium: VEGF and inflammatory signalling at blood-neural barriers"

Patric Turowski, PhD

UCL Institute of Ophthalmology - University College London

Host: Ana Luisa Ferro Magalhães

15-06-2015

"The Emerging Molecular Lingua Franca of Tissue - T cell interactions"

Adrian Hayday, PhD

Cancer Research UK - United Kingdom

Host: Bruno Silva-Santos

22-06-2015

"Gut Microbiota Confers Protection Against Malaria"

Miguel P. Soares, PhD

Instituto Gulbenkian de Ciência, Oeiras, Portugal

Host: Domingos Henrique

29-06-2015

“Mechanics of the contractile ring during cytokinesis”

Ana Carvalho, PhD

Institute for Molecular and Cell Biology - IBMC

Host: Edgar Gomes

06-07-2015

“Manipulation of Bacterial Quorum Sensing Affects the Antibiotic-Treated Gut Microbiota”

Karina Xavier, PhD

Instituto Gulbenkian de Ciência, Oeiras, Portugal

Host: Luisa Figueiredo

13-07-2015

"Generation and engineering of very specific monoclonal antibodies from immune and naïve repertoires: the journey and services around"

Maria Pajuelo, PhD

Fairjourney Biologics, Porto - Portugal

Host: Maria Mota

14-09-2015

“Defining transcription units across the human genome”

Nick Proudfoot, PhD

University of Oxford

Host: Maria Carmo-Fonseca

21-09-2015

“Sensing and responding to DNA damage: new roles for a chromatin remodeller and a kinesin”

Noel Lowndes, PhD

National University of Ireland - Galway, Ireland

Host: Maria Carmo-Fonseca

28-09-2015

“The nuclear envelope and LINC to human disease”

Brian Burke, PhD

Institute of Medical Biology, Singapore

Host: Edgar Gomes

05-10-2015

“Visualization and evolution of developmental enhancers”

Mike Levine, PhD

University of Berkeley, USA

Host: Leonor Saúde

12-10-2015

“Telomere transcription at the crossroads between cancer and aging”

Claus Azzalin, PhD

Institut für Biochemie, Switzerland

Host: Bruno Silva-Santos

19-10-2015

"Nano-Patterned Liposomes for Targeted Delivery to different tissues"

Jayakumar Rajadas, PhD

Stanford School of Medicine, USA

Host: Miguel Castanho

26-10-2015

"Discovery and utilization of novel antimicrobial peptides for develop pharmacies and biomedical devices"

Octavio Franco, PhD

Catholic University of Brasilia, Brazil

Host: Nuno Santos

02-11-2015

"Mechanism of Matrix Metalloproteinase secretion during breast tumor cell invasion"

Phillipe Chavrier, PhD

Centre National de la Recherche Scientifique, France

Host: Edgar Gomes

09-11-2015

"Dissecting the clinical heterogeneity of a Mendelian disorder: Genetic modifiers of sickle cell anemia"

João Lavinha, PhD

Instituto Nacional de Saúde Doutor Ricardo Jorge, Lisboa

Host: Carlota Saldanha

16-11-2015

"Life cycle differentiation control in African trypanosomes"

Keith Mattews, PhD

University of Edinburgh

Host: Luisa Figueiredo

23-11-2015

"The stress neuromatrix"

Nuno Sousa, MD PhD

Full Professor and group leader at ICVS/ University of Minho.

Host: Bruno Silva-Santos

30-11-2015

"The link between angiogenesis and endothelial metabolism"

Michael Potente, PhD

Max-Planck-Gesellschaft

Host: Cláudio Franco

14-12-2015

"Ex-vivo Expansion of Human Stem/Progenitor Cells for Cellular Therapies"

Cláudia Lobato, PhD

Assistant Professor, Department of Bioengineering, Instituto Superior Técnico, Portugal

Host: Domingos Henriqu

13-01-2015

"Road to in vitro production of Plasmodium berghei sporozoites"

Marija Markovic, Post-doc

Miguel Prudêncio Lab

27-01-2015

"Drug Resistant Malaria and the Importance of Sensitivity Testing"

Maria Rebelo, PhD student

Instituto de Microbiologia

10-02-2015

"It's a Trend! Trypanosomes in Motion to Adipose Tissue!"

Sandra Trindade, Post-doc

Luísa Figueiredo Lab

24-02-2015

"To liver or not to liver: relevance of methionine metabolism for Plasmodium replication."

Vanessa Zuzarte-Luís, Post-doc

Maria Mota Lab

24-03-2015

TBA

Fabien Guegan, Pós-Doc

Luísa Figueiredo Lab

31-03-2015

"Gamma-Interferon in Plasmodium infection: A new role for an old player "

Ângelo Chora, Post-doc

Maria Mota Lab

07-04-2015

"A wall against the host: how Plasmodium parasites survive the anti-microbial defenses of hepatocytes during liver infection"

Eliana Real, Post-doc

Maria Mota Lab

21-04-2015

"Malaria sweetness: Plasmodium falciparum protein glycosylation"

Eleonora Aquilini, Post-doc

Luísa Figueiredo Lab

28-04-2015

“Clock parasites: where circadian rhythm meets malaria parasites”

Inês Bento, Post-doc

Maria Mota Lab

05-05-2015

“Signaling pathways for rhoptry release during erythrocyte invasion by malaria parasites”

Aditi Alaganan, Post-doc

Institut Pasteur, Chetan Chitnis Lab

19-05-2015

“Inhibition of Plasmodium liver infection by amino acid supplementation and modulation of polyamine synthesis”

Patrícia Meireles, PhD student

Miguel Prudêncio Lab

26-05-2015

“Unveiling the parasitophorous vacuole membrane: the host-parasite interface of malaria infection”

Sonali Setua, Post-Doc

Maria Mota Lab

02-06-2015

“Protein N-glycosylation in African Trypanosomes: How is it regulated and what role does it play in the parasite immune evasion?”

Miguel Ferreira, Post-doc

Luísa Figueiredo Lab

08-06-2015

“Liver and Blood stages of Malaria: much more than just subsequent steps”

Márcia Medeiros, Post-Doc

Maria Mota Lab

23-06-2015

“Chemical probes to uncover novel glycosyltransferases from Trypanosoma brucei”

Jessica Bevan, PhD Student

Luisa Figueiredo Lab

30-06-2015

“Malaria parasite virulence regulated by nutrient sensing”

Liliana Mâncio Silva, Post-doc

Maria Mota Lab

07-07-2015

“Revealing the UIS4 protein interacting network and its role during the Malaria liver-stage infection “

Viriato M'Bana, PhD student

Maria Mota Lab

08-09-2015

“Characterizing Iron Transporters in Plasmodium species”

Aparajita Lahree, MSc Student

Maria Mota Lab

15-09-2015

“GLUT1-mediated glucose uptake during Plasmodium hepatic infection”

Patrícia Meireles, PhD Student

Miguel Prudêncio Lab

13-09-2015

“Blood stage effects on liver stage: implications for malaria sterile immunity”

Márcia Melo Medeiros, PhD

Maria Mota Lab

06-10-2015

“The Hemozoin Assay - an alternative method to detect artemisinin resistance?”

Maria Rebelo , PhD Student

Mário Ramirez Lab

13-10-2015

“Role of long non-coding RNAs in T. brucei differentiation”

Fábio Bento , Master Student

Luísa Figueiredo Lab

20-10-2015

“Consequences of Trypanosoma brucei accumulation in Adipose Tissue”

Sandra Trindade, PhD

Luísa Figueiredo Lab

27-10-2015

"Clock parasites: where circadian rhythm finds malaria"

Inês Bento, PhD

Maria Mota Lab, iMM Lisboa

10-11-2015

“Plasmodium and host Microbiota: Friend or Foe?”

Debanjan Mukherjee, PhD Student

Maria Mota Lab

17-11-2016

"From methylation to antigenic variation in *Trypanosoma brucei*"

Idálio Viegas, PhD Student

Luisa Figueiredo Lab

24-11-2015

"How Plasmodium parasites avoid elimination by autophagy during the liver stage"

Lénia Rodrigues, Post-Doc

Maria Mota Lab

01-12-2015

"Role of histone H1 in chromatin and gene expression in the African trypanosome: broad skills, specific functions?"

Ana Pena, PhD Student

Luisa Figueiredo Lab

15-12-2015

"Legionella pneumophila subversion of host cell actin dynamics and vesicle trafficking: the role of VipA"

Irina Franco, PhD

UCIBIO-Requimte, Departamento de Ciências da Vida, Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa

Pizza Seminar

06-01-2015

"Role of Retinoic acid in ILC development"

Silvia Arroz Madeira , PhD student

Henrique Veiga-Fernandes Lab

"Mum's diet affects our adult health: the role of dietary retinoids on immune cells development"

Manuela Ferreira, Post-Doc

Henrique Veiga-Fernandes Lab

20-01-2015

"NFIL3 orchestrates the emergence of common helper innate lymphoid cell precursors"

Rita Domingues , PhD Student

Henrique Veiga-Fernandes Lab

"Transcription-coupled RNA surveillance in human genetic diseases"

Rita Drago Lab, PhD Student

Maria Carmo-Fonseca Lab

03-02-2015

"Mental healthiness and citizenship promotion-Use of psychotherapeutic techniques resorting to guided imagery"

Paula Molarinho , PhD Student

Hospital de Santa Maria

"LDL-cholesterol and endothelial permeability"

Ana Magalhães, Post-Doc

Sérgio Dias Lab

03-03-2015

"Herpesvirus modulation of immunological synapses"

Diana Fontinha, PhD Student

Pedro Simas Lab

Cancelled

Raquel Filipa Reis de Freitas, PhD Student

Luís Graça Lab

17-03-2015

TBA

João Vieira, PhD Student

Maria Mota Lab

"Living in the liver: the role of host methionine metabolism in Plasmodium development."

Vanessa Zuzarte-Luís, Post-doc

Maria Mota Lab

31-03-2015

"Kyotorphin in the crossroads of analgesia and anti-inflammation"

Juliana Perazzo, PhD Student

Miguel castanho Lab

Cancelled

Padma Akkapeddi, PhD Student

Gonçalo Bernardes Lab, João Barata Lab

28-04-2015

"Neuronal A2AR overexpression and synaptic transmission"

Mariana Temido-Ferreira, PhD Student

Luísa Lopes Lab

"Nuclear positioning and mRNA domains in muscle cells"

Mafalda Pimentel, PhD Student

Edgar Gomes Lab

09-06-2015

“Drug Immunogenicity: Clinical Implications”

andra Garcês, PhD Student

Luis Graça Lab

Title: “Glycation in Neurodegenerative diseases: Sweet deal, bitter outcome”

Hugo Miranda, Post-Doc

Luisa Lopes Lab

23-06-2015

“Notch and Hedgehog in thymus/parathyroid common primordium: a crosstalk to organ formation”

Marta Figueiredo, PhD Student

Sérgio Dias Lab

“Analysis of the Patterns of Habituation in Exposure and Response Prevention Therapy”

Ana Portêlo, PhD Student

Mamede de Carvalho Lab

29-09-2015

"Cannabinoid induced memory impairments are prevented by chronic and acute adenosine A2AR blockade in a novel object recognition paradigm"

Francisco Mouro, PhD student

Ana Sebastião Lab

"Erythropoietin: an hematopoietic hormone messing things up in the brain?"

Raquel Dias, Post-Doc

Ana Sebastião Lab

13-10-2015

“Time perception in Mild Cognitive Impairment: A study”

Sara Coelho, PhD Student

José Ferro Lab

“Conformational changes governing dengue virus capsid protein disordered N-terminal region and its inhibition by pep14-23”

André F. Faustino, PhD Student

Nuno Santos Lab

27-10-2015

"Post-transcriptional regulation events that impact embryonic development: a focus on Qkia and Fgf8a"

Sara Fernandes, PhD student

Leonor Saúde Lab

“My time as a PhD (IGC) and as a Postdoc (Yale): How I got here. iMM-FMUL Advanced training: Where we want to go.”

Filipa Moraes, PhD

Education and Advanced Training

10-11-2015

“Breaking bad: aRe we LOOPed in the GIN?”

S Chaitanya Sridhara, PhD Student

Sérgio de Almeida Lab

“Comparison of Streptococcus pyogenes isolates from invasive and skin infections using emm-cluster typing system”

Catarina Pato, PhD Student

Mário Ramirez Lab

24-11-2015

"Changes in serogroup 6 Streptococcus pneumoniae following the introduction of conjugate vaccines in Portugal"

Jorge Miranda, PhD student

Mário Ramirez Lab

“Quantitative analysis of clonal dynamics driving relapse of acute myeloid leukemia escape variants”

Francisco Caiado, Post-Doc

Bruno Silva-Santos Lab

Computational Biology and Bioinformatics Seminars

15-01-2015

"Widespread transcription read-through in SETD2 mutant renal carcinoma"

Ana Rita Grosso, PhD

Sérgio Almeida Lab

29-01-2015

"RNA pol II profile and splicing in Long Coding RNA by high-throughput sequencing"

Prasoon Thakur

M. Carmo-Fonseca Lab

26-02-2015

“Cancelled”

Sara Madeira

INESC-ID/IST

30-06-2015

"Briefings in structural bioinformatics for medical applications"
Francisco Enguita, PhD
iMMLisboa/FMUL

16-07-2015

"RNA Polymerase dynamics during cotranscriptional splicing"
Tomás Gomes
Maria Carmo-Fonseca Lab

01-10-2015

"Nanopore sequencing: State of the art and Current Applications"
João Carriço, PhD
Mário Ramirez Lab

29-10-2015

"Analysis of transposable element insertion site preferences"
Raquel Linheiro, PhD
João Barata Lab

26-11-2015

"Getting the most out of The Cancer Genome Atlas data portal"
Ioana Posa, Master Student
Sérgio Almeida Lab

Immunology Club

05-02-2015

"Hh and Notch in thymus/parathyroids primordia development - Engaged partners?"
Marta Figueiredo, CAML PhD student
Sérgio Dias Lab

12-02-2015

"IL-7 regulation of autophagy and metabolism in T-ALL cells."
Daniel Ribeiro, PhD Student
João Barata Lab

19-02-2015

"Regulatory immune cells in chronic Graft versus Host Disease: functional competence and immunotherapy potential"
Rita Azevedo, Post-Doc
João Lacerda Lab

26-02-2015

"IL-4-elicited identity crisis of human CD4 single-positive thymocytes"
Helena Nunes-Cabaço, Post-Doc

Ana E.Sousa Lab

05-03-2015

"The role of miR-146a in gd T cell differentiation."

Nina Schmolka, Post-Doc

Bruno Silva-Santos Lab

19-03-2015

"T follicular helper (Tfh) and Foxp3 T follicular regulatory (Tfr) cells have different TCR repertoires"

Ana Raquel Maceiras, PhD student

Luis Graça Lab

23-04-2015

"Human Vdelta1 T cells: a new player in cancer immunotherapy"

Daniel Correia, Post-doc, Bruno Silva-Santos

Afonso Almeida, Lymphact

30-04-2015

"Innate lymphoid cell- Glial cell crosstalk in gut homeostasis"

Bethania García Cassani, PhD Student

Henrique Veiga-Fernandes

21-05-2015

"Immunotherapy with genetically engineered T cells"

Prof Dr Jürgen Kuball

Laboratory of Translational Immunology / Tumorimmunology

University Medical Center Utrecht The Netherlands

18-06-2015

"Deciphering natural killer cell receptor diversity & function in cattle"

Mark S Gibson, PhD

The Pirbright Institute (Surrey, UK)

02-07-2015

"Characterization of 9G4+ B cells in Rheumatoid Arthritis patients"

Rita Moura, Post-Doc

João Eurico-Fonseca Lab

10-12-2015

"Human naïve CD4 T-cell homeostasis after thymectomy"

Susana Lopes da Silva, MD, PhD Student

Ana E. Sousa Lab

17-12-2015

"Role of murine gd T cells in brain cognitive functions".

Miguel Ribeiro, BSc & Julie Ribot, PhD

Bruno Silva – Santos L

Oncobiology Club

04-02-2015

"Mechanisms of Phospholipase C epsilon downregulation in colorectal cancer"

Marta Matins, PhD

Luís Costa Lab

18-02-2015

"Widespread transcription read-through in SETD2 mutant renal carcinoma"

Ana Rita Grosso, PhD

Sérgio de Almeida Lab

04-03-2015

"LDL-cholesterol receptors in tumor progression"

Vanessa Cesário

Sérgio Dias Lab

18-03-2015

"Determining the prognostic significance of PI3K/Akt/mTOR and JAK/STAT5 signaling pathways in pediatric acute lymphoblastic leukemia using single-cell analysis"

Mariana Lobato, Msc student

João Barata Lab

01-04-2015

"Crosstalk between immunosuppressive myeloid and protective lymphoid tumour-infiltrating cells"

Sofia Mensurado, MSc Student

Bruno Silva Santos Lab

29-04-2015

"CancerSys - Multiscale modeling for personalized therapy of bone metastasis" Project in collaboration with Luis Costa lab

Susana Vinga

IDMEC/IST-UL

13-05-2015

"Metabolic (and other) adaptations of cancer cells under selective pressures"

Sandrina Nóbrega Pereira

Sérgio Dias Lab

13-01-2015

"An integrated view on spondylarthritis: biomechanics, inflammation and remodelling"

Rik Lories, PhD

University of Leuven – KU Leuven, Belgium

Host: João Eurico - Fonseca

10-02-2015

"The delicate business of dealing with national data"

Loreto Carmona

Hospital General Universitario de Alicante, Spain

Host: João Eurico-Fonseca

17-03-2015

"The optimization of the management of SpA by using musculoskeletal ultrasound: evidence-based role and research agenda"

Maria Antonietta D'Agostino, MD PhD

Versailles Saint-Quentin-en-Yvelines University, Paris

Host: João Eurico - Fonseca

16-06-2015

"New Ultrasound guided biopsies"

Stephen Kelly

Barts Health NHS Trust, London

Host: João Eurico-Fonseca

14-07-2015

"Adolescents with Rheumatic Disease - Their uniqueness and long-term outcomes"

Johvealen Ioannou, PhD

University College London

Host: João Eurico-Fonseca

15-09-2015

"Navigating the biologic treatment landscape in RA to maximise individual patient benefit"

Maya Buch, PhD

University of Leeds, UK

Host: João Eurico-Fonseca

24-11-2015

"Cellular and molecular mechanisms of immune regulation in rheumatoid arthritis"

Leonie Taams, PhD

King's College London, UK

Host: João Eurico-Fonseca

01-12-2015

"Diagnosis and management of hepatitis B infection in patients with rheumatic diseases"

Dimitrios Vasilopoulos, PhD

Athens University School of Medicine, Greece

Host: João Eurico-Fonseca

Special Seminar

06-01-2015

"FCT 2014 Call for SR&TD Project Grants"

Joana Costa, PhD

Funding Programs Office

02-03-2015

"Autoregulation of cerebral circulation"

Akos Koller MD, PhD

Professor and Chair Department of Pathophysiology and Gerontology Medical School University of Pécs

Host: Carlota Saldanha

24-03-2015

"Trinucleotide DNA repeats, toxic RNA and brain dysfunction"

Mário Gomes-Pereira, PhD

INSERM/ Imagine Institute for Genetic Diseases

Paris Descartes Sorbonne University

Host: Bruno Silva-Santos

10-04-2015

"Functional genomics and isotopic tracing to elucidate cancer cell metabolism"

Paulo Gameiro, PhD

Harvard Medical School, Boston, USA

Host: João Taborda Barata

17-04-2015

"Extensive microRNA-mediated crosstalk between lncRNAs and mRNAs in mouse embryonic stem cells"

Ana Claudia Marques

University of Lausanne, Switzerland

Host: Domingos Henrique

21-05-2015

"Trypanosomes accelerate host circadian clock".

Luisa Figueiredo

Head of Lab

27-05-2015

"Malaria parasite migration: from the oocyst to the liver"

Friedrich Frischknecht, PhD

Heidelberg University

Host: Miguel Prudêncio

19-06-2015

"The RNA as a modulator of chromatin structure and genome instability."

Andrés Aguilera

CABIMER (Andalusian Molecular Biology and Regenerative Medicine Centre), Seville, Spain

Host: Sérgio de Almeida

14-07-2015

"Advanced Techniques in Electron Microscopy"

Andreia Pinto

Histology and Comparative Pathology Laboratory

15-09-2015

"B cell conversations with the innate immune system"

Andrea Cerutti, PhD

ICREA, Barcelona; Mount Sinai School of Medicine, New York

Host: IMM's Direction

24-09-2015

"Effector regulatory T cell differentiation and immune homeostasis depend on the transcription factor Myb"

Sheila Dias, PhD

The Walter and Eliza Hall Institute of Medical Research, Austrália

Host: Hélia Neves

08-10-2015

"Common Variable Immunodeficiency Disorders: phenotypes, prognosis, genes and therapy"

Professor Helen Chapel

University of Oxford

Host: Susana Lopes da Silva

30-10-2015

"A Tumor Promoting Role of the DNA Damage Response"

Margarida Almeida-Santos, PhD

MD Anderson Cancer Center, USA

Host: Hélia Neves

13-11-2015

Presentation Session of COHiTEC 2016

03-12-2015

"Keeping epithelial borders"

Marc Veldhoen, PhD

Principal Investigator, Babraham Institute, Cambridge, United Kingdom

Host: IMM's Direction

09-12-2015

"Coat replacement dynamics in the African trypanosome"

Nina Papavasiliou, PhD

Associate Professor, Laboratory of Lymphocyte Biology The Rockefeller University, USA

Host: Luisa Figueiredo

15-12-2015

"Recognition and tolerance of viral and endogenous nucleic acids in the cytosol"

Martin Schlee, PhD

Institut für Klinische Chemie und Klinische Pharmakologie, Germany

Host: IMM's Direction

Career Path Seminar

30-03-2015

"Careers in the technology transfer"

Sandra Aresta- IP and Technology Transfer Senior Manager

Institut de Recherche pour le Développement (IRD)

The PDA committee

19-06-2015

"Career path in pharmaceutical companies"

Julio Martin

Manager and Director of Screening & Compound Profiling, GlaxoSmithKline (Tres Cantos, Spain)

Zirinka Marijanovic

Senior vice president-Head of Supply Chain at Finox Biotech, Switzerland

Oncology Series

10-04-2015

“The Local Therapy of Breast Cancer in 2015: Have We Made Progress?”

Dra. Monica Morrow

Chief, Breast Service, Department of Surgery, Anne Burnett Windfohr Chair of Clinical Oncology ,
Professor of Surgery, Weill Medical College of Cornell University

“Can We Incorporate Molecular Medicine Into the Selection of Local Therapy? “

Dra. Monica Morrow

Chief, Breast Service, Department of Surgery, Anne Burnett Windfohr Chair of Clinical Oncology ,
Professor of Surgery, Weill Medical College of Cornell University

LisbonBioMed Seminar

21-01-2015

“Decrypting gene expression from single molecules to single cells”

Musa Mhlanga, PhD

CSIR, Pretoria, South Africa

Host: Domingos Henrique

18-02-2015

“Programming and reprogramming brain tumour stem cells”

Steven Pollard, PhD

MRC Centre for Regenerative Medicine, Univ Edinburgh, UK

Host: Domingos Henrique

Other

26-03-2015

IX PhD Students Meeting

Professor Firdaus Dhabhar

Stanford University

27-03-2015

IX PhD Students Meeting

IX PhD Students Meeting

Professor Carlos Fiolhais

Universidade de Coimbra

iMM Education and Advanced Training

The iMM is strongly committed to providing the best training for success in science to researchers at different stages in their careers.

Team

Executive Manager: Filipa Moraes, PhD (started October 2015)
LisbonBioMed PhD Program Director: Domingos Henrique, PhD
Postdoctoral Training Director: Luisa Figueiredo, PhD
Career Development Director: Henrique Veiga Fernandes, PhD
Administrative Assistant: Sónia Arroz, MSc – left May 2015

Together with *Faculdade de Medicina da Universidade de Lisboa* (FMUL) and with *Hospital de Santa Maria (HSM)*, iMM is part of the Lisbon Academic Medical Center (Lisbon AMC), a consortium that provides an integrated form of education and training in Biomedicine and Clinical Research, combining multidisciplinary and internationalization.

In pair with high-level research-centered training, our PhD students and Postdoctoral fellows benefit from a varied curricular offer organized into several thematic *Advanced Courses*- scientific and thematic courses, complementary skills workshops, etc - distributed along each academic year.

The majority of iMM PhD students belong to the [Lisbon AMC PhD Program](#) that runs in the campus since 2010. In addition, iMM also hosts students from other national (e.g. NeurULisboa) and international PhD Programs (e.g. MC-ITN, MIT-PT).

In 2013, iMM was awarded FCT funding to create the Lisbon Biomedical and Clinical Research PhD Program – LisbonBioMed, and in January 2015, we welcomed the third edition 10 PhD students. Furthermore, iMM is a partner in five other multi-institutional FCT PhD Programs: the Bioengineering - Cell Therapies and Regenerative Medicine (CTRM), the Molecular Biosciences - Biology at the Host Microbe Interface (B@HMI), the Lisbon University Doctoral Program in Integrative Neuroscience (NeurULisboa), the Medicinal Chemistry PhD Programme (MedChemTrain) and the Medical Biochemistry and Biophysics (M2B-PhD) PhD Programs.

Overall, the integrated management of ongoing and new PhD and Postdoctoral Programs will further enrich our scientific environment promoting multidisciplinary and facilitating the development of individual projects within the areas of Biomedicine and Clinical Medicine.

	2015
Post-doctoral fellows	66
Started in 2015	23
PhD students	90
Started in 2015	29
MSc students	96

Advanced Training in numbers

In 2015, 90 PhD students conducted research at IMM

Besides Lisbon AMC PhD students, IMM hosted 6 PhD students from other PhD Programs/ Institutions: 1 Karmanos Cancer Institute; 1 Universidad Complutense de Madrid; 1 University Pierre and Marie Curie; 1 Graduate Program Science for Development (PGCD) (IGC); 1 Faculty of Pharmacy of the University of Lisbon; 1 supported by Sonangol EP.

29 new PhD Students at IMM in 2015

10 LisbonBioMed – Ana Margarida Roque Sanches Vaz, Debanjan Mukherjee, Emanuel Ferreira Fernandes, Idálio de Jesus Contreiras Viegas, Margherita Fabbri, Marie Catherine Bordone, Pedro Henrique Papotto Rosa, Pedro Miguel Branco Barbacena, Vânia Rita de Faria Cardoso, Vasco Manuel Aranha da Conceição.

19 Individual fellowships or others – Amilcar Silva dos Santos, Ana Cristina Frazão Lopes Alho, Ângelo Rodrigo Neto Dias, Bruno Filipe Ribeiro Gonçalves, Carina Sofia Gonçalves Peres, Diogo de Abreu Paramos de Carvalho, Joana Bianchi Marques Bettencourt Gesta, João Manuel Coelho Carreira, Maria Inês Sousa de Albuquerque, Nádia Raquel Henriques Rei, Patricia Isabel Duarte Montês Carvalho, Rita Alexandra Figueira Belo, Sara de Jesus Santos Baptista, Sofia Rita Cardoso Fernandes, Tânia Raquel Martins dos Santos, Teresa Maria Pereira da Silva, Thabelo Mmamatseliso Khoboko, Tiago Luís Pinto Pereira da Silva, William Roman.

Advanced Courses

A total of 9 Advanced Courses were organized

Courses organized under the CAML PhD Programme in 2015

Towards a Creative and Critical Mind

Organizer: Domingos Henrique

Date: 5th January to 27th February (16 ECTS)

Nº of Participants: 10

The course is focused on: promotes student integration, creates an informal welcoming, fosters team bonding, interaction with [putative supervisors](#), introduces complementary skills training, and raises awareness to transversal competences needed for a successful research career.

Statistical Tests

Organizer: Ruy Ribeiro

Date: 27th and 28th February (7 ECTS)

Nº of Participants:

23

The main objective of this course is to provide the student with a good grounding on what a statistical test is. For this, both the main concepts, applicable to all statistical tests, and some specific examples will be presented. The practical application of these tests will also be covered using the software SPSS.

Laboratory Animal Science

Organizer: Joana Marques

Date: March 2-6, 18, 25-27 (1,5 ECTS)

Nº of Participants: 6

The course followed the recommendations of FELASA for cat. B. Theoretical sessions covered the following topics: Ethics and the 3R's; Biology and husbandry; Animal behavior and welfare; Surgery and pain management; Euthanasia and humane endpoints. Practical sessions focused on procedures and techniques in rodents and fish.

Bioethics and Clinical Research

Organizer: António Barbosa

Date: 28th and 29th May (0,5 ECTS)

Nº of Participants: 15

The objectives of the course are: i) to know the bioethics framework of the biomedical research; ii) to work on the main problems arising from biomedical research in humans and animals; iii) to enable for bioethical analysis of research protocols; and iv) to know the main principles of an accurate scientific conduct.

miRNAs and non-coding RNAs in cell biology and human disease

Organizer: Francisco J. Enguita

Date: 1st and 2nd June (1 ECTS)

Nº of Participants: 21

The main objectives of the course are to study the functional aspects of the biology of non-coding RNAs (ncRNAs), focused in their involvement as important regulators of the genomic output at the cellular level. During the course, several relevant examples of the regulatory mechanisms of ncRNAs were discussed. The students were also trained for the use of specific bioinformatic tools to predict and analyze the regulatory effects of miRNAs, and how to design wet-lab experiments to characterize ncRNAs.

Angiogenesis

Organizer: Luis Graça

Date: 4th September (Sem ECTS)

Nº of Participants: 150

The main objective of the course is to show the state of the art in angiogenesis research with special emphasis to the relation with metabolism and the angiogenesis impact in the retina pathology and oncology.

Statistics for Beginners

Organizer: Domingos Henrique

Date: 15th October to 10th December, every Thursday (1 ECTS)

Nº of Participants: 15

This is an introductory course to statistical methods applied to biological research, aimed at providing participants with basic concepts on statistics, and how these can be used in daily research activities, with particular emphasis on how to design experiments and how to deal with the limits of

statistical methods. Participants are encouraged to bring their experimental questions to be discussed. This course must provide the basis for further course, aimed at more advanced statistical methods, targeted at specific needs from researchers at CAML.

Bioimaging NanoCourse on Microscopy

Organizer: José Rino

Date: 4th to 6th November (0.25 ECTS)

Nº of Participants: 60

To provide beginner/intermediate microscope users with basic theoretical background in fluorescence wide field and confocal microscopy as well as practical information on how to efficiently prepare samples, acquire data and obtain publication quality images.

Flow Cytometry

Organizer: Ana Vieira

Date: 16th and 17th November (0.5 ECTS)

Nº of Participants: 25

In this course we will introduce the basic concepts of flow cytometry for beginners, how the instruments work, the controls required and potential applications. A session on cell sorting will also take place. The course will have a practical component whereby students will learn how to setup an experiment and compensate on the LSR Fortessa.

PhD thesis

14 IMM/Lisbon AMC PhD Thesis

Nádia Grangeon Cavaleiro de Sousa Correia (January 14, 2015). The role of reciprocal regulation between TAL1 and miRNA expression in T-cell leukemia progression. Faculdade de Medicina da Universidade de Lisboa. Supervisor: João Taborda Barata

Jorge Manuel Santos (February 3, 2015). Role of Plasmodium translationally repressed gene products in malaria transmission. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Gunnar Mair.

Joana Maria Tato Ribeiro da Costa (February 27, 2015). Effects of chemotherapy and radiotherapy in rectal cancer: significance of different cellular outcomes in tumor behavior. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Luís Costa.

Catarina Sofia Rodrigues dos Santos Granja da Fonseca (March 13, 2015). The Role of Systemic Metabolism in Breast Cancer Progression. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Sérgio Dias.

Susana Mendes Fernandes (May 11, 2015). HIV Infection and Gut-Associated Lymphoid Tissue. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Ana Espada de Sousa.

Francisca Monjardino Ferreira de Almeida (July 10, 2015). Identification of a transient lymphoid population in the murine epidermis. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Luís Graça.

Liliana Páris Alves Monteiro Pereira (September 4, 2015). Focusing on metabolomics dysregulation and modulation of retinal metabolism to develop novel therapeutic strategies for Diabetic Retinopathy. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Luís Graça.

Carolina Pires Maruta (September 17, 2015). Primary progressive aphasia: neuropsychological analysis and evolution. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Manuela Guerreiro.

Ana Sofia Temudo Duarte António (November 2, 2015). Synaptic Dysfunction In Early Encephalopathies: From Genes to Function. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Domingos Henrique.

Patrícia Isabel da Silva Guerreiro (December 7, 2015). The role of LRRK2 in Parkinson's disease: from function to dysfunction. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Tiago Outeiro.

Ana Catarina Dias Pena (December 9, 2015). Role of Histone H1 in chromatin and gene expression in the african trypanosome: broad skills, specific functions? Faculdade de Medicina da Universidade de Lisboa. Supervisor: Luísa Figueiredo.

Maria Catarina Mota da Silva (December 17, 2015). Towards the therapeutic use of regulatory T cells for the treatment of human autoimmune diseases. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Íris Caramalho.

Diogo Miguel Santos Rombo (December 18, 2015). Modulatory role of adenosine upon GABAergic transmission: consequences for excitability control. Faculdade de Medicina da Universidade de Lisboa. Supervisor: Ana Sebastião.

Mariana Luísa Verdelho Moutinho Machado (December 18, 2015). What is the role of caspase-2 mediated lipoapoptosis in the pathogenesis of the metabolic syndrome-associated liver disease, nonalcoholic fatty liver disease (NAFLD)? Faculdade de Medicina da Universidade de Lisboa. Supervisor: Helena Cortez Pinto.

Research Activity

The mission of *Instituto de Medicina Molecular (iMM Lisboa)* is to foster basic, clinical and translational biomedical research with the aim of contributing to a better understanding of disease mechanisms, developing novel predictive tests, improving diagnostics tools and developing new therapeutic approaches.

- Barata, João T.
- Bernardes, Gonçalo J.L
- Carmo-Fonseca, Maria
- Castanho, Miguel
- Costa, Luis
- De Almeida Sérgio
- De Carvalho, Mamede
- Dias, Sérgio
- Ferreira, Joaquim J.
- Ferro, José
- Figueiredo, Luisa
- Filipe, Paulo
- Fonseca, João Eurico
- Franco, Cláudio A.
- Gomes, Edgar R.
- Graça Luis
- Henrique, Domingos
- Lacerda, João F.
- Lopes, Luisa V.
- Morais, Nuno
- Morais, Vanessa
- Mota, Maria M.
- Oliveira, Sofia A.
- Prata, Diana
- Prudêncio, Miguel
- Ramirez, Mário
- Remondes, Miguel
- Saldanha, Carlota
- Santos, Nuno C.
- Saúde, Leonor,
- Sebastião, Ana
- Silva-Santos, Bruno
- Simas, Pedro
- Sousa, Ana E.
- Veiga - Fernandes, Henrique

Barata, João T.

Major Interests / Objectives

We aim to understand the role of cell-autonomous alterations and microenvironmental cues in the development of cancer, focusing mainly on the dissection of signaling pathways essential for tumor maintenance. To do so, we make use of patient material, as a key source of insights into the disease, and integrate different biochemical, cellular and molecular biology techniques with appropriate in vitro and in vivo models - enabling an overall appreciation of the molecular, cellular and systemic nuances associated with cancer. The basic and pre-clinical research we performed is translation-oriented and enriched by active collaborations with clinicians. Ultimately, we aim to identify and characterize molecular targets for the development of novel, more selective therapies against cancer.

Head of Laboratory

João Pedro Taborda Barata, PhD, Associate Professor

Research Team

Afonso Rocha Martins de Almeida	PhD	Post-doctoral Investigator, (started October)
Alice Sofia dos Santos Melão	Master	PhD Student
Ana Rita Freitas Martins de Matos Fragoso	PhD	Investigator
Carlos Manuel Tavares da Custodia	Master	Investigator
Cláudia Maria Coelho de Faria	MD/PhD	Post doctoral Investigator, Faculdade Medicina da Universidade de Lisboa, Assistant Professor, Clinical Specialist
Daniel Ribeiro	Master	PhD Student
Hugo Filipe Loureiro Cadilha	Undergraduate	Trainee
Inês Garcia Brandão e Silva Pinto	Graduate	MSc Student, (started September)
Isabel da Conceição Alves Alcobia Principe Henriques	PhD	Post doctoral Investigator

Joana Tavares Ferreira da Silva	Graduate	MSc Student
Maria Leonor Saraiva de Carvalho Morais Sarmento	PhD	Post doctoral Investigator, Faculdade Medicina da Universidade de Lisboa, Assistant Professor
Mariana Lobato de Oliveira	Master	Investigator
Nádia G. Cavaleiro Sousa Correia	PhD	Investigator
Raquel dos Santos Linheiro	MD/PhD	Post-doctoral Investigator, (started October)
Rita dos Santos Silva	Graduate	MSc Student, (started February) (left July)
Rodrigo Noronha Lopes da Silva	Graduate	PhD Student, (started May) (left September)
Teresa Laura Mendes Serafim	PhD	Lab Manager, (started November)

Keywords / Research Areas

Cancer Biology, Leukemia, Signal transduction, Cellular and molecular biology, Rational targeted therapies

Major scientific achievements

We participated in collaborative studies demonstrating that:

- i) FOXP3 can modulate TAL1 transcriptional activity through interaction with LMO2 in T-ALL cells
- ii) Lymphotoxin- α receptor expressed in microenvironmental cells promotes the development of cortical/mature T-ALL
- iii) PI3K inhibition synergizes with glucocorticoids but antagonizes the effects of methotrexate in T-ALL cells
- iv) The bone marrow mediates protects myeloproliferative neoplastic cells against vorinostat and ruxolitinib treatment in a manner that depends on the activation of JNK and PI3K signaling

J.T. Barata was awarded an ERC consolidator grant to study IL-7/IL-7R signaling networks in health and malignancy.

Selected Publications

Zenatti P.P, Ribeiro D, W. Li, Zuurbier L, Silva M.C, Paganin M, Tritapoe J, Hixon J.A, Silveira A.B, Cardoso B.A, Sarmento L.M, Correia N, Toribio M.L, Kobarg J, Horstmann M, Pieters R, Brandalise S.R, Ferrando A.A, Meijerink J.P, Durum S.K, Yunes J.A, Barata J.T (2011) Oncogenic IL7R gain-of-function mutations in childhood T-cell acute lymphoblastic leukemia. *Nature Genetics* **43**, 932. (Journal IF: 29.648, Citations: 95)

Henriques C.M, Rino J, Nibbs R.J, Graham G.G, Barata J.T (2010) IL-7 induces rapid clathrin-mediated internalization and JAK3-dependent degradation of IL-7R α in T cells. *Blood* **115**, 3269. (Journal IF: 10.452, Citations: 38)

Ongoing Research Projects

2012/2016 Dissecting the impact of IL7R gain-of-function mutations in T-cell leukemia. Coordinator: João Pedro Taborda Barata. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/SAU-ONC/122428/2010. Amount: € 165000

2013/2015 Crosstalk between miRNAs and TAL1? Novel insights into the regulation and function of a major T-cell oncogene. Coordinator: João Pedro Taborda Barata. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/BIM-ONC/1548/2012 . Amount: € 12579700

2015/2015 Breakthrough Idea Grant 2015. Coordinator: João Pedro Taborda Barata. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BIG 2015 JBarata. Amount: € 7000000

2015/2017 Selective death using a microRNA-detector system in T-cell acute lymphoblastic leukemia. Coordinator: Ana Rita Freitas Martins de Matos Fragoso. Agency: Liga Portuguesa Contra o Cancro. Reference: Terry Fox - Rita Fragoso. Amount: € 1500000

2014/2018 Exploratory - iFCT. Coordinator: Ana Rita Freitas Martins de Matos Fragoso. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: Exploratório Ana Fragoso. Amount: € 5000000

2015/2020 IL-7/IL-7R signaling networks in health and malignancy. Coordinator: João Pedro Taborda Barata. Agency: Comissão Europeia. Coordinator Institution: O. Reference: ERC- 648455 - IL7SigNeTure. Amount: € 198812500

2011/2020 Research into brain tumor metastasis Coordinator: Claudia Maria Coelho de Faria Clientes Diversos Biobanco de Tumores Cerebrais. Amount: € 21399300

Original publications in peer review Journals

Fleskens V, Mokry M, van der Leun A.M, Huppelschoten S, Pals C.E, Peeters J, Coenen S, Cardoso B.A, Barata J.T, van Loosdregt J, Coffe P.J (2015). FOXP3 can modulate TAL1 transcriptional activity through interaction with LMO2. *Oncogene* **21**. (Journal IF: 8.459, Citations: 0)

Cardoso B.A, Belo H, Barata J.T, Almeida A.M (2015). The Bone Marrow-Mediated Protection of Myeloproliferative Neoplastic Cells to Vorinostat and Ruxolitinib Relies on the Activation of JNK and PI3K Signalling Pathways. *PLoS One* **10** 12 (Journal IF: 3.234, Citations: 0)

L.M. Sarmiento, J.T. Barata (2015). CHK1 and replicative stress in T-cell leukemia: Can an irreverent tumor suppressor end up playing the oncogene? *Advances in Biological Regulation* (Journal IF: 0.729, Citations: 0)

Fernandes M.T, Ghezze M.N, Silveira A.B, Kalathur R.K, Póvoa V, Ribeiro A.R, Brandalise S.R, Dejardin E, Alves N.L, Ghysdael J, Barata J.T, Yunes J.A, Dos Santos N.R. (2015). Lymphotoxin- α receptor in microenvironmental cells promotes the development of T-cell acute lymphoblastic leukaemia with cortical/mature immunophenotype. *Br J Haematol*. (Journal IF: 4.971, Citations: 0)

Sarmiento L.M, Póvoa V, Nascimento R, Real G, Antunes I, Martins L.R, Moita C, Alves P.M, Abecasis M, Moita L.F, Parkhouse R.M.E, Meijerink J.P.P, Barata J.T (2015). CHK1 overexpression in T-cell acute lymphoblastic leukemia is essential for proliferation and survival by preventing excessive replication stress. *Oncogene* **34**(23): 2978-2990. (Journal IF: 8.459, Citations: 3)

Silveira A.B, Laranjeira A.B, Rodrigues G.O, Leal P.C, Cardoso B.A, Barata J.T, Yunes R.A, Zanchin N.I, Brandalise S.R, Yunes J.A. (2015). PI3K inhibition synergizes with glucocorticoids but antagonizes with methotrexate in T-cell acute lymphoblastic leukemia. *Oncotarget* **6**(15) (Journal IF: 6.359, Citations: 1)

Fragoso R, Barata J.T (2015). Kinases, tails and more: Regulation of PTEN function by phosphorylation. *Methods* **77** (commissioned review) (Journal IF: 3.645, Citations: 0)

Faria CC, Agnihotri S, Mack SC, Golbourn BJ, Diaz RJ, Olsen S, Bryant M, Bebenek M, Wang X, Bertrand KC, Kushida M, Head R, Clark I, Dirks P, Smith CA, Taylor MD, Rutka JT. (2015) Identification of alsterpaullone as a novel small molecule to inhibitor to target Group 3 medulloblastoma. *Oncotarget* **28**; 6 (25):21718-29. (Journal IF: 6.359, Citations: 0)

Invited lectures and seminars

J.T. Barata. A importância da via PI3K na Leucemia Linfocítica Crónica. Gilead Satellite Symposium: Inovação em Hemato-Oncologia: Leucemia Linfocítica Crónica e PI3K, 8th APFH Week - VIII National Congress of the Portuguese Association of Clinical Pharmacists, Cascais, Portugal, 18-21 November 2015.

J.T. Barata. Transdução de sinal e terapias dirigidas: Em busca de novos alvos moleculares para o tratamento de leucemias da linhagem linfoide. Annual Meeting of the Portuguese Society of Hematology (SPH), Figueira da Foz, Portugal, 12-14 November 2015.

J.T. Barata. CHK1 and replicative stress in T-cell leukemia: how a potential tumor suppressor acts as an oncogene. Advances in Biological Regulation – 56th International Symposium on “Biological Regulation and Enzyme Activity in Normal and Neoplastic Tissues”, University of Bologna, Italy, 5-6 October 2015.

J.T. Barata. Signaling, Oncogenes and T-cell Leukemia. Meeting “Cancer Epigenetics and Metabolism: Connecting the Dots”, Biocant Park, Cantanhede, Portugal, 2-3 February 2015.

Communications in International Conferences

E. Senkevitch, J. Hixon, C. Andrews, J.T. Barata, W. Li, S. Durum (2015). The JAK Inhibitor Ruxolitinib Is Effective in Treating T Cell Acute Lymphoblastic Leukemia with Gain of Function Mutations in IL-7R Alpha. The American Society of Hematology 57th Annual Meeting, Orlando, FL, USA, 5-8 December. (Poster Presentation).

A. Melão, J. Matos, H. Cadilha, J.T. Barata (2015). Sphingosine kinases are required for IL-7-mediated signaling in T-cell acute lymphoblastic leukemia. EHA 2015 - 20th Congress of the European Hematology Association, Vienna, Austria, 11-14 June. (Poster Presentation).

D. Ribeiro, A. Melão, R. van Boxtel, C.I. Santos, M.C. Silva, A. Silva, B.A. Cardoso, L.F. Moita, P.J. Coffey and J.T. Barata (2015). IL-7 activates the JAK/STAT5/PIM1 kinase axis thereby mediating viability and growth of T-cell acute lymphoblastic leukemia cells. EHA 2015 - 20th Congress of the European Hematology Association, Vienna, Austria, 11-14 June. (Poster Presentation).

N.C. Correia, R. Fragoso, V. Póvoa, F.J. Enguita, J.T. Barata (2015). MiR-146B in T-cell acute lymphoblastic leukemia: a possible tumor suppressor role. EHA 2015 - 20th Congress of the European Hematology Association, Vienna, Austria, 11-14 June. (Poster Presentation).

M. Lobato, R. Cabrita, J.T. Barata, R. Fragoso (2015). The role of NRARP in T-cell acute lymphoblastic leukemia pathogenesis and chemotherapy sensitivity. EHA 2015 - 20th Congress of the European Hematology Association, Vienna, Austria, 11-14 June. (Poster Presentation).

B.A. Cardoso, H. Belo, J.T. Barata, A. Almeida (2015). Bone Marrow Stroma Mediated Protection of MPN cells from Ruxolitinib- and Vorinostat-Induced Apoptosis Requires MAPK-JNK and PI3K-Akt/PKB signaling pathway activation. EHA 2015 - 20th Congress of the European Hematology Association, Vienna, Austria, 11-14 June. (Poster Presentation).

Organisation of Conferences

J.T. Barata. Member of the evaluation panels of the Poster and Oral communication Sessions; Research Day for Medical Students / 18th Workshop “Education through Science”, Faculty of Medicine of Lisbon University, Portugal, 16 December 2015.

C.C. Faria. Organizer of the National Meeting of the Portuguese Association of Neuro-oncology, Lisbon, Portugal, 10-11 December 2015.

J.T. Barata. Member of the Evaluation Committee for the best oral presentation, 3rd iMM Post-Doc Day, Lisboa, Portugal, 25 September 2015.

R. Fragoso. Moderator at the 3rd iMM Postdoc Day, Lisboa, Portugal, 25 September 2015.

R. Fragoso. Moderator at the IX IMM/CAML PhD meeting, Lisboa, Portugal, 26-27 March 2015.

Internationalisation

Our projects regularly involve collaboration with international research groups in Europe, US and Brazil.

Current international collaborators include: Andres Yunes (Centro Infantil Boldrini, Brazil), Alberto Martelli (University of Bologna, Italy), Ben Seddon (UCL, UK), David Langenau (MGH, Harvard University, USA), Doreen Cantrell (University of Dundee, UK), Nigel Pyne (University of Strathclyde, UK), Paul Coffey (Utrecht UMC, The Netherlands), Scott Durum (NCI, USA), Silvio Perea (CIGB, Cuba).

In addition to our international publications, we participated at different international meetings either by invitation or by submitting work for presentation.

We welcome regularly foreign students. In 2015, we hosted a visiting MSc student from The Netherlands.

Advanced teaching

J.T. Barata taught the topic “Signaling in Cancer” at the Advanced Course on “Fundamentals of Genetics, Development and Neoplasia”, International Postgraduate Programme, School of Health Sciences, University of Minho, Braga, Portugal, October 13 2015.

A.R.M. Almeida taught at the “BioPharmaceuticals and Advanced Therapies” course, Medicines and Pharmaceutical Innovation (i3DU) FCT PhD Program, Faculty of Pharmacy of Lisbon University, Lisbon, 28 September-2 October 2015.

J.T. Barata taught the topic “Imunobiologia em Oncologia: Novos Alvos Terapêuticos / Terapias de Transdução de Sinal”, 2º Curso APFH - Biofármacos e Imunoterapia, Sede Nacional da Associação Portuguesa de Farmacêuticos Hospitalares, Coimbra, 26 September 2015.

I. Alcobia presented the lecture “IL7 e linfócitos T: o que acontece na leucemia?”, Mestrado em Biologia Molecular e Genética, Faculty of Sciences of Lisbon University, Lisbon, 22 May 2015.

J.T. Barata taught the topic “Autophagy in Disease I - IL-7 and Leukemia”, at the Advanced Course on “Autophagy in Health and Disease, conceptual and methodological advances”, School of Health Sciences, University of Minho, Braga, 8 April 2015.

J.T. Barata coordinated and taught at the “Signal Transduction in Cancer” Course of the Masters in Oncobiology, Faculty of Medicine of Lisbon University, Lisbon Academic Medical Center (CAML), Lisbon, 14-17 January 2015.

J.T. Barata coordinated (together with Sérgio Dias and Gonçalo Bernardes) and taught at the “Tissues and Tumors” week, LisbonBioMed International FCT PhD Program, iMM Lisboa, Faculty of Medicine of Lisbon University, Lisbon, 12-16 January 2015.

J.T. Barata and I.A. Alcobia supervised the Research Internship of Rita Silva, "Chemical screen interrogation of physiological and leukemia-associated interleukin-7 receptor signaling" within the MSc in Biomedical Sciences, VU University Amsterdam, Feb-Jun 2015.

Science and society

J.T. Barata. Em busca de novas terapias para o cancro. Escola Secundária Maria Amália Vaz de Carvalho, Lisboa, Portugal, 26 February 2015.

The lab joined the Brain Tumor Team (BTT) on May 10 2015 to participate in a run / walk event to create awareness for cancer research and, particularly, for brain tumor research. The BTT gathered health care professionals, scientists, patients and their families aiming to support cancer research and to create hope for the future of patients affected with brain cancer.

PhD thesis completed

Nádia Correia 14/01/2015 The role of reciprocal regulation between TAL1 and miRNA expression in T-cell leukemia progression Faculty of Medicine of Lisbon University João T. Barata Francisco Enguita

Msc thesis completed

Joana Silva 19/11/2015 Seeking new insights into IL-7R β mutational activation in T-cell leukemia
Faculty of Sciences and Technology, New University of Lisbon João T. Barata

Mariana Oliveira 24/03/2015 Determining the prognostic significance of PI3K/Akt/mTOR and
JAK/STAT5 signaling pathways in pediatric acute lymphoblastic leukemia using single-cell analysis
Faculty of Medicine of Lisbon University João T. Barata

Bernardes, Gonçalo J.L

Major Interests / Objectives

At GBernardes Lab, we work at the interface of Chemistry & Biology. At the core of our research program is the development of novel chemoselective methods that are compatible with biological systems, and their use to redesign the structure & function of proteins of biological & therapeutic interest, with the intention of understanding & influencing human disease.

In the area of synthetic biology, we are mostly interested in the specific delivery of toxic molecules to cancer cells and in the construction of homogenous glycoproteins as vaccines candidates. We are also investigating the delivery of therapeutic amounts of CO to diseased tissues, using CO-releasing molecules that have the potential to become safe treatments, by controlling CO release in vivo in a spatial and temporal manner.

Head of Laboratory

Gonçalo José Lopes Bernardes, PhD, Assistant Professor

Research Team

Ana Maria dos Santos Guerreiro	Master	Lab Manager, (started June)
Florian Sieglitz	PhD	Post-doctoral Investigator
João Daniel da Silva Seixas	PhD	Post-doctoral Investigator
Maria Inês Sousa de Albuquerque	Master	Investigator
Padma Akkapeddi	Master	PhD Student
Pedro Miguel Saraiva Duarte Cal	PhD	Post-doctoral Investigator, (started April)
Rui Traquete	Master	PhD Student
Tiago Correia de Oliveira Rodrigues	PhD	Manager, (started November)

Keywords / Research Areas

Site-selective protein modification, Synthetic biologics, Targeted cancer therapeutics, Carbohydrate-based vaccines

Selected Publications

Crockett MP; Evans AM; Worthington MJH; Albuquerque IS; Slattery AD; Gibson CT; Bernardes GJL, Chalker JM (2015) Sulfur-Limonene Polysulfide: A Material Synthesized Entirely from Industrial Waste and Its Use in Removing Toxic Metals from Water and Soil. *Angew Chem*, **54**, 1-6, (Journal IF: 11.261, Citations: 0)

Seixas JD; Chaves-Ferreira M; Montes-Grajales D; Gonçalves AM; Marques AR; Saraiva LM; Olivero-Verbel J; Romão CC; Bernardes GJL (2015) A N-acetyl cysteine ruthenium tricarbonyl conjugate enables simultaneous release of CO and ablation of ROS species. *Chem Eur*, **21**, 14708, (Journal IF: 5.731, Citations: 0)

Martínez-Sáez N; Castro-López J; Valero-González J, Madariaga D; Compañón I; Somovilla VJ; Salvadó M; Asensio JL; Jiménez-Barbero J; Avenoza A; Busto JH; Bernardes GJL; Peregrina JM; Hurtado-Guerrero R; Corzana F (2015) X-ray Structures decipher the Non-equivalence of Serine and Threonine O-glycosylation points: Implications for the Molecular Recognition of the Tn Antigen by an anti-MUC1 Antibody. *Angew. Chem. Int. Ed.*, **54**, 9830, (Journal IF: 11.261, Citations: 1)

Ferreira MC; Albuquerque IS; Matak-Vinkovic D; Coelho AC; Carvalho SM; Saraiva LM; Romão CC; Bernardes GJL* (2015) Spontaneous CO Release from RuII(CO)₂-Protein Complexes in Aqueous Solution, Cells and Mice. *Angew. Chem. Int. Ed.*, **54**, 1172, (Journal IF: 11.261, Citations: 13)

Ongoing Research Projects

2015/2019 A training network for the rational design of the next generation of well-defined glycoconjugate vaccines. Coordinator: Gonçalo José Lopes Bernardes. Agency: Comissão Europeia. Reference: GLYCOVAX. Amount: € 230148.36. Amount (total): € 3560797.08.

2015/2019 A training network for the chemical site-selective modification of proteins: Preparation of the next-generation of therapeutic chemically-defined protein conjugates. Coordinator: Gonçalo José Lopes Bernardes. Agency: Comissão Europeia. Reference: ProteinConjugates. Amount: € 741939.79. Amount (total): € 2542770.72.

2015/2016 Bridge Grant 2015. Coordinator: Gonçalo José Lopes Bernardes. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BridgeGrant2015 GBernardes. Amount:€ 15000.00.

2014/2018 PerBioImage— Exploring pericyclic reactions for bioorthogonal imaging of biological - GA 630731CIG. Coordinator: Gonçalo José Lopes Bernardes. Agency: Comissão Europeia. Reference: PerBioImage. Amount: € 100000.00. Amount (total): € 100000.00.

2014/2018 Exploratório - IFCT. Coordinator: Gonçalo José Lopes Bernardes. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: Exploratório Gonçalo Bernardes. Amount: € 50000.00. Amount (total): € 50000.00.

Other Projects

2014/2017 Marie Curie Career Installation Grant. Coordinator: Gonalo Bernardes.

2013/2017 Marie Curie Career Installation Grant. Coordinator: Gonalo Bernardes.

Original publications in peer review Journals

Nogueira E; Mangialavori IC; Loureiro A; Azoia NG; Sarra MP; Nogueira P; Freitas J; Harmark J; Shimanovich U; Rollett A; Lacroix G; Bernardes GJL, Guebitz GM; Herbert H; Moreira A; Carmo AM; Rossi JPFC; Gomes AC; Preto A; Cavaco-Paulo A Peptide anchor for folate-targeted liposomal delivery. *Biomacromolecules* 2015, **16**, 2904-2910 (Journal IF: 5.750, Citations: 1)

Loureiro A; Nogueira E; Azoia NG; Sarra MP; Abreu AS; Shimanovich U; Rollet A; Harmark J; Hebert H; Guebitz G; Bernardes GJL; Preto A; Gomes AC; Cavaco-Paulo A. Size Controlled Protein Nanoemulsions for Active Targeting of Folate Receptor Positive Cells. *Colloids Surf B Biointerfaces* 2015, **135**, 90-98 (Journal IF: 4.152, Citations: 1)

Salvado M; Amgarten B; Castellon S; Bernardes GJL*; Boutureira O. Synthesis of Fluorosugar Reagents for the Construction of Well-Defined Fluoroglycoproteins. *Org Lett* 2015, **17**, 2836-2839. (Journal IF: 6.364, Citations:0)

Nogueira E; Lager F; Le Roux D; Nogueira P; Freitas J; Charvet C; Renault G; Loureiro A; Almeida CR; Ohradanova-Repic A; Machacek C; Bernardes GJL; Moreira A; Stockinger H; Burnet M; Carmo AM; Gomes AC; Preto A; Bismuth G; Cavaco-Paulo A. Enhancing methotrexate tolerance with folate tagged liposomes in arthritic mice. *J Biomed Nanotechnol* 2015, **11**, 2243-2252. (Journal IF: 5.338, Citations:1)

Loureiro A; Bernardes GJL*; Shimanovich U; Sarra MP; Nogueira E; Preto A; Gomes AC; Cavaco-Paulo A. Folic Acid-Tagged Protein Nanoemulsions Loaded with CORM-2 Enhance the Survival of Mice Bearing Subcutaneous A20 Lymphoma Tumors. *Nanomedicine* 2015, **11**, 1077-1183 (Journal IF: 6.155, Citations: 0)

Albuquerque IS; Jeremias HF; Chaves-Ferreira M; Matak-Vinkovic D; Boutureira O; Romao CC; Bernardes GJL* Histidine-selective metallation in Interleukin-8 with a ruthenium dicarbonyl fragment. *Chem Commun* 2015, **51**, 3993-3996. (Journal IF: 6.834, Citations: 5)

Lira-Navarrete E; de las Rivas M; Companon I; Pallares MC; Kong Y; Iglesias-Fernandez J; Bernardes GJL; Peregrina JM; Rovira C; Bernado P; Bruscolini P; Clausen H; Lostao A; Corzana F; Hurtado-Guerrero R .Dynamic interplay between catalytic and lectin domains of GalNAc-transferases modulates protein O-glycosylation . *Nat Commun* 2015, **11**, 2243. (Journal IF: 11.47, Citations: 0)

Amgarten B; Rajan R; Martínez-Sáez N; Oliveira BL; Albuquerque IS; Reid DG; Brooks RA; Duer MJ; Bernardes GJL*. Collagen labelling with an azide-proline chemical reporter in live cells. *Chem Commun* 2015, **51**, 5250-5252. 96. (Journal IF: 6.834, Citations: 1)

Loureiro A; Abreu AS; Sárria MP; Figueiredo MCO; Saraiva LM; Bernardes GJL; Gomes A; Cavaco-Paulo A. Functionalized protein nanoemulsions by incorporation of chemically modified BSA. *RSC Adv.* 2015, **5**, 4976-4983. (Journal IF: 3.840, Citations:1)

Seixas JD; Santos MFA; Mukhopadhyay A; Coelho AC; Reis PM; Veiros LF; Marques AR; Penacho N; Gonçalves AML; Romão MJ; Bernardes GJL; Santos-Silva, T; Romão CC. A contribution to the rational design of Ru(CO)₃Cl₂L complexes for in vivo delivery of CO. *Dalton Trans.* 2015, **44**, 5058-5075. (Journal IF: 4.197, Citations: 1)

Crockett MP; Evans AM; Worthington MJH; Albuquerque IS; Slattery AD; Gibson CT; Bernardes GJL, Chalker JM (2015) Sulfur-Limonene Polysulfide: A Material Synthesized Entirely from Industrial Waste and Its Use in Removing Toxic Metals from Water and Soil. *Angew Chem*, **54**, 1-6, (Journal IF: 11.261, Citations: 0)

Seixas JD; Chaves-Ferreira M; Montes-Grajales D; Gonçalves AM; Marques AR; Saraiva LM; Olivero-Verbel J; Romão CC; Bernardes GJL (2015) A N-acetyl cysteine ruthenium tricarbonyl conjugate enables simultaneous release of CO and ablation of ROS species. *Chem Eur*, **21**, 14708, (Journal IF: 5.731, Citations: 0)

Martínez-Sáez N; Castro-López J; Valero-González J, Madariaga D; Compañón I; Somovilla VJ; Salvadó M; Asensio JL; Jiménez-Barbero J; Avenoza A; Busto JH; Bernardes GJL; Peregrina JM; Hurtado-Guerrero R; Corzana F (2015) X-ray Structures decipher the Non-equivalence of Serine and Threonine O-glycosylation points: Implications for the Molecular Recognition of the Tn Antigen by an anti-MUC1 Antibody. *Angew. Chem. Int. Ed.*, **54**, 9830, (Journal IF: 11.261, Citations: 1)

Ferreira MC; Albuquerque IS; Matak-Vinkovic D; Coelho AC; Carvalho SM; Saraiva LM; Romão CC; Bernardes GJL* (2015) Spontaneous CO Release from RuII(CO)₂-Protein Complexes in Aqueous Solution, Cells and Mice. *Angew. Chem. Int. Ed.*, **54**, 1172, (Journal IF: 11.261, Citations: 13)

Invited lectures and seminars

G. Bernardes, Department of Pharmacology, University of Oxford, UK, November, 2015

G. Bernardes, GSK's Emerging Academics Symposium, Stevenage, UK, October, 2015

G. Bernardes, XXXV Biannual Congress of the RSEQ, Coruña, Spain, July, 2015

G. Bernardes, 6th Chemical Protein Synthesis Meeting, St. Augustine, Florida, USA, June, 2015

G. Bernardes, Challenges in Chemical Biology: ISACS16, Zürich, Switzerland, June, 2015

G. Bernardes, London 4th Chemical Biology Symposium, London, UK, June, 2015

G. Bernardes, Protein and Antibody Engineering Europe PEGS, Engineering ADCs, Boston, USA, May, 2015

G. Bernardes, Vertex Pharmaceuticals, Abington, UK, April, 2015

G. Bernardes, Bio-orthogonal Chemistry contributing to Molecular Therapeutic Innovation—SCT

(French Society for Medicinal Chemistry), Paris, France, April, 2015

G. Bernardes, António V. Xavier Seminar @ITQB, Oeiras, Portugal, February, 2015

J. Seixas , Invited Lecture @ ITQB - "Development of multifunctional CO-Releasing Molecules (CORMs) for therapeutic applications", Oeiras, Portugal, October 21st, 2015

Communications in International Conferences

Cal P.M.S.D., Frade, R.F.M.,b Cordeiro, C., Góis P.M.P. "Iminoboronates as a Novel Bioconjugation Method", EFMC-YMCS 2015 - 2nd EFMC Young Medicinal Chemist Symposium, Antwerp, Belgium - September 17, 2015, Oral presentation as the winner of the young medicinal chemist meeting in Portugal

Communications in National Conferences

Rui Traquete, João Seixas, William Heggie, Angela Koehler, Gonçalo Bernardes; Small Molecule Drug Conjugates for Selective Cancer Therapy, MIT Portugal Programme Annual Conference; June 19 , 2015,Lisbon. (Poster Presentation)

Florian Sieglitz, Pedro Cal, Gonçalo Bernardes; Deciphering the anti-inflammatory signaling of small gaseous messengers - a novel approach using targeted delivery of H₂S, 3rd IMM Postdoc Day, September 25, 2015, Lisbon. (Poster Presentation)

Prizes, honours and awards

GSK Emerging Investigator in Academia Award to Gonçalo Bernardes

2nd Prize – Royal Society of Chemistry Emerging Technologies Competition 2015 – Health Care to Gonçalo Bernardes

Advanced teaching

Bernardes, G. gave a class about "Chemical site-selective protein modification for basic biology and targeted therapeutics", Lisbon BioMed PhD Programme, IMM; Lisbon, January 12, 2015

Carmo-Fonseca, Maria

Major Interests / Objectives

Gene regulation is central to all biology. RNA molecules, with their ability to both encode information and exert catalytic activities, play a key role in the regulation of gene expression. Our group aims to discover molecular pathways and mechanisms implicating RNA in human health and disease. More specifically, we study co-transcriptional mRNA quality control and the role of RNA in the regulation of gene expression in cancer and human aging, and we are exploring new medical applications for RNA.

Head of Laboratory

Maria do Carmo Salazar Velez Roque da Fonseca, MD/PhD, Full Professor

Research Team

Ana Catarina de Jesus	Master	Technician
Ana Rita Ramos Pires Ferreira	Graduate	MSc Student, (started September)
António Duarte Zapico Bicho de Sousa Franco	Graduate	MSc Student, (started September)
Bruno Miguel Bernardes de Jesus	PhD	Investigator
Catarina Alves do Vale	Undergraduate	Trainee
Célia Carvalho	PhD	Investigator, Faculdade Medicina da Universidade de Lisboa, Assistant Professor
Diana Margarida de Almeida Arteiro	Graduate	MSc Student, (left December)
Dinora Levy	Graduate	Administrative, Faculdade Medicina da Universidade de Lisboa
Duarte Pólvora Brandão	Graduate	MSc Student, (started September)
Evguenia Pavlovna Bekman	PhD	Investigator, ISCSEM, Assistant Professor
Joana Desterro	MD/PhD	Investigator, Faculdade Medicina da Universidade de

		Lisboa, Assistant Professor
João Pedro Abreu Pessoa	PhD	Post doctoral Investigator
José António Branco de Albuquerque	Master	Technician at IMM Lisboa and FMUL
Kenny Patrick Figueira Rebelo	Graduate	MSc Student, (started September)
Noélia Maria Fernandes Custódio	PhD	Investigator, Faculdade Medicina da Universidade de Lisboa, Assistant Professor
Rita Catarina Vaz Drago	Master	PhD Student
Rita Mingot de Almeida Mendes de Almeida	Master	PhD Student
Robert M. Martin	PhD	Post doctoral Investigator
Sandra Martins	PhD	Investigator
Sara Filipa Azevedo Barros	Graduate	MSc Student
Sarah Barneze	Graduate	MSc Student, (started October)
Sérgio Manuel Pires Marinho	Graduate	Technician, Faculdade Medicina da Universidade de Lisboa
Simão José Teixeira da Rocha	PhD	Investigator, (started April)
Soraia Vanessa Guerreiro da Silva	Graduate	MSc Student
Teresa Carvalho	PhD	Investigator, Faculdade Medicina da Universidade de Lisboa, Assistant Professor
Teresa Maria Pereira da Silva	Master	PhD Student, (started July)
Tomás Pires de Carvalho Gomes	Master	Investigator (left September)
Vanessa Borges Pires	Master	Trainee

Keywords / Research Areas

Cell and Molecular Biology, RNA biology, RNA in disease

Major scientific achievements

Expression of genetic information in eukaryotes involves a series of interconnected processes that ultimately determine the quality and amount of proteins in the cell. Many individual steps in gene expression are kinetically coupled, but tools are lacking to determine how temporal relationships between chemical reactions contribute to the output of the final gene product. We recently developed a strategy that permits direct measurements of intron dynamics in single pre-mRNA molecules in live cells, and the results reveal that splicing can occur within seconds (Rino et al 2015). We have also pioneered the analysis of nascent RNA complexes and we showed that during co-transcriptional splicing exons cleaved at the 5' splice site remain tethered to Pol II harboring the Ser5P modification (Nojima, Gomes et al 2015). We anticipate our findings will open new avenues for studying how kinetic mechanisms impact on RNA biogenesis.

Selected Publications

Nojima T, Gomes T, Grosso AR, Kimura H, Dye MJ, Dhir S, Carmo-Fonseca M, and Proudfoot N. (2015) Mammalian NET-seq reveals genome-wide nascent transcription coupled to RNA processing. *CELL* doi: 10.1016/j.cell.2015.03.027, **161**, 526. <http://www.ncbi.nlm.nih.gov/pubmed/25910207>. (Journal IF: 32.2, Citations: 8)

Martin, RM, Rino, J, Carvalho, C, Kirchhausen, T, Carmo-Fonseca, M. (2013) Live-cell visualization of pre-mRNA splicing with single-molecule sensitivity. *Cell Reports* doi: 10.1016/j.celrep.2013.08.013, **4**, 1144. <http://www.ncbi.nlm.nih.gov/pubmed/24035393>. (Journal IF: 8.3, Citations: 15)

de Almeida, SF, Grosso, AR, Koch, F, Fenouil, R, Carvalho, S, Andrade, J, Levezinho, H, Gut, M, Eick, D, Gut, I, Andrau, JC, Ferrier P, Carmo-Fonseca, M (2011) Splicing enhances recruitment of methyltransferase HYPB/Setd2 and methylation of histone H3 Lys36. *Nature Struct. Mol. Biol.* doi: 10.1038/nsmb.2123, **18**, 977. <http://www.ncbi.nlm.nih.gov/pubmed/21792193>. (Journal IF: 13.3, Citations: 92)

Martins, SB, Rino, J., Carvalho, T., Carvalho, C., Yoshida, M., Klose JM, de Almeida, SF, Carmo-Fonseca, M. (2011) Spliceosome assembly is coupled to RNA polymerase II dynamics at the 3' end of human genes. *Nature Struct. Mol. Biol.* doi: 10.1038/nsmb.2124, **18**, 1115. <http://www.ncbi.nlm.nih.gov/pubmed/21892168>. (Journal IF: 13.3, Citations: 40)

Grosso, A.R., Gomes, A.Q., Barbosa-Morais, N.L., Caldeira, S., Thorne, N.P., Grech, G., von Lindern, M., and Carmo-Fonseca, M (2009) Tissue-specific splicing factor gene expression signatures. *Nucleic Acids Research* doi: 10.1093/nar/gkn463, **36**, 4823. (Journal IF: 9.1, Citations: 68)

Ongoing Research Projects

2012/2016 PIRSES-GA-2012-318981. Coordinator: Maria do Carmo Salazar Velez Roque da Fonseca. Agency: Comissão Europeia. Reference: RNA_Regulomics_GA318981. Amount: € 67200.00. Amount (total): € 155400.00.

2011/2015 PITN-GA-2011-289007. Coordinator: Maria do Carmo Salazar Velez Roque da Fonseca. Agency: Comissão Europeia. Reference: RNPnet_ ITN289007. Amount: € 209098.70. Amount (total): € 4246947.34.

2012/2015 Splicing and stochasticity in programmed cell death decisions. Coordinator: Maria do Carmo Salazar Velez Roque da Fonseca. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/SAU-GMG/118180/2010. Amount: € 171350.00. Amount (total): € 169755.00.

2012/2015 Identification and manipulation of molecular pathways relevant for age-dependent tissue regeneration. Coordinator: Maria do Carmo Salazar Velez Roque da Fonseca. Agency: AXA SA. Reference: AXA Research Fund - UBCE. Amount: € 173595.00. Amount (total): € 700000.00.

2013/2015 Programme of Cooperation in Science and Technology between China and Portugal. Coordinator: Maria do Carmo Salazar Velez Roque da Fonseca. Agency: Fundação Ciência e Tecnologia. Reference: FCT/China. Amount: € 4744.23. Amount (total): € 9600.00.

2015/2016 Fundo IMM - Laço: A caminho da cura. Coordinator: Maria do Carmo Salazar Velez Roque da Fonseca. Agency: Laço Associação de Solidariedade Social . Reference: Laço - MCFonseca. Amount: € 75000.00. Amount (total): € 0.00.

2015/2016 Targeting of the UBE3A antisense long non-coding RNA in neurons derived from Angelman syndrome patients. Coordinator: Maria do Carmo Salazar Velez Roque da Fonseca. Agency: José de Mello Saúde S.G.P.S. Reference: Bolsa Pedro Maria José de Mello Costa Duarte . Amount: € 12500.00. Amount (total): € 0.00.

2014/2015 Prémio Gulbenkian - Best Plenary Presentation . Coordinator: Catarina Alves do Vale. Agency: AIDFM. Reference: Prémio Gulbenkian - Best Plenary Presentation . Amount: € 2000.00. Amount (total): € 2000.00.

2014/2017 Epigenética e splicing alternativo: papel na diferenciação de células imunitárias T e na leucemia. Coordinator: Maria do Carmo Salazar Velez Roque da Fonseca. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: FCT-ANR/BIM-ONC/0009/2013. Amount: € 200000.00. Amount (total): € 409874.00.

2014/2015 Exploring new therapeutic approaches for Hypertrophic Cardiomyopathy. Coordinator: Sandra Martins. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: EXPL/BIM-MEC/0201/2013. Amount: € 49500.00. Amount (total): € 49500.00.

2015/2020 Projecto de Investigação Exploratória. Coordinator: Bruno Miguel Bernardes de Jesus. Agency: Fundação para a Ciência e a Tecnologia, IP. Coordinator Institution: O. Reference: Projecto de Investigação Exploratória. Amount: € 49961.00. Amount (total): € 49961.00.

Original publications in peer review Journals

Nojima T, Gomes T, Grosso AR, Kimura H, Dye MJ, Dhir S, Carmo-Fonseca M, and Proudfoot N. (2015) Mammalian NET-seq reveals genome-wide nascent transcription coupled to RNA processing. *Cell* 161: **3**: 526-540. (Journal IF: 32.242; Citations: 8)

Rino, J., Martin, RM, Carvalho, C, de Jesus AC, Carmo-Fonseca M. (2015) Single-Molecule Imaging of RNA Splicing in Live Cells. *Methods Enzymol.* **558**: 571-585.(Journal IF: 2.088; Citations: 1)

Grosso AR, Leite AP, Carvalho S, Matos MR, Martins FB, Vítor AC, Desterro JM, Carmo-Fonseca M, de Almeida SF. (2015)“Pervasive transcription read-through promotes aberrant expression of oncogenes and RNA chimeras in renal carcinoma.” *Elife*. 2015 Nov 17;**4**. pii: e09214. doi: 10.7554/eLife.09214. (Journal IF: 9,332; Citations: 0)

Other publications International

Vaz-Drago R., Pinheiro, M.T., Martins S., Enguita F.J., Carmo-Fonseca M. and Custódio N. (2015). Transcription-coupled RNA surveillance in human genetic diseases caused by splice site mutations. *Human Molecular Genetics*, 24(10): 2784-95. doi: 10.1093/hmg/ddv039.

Carmo-Fonseca M (2015) RNA imaging: seeing is believing. *RNA* 21(4): 580-1

Carmo-Fonseca M (2015) Assembly of the nucleolus: in need of revision. *EMBO J* 34(22): 2731-2

Invited lectures and seminars

Carmo-Fonseca, M. Imaging pre-mRNA in real time. Seminar at National University of Ireland Galway. 12 February 2015.

Carmo-Fonseca, M. Splicing dynamics in real time. Seminar at Max Planck Institute for Biophysical Chemistry, Göttingen, Germany. 11 June 2015.

Carmo-Fonseca, M. Kinetics of mRNA biogenesis. Invited speaker at the symposium “RNA-based disease mechanism and therapy” 40th FEBS Congress, Berlin, Germany. 4-9 July 2015.

Carmo-Fonseca, M. Dynamics of co-transcriptional splicing. Invited speaker at the symposium “The

cell nucleus: design and principles". Wenner-Gren Center, Stockholm, Sweden. 19-22 August 2015.

Carmo-Fonseca, M. The timing of splicing: combining single-molecule and genome-wide approaches. Seminar at the Institute of Biochemistry, ETH Zurich, Switzerland. 4 September 2015.

Carmo-Fonseca, M. In vivo imaging of RNA processing: seeing is believing. Invited speaker at the Spanish Biochemical Society meeting. Valencia, Spain. 7-10 September 2015.

Carmo-Fonseca, M. The timing of splicing. Invited speaker at RNP and Disease Conference, Marrakech, Morocco. 14-17 October 2015.

Bekman, E. Pluripotency, stemness and nuclear mission of Argonautes. Seminar at Institute for Biological Research "Sinisa Stankovic", University of Belgrade, Serbia. 18 September 2015.

Communications in International Conferences

Carmo-Fonseca, M. Genome-wide analysis of co-transcriptional splicing. Oral presentation at ISMB/ECCB Conference "Integrative RNA Biology", Dublin, Ireland. 10 July 2015. (Oral Presentation)

Custódio, N. Global impact of RNA polymerase II CTD mutations on splicing. Oral presentation at RNP and Disease Conference, Marrakech, Morocco. 14-17 October 2015. (Oral Presentation)

Drago R, Custódio N, Carmo-Fonseca M. Transcription-coupled RNA surveillance in splice site mutants. Poster presented at the EMBO Conference on Nuclear Structure and Dynamics, L'Isle sur la Sorgue, France. 7-11 October 2015. (Poster Presentation)

Medeiros P, Carmo-Fonseca M, Carvalho C. Alternative Splicing Modulation in Cellular Models of Cancer: assessment of Potential Therapeutic Effect. Poster presented at the VI AIMS Meeting, Annual International Medical Students Meeting, Lisbon, Portugal, 13-15 March 2015. (Poster Presentation)

Carvalho C; Medeiros P; Pires VB; Jesus AC; Grosso AR; Barbosa- Morais NL; Carmo-Fonseca M. CLK over-expression in kidney renal clear cell carcinoma correlates with deregulation of Splicing. Poster presented at EACR Conference Series 2015, 2nd Special Conference: Cancer Genomics, Cambridge, UK, 28 June – 1 July 2015. (Poster Presentation)

Medeiros P, Carmo-Fonseca M, Carvalho C. Misregulation of alternative splicing in cancer. Poster presented at the 11th YES Meeting, Young European Scientist Meeting, Porto, Portugal, 15-18 September. (Poster Presentation)

Pires VB, Carmo-Fonseca M, Carvalho C. Testing short LNA-modified oligonucleotides for Duchenne Muscular Dystrophy gene therapy. Poster presented at the 11th Annual Meeting of the Oligonucleotide Therapeutics Society, Leiden, The Netherlands, 11-15 October 2015. (Poster Presentation)

Martins S., Carvalho, T., Mendes de Almeida, R., Santos, C. and Carmo-Fonseca M. Using the CRISPR technology to develop cellular models of Hypertrophic Cardiomyopathy. CRISPR 2015 Oxford Symposia, St Hilda's College, Oxford, UK. 23 March 2015. (Poster Presentation)

Communications in National Conferences

Carmo-Fonseca, M. O papel do laboratório no estudo das doenças neurodegenerativas. 7ª Reunião Científica da Sociedade Portuguesa de Química Clínica, Genética e Medicina Laboratorial, Braga. 17-18 Abril 2015. (Oral Presentation)

Carmo-Fonseca, M. O valor da inovação na saúde: uma visão para o futuro. Ciclo de Conferências Apifarma, Lisboa. 6 Maio 2015. (Oral Presentation)

Carmo-Fonseca, M. A democracia da Ciência. Congresso "No coração do Mundo – Ciências em rede num mundo global", Lisboa. 7-8 Maio 2015. (Oral Presentation)

Carmo-Fonseca, M. Alianças biofarmaceuticas-académicas – acelerando a inovação. Reunião AMPIF "Pharma Medical Affairs and Beyond", Lisboa. 3 Novembro 2015. (Oral Presentation)

Carmo-Fonseca, M. O que é o tratamento de precisão. Colóquio "Os novos desafios na Artrite Reumatóide", Lisboa. 17 Novembro 2015. (Oral Presentation)

Carmo-Fonseca, M. Investigação e Saúde nos próximos 30 anos: que perspectivas? Encontro Nacional das Ciências e Tecnologias da Saúde, Lisboa. 12-14 Novembro 2015. (Oral Presentation)

Martins S. Exploring new therapeutic approaches for hypertrophic cardiomyopathy. Oral presentation at Reunião Anual Grupo de Estudo de Doenças do Miocárdio e do Pericárdio, Sociedade Portuguesa de Cardiologia, Óbidos. 6-7 Março 2015. (Oral Presentation)

Bekman EP, Carvalho T, Martins S, Carmo-Fonseca M. Using CRISPR-CAS technology to explore the nuclear function of Argonaute-bound small RNAs in pluripotency. Poster presented at 9th international Meeting of the Portuguese Society for Stem Cells and Cellular Therapies, Oeiras. 15-16 October 2015. (Poster Presentation)

Pires VB, Carmo-Fonseca M, Carvalho C. Testing short LNA-modified oligonucleotides for Duchenne Muscular Dystrophy gene therapy. Poster presented at VI Jornadas Nacionais de Ciências Biomédicas, Universidade do Algarve. 12-14 March 2015. (Poster Presentation)

Pires VB, Carmo-Fonseca M, Carvalho C. Testing short LNA-modified oligonucleotides for Duchenne Muscular Dystrophy gene therapy. Oral presentation at XXXIX Jornadas Portuguesas de Genética, Universidade do Minho. 25-27 May 2015. (Oral Presentation)

da Silva S., Vaz-Drago R., Carmo, Fonseca M., and Custódio N. Kinetics of Long Noncoding RNAs. Poster presented at VI Jornadas de Ciências Biomédicas, Universidade do Algarve, Faro, Portugal. 11-14 March 2015. (Poster Presentation)

Tavares J., Custódio N., Carmo-Fonseca M., A role for CTD of RNA Pol II in pre-mRNA splicing, Oral presentation at the 4th Bioinformatic Open Days 2015, Universidade de Lisboa, Portugal, 10th April 2015. (Oral Presentation)

da Silva S, Vaz-Drago R, Carmo-Fonseca M, Custódio N. Measurement of Long Noncoding RNA kinetics in T-cells. Oral presentation at XXXIX Jornadas Portuguesas de Genética, Universidade do Minho, Portugal, 25th - 27th May 2015. (Oral Presentation)

Tavares J., Custódio N., Carmo-Fonseca M., A role for CTD of RNA Pol II in pre-mRNA splicing, Oral presentation at XXXIX Jornadas Portuguesas de Genética, Universidade do Minho, Portugal, 25th-27th May 2015.(Oral Presentation)

Sara Barros, Catarina Alves-Vale, Bruno Bernardes de Jesus and Maria Carmo-Fonseca. The role of long non-coding RNAs in stemness and cellular reprogramming. Poster presented at VI Jornadas Nacionais de Ciências Biomédicas, Universidade do Algarve. 12-14 March 2015.(Poster Presentation)

Sara Barros, Catarina Alves-Vale, Bruno Bernardes de Jesus and Maria Carmo-Fonseca. The role of long non-coding RNAs in stemness and cellular reprogramming. Oral presentation at XXXIX Jornadas Portuguesas de Genética, Universidade do Minho. 25-27 May 2015. (Oral Presentation)

Sara Barros, Catarina Alves-Vale, Bruno Bernardes de Jesus and Maria Carmo-Fonseca. A long non-coding RNA regulating cellular reprogramming. Oral presentation at iMed Conference® 7.0 – 17-20 September, Lisbon 2015. (Oral Presentation)

Catarina Alves-Vale, Sara Barros, Bruno Bernardes de Jesus, Maria Carmo-Fonseca. A long non-coding RNA enhances reprogramming and stemness. Poster presented at II Jornadas do Internato Médico-CHLN, 6-8 de Novembro de 2015, Lisboa. (Poster Presentation)

Catarina Alves-Vale, Sara Barros, Bruno Bernardes de Jesus, Maria Carmo-Fonseca. Enhancing reprogramming and stemness by targeting long non-coding RNAs. Poster presented at the IV In4Med, 20-22 February, Coimbra. (Poster Presentation)

Organisation of Conferences

Maria Carmo-Fonseca co-organized the EMBO Conference on Nuclear Structure and Dynamics held in L'Isle sur la Sorgue, France, 7-11 October 2015.

Internationalisation

Participation in an EC-funded Initial Training Network (FP7, People) entitled "RNPnet: RNP structure, function and mechanism of action".

Collaboration with Prof T. Kirchhausen at Harvard Medical School on RNA imaging in living cells.

Collaboration with Prof. N. Proudfoot on bioinformatics analysis of transcription and co-transcriptional RNA processing.

Host lab for the following international fellows:

Robert Martin, German post-doc

Sarah Barneze, Brazilian trainee

Prizes, honours and awards

Célia Carvalho was awarded the EACR Poster Prize at the Conference "Cancer Genomics", Cambridge, UK.

Catarina Vale was awarded the First Poster Prize at the I Contest AstraZeneca Foundation, IV In4Med, Coimbra.

Advanced teaching

Carmo-Fonseca, M. News from the RNA world. LisbonBioMed PhD Program, Lisboa. 5 January 2015.

Carmo-Fonseca, M. Can RNAs be used to revert aging? Bioeng&RegMed PhD Program, Lisboa. 30 January 2015.

Desterro, JM Oncobiology Curricular Unit, CAML Oncobiology Master, Instituto de Medicina Molecular, 2014/2015

Martins S. Lisbon BioMed PhD.Program, Lisboa. 5 January 2015.

Bernardes de Jesus, B. Lisbon BioMed PhD.Program, Lisboa. 5 January 2015.

Bernardes de Jesus, B. Master in Biomedical Technologies, Instituto Superior Técnico, Lisboa. 4 May 2015

Bernardes de Jesus, B. Master in Evolution and developmental biology – FCUL, Lisbon, 27 April 2015

Bernardes de Jesus, B. Master in Cell and molecular biology – FCTUC, Coimbra. 29 April 2015

Bernardes de Jesus, B. PhD program in Integrative Biology and Biomedicine – IBB, IGC, (Oeiras), 23 April 2015

Bernardes de Jesus, B. Supervision of the laboratory training of Catarina Nogueira, IST Summer Internships.

Martins S. Master in Biomedical Technologies, Instituto Superior Técnico, Lisboa. 4 May 2015

Martins, S. Supervision of the laboratory training of Catarina Sofia Micaelo Fernandes, 18^o GAPIC Program "Educação pela Ciência".

Bekman, E., Martins, S. and Carvalho, T. Supervision of the laboratory training of Ariana Peredo, Filipe Correia and Patricia Curto, IST Summer Internships.

Custódio N. Supervision of the laboratory training of Jéssica Nereu, IST Summer Internships.

Science and society

Desterro, JM "Conversas: Oncobiologia" organizado pelo Núcleo de Biologia Celular e Molecular, 2 de Dezembro 2015, no Auditório da Biblioteca da FCT/UNL

Carvalho, T. and Martins, S. Orientation of the laboratory activities of students from Colégio Valsassina, participating in the activity "A minha Primeira Experiência no mundo do trabalho". 15th-19th June 2015, Institute of Molecular Medicine, Faculty of Medicine, University of Lisbon, Portugal.

Carvalho, T. and Martins, S. Orientation of the Project " Polimorfismo de Inserção no locus Alu PV92 em alunos do Ensino Secundário do Colégio Valsassina". Madalena Carvalho e Rita Marques Pinto, 28th-30th May 2015, awarded at IX Mostra Nacional de Ciência, 23^o Concurso Jovens Cientistas e Investigadores, Lisbon, Portugal.

PhD thesis completed

Daniel Marques de Almeida de Melo Chaves 18/12/2015 The RNA 5' Phosphatase PIR-1 cooperates with Dicer to produce endogenous small RNAs and suppress viral replication in *C. elegans*. Doutoramento em Ciências Biomédicas, Faculdade de Medicina, Universidade de Lisboa Craig Mello (University of Massachussetts Medical School, USA) Maria Carmo-Fonseca

Msc thesis completed

Vanessa Borges Pires 18/12/2015 Testing short LNA-modified oligonucleotides for Duchenne Muscular Dystrophy gene therapy Mestrado em Biologia Molecular e Genética, Faculdade de Ciências da Universidade de Lisboa Célia Carvalho

Diana Margarida de Almeida Arteiro 02/12/2015 Advances in Duchenne Muscular Dystrophy gene therapy: Test of BSA nanoparticles for nucleic acid delivery Mestrado em Tecnologias Biomédicas, Instituto Superior Técnico, Universidade de Lisboa Célia Carvalho

Castanho, Miguel

Major Interests / Objectives

There are many biological processes that depend on the interaction between peptides/proteins and membrane lipids, such as viral fusion, translocation across epithelia or innate immune defence. Some of these may be inspiring to develop innovative therapeutical tools. The goal of the MCastanho Lab is to unravel the physical principles that govern lipid-peptide interactions, with implications in viral fusion (HIV and Dengue virus are of particular interest), analgesia and translocation of the blood-brain barrier, and development of antimicrobial and anticancer drugs. We are interested not only in drug targets and drug discovery itself, but also in the molecular-level mechanism of action of efficient and safe drugs.

Head of Laboratory

Miguel A. R. B. Castanho, PhD, Full Professor

Research Team

Ana Salomé Rocha do Nascimento Veiga	PhD	Investigator
Carla Iris Cadima Couto	PhD	Post doctoral Investigator
Diana Maria Diez Gaspar	PhD	Post doctoral Investigator
Diogo Alexandre de Mendonça	Graduate	Undergraduate, (started September)
Filipa Dias de Oliveira	Graduate	MSc Student, (started September)
Inês Filipa de Oliveira Almeida	Graduate	MSc Student
João Miguel Calado da Silva Freire	Master	PhD Student
Juliana Rodrigues Perazzo	Master	PhD Student
Nuno Rebello de Andrade Bustorff Silva	Graduate	MSc Student, (started September)
Rute Português Eleutério	Graduate	MSc Student, (started September)

Sandra Cristina Nunes Trigo Pinto	PhD	Post doctoral Investigator, (left June)
Sara Raquel Neves Coelho	Graduate	MSc Student, (started September)
Sónia Adelaide Queirós de Sá Santos Rocha	PhD	Post doctoral Investigator, (left February)
Tânia Raquel Martins dos Santos	Master	PhD Student, (started October)
Tânia Sofia Ferreira Morais	PhD	Post doctoral Investigator
Tiago Nascimento Figueira	Master	PhD Student
Vera Luisa Santos Neves	PhD	Post doctoral Investigator

Keywords / Research Areas

Drug discovery, Peptide, Antimicrobials/anticancer drugs, HIV, Dengue, Blood-brain barrier

Major scientific achievements

The main achievements in 2015 were:

- Demonstration that selected Kyotorphin derivatives are neuroregenerative drugs (in vivo data);
- Submission of a patent that protects the discovery of highly efficient peptides that delivers proteins across the blood-brain barrier;
- Elucidation of the mechanism of action of anticancer peptides using biomechanics;
- Development of the Time-resolved FACS technique and its use to quantitatively study the kinetics and efficacy of antimicrobial peptides.

Selected Publications

Gaspar D, Freire JM, Pacheco TR, Barata JT, Castanho MARB (2015) Apoptotic human neutrophil peptide-1 anti-tumor activity revealed by cellular biomechanics. *Biochim Biophys Acta – Mol Cell Res*, **1853**, 308-316, (Journal IF: 5.019, Citations: 3)

Freire JM, Veiga AS, Rego de Figueiredo I, de la Torre BG, Santos NC, Andreu D, Da Poian AT, Castanho MA. (2014) Nucleic acid delivery by cell penetrating peptides derived from dengue virus capsid protein: design and mechanism of action. *FEBS J*, **281**, 191-215, (Journal IF: 4.001, Citations: 7)

Santos SM, Garcia-Nimo L, Sá Santos S, Tavares I, Cocho JA, Castanho MA (2013) Neuropeptide kyotorphin (tyrosyl-arginine) has decreased levels in the cerebro-spinal fluid of Alzheimer's disease patients: potential diagnostic and pharmacological implications. *Front Aging Neurosci.*, **5**, 1, (Journal IF: 4.000, Citations: 2)

Veiga AS, Sinthuvanich C, Gaspar D, Franquelim HG, Castanho MA, Schneider JPB (2012) Arginine-rich self-assembling peptides as potent antibacterial gels. *Biomaterials*, **33**, 8907–8916, (Journal IF: 8.557, Citations: 44)

Franquelim HG, Chiantia S, Veiga AS, Santos NC, Schwille P, Castanho MA (2011) Anti-HIV-1 antibodies 2F5 and 4E10 interact differently with lipids to bind their epitopes. *AIDS*, **25**, 419-28, (Journal IF: 5.554, Citations: 1)

Ongoing Research Projects

2011/2015 Do IT - Desenvolvimento e Operacionalização da Investigação de Translação. Coordinator: Miguel Castanho. Agency: Agência de Inovação, SA. Coordinator Institution: Têxtil Manuel Gonçalves, S.A.. Reference: QREN - Do It. Amount: € 267943.47. Amount (total): € 6824791.41.

2015/2019 Innovative peptides against cancer and pathogenic bacteria, with advances in science, biopharmaceutical drug. Coordinator: Miguel Castanho. Agency: Comissão Europeia. Reference: INPACT. Amount: € 463500.00. Amount (total): € 1390500.00.

2014/2015 2nd Laço Breast Cancer Grant: Research to Make a Difference – 2014 - The role of cell-cell and cell-extracellular matrix interactions on breast cancer development and dissemination into the brain unravelled by Atomic Force Microscopy. Coordinator: Diana Maria Diez Gaspar. Agency: Laço Associação de Solidariedade Social. Reference: Bolsa Laço - Diana Gaspar. Amount: € 25000.00. Amount (total): € 25000.00.

2014/2016 Neuropore Therapies. Coordinator: Miguel Castanho. Agency: Neuropore Therapies, Inc. Reference: Neuropore Therapies. Amount: € 20000.00. Amount (total): € 20000.00.

2014/2016 Multi-target HIV entry inhibitors delivery by cationic liposomes. Coordinator: Ana Salomé Rocha do Nascimento Veiga. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: VIH/SAU/0047/2011. Amount: € 129209.00. Amount (total): € 129209.00.

2014/2016 Uma estratégia inovadora para distribuição e entrega de inibidores de entrada do HIV multi-alvo usando lipossomas catiónicos. Coordinator: Miguel Castanho. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: HIVERA/0002/2013. Amount: € 99000.01. Amount (total): € 99000.00.

2015/2016 Engineering protease-resistant alpha-beta for broad-spectrum antivirals. Coordinator: Nuno Fernando Duarte Cordeiro Correia dos Santos. Agency: Joan Sanford I. Weill Medical College of. Reference: Engineering protease-resistant - NIH. Amount: € 300000.00. Amount (total): € 300000.00.

Original publications in peer review Journals

Freire JM, Santos NC, Veiga AS, Da Poian AT and Castanho MARB. (2015) Rethinking the capsid proteins of enveloped viruses: multifunctionality from genome packaging to genome transfection. *FEBS J.* **282**, 2267–2278. (Journal IF: 4.001, Citations: 0)

Freire JM, Gaspar D, Veiga AS and Castanho MARB. (2015) Shifting gear in antimicrobial and anticancer peptides biophysical studies: from vesicles to cells. *Journal of peptide Science* **21**, 178–185. (Journal IF: 1.546, Citations: 4)

Freire JM, Almeida Dias S, Flores L, Veiga AS and Castanho MARB. (2015) Mining viral proteins for antimicrobial and cell-penetrating drug delivery peptides. *Bioinformatics* **31**, 2252–2256. (Journal IF: 4.981, Citations: 2)

Freire JM, Gaspar D, de la Torre Beatriz Garcia, Veiga AS, Andreu David , and Castanho MARB. (2015) Monitoring antibacterial permeabilization in real time using time-resolved flow cytometry. *Biochim. Biophys. Acta* **1848**, 554–560. (Journal IF: 3.836, Citations: 2)

Fernández M, Arce ER, Sarniguet C, Morais TS, Tomaz AI, Azar CO, Figueroa R, Maya JD, Medeiros A, Comini M, Garcia MH, Otero L, Gambino D (2015) Novel ruthenium(II) cyclopentadienyl thiosemicarbazone compounds with antiproliferative activity on pathogenic trypanosomatid parasite. *J. Inorg. Biochem.* **153**, 306-314 (Journal IF: 3.444; citations 0)

Arce ER, Sarniguet C, Morais TS, Vieites M, Tomaz AI, Medeiros A, Comini M, Varela J, Cerecetto H, González M, Marques F, Garcia MH, Otero L, Gambino D (2015) A new ruthenium cyclopentadienyl azole compound with activity on tumor cell lines and trypanosomatid parasites. *J. Coord. Chem.* **68**, 2923-2937 (Journal IF: 2.012; citations 0)

Sousa T, Castro R E, Pinto S N, Coutinho A, Lucas S D, Moreira R, Rodrigues C M P, Prieto M and Fernandes F (2015) Deoxycholic acid modulates cell death signaling through changes in mitochondrial membrane properties. *J. Lipid Res.* **56**, 2158-2171. (Journal IF: 4.42, Citations: 0)

Marcelo G; Pinto S; Cañeque T; Cuadro A; Vaquero J; Martinho J and Maçôas E (2015) Nonlinear Emission of Quinolizinium Based Dyes With Application in Fluorescence Lifetime Imaging. *J. Phys Chem A.* **119**:2351-2362. (Journal IF: 2.69, Citations: 0)

Santos SP, Mitchell EP, Franquelim HG, Castanho MARB, Abreu IA, Romão CV (2015) Dps from *Deinococcus radiodurans*: oligomeric forms of Dps1 with distinct cellular functions and Dps2 involved in metal storage. *FEBS Journal*, **282**: 4307-4327 (Journal IF: 4.001, Citations: 0)

Hollmann A, Gonçalves S, Augusto M, Castanho MARB, Lee B, Santos NC (2015) Effects of singlet oxygen generated by a broad-spectrum viral fusion inhibitor on membrane nanoarchitecture. *Nanomedicine: Nanotechnology, Biology and Medicine*, **11**, 1163-1167 (Journal IF: 5.413, Citations: 1)

Faustino AF, Martins I, Carvalho FA, Castanho MARB, Stroh S, Santos NC (2015) Understanding Dengue Virus Capsid Protein Interaction with Key Biological Targets. *Scientific reports*, **5** (Journal IF: 5.578, Citations: 0)

Serrano ID, Ramu VG, Pinto AR, Freire JM, Tavares I, Heras M, Bardaji ER, Castanho MARB (2015) Correlation between membrane translocation and analgesic efficacy in kyotorphin derivatives. *Biopolymers Peptide Science*, **104**, 1-10 (Journal IF: 2.385, Citations: 1)

Other publications International

Sousa T P M, Castro R E, Pinto S N, Coutinho A, Lucas S D, Moreira R, Rodrigues C M P, Prieto M and Fernandes F (2015) The Cytotoxic Bile Acid DCA Modulates Apoptotic Signalling through Alteration of Mitochondrial Membrane Properties. *Biophys J.* **108**, 242a. (Journal IF: 3.97, Citations: 0)

Da Poian AT, Castanho MARB (2015) *Integrative Human Biochemistry. A textbook for Medical Biochemistry.* Springer (New York, USA; Heidelberg, Germany). ISBN 9781493930586 9781493930579; DOI 10.1007/978-1-4939-3058-6 (Downloads: 1,091 source: "Bookmetrix")

Castanho MARB, Gaspar D, Veiga AS (2015) Co-editors of the Research Topic "peptides as Drugs", *Frontiers in Pharmacology*, section Experimental Pharmacology and Drug Discovery, <http://journal.frontiersin.org/researchtopic/2767/peptides-as-drugs>

Invited lectures and seminars

Castanho, MARRB. Viral cell-penetrating peptides and proteins: overlooking the obvious. Lessons from Dengue virus. Université Pierre et Marie Curie, February 23rd, 2015

Castanho, MARB. Biomembranes as drug targets for antimicrobial peptides: from vesicles to bacteria. 23rd Congress of the IUBMB/44th Annual Meeting of the SBBQ, Foz do Iguaçu, Brazil, August 27th, 2015.

Communications in International Conferences

Carvalho SB, Freire JM, Mafalda G, Moleirinho MG, Monteiro F, Gaspar D, Castanho MARB, Carrondo MJT, Alves PM, Bernardes GJL, and Peixoto C. Click Chemistry Approach to Monitor and Improve Influenza VLPs Downstream Processing. *Affinity 2015*, 21st Biennial Meeting of the International Society for Molecular Recognition, Puerto Vallarta, Mexico, 27th September - 1st October 2015 (Oral Presentation)

Freire JM, Almeida Dias S, Flores L, Veiga AS and Castanho MARB. Viral capsid proteins' translocation across membranes: a resource of membrane-active peptides. International Symposium CPP Paris 2015: From Cell-Penetrating Peptides to Nanoparticles for Cellular Delivery, Paris, France July 1-3rd 2015 (Oral Presentation)

Figueira, T.N. and Freire, J.M., siRNA-cell-penetrating peptides complexes as a synergistic therapy against Chronic Myeloid Leukemia, From Cell-Penetrating Peptides to Nanoparticles for Cellular Delivery, Paris, France. July 2015 (Poster Presentation)

Figueira, T.N., Evaluating the protein-lipid interactions of F63, a broad and potent anti-HIV single domain antibody, 10th EBSA European Biophysics Congress, Dresden, Germany. July 2015 (Poster Presentation)

Veiga AS, Freire JM, De la Torre BG, Santos NC, Andreu D, Da Poian AT, Castanho MARB. Nucleic acid delivery vectors derived from viral proteins: Cell Penetrating Peptides vs. Supercharged Proteins, International Symposium CPP Paris 2015: From cell-penetrating peptides to nanoparticles for cellular delivery, Paris, France. July 2015 (Poster Presentation)

Garcia MH, Morais TS, Tomaz AI, Marques F. Valente A, Ruthenium drugs for cancer therapy: small structural changes, different in vivo performances, 4th International Conference on Medicinal Chemistry & Computer Aided Drug Designing, Atlanta, USA, 02 - 04 November 2015 (Oral Presentation)

Ventura A E, Pinto S N, Varela A R, Futerman A H, Prieto M and Silva L C. Ceramide-induced biophysical alterations in membranes of live cells. International Ceramide Conference, Izmir, Turkey, May 2015 (Oral Presentation)

Pinto S N, Laviad E L, Stiban J, Kelly S L, Merrill Jr A H, Prieto M, Futerman A H and Silva L C. Effect of ceramide-acyl chain structure on the biophysical properties of living cells. International Ceramide Conference, Izmir, Turkey, May 2015 (Poster Presentation)

Ventura A E, Pinto S N, Varela A R, Futerman A H, Prieto M and Silva L C. Activation of TNF receptor leads to ceramide-gel domain formation in endocytic vesicles. WE-Heraeus Seminar: Advanced Microscopy of Membrane Biophysics, Bad Honnef, Germany, April 2015 (Oral and Poster Presentation)

Sousa T P M, Castro R E, Pinto S N, Coutinho A, Lucas S D, Moreira R, Rodrigues C M P, Prieto M and Fernandes F. The cytotoxic bile acid DCA modulates apoptotic signalling through alteration of mitochondrial membrane properties. 59th Biophysical Society Annual Meeting, Baltimore, Maryland, USA, February 2015 (Poster Presentation)

Ventura A E, Varela A R, Pinto S, Silva L C, Prieto M. Unraveling the biophysical properties of sphingolipids: from model to cell membranes. International Ceramide Conference, Izmir, Turkey, May 2015. (Oral Presentation)

Communications in National Conferences

Freire JM, Veiga AS and Castanho MARB. Capsid proteins' translocation across membranes: Chance or evolutionary fitness? IX CAML PhD Students Meeting, March 26-27, 2015. (Oral Presentation)

Figueira, T.N., Protein-lipid membrane interactions of a broad and potent engineered single domain antibody against HIV, IX IMM/CAML PhD Students Meeting, Lisbon, Portugal. March 2015 (Poster Presentation)

Gaspar, D., Freire, J. M., Pacheco, T. R., Barata, J. T., Castanho, M. A. R. B. C. Evaluation of tumor cells' biomechanical properties for assessing the chemotherapy efficacy of anticancer peptides. 3rd IMM Post-Doctoral Day, Lisboa, September 25, 2015. (Poster Presentation)

Santos I., Neves V., Castanho M. Blood-based biomarker for Alzheimer's disease. iMED conference® 7.0, Lisbon, 17-20th September 2015. (Poster Presentation)

Neves V., Aires-da-Silva F., Morais M., Gano L., Fernandes C., Pinto A., Gaspar D., Correia G., Castanho M. Peptides for drug delivery to the brain. 3th IMM Postdoc day, Lisbon, 25th September 2015. (Poster Presentation)

Cadima-Couto I., Freire J. M., Santos C., Gonçalves J., Castanho M. A. R. B., Veiga A. S. Antimicrobial peptides as a source of new anti-HIV agents. 3rd iMM Post-Doctoral Day, Lisboa, September 25, 2015. (Poster Presentation)

Poeta AC, Assis AS, Valente A, Morais TS, Marques F, Robalo MP, Santos S, Tomaz AI, Garcia MH, On the field of metallodrugs: novel ruthenium(II) complexes with thiosemicarbazones, 19th European Symposium on Organic Chemistry (ESOC), Lisboa, Portugal, 12-16 July 2015 (Poster Presentation)

Freitas M, Morais TS, Xavier NM, Garcia MH, Synthesis of new ruthenium cyclopentadienyl complexes comprising carbohydrate ligands as potential antitumor agents, 19th European Symposium on Organic Chemistry (ESOC), Lisboa, Portugal, 12-16 July 2015 (Poster Presentation)

Mil-Homens D, El-Kirat-Chatel S, Beaussart A, Pinto S, Fernandes F, Dufrêne Y F and Fialho A M. Unveiling the role of the trimeric autotransporter adhesin BCAM0224 in Burkholderia cenocepacia pathogenesis. 6th Congress of Microbiology and Biotechnology, Évora, Portugal, December 2015 (Oral Presentation)

Pinto S N, Mil-Homens D, Castanho M A R B, Prieto M, Coutinho A and Veiga A S. Studying the relationship between diffusion of antimicrobial agents within bacterial biofilms and anti-biofilm activity using confocal microscopy techniques. 6th Congress of Microbiology and Biotechnology, Évora, Portugal, December 2015 (Poster Presentation)

Meleiro A I, Pinto S N, Monteiro G A and Fernandes F. Reverse lipofection for spatially defined transfection with DNA/cationic lipoplexes. 6 th Congress of Microbiology and Biotechnology, Évora, Portugal, December 2015 (Poster Presentation)

Pinto S N, Mil-Homens D, Castanho M A R B, Prieto M, Coutinho A and Veiga A S. Confocal microscopy tools applied to the study of antimicrobial agents diffusion into bacterial biofilms. 3rd IMM Postdoc Day, Lisbon, Portugal, September 2015 (Poster Presentation)

Organisation of Conferences

Castanho, MARB. Member of the organizing Committee of the 23rd Congress of the IUBMB/44th Annual Meeting of the SBBQ, Foz do Iguaçu, Brazil, August 24th-28th, 2015.

Castanho, MARB. Co-chairman of the symposium "Teaching Biochemistry in a connected world", 23rd Congress of the IUBMB/44th Annual Meeting of the SBBQ, Foz do Iguaçu, Brazil, August 26th, 2015.

Castanho, MARB. Co-chairman of the Symposium "Personalized Medicine and Platforms of Integrative Research", 2ª Conferência Anual Inovação em Saúde, Universidade de Lisboa, June 16th, 2015

Freire JF. Organizer (IMM/CAML PhD Students Representative). IX IMM/CAML PhD Students meeting 2015 (Invited Speakers: Carlos Fiolhais, Firdaus Dahbhar). Lisbon, Portugal, March 26.

Gaspar D. Organizer of the 3rd iMM Post-Doctoral Day, Lisboa, Portugal, September 25, 2015.

Neves V. Organizer, 3th iMM Postdoc day, Lisbon, Portugal, September 25th, 2015.

Internationalisation

Visiting Researcher H2020 RISE program (ID: 644167) – 6 months; ProteoDesign and Pompeu Fabra University, Barcelona Biomedical Research Park, Barcelona Spain. Proteomics/pharmacokinetics and Drug Design of peptides and Antibody Drug Conjugates.

Visiting Student: Institute Pasteur, Paris, France. Christophe Zimmer lab – 3 months. Super Res. Microscopy – PALM/STORM, and image processing and analysis.

Prizes, honours and awards

Grünenthal Foundation award in Clinical Research, DOR2014, 2015 to I. Tavares, M. Castanho, S. S. Santos, S. M. Santos.

Tagus Gás Ambassador in "Jovens com Gás" Awards, 2015, M. Castanho.

Affinity 2015, 21st Biennial Meeting of the International Society for Molecular Recognition Best Oral Presentation.

ScienceIN2Business, Teclabs 2015 to M. H. Garcia, T. S. Morais, A. Valente, A. I. Tomaz

Patents/prototypes

PT108181 "DESIGN OF PEPTIDES FOR BRAIN DELIVERY" GL Miguel Castanho

Advanced teaching

Figueira, T.N. attended the course "Bioimaging NanoCourse on Microscopy", iMM, Lisbon. November 4-6, 2015

Veiga AS. participated as lecturer in the course "Nanomedicine and Biochemistry", LisbonBioMed PhD Programme, iMM, Lisbon. January 19-20, 2015

Gaspar, D. participated as lecturer in the LisbonBioMed PhD Program: Towards a Creative and Critical Mind, iMM-FMUL with the presentation "Antimicrobial Peptides", iMM Lisboa, Lisbon. January 19, 2015.

Gaspar, D. Chair at the IX PhD Students Meeting, iMM Lisboa, March 26-27, 2015.

Gaspar, D. organized the "Pizza Seminars" at the iMM Lisboa during 2015.

Science and society

Castanho, MARB (2015) Press media news on the RISE project.

Gaspar, D. organized and participated as lecturer in the iMM Lisboa Open Day, Lisbon. November 27, 2015.

Msc thesis completed

Susana Filipa Almeida Dias 13/11/2015 Fighting bacteria using selective drugs for membranes
Universidade de Lisboa Ana Coutinho Miguel Castanho

Inês Filipa de Oliveira Almeida 01/12/2015 Fighting breast cancer using membrane-active
peptides Universidade Nova de Lisboa Miguel A. R. B. Castanho Diana Gaspar

Costa, Luis

Major Interests / Objectives

In cancer, metastases are the hallmark of lethality. This unique and complex phenomenon is related not only to the genomic alterations in the cancer cell but also to the heterotypic signaling between cancer cells and host tissues, which could explain metastatic organotropism and how tumours reinvent themselves as new tissues in the target organ. We aim to contribute to the understanding of molecular mechanisms involved in tumour progression at the metastatic site (using bone metastases as paradigm) and to unravel molecular signatures of organotropism by identifying “leader genes signatures” common to primary tumour and the corresponding site of metastases (using Colorectal Cancer (CRC) as model) and, also, to study the relevance of Phospholipase C family of enzymes in CRC progression.

Head of Laboratory

Luis António Marquês da Costa, MD/PhD

Research Team

Afonso Camilo Rodrigues Fernandes	PhD	Consultant
Arlindo Júlio Rebelo da Silva Ferreira	Master	Investigator, MD
Diana Domingos de Matos	Graduate	MSc Student
Inês André Correia	Graduate	MSc Student, (started October)
Inês Maria Duarte Vaz Luis	Graduate	Investigator, HSM, Teaching Assistant
Irina Margarida Pereira Machado Alho Duarte	PhD	Investigator
Isabel Cristina Ferreira Fernandes Borges da Costa	Master	Investigator, chIn, Clinical Specialist, Assistant Professor
Joana Maria Tato Ribeiro Costa	Graduate	Post doctoral Investigator, (left April)
Maria José Palma Bettencourt	Graduate	MSc Student
Mário Alberto Ferreira Maia Matos	Graduate	MSc Student

Marta Sofia Alves Martins	PhD	Investigator, (started February)
Raquel Sofia Cruz Duarte	Graduate	MSc Student, (started October)
Ricardo Castanheira Pires	Graduate	Technician
Rudolfo Pais Mendes Ferreira Francisco	Graduate	Consultant
Sandra Cristina Cara de Anjo Casimiro	PhD	Post doctoral Investigator
Sandra Sofia Chorão Lavajo Lucas	Graduate	Administrative
Sara Santos Henriques	Graduate	Investigator, (started May)
Tânia Elisa dos Santos Silva	Graduate	Administrative, (left June)
Teresa Raquel Duarte Pacheco	PhD	Post doctoral Investigator

Keywords / Research Areas

Metastasis, metastatic organotropism, tumor microenvironment, leader genes signatures, tumor heterogeneity

Major scientific achievements

In the bone metastases field we pursued the path of understanding the role of RANK-RANKL axis in cancer cell behavior. We have shown that RANKL activates several downstream signaling pathways, stimulates cell migration, increases cell invasion, and upregulates MMP-1 expression. Also, we identified a RANK SNP (rs34945627) that is associated to a worst overall survival. Our clinical data confirms that collagen type I fragments such as NTX are the most potent biomarker to predict survival in patients with breast cancer and bone metastases. We generated a biobank of more than 700 CRC samples including a sub-cohort of matched of normal, primary, metastasis and blood samples. Using this samples, we demonstrated already that high MTDH expression is a biomarker of relapse in CRC, including lung-specific relapse and we have provided, first-hand, strongly suggestive evidence that senescent cancer cells emerging in the context of neoadjuvant therapy for CRC influenced the tumor microenvironment by promoting epithelial-to-mesenchymal transition (EMT) by way of short-range interactions.

Selected Publications

J. Tato Costa, S. Casimiro, T. Pacheco, R. Pires, A. Fernandes, I. Alho, P. Pereira, P. Costa, H. B. Castelo, J. Ferreira, L. Costa (2015) Therapy-induced cellular senescence induces epithelial-to-mesenchymal transition and increases invasiveness in rectal cancer. *Clinical Colorectal Cancer* published online 30Sep2015. (Journal IF: 2.813, Citations: 0)

Casimiro Sandra, Mohammad Khalid S., Pires Ricardo, Tato-Costa Joana, Alho Irina, Teixeira Rui, Carvalho António, Ribeiro Sofia, Lipton Allan, Guise Theresa A, Costa Luis (2014) RANKL/RANK/MMP-1 Molecular Triad Contributes to the Metastatic Phenotype of Breast and Prostate Cancer Cells In Vitro. *Plos One* 8(5), e63153. (Journal IF: 3.234, Citations: 17)

Casimiro S, Fernandes A, Oliveira AG, Franco M, Pires R, Peres M, Matias M, Tato-Costa J, Guerra N, Ramos M, Cruz J, Costa L (2014) Metadherin expression and lung relapse in patients with colorectal carcinoma. *Clin Exp Metastasis* 31, 689. (Journal IF: 3.491, Citations: 4)

Pakala SB, Rayala SK, Wang RA, Ohshiro K, Mudvari P, Reddy SD, Zheng Y, Pires R, Casimiro S, Pillai MR, Costa L, Kumar R. (2013) MTA1 promotes STAT3 transcription and pulmonary metastasis in breast cancer. *Cancer Res* 73, 3761. (Journal IF: 9.329, Citations: 14)

Henry David, Costa Luis, Goldwasser Francois, Hirsh Vera, Hungria Vania, Prausova Jana, Scagliotti Giorgio Vittorio, Sleeboom Harm, Spencer Andrew, Vadhan-Raj Saroj, Moos Roger von, Willenbacher Wolfgang, Woll Penella J, Wang Jianming, Jiang Qi, Jun Susie, Dansey Roger, Yeh Howard (2011) A Randomized, Double-blind Study of Denosumab Versus Zoledronic Acid in the Treatment of Bone Metastases in Patients With Advanced Cancer (Excluding Breast and Prostate Cancer) or Multiple Myeloma. *JCO* 29(9), 1125-1132. (Journal IF: 18.443, Citations: 117)

Ongoing Research Projects

2013/2016. Coordinator: Luis António Marquês da Costa. Agency: Celgene Sociedade Unip., Lda.. Reference: Colagenio do Cancro da Mama. Amount: € 4000.00. Amount (total): € 4000.00.

2013/2016. Coordinator: Luis António Marquês da Costa. Agency: Fundação Ciência e Tecnologia. Reference: EXCL/QEQ-MED/0233/2012. Amount: € 33000.00. Amount (total): € 496065.00.

2013/2015. Coordinator: Luis António Marquês da Costa. Agency: Merck, S.A. Reference: C-MET in Bone Metastases. Amount: € 21000.00. Amount (total): € 21000.00.

2014/2016 Mechanisms of invasion and progression of cancer in bone: Molecular profiling of

matrix and adhesion-related molecules in metastatic disease. Coordinator: Sandra Cristina Cara de Anjo Casimiro. Agency: Liga Portuguesa Contra o Cancro. Reference: Liga Portuguesa contra o cancro /Terry Fox. Amount: € 15000.00. Amount (total): € 10000.00.

2015/2016 Bridge Grant 2015. Coordinator: Luis António Marquês da Costa. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BridgeGrant2015 LCosta. Amount: € 15000.00. Amount (total): € 0.00.

2015/2018 Analysis of RANK protein expression in Cohort 2 using immunohistochemistry (IHC) in 70 matched primary breast cancer tumors and distant metastasis. Coordinator: Luis António Marquês da Costa. Agency: Amgen Inc. Reference: Preclinical Research Program . Amount: € 29105.60. Amount (total): € 0.00.

2014/2016 Relative effectivity of aromatase inhibitors versus tamoxifen in patients with early breast cancer. Coordinator: Arlindo Júlio Rebelo da Silva Ferreira. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: HMSP-ICJ/0007/2013. Amount: € 99999.99. Amount (total): € 100000.00.

2014/2015 Papel da Fosfolipase C. Coordinator: Luis António Marquês da Costa. Agency: Merck, S.A. Reference: Papel da Fosfolipase C. Amount: € 4208.40. Amount (total): € 19734.00.

2013/2016 Caracterização Molecular de Carcinomas da Mama. Coordinator: Sandra Cristina Cara de Anjo Casimiro. Agency: Novartis Farma, S.A.. Reference: Caracterização Molecular de Carcinomas da Mama. Amount: € 10000.00. Amount (total): € 10000.00.

2014/2015 CancerSys - Multiscale modeling for personalized therapy of bone metastasis. Coordinator: Luis António Marquês da Costa. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: EXPL/EMS-SIS/1954/2013. Amount: € 20049.00. Amount (total): € 49997.00.

2014/2015 Mechanisms and relevance of Phospholipase C epsilon downregulation in cancer. Coordinator: Marta Sofia Alves Martins. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: EXPL/BIM-ONC/1048/2013. Amount: € 37700.00. Amount (total): € 37700.00.

2011/2015 Mechanisms of invasion and progression in metastatic bone disease. Coordinator: Inês Maria Duarte Vaz Luis. Agency: Fundação Ciência e Tecnologia. Reference: HMSP-ICS/0004/2011. Amount: € 400000.01. Amount (total): € 400000.00.

Other Projects

2013/2017 Advanced breast cancer: prognosis and therapeutics. Coordinator: Sandra Casimiro.

2013/2015 Luminal-type breast cancer: prognostic value of RANK-positive lymphatic nodes. Coordinator: Sandra Casimiro

Original publications in peer review Journals

Tato-Costa J, Casimiro S, Pacheco T, Pires R, Fernandes A, Alho I, Pereira P, Costa P, Castelo HB, Ferreira J, Costa L (2015) Therapy-Induced Cellular Senescence Induces Epithelial-to-Mesenchymal Transition and Increases Invasiveness in Rectal Cancer. *Clin Colorectal Cancer*. Oct 23. pii: S1533-0028(15)00113-9. (Journal IF: 2.813, Citations:0)

Lambertini M, Ferreira AR, Poggio F, Puglisi F, Bernardo A, Montemurro F, Poletto E, Pozzi E, Rossi V, Risi E, Lai A, Zanardi A, Sini V, Ziliani S, Minuti G, Mura S, Grasso D, Fontana A and Del Mastro L (2015) Patterns of care and clinical outcomes of first-line trastuzumab-based therapy in HER2-positive metastatic breast cancer patients relapsing after (neo)adjuvant trastuzumab: an Italian multicenter retrospective cohort study. *The Oncologist* 20(8): 880-889 (Journal IF: 4.87, Citations: 0)

Fernandes I, Rueff MC, Portela S, Mansinho, A (2015) Impact of the economic crisis in the approval of new oncological drugs – the Portuguese paradigm. *IJMAS Vol I (9)*: 15-18. (Journal IF: 1.9, Citations: 0)

Lambertini M, Ferreira AR, Del Mastro L, Danesid R and Pronzato P (2015) Pegfilgrastim for the prevention of chemotherapy-induced febrile neutropenia in patients with solid tumors. *Expert Opin Biol Ther*. 15(12):1799-817. (Journal IF: 3.74, Citations: 0)

Matias M, Casa-Nova M, Faria M, Pires R, Tato-Costa J, Ribeiro L, Costa L. (2015) Prognostic Factors after Liver Resection for Colorectal Liver Metastasis. *Acta Med Port*. 28(3):357-369. (Journal IF: 0.36, Citations: 0)

Mendes D, Alves C, Afonso N, Cardoso F, Passos Coelho JL, Costa L, Andrade S, Marques FB (2015) The benefit of HER2 targeted therapies on overall survival of patients with metastatic HER2+ breast cancer - a systematic review. *Breast Cancer Res*. 17: 140 (Journal IF: 5.490, Citations: 0)

Other publications International

Body J-J, Casimiro S, Costa L. (2015) Targeting bone metastases in prostate cancer: improving clinical outcome. *Nat Rev Urology*. 12:340–356. (Journal IF: 4.840, Citations: 1)

Vendrell I, Macedo D, Alho I, M. R. Dionísio MR, Costa L (2015) Treatment of Cancer Pain by Targeting Cytokines. *Mediators of Inflammation* 2015: 984570. (Journal IF:3.236 , Citations:0)

Toi M, Pillai MR, Gupta S, Badwe R, Carmo-Fonseca M, Costa L, Chow LWC, Knapp S and Kumar R. (2015) The global cancer genomics consortium's symposium: new era of molecular medicine and epigenetic cancer medicine - cross section of genomics and epigenetics. *Genes & Cancer*

6(1-2): 1–8 (Journal IF: NA, Citations: 0)

Body JJ, Pereira J, Sleeboom H, Maniadakis N, Terpos E, Acklin YP, Finek J, Gunther O, Hechmati G, Mossman T, Costa L, Rogowski W, Nahi H, von Moos R. (2015) Health resource utilization associated with skeletal-related events: results from a retrospective European study. *Eur J Health Econ.* 14(7): A455-456 (Journal IF: NA, Citations: 0)

Ferreira AR, Saini KS and Metzger-Filho O (2015) Treatment of Early-stage HER2+ breast cancer – An evolving field. *Ecancermedicalscience* 9:523 (Journal IF: 1.20, Citations: 3)

Costa AL, Abreu C, Pacheco TR, Macedo D, Sousa AR, Pulido C, Quintela A, Costa L. (2015) Prevention of Nausea and Vomiting in Patients Undergoing Oral Anticancer Therapies for Solid Tumors. *Biomed Res Int.* vol. 2015: 309601 (Journal IF: 1.579, Citations: 0)

Other publications National

Mansinho A, Macedo D, Nunes B, Fernandes I, Jorge M and Borges da Costa J. (2015) Abordagem terapêutica do Sarcoma de Kaposi – A importância da multidisciplinaridade. *Revista da Sociedade Portuguesa de Dermatologia e Venereologia*, 73 (2): 199-211. (Journal IF: NA, Citations: 0)

Ferreira AR, Pulido C, Costa L (2015) Bone as a target in breast cancer therapy (chapter in Portuguese). F. Cardoso (Ed.), 100 Perguntas Chave no Cancro da Mama, Permanyer Portugal.

Invited lectures and seminars

Costa, L. New therapies and approaches in cancer-induced bone disease. Clinical debate: Radium-223 can augment the efficacy of cancer and bone treatments for metabolic bone disease. ECTS & IBMS Joint Meeting 2015. Rotterdam, The Netherlands, April 27, 2015

Costa, L. Mechanisms of Resistance in Breast Cancer. UMIB-SUMMIT ICBAS. Porto, Portugal, September 24, 2015

Costa, L. Molecular Mechanisms in metastases in breast cancer-is bone a useful paradigm? Annual Breast Cancer Conference in Norway, Oslo, Norway, October 7, 2015

Costa, L. Prognostic Biomarkers in Metastatic Breast Cancer. Cancer Genomics and Biology 2015. Jiu Jiang University, China, November 13, 2015

Casimiro, S. Polimorfismos do RANK: impacto prognóstico no Cancro da Mama. Sessão do Centro Académico de Medicina de Lisboa, Universidade de Lisboa, Portugal, November 26, 2015

Ferreira, AR. Tamoxifen or aromatase inhibitors for the adjuvant treatment of early breast cancer: a multicentric effectiveness analysis. Sessão do Centro Académico de Medicina de Lisboa, Universidade de Lisboa, Portugal, November 26, 2015

Ferreira, AR, Di Meglio, A. Early Invasive Lobular Carcinoma of the breast: Disease presentation, response to therapy and mixed ILC/IDC entities. Breast Oncology Seminar Series meeting, Dana-Farber Cancer Institute (CME accredited), Boston, USA, September 15, 2015

Fernandes I. Novas abordagens terapêuticas em sarcomas. 11ª Jornadas da Primavera, Évora, Portugal, April 23-25, 2015

Fernandes, I. Carcinoma de células renais metastático AXITINIB – Quando? XX Workshop de Urological oncology, Algarve, Portugal, 2015

Fernandes, I. Soft tissue and bone sarcomas and GIST. Neuroendocrine tumors. 1st Portuguese master course of clinical oncology, Batalha, Portugal, 2015

Mansinho, A., Fernandes I. Pâncreas neuroendocrine tumor – a clinical case. SPO, Porto, Portugal, 2015

Fernandes, I. The future of the practice of oncology in Portugal based on the organ versus disease entity (Case study: Neuroendocrine Tumors). SPO annual meeting, Monte Real, Portugal, November 21, 2015

Communications in International Conferences

Buonadonna, A., Kasper, B., Blay, J.Y., Fernandes, I., Eisterer, W., Lopez, P. A., Benson, C., Penel, N. Trabectedin in elderly patients with recurrent soft tissue sarcoma (STS): na interim analysis of a non-interventional, prospective phase IV study. CTOS 20th Annual Meeting, Salt Lake City, Utah, USA, November 2015 (Oral Presentation)

Fernandes, I., Rueff, M.C., Portela, S. Transdisciplinarity in strategic decisions for oncological treatments. WAML (World Association of Medical Law), Coimbra, Portugal. August 2015 (Oral Presentation)

Fernandes, I., Rueff, M.C., Portela, S., Mansinho, A. Impact of the economic crisis in the approval of new oncological drugs – the Portuguese paradigm. ISERD Conference - 7th International Conference on Economics, Management and Social Study (ICEMSS), Lisbon, Portugal, August 2015 (Oral Presentation)

Santos, A.P., Bugalho, M.J., Lopes, J.M., Claro, I., Sanches, A.C., Gomes, L., Catarino, A.L., Preto, J., Fernandes, I., Pereira, B., Marques, A.P., Rodrigues, F. Preliminary results on the diagnosis of NETs in Portugal - the Cross sectional TNE-ETC survey. 12th Annual Conference for the

diagnosis and treatment of neuroendocrine tumor disease, Barcelona, Spain,
March 2015 (Oral Presentation)

Casimiro, S., Ferreira, A.R., Alho, I., Melo, M., Brás, R., Costa, A.L., Mansinho, A., Abreu, C., Pulido, C., Macedo, D., Sousa, A.R., Pacheco, T., Costa, L. The prognostic role of RANK single nucleotide polymorphisms in breast cancer patients with bone metastases. San Antonio Breast Cancer Conference, San Antonio, Texas, USA, December 2015 (Poster Presentation)

Pacheco, T.R., Fernandes, A.C., Ali, S.M., Maia-Matos, M., Gaspon, A.L., Abreu, C., Alves, S.T., Correia, L., Lara, J.F., Michaelson, R.A., Ferreira, A.R., Matias, M., Leitzel, K., Lipton, A., Costa, L.. Activation of PI3K/AKT/mTOR pathway in ER+ breast cancer: analysis of paired primary and metastatic tumor samples. American Society of Clinical Oncology Annual Meeting, Chicago, USA, May 2015 (Poster Presentation)

Vendrell, I., Ferreira, A.R., Pulido, C., Abrunhosa-Branquinho, A.N., Pinto, C., Costa, L. Neutropenia risk in HIV patients and cervical cancer treated with chemoradiotherapy. International meeting of the European Society of Gynecological Oncology, Nice, France, October 2015 (Poster Presentation)

Communications in National Conferences

Ferreira, A.R., Palha, A., Correia, L., Filipe, P., Rodrigues, V., Costa, L., Miranda, A., André, R., Fernandes, J., Gouveia, J., Passos Coelho, J.L., Moreira, A., Brito, M., Ribeiro, J., Metzger-Filho, O., Lin, N.U., Vaz-Luís, I. Variation in the patterns of use of chemotherapy in patients with stage I breast cancer: a multi-institutional study. Encontros da Primavera, Évora, Portugal, April 2015. (Oral Presentation)

Ferreira, A.R., Palha, A., Correia, L., Filipe, P., Rodrigues, V., Costa, L., Miranda, A., André, R., Fernandes, J., Gouveia, J., Passos Coelho, J.L., Moreira, A., Brito, M., Ribeiro, J., Metzger-Filho, O., Lin, N.U., Vaz-Luís, I. The use of trastuzumab in patients with early breast cancer: a multi-institutional study. Encontros da Primavera, Évora, Portugal, April 2015. (Oral Presentation)

Organisation of Conferences

Costa L. Organizer of the Oncology Series 2015, Lisbon, Portugal, 2015

Prizes, honours and awards

ISERD Excellent Paper Award to Isabel Fernandes for Fernandes, I., Rueff, M.C., Portela, S., Mansinho, A. Impact of the economic crisis in the approval of new oncological drugs – the

Portuguese paradigm. ISERD Conference - 7th International Conference on Economics, Management and Social Study (ICEMSS), Lisbon, Portugal, August 2015 (Oral Presentation)

Second Best Oral Communication to Arlindo Ferreira for Ferreira, A.R., Palha, A., Correia, L., Filipe, P., Rodrigues, V., Costa, L., Miranda, A., André, R., Fernandes, J., Gouveia, J., Passos Coelho, J.L., Moreira, A., Brito, M., Ribeiro, J., Metzger-Filho, O., Lin, N.U., Vaz-Luís, I. Variation in the patterns of use of chemotherapy in patients with stage I breast cancer: a multi-institutional study. Encontros da Primavera, Évora, Portugal, April 2015.

Advanced teaching

Costa, L. Director of the Oncobiology Masters Course, FML, 2014-2015

Casimiro, S., Executive Coordinator of the Oncobiology Masters Course, FML, 2014-2015

PhD thesis completed

Joana Tato-Costa 27/02/2015 Effects of chemotherapy and radiotherapy in rectal cancer: significance of different cellular outcomes in tumour behavior Universidade de Lisboa Luis Costa Sandra Casimiro

Msc thesis completed

Sara Henriques 22/01/2015 Luminal-type breast cancer: prognostic value of RANK-positive lymphatic nodes: RANK+ luminal breast cancer in vitro Universidade de Lisboa Sandra Casimiro

Diana Matos 26/03/2015 Synthesis, Characterization and Biological Assessment of Multi-Functional Bone-Seeking Agents. Evaluation of the effects of new compounds in breast and prostate cancer cell lines, cell outcome and assessment of the mechanisms of action Universidade de Lisboa Sandra Casimiro

De Almeida, Sérgio

Major Interests / Objectives

Our research focuses on the mechanisms that regulate chromatin dynamics during transcription and DNA damage response and how they coordinate with the processes that safeguard the genome integrity.

Our general aims are twofold: first, we aim at investigating the epigenetic regulation of transcription; in addition, we study the molecular mechanisms that sense, signal and repair DNA damage.

A major focus of our research is to understand how changes in transcription, chromatin modification and DNA repair are linked to the development of human diseases such as cancer.

Head of Laboratory

Sérgio Alexandre Fernandes de Almeida, PhD, Assistant Professor

Research Team

Alexandra Coitos Vítor	Master	PhD Student
Ana Isabel Afonso Duarte	Graduate	MSc Student, (started August)
Ana Margarida Esteves Ferreira	Graduate	MSc Student, (started September)
Ana Rita Fialho Grosso	PhD	Post doctoral Investigator
Cláudio Haupt Vieira	Graduate	MSc Student, (started September)
Ioana Posa	Master	Investigator, (started September)
Joana Patrícia Moreira Tavares	Graduate	MSc Student, (left August)
Luís Carlos Pereira Simões	Graduate	MSc Student, (left November)
Mafalda Alexandra Ramos de Matos	Master	PhD Student
SR Chaitanya. Sridhara	Master	PhD Student
Silvia Filipa Camoëira Gonçalves de Carvalho	Master	Investigator

Keywords / Research Areas

Epigenetics, Chromatin Biology, Cancer Biology, Gene expression, DNA repair

Major scientific achievements

In 2015 our major achievement was the publication of the manuscript "Pervasive transcription read-through promotes aberrant expression of oncogenes and RNA chimeras in renal carcinoma" in the journal *eLife*. This work describes for the first time how errors in the last step of the transcription cycle impact on tumor suppressor and oncogenic pathways. Our study shows that impaired expression of oncogenes and chimeric RNA transcripts are hallmarks of renal carcinoma that result from a widespread impairment of transcription termination. In addition, during 2015 one of our research projects was recommended for funding in the last FCT call and we were awarded the Portuguese Society of Human Genetics Award. The members of the lab presented our work in nine national and international meetings, participated in advanced teaching activities of several PhD and MSc courses and supervised 3 completed MSc thesis.

Selected Publications

Carvalho S, Vitor A, Sridhara SC, Martins FB, Raposo AC, Desterro JM, Ferreira J, de Almeida SF (2014) SETD2 is required for DNA double-strand break repair and activation of the p53-mediated checkpoint. *eLife*, **3** (Journal IF: 9.3, Citations: 14)

Carvalho S, Raposo AC, Martins FB, Grosso AR, Sridhara SC, Rino J, Carmo-Fonseca M, de Almeida SF (2013) Histone methyltransferase SETD2 coordinates FACT recruitment with nucleosome dynamics during transcription. *Nucleic Acids Research*, **41**, 2881, (Journal IF: 9.1, Citations: 28)

de Almeida SF, Grosso AR, Koch F, Fenouil R, Carvalho S, Levezinho H, Eick D, Gut I, Andrau JC, Ferrier P, Carmo-Fonseca M. (2011) "Splicing enhances recruitment of methyltransferase HYPB/Setd2 and methylation of histone H3 lysine 36. *Nature Structural and Molecular Biology*, **18**, 977, (Journal IF: 13.3, Citations: 92)

de Almeida SF, Garcia-Sacristan S, Custodio N and Carmo-Fonseca M (2010) A link between nuclear RNA surveillance, the human exosome and RNA polymerase II transcriptional termination. *Nucleic Acids Research*, **38**, 8015, (Journal IF: 9.1, Citations: 33)

Grosso AR, Leite AP, Carvalho S, Matos MR, Martins FB, Vítor AC, Desterro JM, Carmo-Fonseca M, de Almeida SF (2015) Pervasive transcription read-through promotes aberrant expression of oncogenes and RNA chimeras in renal carcinoma. *eLife*. 2015 Nov 17;**4**. (Journal IF: 9.3, Citations: 0)

Ongoing Research Projects

2013/2015 SETD2 mediates a novel tumor suppressor mechanism that is misregulated in clear cell renal carcinoma. Coordinator: Sérgio Alexandre Fernandes de Almeida. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/BIM-ONC/0384/2012. Amount: € 184516.00. Amount (total): € 184516.00.

2015/2015 Breakthrough Idea Grant 2015. Coordinator: Sérgio Alexandre Fernandes de Almeida. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BIG 2015 SAlmeida. Amount: € 50000.00. Amount (total): € 50000.00.

Other Projects

2012/2015 RNA_REGULOMICS: Role of non-coding RNA in human health and disease. Coordinator: EU. FP7–PEOPLE–2012–IRSES, MARIE CURIE ACTIONS.

2012/2015 RNPnet - Marie Curie Initial Training Network. Coordinator: Coordinator Institution: EU MARIE CURIE ACTIONS .

Original publications in peer review Journals

Grosso AR, Leite AP, Carvalho S, Matos MR, Martins FB, Vítor AC, Desterro JM, Carmo-Fonseca M, de Almeida SF (2015) Pervasive transcription read-through promotes aberrant expression of oncogenes and RNA chimeras in renal carcinoma. *eLife*. 2015 Nov 17;**4**. (Journal IF: 9.3, Citations: 0).

Invited lectures and seminars

. de Almeida SF “How to preserve the integrity of the genetic information?” Faculdade de Ciências da Univ. de Lisboa, February 4, 2015

. de Almeida SF “How to preserve the integrity of the genetic information?” Instituto Gulbenkian de Ciência, Oeiras, Portugal, January 30, 2015

. Grosso, AR lectures the course "Genetics and Bioinformatics" for the Clinic Investigation Course for Intern Medical Doctors, “Hospital de Santa Maria”, Lisbon. April 17, 2015.

. Vítor AC, et al., "SETD2 is required for DNA double-strand break repair and activation of the p53- mediated checkpoint", 19ª Reunião da Sociedade Portuguesa de Genética Humana.

November 5-7, Porto, 2015

Communications in International Conferences

. Sridhara SC, et al. "Unprecedented role of SR protein kinases in genome instability". RNPnet final meeting, Center for Molecular Biosciences Innsbruck (CMBI), University of Innsbruck, Austria. Feb 2015. (Oral Presentation)

Communications in National Conferences

. Grosso AR, et al., "Pervasive transcription read-through promotes aberrant expression of oncogenes and RNA chimeras in renal carcinoma", 3rd IMM Lisboa PosDoc Day, IMM, Lisboa. September 25, 2015. (Poster Presentation)

. Matos MR, et al., "(Epi)genomic drivers of intratumoral heterogeneity in clear cell renal cell carcinoma", 19ª Reunião da Sociedade Portuguesa de Genética Humana. November 5-7, Porto, 2015, (Oral Presentation)

. Matos MR, et al., "Novel Mechanisms of Genomic and Epigenetic Stability". IX IMM/CAML PhD meeting, March 26 and 27, Lisboa, 2015. (Poster Presentation)

. Vítor AC, et al., "Contending with DNA double-strand break repair during transcription". IX IMM/CAML PhD meeting, March 26 and 27, Lisboa, 2015, (Poster Presentation)

Internationalisation

Our lab is an associate member of the European Network of Excellence "EpiGeneSys". This research network gathers some of the most productive and influential European labs working in epigenetics.

We are also part of RNPnet, a Marie Curie Initial Training network, which includes labs across Europe that work on RNA biogenesis and processing.

During this year, the members of our unit presented their work on several international meetings, visited foreign institutions and established collaborations with groups in Spain (Seville), France (Paris) and England (Babraham Institute, Cambridge).

Prizes, honours and awards

2015 Portuguese Society of Human Genetics Award

Advanced teaching

. de Almeida SF, BioSys PhD program, Faculty of Sciences, University of Lisbon, class of 2015: Invited Lecturer

. de Almeida SF, IBB PhD program, Instituto Gulbenkian de Ciência, class of 2015: Invited Lecturer

. de Almeida SF, Lisbon BioMed PhD Program, University of Lisbon, class of 2015: Coordinator of the module “Molecular & Cell Biology”.

. Grosso AR, IMM nanocourse of the PhD Programme, IMM, Lisbon. January 6, 2015: Invited Lecturer

. Grosso AR, Computational Biology in Biomedicine MSc in Bioinformatics and Computational Biology, Faculty of Sciences (UL), July 21-25 2015. Invited Lecturer

Msc thesis completed

Ioana Posa 12/01/2015 LincRNA profile in clear cell Renal Cell Carcinoma using RNA-seq data
University of Lisbon Ana Rita Grosso

Joana Tavares 29/10/2015 LincRNA's Profile in SETD2 Downregulated Cells University of Lisbon
Ana Rita Grosso

Luis Simões 24/11/2015 Assessing Pseudogene Expression during Neural Differentiation by
RNA-seq University of Lisbon Ana Rita Grosso

De Carvalho, Mamede

Major Interests / Objectives

Our laboratory investigates the motor neuron function and its degeneration, peripheral nerve function and small fibre neuropathy, modulation of central nervous system function, behaviour and imaging-neurocomputational models of brain dysfunction. We are contributing to a more complete comprehension of the electrophysiological signs in motor neuron degeneration, reliable evaluation of the small fibres, electrical current influence on nervous system activity and on the understanding of brain structures in behaviour disturbances. In the future, we aim to approach new techniques to measure small fibre and anterior horn cells function, plasticity of the spinal cord motor activity, and the interaction between brain imaging, behaviour, motor movement disorders and electrophysiology.

Head of Laboratory

Mamede de Carvalho, PhD

Research Team

Alberto Albino Granado Escalda	MD/PhD	Investigator, Assistant Professor
Ana Catarina de Oliveira da Silva Pronto Laborinho	Graduate	Investigator
Ana Catarina dos Santos Farinha	Master	PhD Student, (started March)
Ana Isabel Ladeira Portêlo	Master	PhD Student
Ana Isabel Lopes Francisco Moura Santos	PhD	Investigator, Assistant Professor
Ana Rita Mendes Londral Gamboa	Master	Investigator
Anabela Leuschner Fernandes Cardoso Pinto Noronha Sanches	MD/PhD	Senior Investigator, CHLN, Consultant, Faculdade Medicina da Universidade de Lisboa, Associate Professor
Andreia Leitão Tavares Ribeiro dos Santos	Graduate	PhD Student
Ângela Raquel Amaro Leal	Master	MSc Student
Ângelo Rodrigo Neto Dias	Graduate	PhD Student, (started August)

Anna Caroline Marques dos Anjos Braga	Master	Investigator
BENJAMIM ABRAHAM OHANA	Master	Investigator, Associate Professor, Clinical Specialist
Catarina Raquel Nunes da Silva	Graduate	MSc Student, (left July)
Diana Lina Jerónimo da Cunha Reis	PhD	Post doctoral Investigator
Fernando Manuel Pinto Ferreira Domingos	MD/PhD	Investigator, Assistant Professor
Gabriel Miltenberger Miltényi	MD/PhD	Senior Investigator, Faculdade Medicina da Universidade de Lisboa, Assistant Professor
Gabriela Barbu Postolache	PhD	Investigator, Assistant Professor
Inês Antunes de Santa Ana	Graduate	MSc Student, (left September)
Isabel Maria dos Santos Conceição	Graduate	Investigator, Teaching Assistant , Clinical Specialist
João Miguel Proença Abreu	Graduate	MSc Student
João Nuno Marques Parracho Guerra da Costa	MD/PhD	Investigator
José Filipe Oliviera Castro	Master	Investigator
José Pedro Almeida	Graduate	PhD Student
Lena Helene Ernst	PhD	Post doctoral Investigator
Leonel Almeida Luis	Graduate	Investigator, Hospital de Santa Maria, Clinical Specialist
Maria da Conceição Jonet de Azevedo Coutinho	MD/PhD	Investigator, Associate Professor
Maria do Amparo Barros	Graduate	Technician
Maria Inês Mendes Caldeira	Master	Investigator, (left June)
Maria Isabel de Sousa Rocha	PhD	Principal Investigator, (left October)
Mariana Fernandes Alves Pereira	Graduate	MSc Student
Mario Joao Martins Oliveira	MD/PhD	Investigator
Mário Manuel de Miranda Gomes	Master	Investigator

Marques		
Marisa Tavares Brum	Master	MSc Student, Physician
Marta Luísa Gromicho Morgado Silva	PhD	Post doctoral Investigator, (started July)
Michael Swash	MD/PhD	Investigator
Nataniel João Gonçalves Cleto Rosa	Master	PhD Student
Pedro Jorge Filipe Pereira	Master	Investigator
Pedro Miguel Tojais Rodrigues Alves	Graduate	Investigator, Teaching Assistant
Rita Alexandra Figueira Belo	Master	MSc Student
Sofia Rita Cardoso Fernandes	Master	PhD Student, (started March)
Susana Cristina Da Costa Pinto	MD/PhD	Investigator
Tiago Alexandre Delgado Henriques	Graduate	MSc Student, (started February)
Tiago Vaz Maia	PhD	Senior Investigator
Vasco Manuel Aranha da Conceição	Master	PhD Student
Vera Lúcia Poço Geraldês	Graduate	PhD Student
Victor César Ferreira de Moura Gonçalves	MD/PhD	Investigator, Assistant Professor

Keywords / Research Areas

Amyotrophic Lateral Sclerosis, neurophysiology and respiratory involvement. Atrial Fibrillation and autonomic nervous system, Neurocomputational modelling of brain disorders, Familial Amyloid Polyneuropathy and early markers of disease, Attention deficit hyperactivity disorder, Biological signal processing

Major scientific achievements

In amyotrophic lateral sclerosis (ALS) we have participated in the discovery of new genes (TBK1 and MATR3) and contributed to establish new electrodiagnostic and molecular biomarkers to diagnose and monitor this disease. We have developed new communication aids in ALS, showing that they increase quality of life. We have explored big-databases to set best

time to start ventilation using data-mining. We have started using cDCS to investigate brain and spinal cord plasticity. New methods to investigate small fiber neuropathy were applied in patients with familial amyloid neuropathy to test the efficacy of novel treatments and to support early diagnosis. We have defined a direct link between changes in corticostriatal connectivity (posterior putamen) and learning using fMRI (with a reinforcement-learning algorithm), as well as the role of serotonin in orbitofrontal function and obsessive-compulsive disorder.

Selected Publications

Horga*, G., Maia*, T. V., Marsh, R., Hao, X., Xu, D., Duan, Y., Tau, G. Z., Graniello, B., Wang, Z., Kangarlu, A., Martinez, D., Packard, M. G., Peterson, B. S. (2015) Changes in corticostriatal connectivity during reinforcement learning in humans. *Human Brain Mapping*, **36**, 793-803. (Journal IF: 5.969; Citations: 1)

Lefaucheur, J. P., André-Obadia, N., Antal, A., Ayache, S. S., Baeken, C., Benninger, D. H., & Devanne, H. (2014). Evidence-based guidelines on the therapeutic use of repetitive transcranial magnetic stimulation (rTMS). *Clinical Neurophysiology*, **125(11)**, 2150-2206. (Journal IF: 3.097, Citations: 166)

Turner, M. R., Hardiman, O., Benatar, M., Brooks, B. R., Chio, A., de Carvalho, M. & Kiernan, M. C. (2013) Controversies and priorities in amyotrophic lateral sclerosis. *Lancet Neurology* **322**, 310. (Journal IF: 21,823; Citations: 174)

de Carvalho, M. and Swash, M., (2013). Fasciculation potentials and earliest changes in motor unit physiology in ALS. *J Neurol Neurosurg Psychiatry* 2013;**84**:963-968 (Journal IF: 6.807; Citations: 21)

Maia, T. V., & Frank, M. J (2011) From reinforcement learning models to psychiatric and neurological disorders. *Nature Neuroscience* **162**, 154. (Journal IF: 14.976, Citations: 241)

Ongoing Research Projects

2015/2016 Slow vital capacity and Forced Vital Capacity in Amyotrophic Lateral Sclerosis : Are they equally sensitive? Coordinator: Mamede de Carvalho. Agency: Cytokinetics, Inc. Reference: Cytokinetics. Amount: € 6000.00. Amount (total): € 0.00.

2012/2016 Sampling and biomarker Optimization and Harmonization In Amyotrophic Lateral Sclerosis (ALS) and other. Coordinator: Mamede de Carvalho. Agency: Fundação Ciência e Tecnologia. Coordinator Institution: University Medical Center Utrecht / Department of Neurology. Coordinator PI: Leonard H. van den Berg. Reference: JPND/0002/2011. Amount: € 60000.00. Amount (total): € 2400000.00.

2012/2015 Early disease markers in early symptomatic carriers of TTR V30M mutation. Coordinator: Mamede de Carvalho. Agency: Laboratórios Pfizer, Lda. Reference: Pfizer WI128568. Amount: € 40000.00. Amount (total): € 40000.00.

2013/2015 Reinforcement Learning and Motor Biases in Children with Tourette Syndrome. Coordinator: Tiago Vaz Maia. Agency: Tourette Syndrome Association, Inc. Reference: TSA Research Award Program - Tourette Syndrome. Amount: € 56078.96. Amount (total): € 56078.96.

2015/2018 Base de Dados Web baseada na Ontologia para Compreender a Esclerose Lateral Amiotrófica. Coordinator: Mamede de Carvalho. Agency: Fundação para a Ciência e a Tecnologia, IP. Coordinator Institution: O. Reference: JPND-PS/001/2013. Amount: € 140000.00. Amount (total): € 140000.00.

Other Projects

2008/2018 Transthyretin-associated amyloidoses outcomes survey (THAOS). A Global, Multi-Center, Longitudinal, Observational Survey of Patients with Documented Transthyretin (TTR) Mutations or Wild-Type TTR Amyloidoses (Fold Rx Pharmaceuticals, Inc.). Coordinator: Claudio Rapezzi. Coordinator Institution: Universita di Bologna. Coordinator PI: Claudio Rapezzi.

2015/2018 ONTOlogy-based Web Database for Understanding Amyotrophic Lateral Sclerosis-ONEWebDUALS. Coordinator: Professor Dr Mamede Carvalho-100.000€.

2015/2016 Social and non-social reinforcement learning in humans: a model-based pharmacofMRI approach. Coordinator: T. Maia & D. Prata (co-PIs).

2013/2016 RSE FISIO – necessidades requisitos e barreiras de adoção de registo de saúde electrónico em fisioterapia PTDC/DTP-DFS/1661/2012). Coordinator: Gabriela Postolache. Coordinator Institution: RSE FISIO.

2013/2015 Fx1A303 - Open Label Safety and Efficacy Evaluation of Fx1006A in Patients with Transthyretin Amyloidosis. (Pfizer/FoldRx Pharmaceuticals, Inc.) Coordinator: Pfizer. Coordinator Institution: Pfizer. Coordinator PI: Pfizer.

2014/2018 Control and reward circuits as targets for repetitive behaviors. Coordinator: Prof. Dr.TV Maia - Consultant. Coordinator Institution: National Institute of Mental Health (USA). Coordinator PI: R. Marsh & H. Blair Simpson (Co-PIs).

2014/2015 NETWORK OF COHORT ASSESSMENT in ALS (NTCALS). Coordinator: Mamede de Carvalho. Coordinator Institution: University Medical Center Utrecht. Coordinator PI: Leonard H. van den Berg.

2014/2019 Neural mechanisms of sensory predictions in schizophrenia with hallucinations. Coordinator: G. Horga - Prof. Dr. TV Maia - Consultant.

2013/2015 Reinforcement learning and motor biases in children with Tourette syndrome. Coordinator: Tiago Maia.

2015/2018 Horizon 2020 Twinning (H2020-TWINN-2015), European Commission. Coordinator: Tiago Maia/Mamede de Carvalho. Coordinator Institution: IMM. Coordinator PI: Ana Sebastião.

2015/2017 Mind-Brain College. Coordinator: Tiago Maia/Mamede de Carvalho. Coordinator Institution: University of Lisbon. Coordinator PI: Ana Sebastião.

2014/2018 National Brain Imaging Network – Core Infrastructure. Coordinator: Tiago Maia. Coordinator PI: M. Castelo-Branco .

2014/2016 Nocturnal Oximetry to test early respiratory changes in Amyotrophic Lateral Sclerosis: application of new methods of analysis (GAPIC 32/2015). Coordinator: Mamede de Carvalho.

Original publications in peer review Journals

Gonçalves M, Tillack L, de Carvalho M, Pinto S, de Carvalho M, Conradt H, Costa J (2015). Phosphoneurofilament heavy chain and N-glycomics from the cerebrospinal fluid in Amyotrophic Lateral Sclerosis. *Clin Chim Acta*; **438**: 342-349. (Journal IF: 2.764; Citations: 0)

Londral A, Pinto A, Pinto S, Azevedo L, de Carvalho M (2015) Quality of life in ALS patients and caregivers: impact of assistive communication since early stages. *Muscle Nerve*. 2015 Dec (6):933-4 (Journal IF: 2.311; Citations: 0)

Pinto S, de Carvalho M (2015). The R of ALSFRS-R: Does it really mirror functional respiratory involvement in amyotrophic lateral sclerosis? *Amyotr Lat Scler Frontotemporal Degener*; **16**: 120–123 (Journal IF: 2.405; Citations: 0)

Freischmidt A, Wieland T, Richter B, Ruf W, Schaeffer V, Muller K, Marroquin N, Nordin F, Hubers A, Weydt P, Pinto S, Press R, Millicamps S, Molko N, Bernard E, Desnuelle C, Soriani M-H, Dorst J, Graf E, Nordstrom U, Feiler MS, Putz S, Boeckers TM, Meyer T, Winkler AS, Winkelmann J, de Carvalho M, Thal DR, Otto M, Brannstrom T, Volk AE, Kursula P, Danzer KM, Lichtner P, Dikic I, Meitinger T, Ludolph AC, Strom TM, Andersen PM, Weishaupt J (2015) Haploinsufficiency of TBK1 causes familial amyotrophic lateral sclerosis and fronto-temporal dementia. *Nat Neurosci* **18**:631-636 (Journal IF: 14.976; Citations: 0)

Neuwirth C, Barkhaus PE, Burkhardt B, Castro J, Czell D, de Carvalho M, Nandedkar S, Stålberg E, Weber M (2015). Tracking motor neuron loss in a set of 6 muscles in amyotrophic lateral

sclerosis using the Motor Unit Number Index (MUNIX) – a 15 months longitudinal multicentre trial. *J Neurol Neurosurg Psychiatry*, 2015;**86**:1172-1179 (Journal IF: 6.807, Citations: 0)

Carreiro AV, Amaral PMT, Pinto S, Tomás P, de Carvalho M, Madeira SC T (2015). Prognostic Models based on Patient Snapshots and Time Windows: Predicting Disease Progression to Assisted Ventilation in Amyotrophic Lateral Sclerosis. *J Biomed Inform*; **58**:133-144 (Journal IF: 2.131; Citations: 0)

Luis L, Costa J, Yacovino D. A (2015). Pragmatic Strategy for the Evaluation and Management of Anterior Canal Benign Positional Vertigo. *Otol Neurotol* (Epub ahead of print) (Journal IF: 1.787; Citations: 0)

Horga G, Maia TV., Marsh R, Hao X, Xu D, Duan Y, Tau GZ, Graniello B, Wang Z, Kangarlu A, Martinez D, Packard MG., Peterson BS (2015). Changes in corticostriatal connectivity during reinforcement learning in humans. *Hum Brain Mapping* **36**:793-803. (Journal IF: 5.969; Citations:0)

Nave-Leal E, Oliveira M, Pais-Ribeiro J, Santos S, Oliveira E, Alves T, Ferreira R (2015). Impact of syncope on quality of life: Validation of a measure in patients. *Rev Port Cardiol* 34:173-177.(Journal IF: 0,454; Citations:0)

Lip GY, Laroche C, Popescu MI, Rasmussen LH, Vitali-Serdoz L, Dan GA, Kalarus Z, Crijns HJ, Oliveira MM, Tavazzi L, Maggioni AP (2015). Heart failure in patients with atrial fibrillation in Europe: a report from the EURObservational Research Programme Pilot survey on Atrial Fibrillation. *Europ J Heart Failure of heart Failure*, **6**, 570–582. (Journal IF: 6.526; Citations: 0)

Lip GY, Laroche C, Popescu MI, Rasmussen LH, Vitali-Serdoz L, Dan GA, Kalarus Z, Crijns HJ, Oliveira MM, Tavazzi L, Maggioni AP (2015). Improved outcomes with European Society of Cardiology guideline-adherent antithrombotic treatment in high-risk patients with atrial fibrillation: a report from the EORP-AF General Pilot Registry. *Europace* (in press). (Journal IF: 3.670; Citations: 0)

Postolache O, Dias Pereira JM, Viegas VV, Pedro L, Girão PM, Postolache G, (2015) Smart walker solutions for physical rehabilitation, *IEEE Instrumentation and Measurement Magazine*, **18** (5), 21 - 30, (Journal IF: 0.54; Citations: 0)

Other publications International

Rodrigues F, Caldeira D, Ferreira J, Costa J (2015). Epidemiology of caffeine and neuroprotection in Parkinson's disease. In: THE ADENOSINERGIC SYSTEM - A NON-DOPAMINERGIC TARGET IN PARKINSON'S DISEASE. Ed Morelli M, Simola N, Wardas J. Springer International Publishing. pp. 233 - 272

Ostrowska M, de Carvalho M (2015). Thoracic Nerve Lesion. In: NERVES and NERVE INJURIES. Ed Sunderland S. Churchill Livingstone; 3rd edition. pp. 121-134.

Pinto S, de Carvalho M (in press). Noninvasive Mechanical Ventilation in Patients with Myasthenic Crisis. In: NONINVASIVE MECHANICAL VENTILATION: theory, equipment and clinical applications. Ed A Esquinas. Springer-Verlag, Ch 32.

Costa, J, de Carvalho, M (in press) Esclerose Lateral Amiotrófica. In NEUROCIÊNCIAS. Eds. Rego, C, Oliveira, C, Duarte, CB. Lidel.

De Carvalho M, Swash M (2015) Origin of fasciculations in root lesions. *Clin Neurophysiol* (in press) (Journal IF: 3.097; Citations: 0)

Invited lectures and seminars

De Carvalho M. Fasciculation Potentials: the enigma. 2015 AMERICAN CLINICAL NEUROPHYSIOLOGICAL SOCIETY ANNUAL MEETING. Houston, USA, 2015 .

De Carvalho M. Polineuropatia Diabética. III CURSO MONOTEMÁTICO de DIABETES MELLITUS. Lisbon, 2015.

De Carvalho M. Avaliação Neurofisiológica das Doenças do Neurónio Motor: objectives e estratégias. XXV CONGRESSO DA SOCIEDADE BRASILEIRA de NEUROFISIOLOGIA CLÍNICA. Natal, Brasil, 2015.

De Carvalho M. Índice do Número de Unidades Motoras: MUNIX. XXV CONGRESSO DA SOCIEDADE BRASILEIRA de NEUROFISIOLOGIA CLÍNICA. Natal, Brasil, 2015.

De Carvalho M. Estimulação Transcraniana com Corrente Contínua. XXV CONGRESSO DA SOCIEDADE BRASILEIRA de NEUROFISIOLOGIA CLÍNICA. Natal, Brasil, 2015.

De Carvalho M. Utility of EMG in Neuromuscular Disorders. THE 15th EUROPEAN CONGRESS ON CLINICAL NEUROPHYSIOLOGY. Brno, 2015.

De Carvalho M. Mecanismos fisiopatológicos da condução axonal na CIDP. REUNIÃO DE OUTONO da SOCIEDADE PORTUGUESA de ESTUDOS DE DOENÇAS NEUROMUSCULARES. Vimeiro, 2015.

De Carvalho M. Manifestações Clínicas e abordagem terapêutica da CIDP. REUNIÃO DE OUTONO da SOCIEDADE PORTUGUESA de ESTUDOS DE DOENÇAS NEUROMUSCULARES. Vimeiro, 2015.

Maia TV. The Neural bases of habits and obsessions. Computational Psychiatry Course, Translational Neuromodeling Unit, ETH Zurich and University of Zurich, Switzerland, 2015

Maia TV. Neuromodulators in Tourette's syndrome and obsessive-compulsive disorder. Neuromodulators in Tourette's syndrome and obsessive-compulsive disorder. National Institute of Mental Health (Emotion and Development Branch), Bethesda, MD, USA, 2015

Maia TV. Models at different levels of abstraction in computational psychiatry. Workshop on Computational Biophysical Psychiatry, Bernstein Conference, Heidelberg/Mannheim, Germany, 2015.

Maia TV. Repetitive thoughts and behaviors. Radboud Summer School on Neurocomputational Approaches to Decision Making: From Perception to Social Cognition, Donders Institute for Brain, Cognition and Behaviour, Nijmegen, The Netherlands, 2015

Maia TV. Frontostriatal circuits in habits and tics. Symposium on Trans-Diagnostic Neurocognitive Traits: Realizing Dimensional Psychiatry, 70th Annual Meeting of the Society of Biological Psychiatry, Toronto, Ontario, Canada, 2015.

Maia TV. Reinforcement learning, habits, and tics. Symposium on Advanced Brain Imaging, Instituto Superior Técnico, Lisboa, Portugal, 2015.

Maia TV. Neuromodulators in Tourette's syndrome and obsessive-compulsive disorder. 17th GK Spring School, "What Emotions Can Teach Us: From Molecules to Behavior," University of Wurzburg, Germany, 2015.

Conceição I. A Focus on Early Treatment in Stage I TTR-FAP. Advances and Research in TTR-amyloidosis. Prague, 2015

Conceição I. O Papel da Neurofisiologia nas Doenças Neuromusculares. Reunião da Primavera da SPEDNM. Porto, 2015

Conceição I. The Benefits of an Early Diagnosis and Treatment of TTR-FAP. Pfizer Satellite Symposium at European Academy of Neurology. Berlin, 2015.

Conceição I. Neurological Manifestations and Evaluations in TTR-FAP. TTR-FAP Master Class. Porto, 2015.

Conceição I. Avaliação Neurofisiológica de Pequenas Fibras. VII Curso da APEGNC. Lisboa, 2015.

Conceição I. Neuropatia Periférica no Diabético. III Jornadas de Angiologia e Cirurgia Vascular dos Hospitais CUF- PÉ DIABÉTICO E CIRURGIA VASCULAR. Lisboa, 2015.

Conceição I. TTR-FAP: which assessment for the carriers? The point of view of the neurologist. 1st European Congress on Hereditary ATTR amyloidosis. Paris, 2015.

Conceição I. Neurophysiological Findings in TTR-FAP. Pfizer Satellite Symposium at 1st European Congress on Hereditary ATTR amyloidosis. Paris, 2015.

João Costa. A Perspectiva do Orientador. VIII Seminário do trabalho final de mestrado. Associação de Estudantes da Faculdade de Medicina de Lisboa. Lisboa, 25 Feb 2015 (Palestra a convite)

João Costa. A Perspectiva do Orientador. VIII Seminário do trabalho final de mestrado. Associação de Estudantes da Faculdade de Medicina de Lisboa. Lisboa, 25 Feb 2015 (Palestra a convite)

Oculomotor approach to diagnosis and treatment of dizzy patient, 5th Emirates Rhinology and Otolaryngology Congress 2015, Dubai (Invited Speaker)

Neurological Electrodiagnosis. Otoneurology Module. Barcelona, Spain, 2015 (Course coordinator)

Acute Vestibular Syndrome. BPPV. Vestibular rehabilitation. Alexandria International Combined ORL Congress. Alexandria, Egypt, 2015

The video Head Impulse Test. Reunión Iberoamericana de Neuro-Otología, Colonia, Uruguay, 2015 (Invited Speaker)

Vestibular System Physiology, 7º Curso de Neurofisiologia Clínica da APEGNC, Lisboa, 2015 (Invited Speaker)

Neurological Electrodiagnosis. Otoneurology Module. Barcelona, Spain, 2015 (Course coordinator)

Video Head Impulse Test parameters and artifacts, Seoul, South Korea, 2015

Acute vestibular lesion; BPPV update; Vestibular rehabilitation, Alexandria, Egypt, 2015
Síndrome vestibular agudo-Topodiagnóstico; VPPB diagnóstico y maniobras correctivas; Prueba impulsiva-vHIT, Lima, Peru, 2015

Curso Internacional de Otoneurología, Santiago, Chile, 2015

Clinical Trials, European Vertigo Network, Munich, 2015

Communications in International Conferences

26th INTERNATIONAL SYMPOSIUM on ALS/MND.

Slow Vital Capacity and Forced Vital Capacity in ALS: the same reality? Pinto, S; de Carvalho, M.
(Oral Presentation)

MUNIX Detects Presymptomatic Motor Unit Loss in ALS Patients. Neuwirth, C; Barkhaus, PE;
Burkhardt, C; Castro, J; Czell, D; de Carvalho, M; Nandedkar, S; Stalberg, S; Weber, M. Orlando.
Dezembro de 2015. (Oral Presentation)

R. Pinto, A. Abreu, V. Santos, X. Melo, P. Cunha, M. Oliveira, R. Soares, R. Ferreira, B. Fernhall,
H. Santa-Clara. Optimizing patient benefit from CRT response with the addition of high
intensity interval training - a randomized controlled trial European Congress of Cardiology,
London, September, 2015 (Oral Presentation)

The predictive value of a multivariate model of autonomic and baroreflex function applied to
patients with reflex syncope. Sérgio Laranjo, Cristiano Tavares, Mário Martins Oliveira, Isabel
Rocha. Heart Rhythm, Boston, May 2015 (Oral Presentation)

Diagnosis of unexplained syncope and palpitations with external long-lasting ECG monitoring:
results of the Synarr-Flash study. Emanuela Locati, Angel Moya, Michele Brignole, JM
Ormaetxe, Hildegard Tanner, Mario M. Oliveira, Maria Lopez-Gil, Nuria Rivas, Rik Willems,
Maurizio Lunati Heart Rhythm, Boston, May 2015 (Oral Presentation)

Ventricular tachyarrhythmias reduction in heart failure by modulation of cardiac autonomic
nervous system Dinis Mesquita, Ana Abreu, Guilherme Portugal, Sílvia Aguiar, Pedro Rio, Mário
Oliveira, P Silva Cunha, V Santos, H Santa Clara, R Cruz Ferreira EuroPrevent, Lisbon, May 2015
(Oral Presentation)

Functional capacity and inflammatory parameters in severe heart failure - does age matter?
Guilherme Portugal, A Abreu, Mário Oliveira, M Mota Carmo, L Branco, S Silva, A. Monteiro, P
Rio, V Santos, R Ferreira EuroPrevent, Lisbon, May 2015 (Oral Presentation)

Effectiveness of high intensity interval training on cardiac remodelling in cardiac
resynchronization therapy responders and non-responders: a randomized control trial V.
Santos, A Abreu, R Pinto, X Melo, P Cunha, Mário Oliveira, R Ferreira, L. Sardinha, B Fernhall, H
Santa Clara. EuroPrevent, Lisbon, May 2015 (Oral Presentation)

Correlation between apoptosis reduction and functional capacity improvement after cardiac
resynchronization in heart failure patients (SELECTED FOR YOUNG INVESTIGATOR AWARD)
Marta Nogueira, A Abreu, T Pinheiro, H Santa Clara, PS Cunha, Mário Oliveira, G Portugal, M
Selas, R Soares, R Cruz Ferreira EuroPrevent, Lisbon, May 2015 (Oral Presentation)

Usefulness of external long-lasting ECG monitoring for the diagnosis of unexplained syncope
and palpitation: Results of the SYNARR-FLASH study. E T. Locati, M. Brignole, JM. Ormaetxe, H.

Tanner, M. Oliveira, M. Lopez-Gil, X. Sabate, N. Rivas Willems, A. Moya, EHRA Europace-Cardiostim 2015, Londres, Junho, 2015 (Oral Presentation)

Catheter ablation of paroxysmal and persistent atrial fibrillation: long-term outcome of a pulmonary vein isolation-based strategy as index procedure, Mário M. Oliveira, M. Nogueira Silva, Pedro S. Cunha, A. Lousinha, B. Valente, Tiago Silva, André Monteiro, R. Pimenta, Ana S. Delgado, R. Cruz Ferreira, EHRA Europace-Cardiostim 2015, Londres, Junho, 2015 (Oral Presentation)

Hemodynamic device-based optimization in cardiac resynchronization therapy: concordance with systematic echocardiographic assessment of AV and VV interval. Mário M Oliveira, Joel Courville, Daniela Oliveira, Laura McGeough Bourgois SonR whiteboard Video – EHRA Europace-Cardiostim 2015 cardiac resynchronization therapy Ana Abreu, Helena Santa-Clara, V. Santos, L. Oliveira, Guilherme Portugal, Pedro S. Cunha, Mário Oliveira, M. Mota Carmo, Rui C. Ferreira. European Congress of Cardiology, London, August, 2015 (Oral Presentation)

Guilherme Portugal, Mário Oliveira, Samuel Almeida, Pedro S Cunha, Ana Lousinha, Bruno Valente, Joana Feliciano, Ricardo Pimenta, Ana S Delgado, Rui C Ferreira, European Congress of Cardiology, London, August, 2015 (Oral Presentation)

Inflammatory and remodeling biomarkers response to CRT: is it related to echocardiographic or functional exercise improvement? L. Morais, Ana Abreu, Helena Santa-Clara, V. Santos, M. Mota Carmo, I. Rodrigues, Guilherme Portugal, Pedro S Cunha, Mário M. Oliveira, R. Cruz Ferreira. European Congress of Cardiology, London, August, 2015 (Oral Presentation)

Optimizing patient benefit from CRT response with the addition of high intensity interval training – a randomized controlled trial. R. Pinto, Ana Abreu, V. Santos, X. Melo, Pedro S Cunha, Mário Oliveira, R Soares, R. C. Ferreira, B Fernhall, H. Santa-Clara. European Congress of Cardiology, London, August, 2015 (Oral Presentation)

Predictive factors of echocardiographic response to cardiac resynchronization therapy: a prospective cohort study Ana Abreu, Helena Santa-Clara, V. Santos, M. Mota Carmo, V. Santos, L. Morais, Guilherme Portugal, M. Alves, Pedro S Cunha, Mário Oliveira, Rui C. Ferreira. European Congress of Cardiology, London, August, 2015 (Oral Presentation)

Modulation of the inflammatory response and apoptosis by cardiac resynchronization in heart failure Marta Nogueira, Ana Abreu, T. Pinheiro, C. Ramos, Pedro S Cunha, Mário Oliveira, Joana Feliciano, R Soares, M. Mota Carmo, Rui C. Ferreira. European Congress of Cardiology, London, August, 2015 (Oral Presentation)

Global longitudinal strain and its relation to cardiac autonomic denervation as assessed by 123-mIBG scintigraphy: insights from the BETTER-HF trial. G. Portugal, A. Abreu, P. Rio, V.

Santos, M. Martins Oliveira, P. Silva Cunha, M. Mota Carmo, L.M. Branco, L. Morais, R. Cruz Ferreira, EuroEcho, Sevilha, December, 2015 (Oral Presentation)

Additional effect of high intensity exercise training to cardiac resynchronization in heart failure: the reduction on left ventricular mass, A. Abreu, H. Santa Clara, V. Santos, M. Oliveira, P. Cunha, G. Portugal, P. Rio, L. Branco, R. Ferreira, M. Mota Carmo. EuroEcho, Sevilha, December, 2015 (Oral Presentation)

Is autonomic nervous dysfunction severity associated to less benefit from cardiac resynchronization therapy? P. Rio, A. Abreu, V. Santos, H. Santa-Clara, L. Oliveira, M. Martins Oliveira, P. Silva Cunha, L. Moura Branco, M. Mota Carmo, R. Cruz Ferreira EuroEcho, Sevilha, December, 2015 (Oral Presentation)

Autonomic nervous system modulation in patients with heart failure and resynchronization after high intensity interval training A. Abreu, H. Santa Clara, V. Santos, L. Oliveira, M. Oliveira, P. Rio, P. Cunha, G. Portugal, R. Ferreira, M. Mota Carmo EuroEcho, Sevilha, December, 2015
Viegas V, Dias Pereira JM, Girão PM, Postolache G, Postolache O. Smart transducer interfaces applied to health monitoring, Proceedings IEEE Instrumentation and Measurement Technology Conference, Pisa, Italy, Vol. 1, pp. 1 - 6, May, 2015 (Oral Presentation)

Postolache O, Girão PS, Dias Pereira JM, Postolache, G. Wearable system for gait assessment during physical rehabilitation process. Proceedings 9th International Symposium on Advanced Topics in Electrical Engineering, Bucharest, Romania, pp. 1-6. May, 2015 (Oral Presentation)

Postolache G, Pedro L, Oliveira R, Postolache O. Wearable and unobtrusive technologies for gait assessment in Parkinson's disease and Multiple Sclerosis, Proceedings International Neurology and Rehabilitation Meeting, Istanbul, Turkia, June, 2015 (Poster Presentation)

Postolache G, Moreira I, Oliveira R, Pedro L. Older adults: are they ready to adopt ICT for physical therapy. Proceedings The 1st Asia-Oceanian Congress for NeuroRehabilitation, Seoul, South Korea, September, 2015 (Poster Presentation)

Postolache G, Moreira I, Oliveira R, Pedro L, Postolache O. Implementing EHRs in Physical Therapy: Patients Perspectives. Proceedings The 1st Asia-Oceanian Congress for NeuroRehabilitation, Seoul, South Korea, September, 2015 (Poster Presentation)

Postolache G, Moreira I, Pedro L, Oliveira R. Implementation of Electronic Health Records in Physical Therapy. Proceedings The 1st Asia-Oceanian Congress for NeuroRehabilitation, Seoul, South Korea, September, 2015 (Poster Presentation)

Postolache G, Girão SP, Postolache O. Wearable sensor network to study laterality of brain functions, Proceedings IEEE Engineering in Medicine and Biology Society (EMBS), Milano, Italy, September 4, 2015, (Oral Presentation)

Postolache G, Oliveira R, Moreira I, Domingos S, Vincente S, Pedro L. Technology use and preference among physiotherapy patients, European Congress of Physical and Rehabilitation

Medicine, ESPRM, Estoril, Portugal, April 23-26, 2016 (Oral Presentation)

Communications in National Conferences

Mónica Inês, Teresa Coelho, Isabel Conceição, Lara Ferreira, Mamede de Carvalho, João Costa. Health-related quality of life in patients with Transthyretin Familial Amyloid Polyneuropathy. IX PhD Students Meeting IMM-CAML. Lisboa Mar 2015. (Poster Presentation)

Mónica Inês, Teresa Coelho, Isabel Conceição, Filipa Duarte-Ramos, Mamede de Carvalho, João Costa. Epidemiology of transthyretin familial amyloid polyneuropathy in Portugal. Congresso da Sociedade Portuguesa de Neurologia, Lisboa, Portugal: Nov 2015 (Poster Presentation)

Mónica Inês, Teresa Coelho, Isabel Conceição, Lara Ferreira, Mamede de Carvalho, João Costa. Transthyretin familial amyloid polyneuropathy impact on health-related quality of life. Congresso da Sociedade Portuguesa de Neurologia, Lisboa, Portugal: Nov 2015 (Oral Presentation)

6º CONGRESSO NACIONAL DE BIOMECÂNICA. Leiria, Fevereiro de 2015.
Desenvolvimento de um Modelo Músculo-Tendão no âmbito da Análise Dinâmica de Sistemas Multicorpo. Oliveira, AR; de Carvalho, M; Silva, MT (Oral Presentation)

27º ENCONTRO NACIONAL de EPILEPTOLOGIA. Coimbra, Março de 2015.
Epilepsia num doente com Polineuropatia Amiloidótica Familiar. Franco, A; Bentes, C; de Carvalho, M; Pimentel, J; Conceição, I. (Poster Presentation)

CONGRESSO de NEUROLOGIA 2015. Lisboa
Epidemiology of Transthyretin Familial Amyloid Polyneuropathy in Portugal. Inês, M; Coelho, T, Conceição, I; Ferreira, L; de Carvalho, M; Costa, J. (Oral Presentation)

Transthyretin Familial Amyloid Polyneuropathy Impact on Health-Related Quality of Life. Inês, M; Coelho, T, Conceição, I; Ferreira, LN; de Carvalho, M; Costa, J. (Oral Presentation)

Envolvimento do SNC Central em Doentes com Polineuropatia Amilóide Familiar – casuística de um centro. Franco, A; Bentes, C; Castro, V; de Carvalho, M; Conceição, I. (Oral Presentation)

Axonal Hyperpolarization in Amyotrophic Lateral Sclerosis. Brum, M; de Carvalho, M.
18.º WORKSHOP “EDUCAÇÃO PELA CIÊNCIA”. Lisboa, Dezembro de 2015
Nocturnal Oximetry to Test Early Respiratory Changes in Amyotrophic Lateral Sclerosis. Santos Silva, ; Tavares, C; Pinto, S; Gromicho, M; de Carvalho, M. (Poster Presentation)

WHAT IS THE LONG-TERM IMPACT OF CLINICAL RESPONSE IN CARDIAC RESYNCHRONIZATION THERAPY PATIENTS WITHOUT REVERSE REMODELING?

Pedro Rio, Mário Martins Oliveira, Pedro Silva Cunha, Manuel Nogueira da Silva, Luísa Moura Branco, Ana Galrinho, João Abreu, Joana Feliciano, André Monteiro, Pedro Pinto Teixeira,

Ricardo Pimenta, Ana Sofia Delgado, Rui Cruz Ferreira ARRITMIAS 2015, Cascais, February (Oral Presentation)

Ablation of ventricular tachycardia in patients with severe left ventricular dysfunction and frequent appropriate ICD shocks: potential benefits of arrhythmogenic substrate modification
Mário Oliveira, Nogueira da Silva, Pedro Cunha, Bruno Valente, Ana Lousinha, Joana Feliciano, Guilherme Portugal, Ricardo Pimenta, Ana Delgado, Rui Ferreira, ARRITMIAS 2015, Cascais, February (Oral Presentation)

Impacto da Síncope Recorrente na Qualidade de Vida em Doentes Submetidos a Teste de Inclinação em Mesa Basculante
Elisabete Nave-Leal, Mário Martins Oliveira, José Pais-Ribeiro, Sandra Alves, Eunice Oliveira, Teresa Alves, Rui C. Ferreira ARRITMIAS 2015, Cascais, February. (Oral Presentation)

ATRIAL FIBRILLATION RECURRENCE AFTER CATHETER ABLATION OF PAROXYSMAL ATRIAL FIBRILLATION: IS THERE A ROLE FOR LEFT ATRIAL SPECKLE TRACKING ECHOCARDIOGRAPHY?
André Viveiros Monteiro, Ana Galrinho, Mário Martins Oliveira, Luísa Moura Branco, Pedro Rio, Guilherme Portugal, Tiago Pereira da Silva, P. Silva Cunha, Ricardo Pimenta, Maria João Ferreira, Pedro Sarmiento, Rui Cruz Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015 (Oral Presentation)

ESTARÁ O STRAIN BIDIMENSIONAL POR SPECKLE TRACKING DO VENTRÍCULO DIREITO E AURÍCULA DIREITA ASSOCIADO A ARRITMIAS EM DOENTES ADULTOS COM TETRALOGIA DE FALLOT REPARADA?
Ana T. Timóteo, Luísa Branco, Sílvia Aguiar, Ruben Ramos, Ana Agapito, Lídia Sousa, Ana Galrinho, José A. Oliveira, Mário Martins Oliveira, Rui Cruz Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Oral Presentation)

CRIOABLAÇÃO COM BALÃO PARA ISOLAMENTO DAS VEIAS PULMONARES NA FIBRILHAÇÃO AURICULAR: EFICÁCIA E SEGURANÇA
Manuel Nogueira da Silva, Mário Martins Oliveira, Pedro Silva Cunha, Ana Lousinha, Bruno Valente, Guilherme Portugal, Ricardo Pimenta, Ana S. Delgado, Victor Gil, Rui Cruz Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Oral Presentation)

TÉCNICA DE PISA NA EXTRAÇÃO DE ELÉCTRODOS EM PORTADORES DE DISPOSITIVOS CARDÍACOS IMPLANTADOS – RESULTADOS INICIAIS
Bruno Valente, José M. Conceição, Pedro Silva Cunha, Ana Lousinha, Marta Nogueira, Guilherme Portugal, André Monteiro, Ricardo Pimenta, Manuel Nogueira da Silva, Ana S. Delgado, Mário Martins Oliveira, Rui Cruz Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Oral Presentation)

REMODELAGEM INVERSA E RISCO DE ARRITMIAS VENTRICULARES A LONGO-PRAZO APÓS TERAPÊUTICA DE RESSÍNCRONIZAÇÃO CARDÍACA
Samuel Almeida, Pedro Silva Cunha, Bruno Valente, Ana Lousinha, Luísa Branco, Ana Galrinho, Guilherme Portugal, Manuel Braz, Ana S. Delgado, Ricardo Pimenta, Mário Martins Oliveira, Rui Cruz Ferreira (Oral Presentation)

XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015

IS AUTONOMIC NERVOUS DYSFUNCTION SEVERITY ASSOCIATED TO LESS BENEFIT FROM CARDIAC RESYNCHRONIZATION THERAPY? Pedro Rio, Ana Abreu, Vanessa Santos, Helena Santa-Clara, Luís Oliveira, Mário Martins Oliveira, Pedro S. Cunha, Guilherme Portugal, Mafalda Selas, Luísa Branco, Miguel M. Carmo, Rui Cruz Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015 (Oral Presentation)

CLINICAL RESPONSE AND REVERSE REMODELING AFTER CARDIAC RESYNCHRONIZATION THERAPY IN PATIENTS WITH RIGHT VENTRICULAR DYSFUNCTION

Pedro P. Teixeira, Mário Martins Oliveira, Ana Galrinho, Pedro Silva Cunha, Luísa Branco, Joana Feliciano, Pedro Rio, Tiago Silva, Sílvia Aguiar, Rui M. Soares, M.Nogueira da Silva, Rui Cruz Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Oral Presentation)

TOMOGRAFIA DE IMPEDÂNCIA ELETROMAGNÉTICA: UM NOVO SISTEMA DE MAPEAMENTO COMPUTACIONAL NÃO-INVASIVO PARA LOCALIZAÇÃO DE FOCOS E CIRCUITOS DE ATIVIDADE ELÉTRICA NO TECIDO CARDÍACO (PRÉMIO JOVEM INVESTIGADOR)

Sérgio Laranjo, Bruno Gil, Mário Martins Oliveira, Cristiano Tavares, Isabel Rocha, Raul Martins XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Oral Presentation)

Mechanical ventricular dyssynchrony or left bundle branch block in the prediction of cardiac resynchronization therapy response in patients with moderate QRS prolongation? (poster)

Pedro P. Teixeira, Luísa Branco, Ana Galrinho, Mário Martins Oliveira, Pedro Silva Cunha, Pedro Rio, Tiago Silva, Joana Feliciano, Guilherme Portugal, André Monteiro, M Nogueira da Silva, Rui Cruz Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Oral Presentation)

Substrate modification in patients with severe left ventricular dysfunction and frequent appropriate ICD shocks Mário Martins Oliveira, Manuel Nogueira da Silva, Pedro Silva Cunha, Bruno Valente, Joana Feliciano, Ana Lousinha, Luisa Branco, Ricardo Pimenta, Ana S. Delgado, Isabel Carlos, Rui Cruz Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015 (Poster Presentation)

Ablação por cateter com energia de radiofrequência baseada no isolamento das veias pulmonares: resultados na fibrilhação auricular paroxística e persistente Mário Martins Oliveira, Manuel Nogueira da Silva, Pedro Silva Cunha, Ana Lousinha, Bruno Valente, Ruben Ramos, Tiago Silva, Manuel Brás, Ricardo Pimenta, Ana S. Delgado, Rui Cruz Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015 (Poster Presentation)

Pacing cardíaco definitivo em formato provisório após extração de eléctrodos em doentes dependentes de pacemaker - eficácia e segurança .Bruno Valente, José M. Conceição, P. Silva

Cunha, Ana Lousinha, Guilherme Portugal, Pedro Rio, Samuel Almeida, M. Nogueira da Silva, Ricardo Pimenta, Sofia Delgado, Mário Martins Oliveira, Rui Cruz Ferreira
XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015
(Poster Presentation)

Impacto da síncope recorrente na qualidade de vida em doentes submetidos a teste de inclinação em mesa basculante Elisabete Nave-Leal, Mário Martins Oliveira, José Pais-Ribeiro, Sandra Alves, Eunice Oliveira, Teresa Alves, Rui Cruz Ferreira
XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Poster Presentation)

Análise do impacto prognóstico dos sistemas de monitorização à distância em portadores de dispositivos com terapêutica de ressincronização cardíaca Joana Feliciano, Mário Martins Oliveira, Rui M. Soares, Pedro S. Cunha, M. Nogueira da Silva, Ana Lousinha, Luisa Branco, Ana Galrinho, Ana S. Delgado, Sandra Alves, Ricardo Pimenta, Rui Cruz Ferreira
XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Poster Presentation)

What is the long-term impact of clinical response in cardiac resynchronization therapy patients without reverse remodelling? Pedro Rio, Mário Martins Oliveira, Pedro Silva Cunha, M. Nogueira da Silva, Luísa Branco, Ana Galrinho, João Abreu, Joana Feliciano, Rui M. Soares, Tiago Silva, Pedro P. Teixeira, Rui Cruz Ferreira
XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Poster Presentation)

Responders ecocardiográficos ao CRT - quais os melhores factores predictivos?
Ana Abreu, Guilherme Portugal, Vanessa Santos, Helena Santa-Clara, Pedro Rio, Marta Alves, Ana L. Papoila, Pedro Silva Cunha, Mário Martins Oliveira, Joana Feliciano, Miguel M. Carmo, Rui Cruz Ferreira
XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Poster Presentation)

Correlation between apoptosis reduction and functional capacity improvement after cardiac resynchronization in heart failure patients Marta Nogueira, Ana Abreu, Teresa Pinheiro, Helena Santa-Clara, Vanessa Santos, Pedro Silva Cunha, Mário M. Oliveira, Pedro Rio, Guilherme Portugal, Mafalda Selas, Rui Soares, Rui Cruz Ferreira
XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Poster Presentation)

Qualidade de vida, depressão e ansiedade após ressincronização: será o benefício dependente da resposta clínica e ecocardiográfica? Inês Rodrigues, Ana Abreu, Vanessa Santos, Helena Santa Clara, Guilherme Portugal, Pedro Rio, André Monteiro, Pedro P. Teixeira, Tiago Silva, Pedro Silva Cunha, Mário Martins Oliveira, Rui Cruz Ferreira
XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Poster Presentation)

Long-term follow-up and appropriate and inappropriate therapy after ICD implantation in elderly patients Guilherme Portugal, Mário Martins Oliveira, Pedro Silva Cunha, Ana Lousinha, Bruno Valente, Samuel Almeida, Ricardo Pimenta, Ana S. Delgado, Manuel Brás, Pedro P.

Teixeira, André Monteiro Rui C. Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Poster Presentation)

Very long-term follow-up in patients with Brugada electrocardiogram with syncope and/or inducible ventricular arrhythmias Ana Lousinha, Mário Martins Oliveira, Pedro Silva Cunha, M. Nogueira da Silva, Bruno Valente, Ricardo Pimenta, Ana S. Delgado, Inês Rodrigues, Teresa Alves, Sandra Alves, Rui Cruz Ferreira. XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Poster Presentation)

Crioablação com balão no tratamento da fibrilhação auricular: temperatura e tempo para o isolamento das veias pulmonares Manuel Nogueira da Silva, Mário Martins Oliveira, Pedro Silva Cunha, Ana T. Timóteo, Samuel Almeida, Marta Nogueira, Ana Lousinha, Ricardo Pimenta, Ana S. Delgado, Victor Gil, Rui Cruz Ferreira. XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Poster Presentation)

Neurally-mediated syncope in patients with Brugada-type 1 electrocardiogram Ana Lousinha, Mário Martins Oliveira, Pedro Silva Cunha, Bruno Valente, M. Nogueira da Silva, Inês Rodrigues, Ricardo Pimenta, Ana S. Delgado, Sandra Alves, Manuel Brás, Rui Cruz Ferreira XXXVI Congresso Português de Cardiologia, Herdade dos Salgados, Abril, 2015. (Poster Presentation)

Ablação de via acessória anterior esquerda através da cúspide aórtica não coronária – caso clínico André Monteiro, Sérgio Laranjo, M. Nogueira da Silva, Pedro S. Cunha, Mário Oliveira Reunião Anual de Eletrofisiologia, Mesão Frio, Novembro, 2015. (Oral Presentation)

Miltenberger-Miltenyi, G. Genética e bioinformática. Programa de Formação em Investigação Clínica para Internos da Formação Específica do Internato Médico do CHLN. Lisboa, Portugal, April 13-14, 2015. (Oral Presentation)

Miltenberger-Miltenyi, G. Cerebrospinal fluid biomarkers. Master/PhD in Neuroscience - Cognitive Deterioration in Ageing and Dementia. Faculty of Medicine, University of Lisbon. Symposium: Biomarkers for Alzheimer's disease. Lisboa, Portugal, April 29, 2015. (Oral Presentation)

Miltenberger-Miltenyi, G. Interesting cases of Fabry disease - the Geneticist's perspective. Genetics course of Fabry disease. (International course, Shire) Lisbon, June 19-20, 2015. (Oral Presentation)

Miltenberger-Miltenyi, G. Genotype-phenotype correlation on Fabry disease. Expert Meeting de Doença de Fabry. Guimaraes, October 9-10, 2015. (Oral Presentation)

Postolache G, Pedro L. Projeto RSE FISIO – Registo de Saúde Eletrónico: Necessidades, Requisitos e Barreiras de Adoção em Fisioterapia. V Seminário Ibérico de Psicogerontologia. Saúde Mental e Qualidade de Vida no Envelhecimento, Beja, Portugal, May 21-22, (Oral Presentation)

Oliveira R, Postolache G, Moreira I, Mariano J, Pedro L, Barcia S, Postolache O. Perspetivas dos fisioterapeutas sobre registo de saúde eletrónico em fisioterapia. Proceedings 9 Congresso Nacional de Fisioterapia, Estoril, Portugal, June 11-14, 2015, (Oral Presentation)

Postolache O, Oliveira R, Postolache G, Melo F, Pedro L, Barcia S. Tecnologias para Avaliação Objectiva, Tele-Reabilitação, E-Paciente, E-Acessibilidade e Jogos Sérios para Registo de Saúde Electrónico em Fisioterapia), 9 Congresso Nacional de Fisioterapeutas, Estoril, Portugal, June 14, 2015 (Oral Presentation)

Domingos S, Postolache G, Oliveira R, Moreira I, Pedro L, Vincente S, Postolache O. Perspetivas dos idosos que realizam fisioterapia sobre o efeito das tecnologias nas decisões terapêuticas, 11 Congresso Nacional de Psicologia de Saúde, Lisboa, Portugal, 26-29 Janeiro, 2016. (Oral Presentation)

Organisation of Conferences

Mário Oliveira (organizer), Ablation of Ganglionated Plexi for the treatment of Atrial Fibrillation, Santa Marta Hospital, January, 2015

Mário Oliveira (organizer), Simposium Intellectual Property and Medical Writing, Lisbon, March, 2015

Mário Oliveira (organizer and lecturer), Summer Meeting 2015, CCB, Lisbon, July 2015

Mário Oliveira (organizer and lecturer), Advanced Ablation Technologies: from concept to clinical practice, Seminário de Eletrofisiologia com experimentação animal, Hospital Santa Maria, Lisbon, January, 2015

Mário Oliveira (scientific committee, organizer), Portuguese Congress of Cardiology – CPC2016

Postolache O, Oliveira R, Postolache G, Melo F, Pedro L, Barcia S. Workshop Tecnologias para Avaliação Objectiva, Tele-Reabilitação, E-Paciente, E-Acessibilidade e Jogos Sérios para Registo de Saúde Electrónico em Fisioterapia) no âmbito de 9 Congresso Nacional de Fisioterapeutas, Lisboa, Portugal, 14 Junho, 2015

Luís Leonel, I Curso de Diagnóstico, Tratamento e Reabilitação vestibular para Médicos de Medicina Geral e Familiar, Lisboa, Portugal, 2015

Luís Leonel, 3rd International Vestibular Diagnosis, Treatment and Rehabilitation Course, Lisbon, Portugal, 2015

Luís Leonel, 4th International Vestibular Diagnosis, Treatment and Rehabilitation Course, Lisbon, Portugal, 2015

Prizes, honours and awards

Robert Schwab Award da American Clinical Neurophysiology Society, por trabalhos científicos relevantes realizados na neurofisiologia clínica, em 2015. Mamede de Carvalho

Novartis Best Oral Communication 2015 to Pronto Laborinho AC in " XXII Congresso de Pneumologia do Norte" , "Aumento da Proteína Secretora das Células de Clara em doentes com Esclerose Lateral Amiotrófica e Falência Respiratória "(Pronto-Laborinho, A.C.; Barros, MA; Pinto, S; de Carvalho, M.)

Ablation of ventricular tachycardia in patients with severe left ventricular dysfunction and frequent appropriate ICD shocks: potential benefits of arrhythmogenic substrate modification
Mário M. Oliveira, Nogueira da Silva, Pedro Cunha, Bruno Valente, Ana Lousinha, Joana Feliciano, Guilherme Portugal, Ricardo Pimenta, Ana Delgado, Rui Ferreira-Prémio Medtronic (MENÇÃO HONROSA), ARRITMIAS 2015, Cascais, Fevereiro/2015

Tomografia de impedância eletromagnética: um novo sistema de mapeamento computacional não-invasivo para localização de focos e circuitos de atividade elétrica no tecido cardíaco -
Sérgio Laranjo Bruno Gil, Mário Oliveira, Cristiano Tavares Isabel Rocha, Raul Martins Prémio Jovem Investigador - Investigação Básica, Congresso Português de Cardiologia, 2015

Science and society

Miltenberger-Miltenyi, G. (2015) Estado da investigação em Síndrome de Angelman. Lecturer at 5º Encontro Angel – Meeting of the Portuguese Association of Angelman Syndrome. Cascais, Portugal
Science and Society

Postolache G (2015) "RSE FISIO" curator of Facebook/RSE FISIO and Google+/RSE FISIO

Postolache G (2015) "Electronic Health Records: Needs, Requirements, and Barriers of Adoption in Physiotherapy" – collaborator for final report realization in the framework of Project EHRs PHYSIO (2013-2015), financed by Fundação para a Ciência e a Tecnologia, Portugal

Postolache G (2015) "Intelligent Sensors and Tailored Environment for Physiotherapy" – collaborator for project proposal, approved to be financed by Fundação para a Ciência e a Tecnologia (2016-2018).

PhD thesis completed

Leonel Luís 25/07/2015 Evaluation of Central and Peripheral Vestibular Patients with the Video-head Impulse Test Ciências da Saúde, Instituto de Ciências da Saúde, Universidade Católica Portuguesa Professor Doutor Alexandre Castro Caldas e Professor Doutor João Costa

Msc thesis completed

Ana Inês 01/07/2015 Flexibility and control of attention School of Medicine, University of Lisbon (Portugal) Tiago Maia

Rita Belo 12/10/2015 Reinforcement learning across development in humans School of Medicine, University of Lisbon Tiago Maia

Tiago Henriques 07/04/2015 Overcoming automatic response tendencies: behavioral findings and computational model-based analysis University of Lisbon, and Instituto Superior Técnico (Portugal) Tiago Maia

Marta Duarte Samartinho 17/09/2015 Prevalence of Stroke and Transient Ischemic Attack in Takayasu's Arteritis: A Systematic Review Analysis Mestrado Integrado em Medicina - FMUL Tiago Maia

Eugeniu Gisca 11/11/2015 Demographic and clinical characteristics of Portuguese ALS patients - Assessment of C9orf72, SOD1 and VAPB mutations Mestrado Integrado em Medicina, FMUL Mamede de Carvalho

Carolina da Cunha Carvalho 14/05/2015 Efeito da Estimulação Transcraniana com Correntes DC na Excitabilidade Cortical Mestrado Integrado de Engenharia Biomédica e Biofísica da Faculdade de Ciências de Lisboa, University of Lisbon (Portugal) Mamede de Carvalho

Sofia Xavier 08/09/2015 Effect of Caffeine on Electrophysiological Responses Evoked by Transcranial Magnetic Stimulation in Elderly People School of Medicine, University of Lisbon (Portugal) Mamede de Carvalho

Dias, Sérgio

Major Interests / Objectives

We study the role of blood vessels, and of endothelial cells, in regulating normal organ function and in disease.

In detail, we study cancers (solid and hematologic) as a systemic disease that involves (and requires) blood vessels for its onset and progression.

In addition to the role of blood vessels, we also study the involvement of bone marrow-derived cells and of metabolic systemic signals in cancer onset and progression.

Head of Laboratory

Sérgio Jerónimo Rodrigues Dias, PhD, Associate Professor

Research Team

Ana Cláudia Dourado Clemente	Master	MSc Student, (left November)
Ana Luísa Ferro Espadanal Torres Magalhães	PhD	Post doctoral Investigator
Filipe Máguas da Silva Hanson	Graduate	Trainee, (started October)
Hélia Neves	PhD	Investigator
Inês Sofia Alvarez Martins	Graduate	PhD Student
Inês Vieira Oliveira	Graduate	Trainee, (started October)
Joana de Sousa Grácio Fernandes Rodrigues	Graduate	MSc Student
Margarida Amorim de Magalhães	Graduate	Investigator, (started August)
Marta Sofia Carvalho Teles de Figueiredo	Master	PhD Student
Marta Zegre Graça Oliveira Costa de Amorim	Graduate	PhD Student, Centro Hospitalar Lisboa Central, Clinical Specialist
Neidy Varela Rodrigues	Master	PhD Student
Sandrina Nóbrega Pereira	PhD	Post doctoral Investigator
Vanessa Carina Silva Cesário	Graduate	MSc Student

Vitor Hugo Costa Proa	Graduate	Technician
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Keywords / Research Areas

Angiogenesis, Tumor spread, Metabolism

Major scientific achievements

In 2015 we generated important data on the role of hypoxia as a systemic signal that affects the bone marrow microenvironment, on the role of the host metabolism and how this perturbs the tumor microenvironment, and on the role of lipid signaling in endothelial barrier permeability and on the angiogenesis profiles of different tumors. The year ended with high marks for our 3 Master Students, and in very successful Gaptic Projects.

We also participated in National and International meetings where we showed our most relevant scientific findings

Selected Publications

Costa A, Afonso J, Osório C, Gomes AL, Caiado F, Valente J, Aguiar SI, Pinto F, Ramirez M, Dias S. (2013) miR-363-5p regulates endothelial cell properties and their communication with hematopoietic precursor cells. *Journal of Hematology and Oncology* 6(1), 87. (Journal IF: 4.93, Citations: 10)

Caiado F, Carvalho T, Rosa I, Remedio L, Costa A, Matos J, Heissig B, Yagita H, Hattori K, da Silva JP, Fidalgo P, Dias Pereira A and Dias S (2013) Bone marrow-derived CD11b+Jagged2+ cells promote epithelial to mesenchymal transition and metastization in colorectal cancer. *Cancer Research* 73(14), 4233-46. (Journal IF: 9.3, Citations: 13)

Caiado F, Carvalho T, Silva F, Castro C, Clode N, Dye JF and Dias S. (2011) The role of fibrin E on the modulation of endothelial progenitors adhesion, differentiation and angiogenic growth factor production and the promotion of wound healing. *Biomaterials* 32(29), 7096-105. (Journal IF: 7.404, Citations: 32)

Gomes AL, Carvalho T, Torre C, Serpa J and Dias S. (2010) Hypercholesterolemia promotes bone marrow cell mobilization by perturbing the SDF1:CXCR4 axis. *Blood* 115(19), 3886-94. (Journal IF: 9.9, Citations: 58)

Serpa J, Caiado F, Carvalho T, Torre C, Goncalves LG, Casalou C, Lamosa P, Rodrigues M, Zhu Z, Lam EW, Dias S (2010) Butyrate rich colonic microenvironment is a relevant selection factor for

metabolically adapted tumour cells. *Journal of Biological Chemistry* 285(50), 39211-23. <http://www.jbc.org/content/285/50/39211.short>. (Journal IF: 4.573, Citations: 18)

Ongoing Research Projects

2015/2016 Directors' Exploratory Projects 2016 (DEP). Coordinator: Sérgio Jerónimo Rodrigues Dias. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: DEP 2016 SDias. Amount: € 25000.00. Amount (total): € 0.00.

2015/2016 Bridge Grant 2015. Coordinator: Sérgio Jerónimo Rodrigues Dias. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BridgeGrant2015 SDias. Amount: € 15000.00. Amount (total): € 0.00.

Original publications in peer review Journals

Silva LS, Goncalves LG, Silva F, Domingues G, Maximo V, Ferreira J, Lam EW, Dias S, Felix A, Serpa J (2015) STAT3:FOXO1 and MCT1 drive uterine cervix carcinoma fitness to a lactate-rich microenvironment. *Tumour Biol.* 2015 pp 1-11. (Journal IF: 2.84; Citations: 0)

Invited lectures and seminars

Dias, S. 14^a Reunião Internacional de Cirurgia, IMM, Lisboa, Portugal. 30 January 2015.

Dias, S. Fat feeds Cancer or how lipids promote tumor progression. Cedoc, FCM, UNL, Lisboa, Portugal. 2 December 2015.

Communications in International Conferences

Dias S. Workshop "Imaging and Radiation Biomarkers"
November 13, 2015 C2TN – Centro de Ciências e Tecnologias Nucleares, Lisboa, Portugal. (Oral Presentation)

Nobrega-Pereira, S. Acquisition of chemotherapy resistance in acute myeloid leukemia: interplay between lipid metabolism and VEGF receptor signaling. CNIO Frontiers Meeting. Metastasis Initiation: Mechanistic Insights and Therapeutic Opportunities. September 28-30, 2015 (Oral Presentation)

Advanced teaching

Sérgio Dias Coordinated the Module "Development and Cancer" of the Master Program in Oncobiology, FMUL.

Sérgio Dias Coordinated the Module "Oncobiology" of the LisbonBioMed PhD Program, IMM, FMUL.

Sérgio Dias is also a Lecturer of Advanced Teaching Programs in other Universities:

- PhD Program in Chemical, Biological Sciences and Engineering (ITQB, NOVA University of Lisbon)
- PhD Program in Experimental Biology and Biomedicine (University of Coimbra)
- PhD Program in Medicine (NOVA University of Lisbon)
- Master Program in Human and Environmental Biology (University of Algarve)
- Master Program in Human and Environmental Biology (FMUL, University of Lisbon)

Science and society

Workshop Laço "Toma Conta de Ti", Escolas de Odivelas. October 2015.

Msc thesis completed

Vanessa Carina Silva Cesário 19/11/2015 DOES HOST LDL RECEPTOR CONTRIBUTE TO TUMOR PROGRESSION? Universidade de Lisboa Sérgio Dias

Ana Cláudia Dourado Clemente 02/11/2015 Unraveling the function of CD11b+ myeloid cells in the tumor microenvironment Universidade de Lisboa, FMUL Sérgio Dias

Joana Grácio Rodrigues 10/12/2015 Hematopoiesis in transgenic rats overexpressing neuronal adenosine A2A receptors Universidade de Lisboa Sérgio Dias

Ferreira, Joaquim J.

Major Interests / Objectives

The main mission of the Joaquim Ferreira Lab is to contribute to the development of effective and safe therapeutic interventions through the establishment of optimized methodologies for the design, conduction, analysis and report of clinical trials.

The main clinical pharmacology domains of interest are clinical trials methodology, outcomes, systematic reviews, safety, pharmaco MRI and drug utilization. The emphasis is mainly on novel, early phase proof-of-principle clinical studies and new methodological and trial designs but the scope extends throughout the clinical development spectrum. We also envision collaborations with the pharmaceutical industry, facilitating the conduction of clinical trials to a shared role in the early stages of drug and planning of clinical development.

Head of Laboratory

Joaquim Ferreira, MD/PhD, Clinical Specialist, Associate Professor, Faculdade Medicina da Universidade de Lisboa

Research Team

Adriana Filipa da Silva Ferreira	Graduate	MSc Student
Ana Cláudia Marques Salgueiro	Master	Trainee
Ana Isabel Santos Augusto	Graduate	Trainee
Ana Margarida Faisca do Carmo Pires de Noronha	Graduate	Administrative
Ana Marta Teixeira Anes	Master	Investigator, Faculdade Medicina da Universidade de Lisboa, Teaching Assistant
Ana Patrícia Silva Pita Lobo	Graduate	Investigator, Hospital Fernando da Fonseca, MD
Ana Rita Simões Cardoso	Master	Investigator, Campus Neurologico Senior (CNS)

Ana Teresa Martins Sousa Santos	Master	Lab Manager
Anabela Ferreira Valadas	Graduate	Investigator, Hospital São Bernardo, Setúbal, MD
Andreia Assunção Sousa da Rocha	Graduate	MSc Student, (left April)
Andreia Susana Delgado Magalhães	Master	Investigator, (started August)
Carla Filipa Ferreira Rodrigues	Graduate	Trainee, (left April)
Catarina Afonso Godinho	PhD	Investigator, Campus Neurologico Senior (CNS), Assistant Professor
Claudio Virgilio Antunes David	Graduate	Investigator, CHLN, MD, Faculdade Medicina da Universidade de Lisboa, Teaching Assistant
Cristina Sampaio	PhD Agregação	Investigator, Faculdade Medicina da Universidade de Lisboa, Full Professor
Daisy Andreína Vieira De Abreu	Master	Investigator
Daniel Gomes Caldeira	Graduate	PhD Student, Hospital Garcia de Orta, MD , Faculdade Medicina da Universidade de Lisboa , Teaching Assistant
Ema Roque	Graduate	Administrative, Faculdade Medicina da Universidade de Lisboa
Eunice Ferreira Vicente	Graduate	MSc Student, (started September)
Helena Isabel Vicente dos Santos	Graduate	Technician
Isabel Cristina Ramos Peixoto Guimarães	PhD	Investigator, Associate Professor , (started February)
Joana Margarida do Nascimento Fagundes Carvalho	Graduate	Investigator
João Costa	MD/PhD	Investigator, Hospital da Luz, MD , Faculdade Medicina da Universidade de Lisboa , Assistant Professor

João Pedro da Silva Almeida	Graduate	MSc Student, (started September)
Josefa Domingos	Master	Investigator, Campus Neurologico Senior (CNS)
Kelli Destri	Master	Technician, (started June)
Leonor Correia Guedes	Master	PhD Student, CHLN , MD
Márcio Correia Barra	Master	Administrative
Margarida Borges	Graduate	Investigator, Faculdade Medicina da Universidade de Lisboa , MD , Teaching Assistant
Margherita Fabbri	Graduate	PhD Student, DIBINEM Department of Biomedical and Neuromotor Science, University of Bologna, ALMA MATER STUDIORUM , MD
Maria Dulce dos Santos Neutel	Graduate	Investigator, Hospital do Espírito Santo, Évora , MD
Maria Isabel Boaventura de Atougua	Graduate	Investigator, Celgene , MD , Faculdade Medicina da Universidade de Lisboa , Teaching Assistant
Mário Miguel Coelho da Silva Rosa	Graduate	PhD Student, CHLN , MD , Faculdade Medicina da Universidade de Lisboa , Teaching Assistant
Miguel Coelho	Graduate	PhD Student, CHLN , MD
Nádia Filipa Cruz Lourenço	Graduate	MSc Student, (started September)
Nilza Karina Cabral Gonçalves	Master	Investigator
Nuno Miguel Dias Almeida	Graduate	MSc Student, (started September)
Olga Sofia de Oliveira Caetano	Graduate	Administrative, Faculdade Medicina da Universidade de Lisboa
Pedro Miguel Guedes de Oliveira	Graduate	Investigator, (started February)

Raquel de Queirós Bouça Ribeirinho Machado	Graduate	Investigator
Raquel Filipa de Oliveira Rodrigues	Graduate	MSc Student, (started September)
Raquel José Ladeira Lobo	Master	Investigator
Ricardo Miguel Ribeiro Marques Cunha Fernandes	PhD	Investigator, CHLN , MD , Faculdade Medicina da Universidade de Lisboa , Invited Assistant
Sofia Cristina Pereira Coutinho Reimao	Master	Investigator, CHLN , MD , Faculdade Medicina da Universidade de Lisboa , Teaching Assistant
Tiago Heleno Mendes	Master	Investigator, (started September)
Tiago Mestre	Master	PhD Student, University of Ottawa , Assistant Professor , MD
Tiago Rodrigues Teodoro	Master	PhD Student, CHLN , MD
Tiago Soares	Graduate	MSc Student
Vanda Filipa Viseu Cândido Freitas Castro	Master	Investigator, Campus Neurologico Senior (CNS) , Clinical Specialist

Keywords / Research Areas

Parkinson's disease, Huntington Disease, Movement Disorders, Neuropharmacology, Clinical trials, Systematic reviews

Major scientific achievements

The Joaquim Ferreira Lab was formally created on the 1st of July 2013 based on the research team from the Neuropharmacology Unit of the Neurological Clinical Research Unit and the members of the Laboratory of Clinical Pharmacology (Faculty of Medicine). The Drug Evaluation and Systematic Reviews Sub-Unit (Movement Disorders Cochrane Collaboration Review Group) was consolidated and The Safety and Drug Utilization Research Unit (Pharmacovigilance Regional Unit) gained sustainability with a revised service contract with INFARMED.

Additionally, a Biostatistics and Methodological Sub-Unit was developed and more recently, a

Pharmaco MRI sub-uni was created. With the application of neuroimaging techniques we believe it will be possible to detect micro-structural, functional and biochemical in central nervous system.

During 2015, JFERREIRA Lab received a grant under H2020 to assess the impact of Deferiprona in PD progression under the proposal FAIR-PARKII.

Selected Publications

Ferreira JJ, Lees A, Rocha JF, Poewe W, Rascol O, Soares-da-Silva P; Bi-Park 1 investigators. (2015) Opicapone as an adjunct to levodopa in patients with Parkinson's disease and end-of-dose motor fluctuations: a randomised, double-blind, controlled trial. *Lancet Neurol.* (Journal IF: 21.896, Citations: 1)

Fernandes RM, Plint AC, Terwee CB, Sampaio C, Klassen TP, Offringa M, van der Lee JH. (2015) Validity of bronchiolitis outcome measures. *Pediatrics*, **135**, 1399-408, (Journal IF: 5.473, Citations: 3)

Reimão S, Pita Lobo P, Neutel D, Correia Guedes L, Coelho M, Rosa MM, Azevedo P, Ferreira J, Abreu D, Gonçalves N, Nunes RG, Campos J, Ferreira JJ (2015) Substantia nigra neuromelanin-MR imaging differentiates Essential tremor from Parkinson's disease. *Movement Disorders*, **30**(7), 953-959, (Journal IF: 5.68, Citations: 5)

Ferreira JJ, Rosser A, Craufurd D, Squitieri F, Mallard N, Landwehrmeyer B. (2015) Eicosapentaenoic Acid Treatment in Huntington's Disease: A Placebo-Controlled Clinical Trial. *Movement Disorders*, **30**(10), 1426-1429, (Journal IF: 5.68, Citations: 1)

Caldeira D, Rodrigues FB, Barra M, Santos AT, de Abreu D, Gonçalves N, Pinto FJ, Ferreira JJ, Costa J. (2015) Non-vitamin K antagonist oral anticoagulants and major bleeding-related fatality in patients with atrial fibrillation and venous thromboembolism: a systematic review and meta-analysis. *Heart*, **101**(15), 1204-11, (Journal IF: 5.595, Citations: 6)

Ongoing Research Projects

2014/2015 1st IMM Teaching Course on DBS Movement Disorders. Coordinator: Joaquim Ferreira. Agency: Medtronic Portugal, Lda. Reference: 1st IMM Teaching Course on DBS Movement Disorders. Amount: 8000.00. Amount (total): € 8000.00.

2014/2016 Acompanhamento, referenciação e avaliação de doentes com doença de Parkinson. Coordinator: Joaquim Ferreira. Agency: Medtronic Portugal, Lda. Reference: Medtronic - Acompanhamento de Doentes. Amount: € 12000.00. Amount (total): € 0.00.

2015/2020 Conservative iron chelation as a disease-modifying strategy in Parkinson's disease: a multicentric, parallel-group, placebo-controlled, randomized clinical trial of deferiprone.

Coordinator: Joaquim Ferreira. Agency: Comissão Europeia. Reference: PHC - 633190 - FairParKII. Amount: € 187083.00. Amount (total): € 0.00.

2014/2017 Avaliação Abrangente e Não Enviesada de Fatores de Risco Genéticos e Ambientais para a Doença de Parkinson. Coordinator: Joaquim Ferreira. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: JPND-RF/0001/2012. Amount: € 130000.00. Amount (total): € 130000.00.

2014/2017 Cuidados para Parkinsonismo em Estádio Avançado. Coordinator: Joaquim Ferreira. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: JPND-HC/0002/2012. Amount: € 110000.00. Amount (total): € 110000.00.

2013/2016 Research Design and Data Analysis in Support of Clinical Trial Design and Clinical Research Projects. Coordinator: Joaquim Ferreira. Agency: CHDI Foundation, Inc. Reference: CHDI. Amount: € 525762.00. Amount (total): € 525762.00.

2014/2016 Ablynx N.V Coordinator: Ricardo Miguel Ribeiro Marques Cunha Fernandes. Agency: Ablynx N.V. Reference: Ablynx. Amount: € 4800.00. Amount (total): € 3000.00.

Original publications in peer review Journals

Teodoro T, Viana P, Abreu D, Conceição I, Peralta R, Ferreira JJ. (2015). A peripheral pathway to restless legs syndrome? Clues from familial amyloid polyneuropathy. *Parkinsonism & Related Disorders*. **21** (12): 1465-1468. (Journal IF: 3.972, citations: 0)

Caldeira D, Barra M, Ferreira A, Rocha A, Augusto A, Pinto FJ, Costa J, Ferreira JJ. (2015) Systematic review with meta-analysis: the risk of major gastrointestinal bleeding with non-vitamin K antagonist oral anticoagulants. *Alimentary pharmacology & therapeutics*, **42** (11-12): 1239-49 (Journal IF: 5.727, citations: 0)

Costa J, Fiorentino F, Caldeira D, Inês M, Lopes Pereira C, Pinheiro L, Vaz-Carneiro A, Borges M, Gouveia M. (2015) Cost-effectiveness of non-vitamin K antagonist oral anticoagulants for atrial fibrillation in Portugal. *Rev Port Cardiol* **34**:723-737. (Journal IF: 0.454, citations: 0)

Fabbri M, Rosa MM, Abreu D, Ferreira JJ. (2015) Clinical pharmacology review of safinamide for the treatment of Parkinson's disease. *Neurodegenerative disease management* **5**(6): 481496. (Journal IF: 2.652, citations: 0)

Sinha IP, McBride AKs, Smith R, Fernandes RM. (2015) CPAP and high-flow nasal cannula oxygen in brochiolitis. *Chest*, **148**(3): 810-823. (Journal IF: 7.483, citations: 0)

Rascol O, Perez-Lloret S, Ferreira JJ. (2015) New treatments for levodopa-induced motor complications. *Movement Disorders*, **30**(11):1451-1460. (Journal IF: 5.680; citations: 1)

Caldeira D, Costa J, Barra M, Pinto JF, Ferreira JJ (2015) How safe is acetaminophen use in patients treated with vitamin K antagonists? A systematic review and meta-analysis. *Thrombosis Research* **135**(1):58-61 (Journal IF: 2.447; Citations: 2)

Caldeira D, Barra M, Santos AT, de Abreu D, Costa J, Ferreira JJ (2015) Risk of insomnia with non-vitamin K oral anticoagulants: systematic review and meta-analysis. *Sleep and Breathing*. **19**(3):1043- 1049 (Journal IF: 2.482, citations: 1).

Ferreira JJ, Rosser A, Craufurd D, Squitieri F, Mallard N, Landwehrmeyer B (2015) Ethyl-Eicosapentaenoic Acid Treatment in Huntington's Disease: A Placebo-Controlled Clinical Trial, *Movement Disorders*, **30**(10): 1426-1429. (Journal IF: 5.680, citations: 1).

Teodoro T, Nzwalo H, Correia Guedes L, Coelho M, Rosa MM, Ferreira JJ. (2015) Suicidal behaviors are very rare in antiparkinsonian drug trials. *Parkinsonism and related Disorders*. **21**(8):1008-9 . (Journal IF: 3.972, citations: 0).

Caldeira D, Gonçalves N, Ferreira JJ, Pinto FJ, Costa J. (2015) Tolerability and Acceptability of Non-Vitamin K Antagonist Oral Anticoagulants in Atrial Fibrillation: Systematic Review and Meta-Analysis. *American Journal of Cardiovascular Drugs*. **15**(4):259-65. (Journal IF: 2.422, citations: 0).

Caldeira D, Rodrigues FB, Barra M, Santos AT, de Abreu D, Gonçalves N, Pinto FJ, Ferreira JJ, Costa J. (2015) Non-vitamin K antagonist oral anticoagulants and major bleeding-related fatality in patients with atrial fibrillation and venous thromboembolism: a systematic review and meta-analysis. *Heart*. **101**(15):1204-11. (Journal IF: 5.595, citations: 6).

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Fernandes RM, Plint AC, Terwee CB, Sampaio C, Klassen TP, Offringa M, van der Lee JH. (2015) Validity of bronchiolitis outcome measures. *Pediatrics*, **135**:e1399-408. (Journal IF: 5.473, citations:3)

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Ferreira JJ, Santos AT, Domingos J, Matthews H, Isaacs T, Duffen J, Al-Jawad A, Larsen F, Serrano JA, Weber P, Thoms A, Sollinger S, Graessner H, Maetzler W. (2015) Clinical Parameters and Tools for Home-Based Assessment of Parkinson's Disease: Results from a Delphi study. *Journal of Parkinson's Disease*, **5**(2): 281-290. (Journal IF: 1.910, citations: 2)

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Ferreira JJ, Colosimo C, Bhidayasiri R, Marti MJ, Maisonobe P, Om S. (2015) Factors influencing secondary non-response to botulinum toxin type A injections in cervical dystonia. *Parkinsonism and Related Disorders*, **21**(2): 111-115. (Journal IF: 3.972, citations: 1).

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Caldeira D, Cruz I, Calé R, Martins C, Pereira H, Ferreira JJ, Pinto FJ, Costa J, (2015). Antithrombotic treatment in chronic heart failure and sinus rhythm: Systematic review. *World Journal of Meta-Analysis*, **3**(1):36 -42. (Journal IF: none, citations: 0)

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Serrano JA, Larsen F, Isaacs T, Matthews H, Duffen J, Riggare S, Capitanio F, Ferreira JJ, Domingos J, Maetzler W, Graessner H. Sense Park Consortium. (2015) Participatory design in Parkinson's research with focus on the symptomatic domains to be measured. *Journal of Parkinson's Disease*. **5**(1): 187-196. (Journal IF: 1.910, citations: 0).

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Gouveia M, Costa J, Alarcão J, Augusto M, Caldeira D, Pinheiro L, Vaz Carneiro A, Borges M. (2015) Burden of disease and cost of illness of atrial fibrillation in Portugal. *Revista Portuguesa de Cardiologia*, **34**(1):1-11. (Journal IF: 0.454; citations: 3)

Ferreira JJ, Lees A, Rocha JF, Poewe W, Rascol O, Soares-da-Silva P; Bi-Park 1 investigators. (2015) Opicapone as an adjunct to levodopa in patients with Parkinson's disease and end-of-dose motor fluctuations: a randomised, double-blind, controlled trial. *Lancet Neurol*. (Journal IF: 21.896, Citations: 1)

Fabbri M, Guedes LC, Simão M, Abreu D, Rosa MM, Silveira-Moryama L, Ferreira JJ. (2015) Subthalamic deep brain stimulation effects on odor identification in Parkinson's disease. *European Journal of Neurology*, **22**(1): 207-210. (Journal IF: 4.055; citations: 4)

Invited lectures and seminars

Ferreira JJ. Abordagem terapêutica de doentes em estágio inicial. Doença de Parkinson, Pestana Sintra Golf Resort & SPa Hotel, Quinta da Beloura, November 27, 2015.

Ferreira JJ. Doença de Parkinson, 17º Congresso Português de Gerontologia Social, Lisboa, Centro Ismaili, 25 de Novembro de 2015.

Ferreira JJ, Castro-Caldas A. Levodopa: 50 anos de uma droga "milagrosa". Congresso de Neurologia 2015, Lisbon. November 11-14 2015.

Rosa MM, Palavra F. Drogas antigas e perigo modernos. Congresso de Neurologia 2015, Lisbon. November 11-14 2015.

Sampaio C. Terapêuticas dirigidas em doenças neurodegenerativas: o caso da Doença de Huntington. Congresso de Neurologia 2015, Lisbon. November 11-14 2015.

Sampaio C, Filantropia, ciência e interesse público: interesses complementares ou conflituais. Congresso de Neurologia 2015, Lisbon. November 11-14 2015.

Ferreira JJ. O funcionamento do cérebro tem implicações para a ciência. Jornadas Grassa

Ciência pelo Monte, Sobral do Monte Agraço, 9-10 de Julho 2015.

Guimarães I. Speech therapy in Portugal: five decades of history. First World Student Meeting on Speech and Language Therapy (SLT), Leiria, Julho 2015.

Reimão S. Imagen por RM de la neuromelanina de la sustancia negra en estadios tempranos de la enfermedad de Parkinson, XXVII Congresso da Sociedade Iberolatinoamericana de Neuroradiologia Diagnóstica e Terapêutica, Santiago de Compostela, Espanha, 16 Junho 2015.

Ferreira JJ. Update on symptomatic and disease modifying treatments in HD. International Expert Meeting on Agitation and Hyperkinetic Movement Disorders, Hotel quinta da Marinha, Cascais, 1 Maio 2015.

Godinho, C. Multidisciplinary intervention in Geriatrics Experience from Campus Neurológico Sénior. Instituto Superior de Tecnologias da Saúde. Maio 2015.

Ferreira JJ. Doenças do Movimento. XIV Colóquios de Neurologia, Hospital Garcia de Orta, Costa da Caparica, 23 de Janeiro de 2015.

Communications in International Conferences

Toureiro, A.M., Melo, F. Godinho, C. et al. Are there Relation between Crossbite and/or an Open bite, Static Postural Behavior, and occurrence of Non-Traumatic Injuries in young athletes? in First international Congress of CiiEM "From Basic Sciences to Clinical Research". Monte Caparica, Portugal. November 2015 (Poster Presentation)

Martins I., Godinho, C. et al. The effect of Assistive Devices on gait patterns in Parkinson's disease: a pilot study. in First international Congress of CiiEM "From Basic Sciences to Clinical Research". Monte Caparica, Portugal. November 2015 (Poster Presentation)

Reis, N., Godinho, C. et al. Influence of intensive training on salivary flow, on salivary pH and on salivary lactate concentration: consequences for oral health. in First international Congress of CiiEM "From Basic Sciences to Clinical Research". Monte Caparica, Portugal. November 2015 (Poster Presentation)

Godinho, C. et al. Falls prevention among nursing home inpatient's with neurodegenerative disorders. in First international Congress of CiiEM "From Basic Sciences to Clinical Research". Monte Caparica, Portugal. November 2015 (Poster Presentation)

Pinto S, Guimarães I, Rothe-Neves, R Sadat J, Cardoso R, Vialle F, Oliveira e Britto A.T, Ferreira, JJ, Cardoso F. Dysarthria in Parkinson Disease: Luso-French Translinguistic Study. XXIII Congresso Brasileiro de Fonoaudiologia, Salvador, Brasil, 14 a 16 de Outubro 2015 (Poster Presentation)

Fabbri M, Coelho M, Abreu D, Correia Guedes L, Gonçalves N, FERREIRA JJ. Do late-stage Parkinson's disease patients still respond to levodopa? Congress Limpe-Dismov. Torino, September 28-October 1, 2015. (Poster Presentation)

Carmona J. Guimarães I, Yaruss J.S . European Portuguese cross-cultural adaptation and validation of the OASES -A. International Fluency Association Congress, Lisbon, 6-8 July 2015. (Oral presentation)

Castro-Caldas A, Reimão S, Correia Guedes L, Rosa MM, FERREIRA JJ, Coelho M. Congenital pyramidal signs and cerebellar ataxia with abnormal pyramidal decussation – a new syndrome, 1st Congress of the European Academy of Neurology, Berlin, Germany, June 20-23, 2015. (Oral presentation)

Domingos, J.M., Caniça, V. Godinho, C. et al. Feasibility study of an intensive multi-strategy rehabilitation program for Parkinson disease. 19th International Congress of Parkinson's disease and Movement Disorders. San Diego, June 2015. (Poster Presentation)

Fabbri M, Coelho M, Abreu D, Correia Guedes L, Gonçalves N, FERREIRA JJ. Do late-stage Parkinson's disease patients still respond to levodopa? 1st Congress of the European Academy of Neurology, Berlin, Germany, June 20-23, 2015. (Oral presentation)

Thomson D, Hamm M, Newton M, Fernandes R, Featherstone R, Hartling L. Cochrane 2.0: Tweeting and blogging to disseminate child-relevant evidence. 12th Annual Cochrane Canada Symposium. Cochrane Canada. Calgary, 21-22 May 2015. (Oral presentation)

Thomson D, Williams K, Fernandes R, Hartling L. Fifteen Years of Integrated Knowledge Translation: The Cochrane Child Health Field. 12th Annual Cochrane Canada Symposium. Cochrane Canada. Calgary, 21-22 May 2015. (Oral presentation)

Guimarães I, Cardoso R, Pinto S. Ferreira, JJ. Idiopathic Parkinson's Disease oromotor performance and influencing factors. 9th European CPLOL Congress, Open the doors to communication, Florence, 8-9 May 2015. (Poster Presentation)

Carmona J, Guimarães I, Yaruss J.S. The adult's experience of stuttering and voice handicap: Preliminary data on European Portuguese. 9th European CPLOL Congress. Florence, 8 -9 May 2015. (Poster Presentation)

Guimarães I. TV voice-over. An European Portuguese perspective . 9th European CPLOL Congress. Florence, 8-9 May 2015. (Oral presentation)

Rojo-Perez F, Fernández-Mayoralas G, Rodríguez-Rodríguez V, Forjaz, MJ, Prieto-Flores M-E & Rojo-Abuin JM. Older adults' wellbeing according to sociodemographic and personal profiles. The International Association of Gerontology and Geriatrics. European Region Congress 2015. Dublin, Ireland. 23-26 April 2015 (Poster Presentation)

Fernandez-Mayoralas G, Talavera López JC, Rojo-Perez F, Rodriguez-Rodriguez V, Forjaz MJ, Prieto-Flores M-E, Rojo-Abuin J M. Reception Of Help For Performing Activities Of Daily Living Among Community Dwelling Older Adults Living In Spain (2008-2011). The International Association of Gerontology and Geriatrics. European Region Congress 2015. Dublin, Ireland. 23-26 April 2015 (Poster Presentation)

Forjaz MJ, Pedrero P, Prieto-Flores M-E, Rojo-Perez F, Fernández-Mayoralas G, Rodriguez-Rodriguez V. Environmental factors and life satisfaction in community-dwelling older adults. Association of American Geographers Annual Meeting. Chicago, IL. 21-25 April 2015. (Poster Presentation)

Rodríguez-Rodríguez, Rojo-Pérez F, Fernández-Mayoralas G, Morillo R, Forjaz MJ, Prieto-Flores ME. Active ageing index: application to Spanish geographical scales; an opportunity to reflect on the AAI. International seminar on Active Ageing Index. Brussels, 16–17 April 2015 (Poster Presentation)

Ferreira S, Valente M, Fermeiro J, Fernandes R, Duarte F, Costa C, Neves A, Barbosa M, Machado MC. Alergia Alimentar no Hospital de Dia de Alergologia Pediátrica – experiência de dois anos. XXI Jornadas de Pediatria, Departamento de Pediatria, Hospital de Santa Maria, Centro Hospitalar Lisboa Norte, Lisboa, 12-13 February 2015. (Oral presentation)

Guimarães I, Cardoso R, Pinto S, Ferreira JJ. Assessment protocols of the nature and patterns in oromotor movements and speech, Simposio IberoAmericano de Motricidade Orofacial (SIAMO), Porto, 31 de Janeiro, 2015. (Oral presentation)

Cardoso R, Loureiro R, Santos H, Carvalho J, Guimarães I, Domingos J, Guerreiro D, Ferreira JJ. Applicability of Iowa Oral Performance Instrument, Simposio IberoAmericano de Motricidade Orofacial (SIAMO), Porto, 31 de Janeiro, 2015. (Poster presentation)

Guimaraes I, Cardoso R, Pinto S, Ferreira JJ. The nature of oromotor function assessments. First Ibero-American Symposium of Oromotor Function Abstract book. Porto, January, pp:49. (Poster Presentation)

Communications in National Conferences

Fabbri, M. ,I Coelho, M. Abreu, D., Costa, N. , Rosa MM, C. Guedes, L, Ferreira, JJ. , Efeito da levodopa nos sintomas não motores na fase tardia da Doença de Parkinson. Congresso de Neurologia 2015, Lisbon November 11-14. 2015

Fabbri, M. ,I Coelho, M. Abreu, D., Costa, N. , Rosa MM, C. Guedes, L, Ferreira. Vale a pena subir a levodopa no estágio tardio da Doença de Parkinson?" Congresso de Neurologia 2015, Lisbon November 11-14. 2015

Constant C, Fernandes R, Silva AM, Descalço A, Bandeira T. Impacto da utilização das novas equações de referência universais (GLI) na interpretação da espirometria em pediatria. 16º Congresso Nacional de Pediatria, Sociedade Portuguesa de Pediatria. Albufeira, 22-24 October 2015.

Organisation of Conferences

Ferreira JJ. Organizador do II Curso de Formação em Boas Práticas clínicas. Faculdade de Medicina de Lisboa, 3 de Julho de 2015.

Ferreira JJ. Co-organizador do VI Curso de Doenças do Movimento do Instituto de Medicina Molecular, Lisboa, 16 de Maio de 2015.

Ferreira JJ. Co-organizador do Congresso Nacional da Sociedade Portuguesa das Doenças do Movimento, Ofir, 13 - 15 de Março de 2015.

Ferreira JJ. Co-organizador do Curso Fifth IMM Teaching Course on Botulinum Toxin of the Clinical Pharmacology Unit, Faculdade de Medicina de Lisboa, Lisboa, 7 de Março de 2015.

Ferreira JJ. Membro da Comissão organizadora do Toxins 2015 – Basic Science and Clinical Aspects of Botulinum and Other Neurotoxins, Lisboa, 14 a 17 de Janeiro de 2015.

Industry contract research

Infarmed, Unidade de Farmacovigilância de Lisboa e Vale do Tejo. 67.444,44 €

Fundação Merck, Sharp & Dohme, Base Editorial do Cochrane Movement Disorders Group. 7.500€

Advanced teaching

Ferreira JJ. Ensaios Clínicos. Mestrado em Cuidados Paliativos (7ª edição). Lisboa, 11 de Dezembro de 2015.

Ferreira JJ. Synucleinopathy. 2nd Middle East Camp for Parkinson's, Movement Disorders and Neuromodulation: from Neurodegeneration to Neuro regeneration. Dubai, November 19-21, 2015.

Ferreira JJ. Mood, behavior and cognition in Parkinson's Disease. 2nd Middle East Camp for Parkinson's, Movement Disorders and Neuromodulation: from Neurodegeneration to Neuro

regeneration. Dubai, November 19-21, 2015.

Ferreira JJ. Apomorfine subcutaneous pump therapy, patient selection and programming. 2nd Middle East Camp for Parkinson's, Movement Disorders and Neuromodulation: from Neurodegeneration to Neuro regeneration. Dubai, November 19-21, 2015.

Ferreira JJ. Diagnosis and management of tremor. Developing World Education Program. Movement Disorders. Astana, Kazahshtan, November 5-7, 2015.

Ferreira JJ. Management of advanced stage Parkinson's disease. Developing World Education Program,. Movement Disorders. Astana, Kazahshtan, November 5-7, 2015.

Ferreira JJ. Clinical research in Portugal: challenges and opportunities. Clinical research. From theory to practice. Porto Salvo, 30 October-31 October, 2015.

Fernandes R. Vírus e asma. Curso Pneumologia. 16º Congresso Nacional de Pediatria, Sociedade Portuguesa de Pediatria. Albufeira, 22-24 October 2015.

Fernandes R. Porque são aceites/rejeitados os artigos? Curso Revisão Científica de Artigos. 16º Congresso Nacional de Pediatria, Sociedade Portuguesa de Pediatria. Albufeira, 22-24 October 2015.

Fernandes R, Hartling L. Comparing multiple treatments: an introduction to overviews of reviews. 23rd Cochrane Colloquium, Cochrane Collaboration. Vienna, 3-7 October 2015.

Ferreira JJ. Drug-induced Movement Disorders. MDS-ES Summer School for Young Neurologists. Prague, September 24, 2015.

Ferreira JJ. Pharmacological treatment of Parkinson's Disease . MDS-ES Summer School for Young Neurologists. Prague, September 24, 2015.

Ferreira JJ. Classification and pathophysiology of Movement Disorders. EANS training course in Neurosurgery. Lisbon, August 30th -September 3rd, 2015.

Ferreira JJ. Responsabilidades do Investigador. II Curso de Formação em Boas Práticas clínicas. Faculdade de Medicina de Lisboa, 3 de Julho de 2015.

Rosa MM. Introdução e Princípios de Boas Práticas Clínicas. II Curso de Formação em Boas Práticas clínicas. Faculdade de Medicina de Lisboa, 3 de Julho de 2015.

Costa J. Protocolo de estudo clínico. II Curso de Formação em Boas Práticas clínicas. Faculdade de Medicina de Lisboa, 3 de Julho de 2015.

Borges M. Documentos essenciais: II Curso de Formação em Boas Práticas clínicas. Faculdade de Medicina de Lisboa, 3 de Julho de 2015.

Noronha A. Responsabilidades do assistente de investigação, monitor e CROs. II Curso de Formação em Boas Práticas clínicas. Faculdade de Medicina de Lisboa, 3 de Julho de 2015.

Anes AM. Segurança e relato de eventos adversos. II Curso de Formação em Boas Práticas clínicas. Faculdade de Medicina de Lisboa, 3 de Julho de 2015.

Ferreira JJ. Aspectos práticos da condução de estudos clínicos. II Curso de Formação em Boas Práticas clínicas. Faculdade de Medicina de Lisboa, 3 de Julho de 2015.

Ferreira JJ. Pipeline development. Bial Satellite Symposium: COMT inhibition in Parkinson's disease: past reflections, future directions. 1st Congress of the European Academy of Neurology, Berlin, Germany, June 20-23, 2015.

Ferreira JJ. Non-motor Signs and Symptoms and Assessment Tools in Patients with Parkinson's Disease. Movement Disorders Society Parkinson's Disease educational Course for Industry representatives. San Diego, June 13, 2015.

Ferreira JJ, What is Parkinson's Disease? Pathophysiology, Genetics. Movement Disorders Society Parkinson's Disease educational Course for Industry representatives. San Diego, June 13, 2015

Fernandes R. Assessing risk of bias. Systematic Reviews Module, Introduction to Clinical Research: a practical course, Centro Académico de Medicina de Lisboa - CAML Doctoral Program, Lisboa, 5 and 6 June 2015.

Fernandes R. Assessing risk of bias. Curso de Introdução às Revisões Sistemáticas e Meta-análises, Cochrane Portugal, Faculdade de Ciências da Saúde, Universidade da Beira Interior, 3 and 4 June 2015.

Ferreira JJ. Experimentação médica. II Curso Pós-Graduado de Atualização sobre Direito da Medicina & Justiça Penal. Faculdade de Direito, Universidade de Lisboa, 23 de Maio de 2015.

Rosa MM. Problemas de risco dos medicamentos, dispositivos e responsabilidade penal. II Curso Pós-Graduado de Atualização sobre Direito da Medicina & Justiça Penal. Faculdade de Direito, Universidade de Lisboa, 23 de Maio de 2015.

Ferreira JJ. Como eu observo um doente com Parkinsonismo. VI Curso de Doenças do Movimento do Instituto de Medicina Molecular. Lisboa, 16 de Maio de 2015.

Ferreira JJ. Caso clínico de Doença de Parkinson em estadio inicial. VI Curso de Doenças do Movimento do Instituto de Medicina Molecular. Lisboa, 16 de Maio de 2015.

Rosa MM. Caso clínico de Doença de Parkinson em estadio avançado. VI Curso de Doenças do Movimento do Instituto de Medicina Molecular. Lisboa, 16 de Maio de 2015.

Coelho M. Caso clínico de doente de Parkinson candidato a terapêuticas invasivas. VI Curso de Doenças do Movimento do Instituto de Medicina Molecular. Lisboa, 16 de Maio de 2015.

Rosa MM. Caso clínico de síndrome Parkinsónica atípico. VI Curso de Doenças do Movimento do Instituto de Medicina Molecular. Lisboa, 16 de Maio de 2015.

Reimão S. Estudos de imagem cerebral nos síndromas Parkinsónicos. VI Curso de Doenças do Movimento do Instituto de Medicina Molecular. Lisboa, 16 de Maio de 2015.

Fernandes R. Mecanismos da imunoterapia. 4º Congresso de Alergologia Pediátrica, Sociedade Portuguesa de Alergologia Pediátrica, Monte Real, 8 May 2015.

Ferreira JJ. Clinical trials in dystonia, what will the future bring? 2015 Dystonia training school, 10-12 Abril, Groningen, 2015

Borges M. O que devemos saber sobre Boas Práticas Clínicas? Programa de Formação para Internos da Formação Específica do Internato Médico do Centro Hospitalar Lisboa Norte, Lisboa, Centro Hospitalar Lisboa Norte, 10 de Abril de 2015

Forjaz MJ, Calidad de Vida Relacionada con la Salud, Escuela Nacional de Sanidad, Instituto de Salud Carlos III, Madrid. Abril 6-10, 2015.

Caldeira D. Como conduzir uma revisão sistemática e meta-análise? Programa de Formação para Internos da Formação Específica do Internato Médico do Centro Hospitalar Lisboa Norte, Lisboa, Centro Hospitalar Lisboa Norte, 9 de Abril de 2015

Ferreira JJ. Como avaliar a qualidade de um ensaio clínico? Programa de Formação para Internos da Formação Específica do Internato Médico do Centro Hospitalar Lisboa Norte, Lisboa, Centro Hospitalar Lisboa Norte, 8 de Abril de 2015

Fernandes R. Como definir os outcomes e escolher as escalas clínicas? Programa de Formação para Internos da Formação Específica do Internato Médico do Centro Hospitalar Lisboa Norte, Lisboa, Centro Hospitalar Lisboa Norte, April 7, 2015

Ferreira JJ. Como definir o desenho de um ensaio clínico? Programa de Formação para Internos da Formação Específica do Internato Médico do Centro Hospitalar Lisboa Norte, Lisboa, Centro Hospitalar Lisboa Norte, 6 de Abril de 2015

Ferreira JJ. Treatment and Management of Parkinson's Disease. Est-African Course on Movement Disorders, International Parkinson and Movement Disorder Society, Addis Ababa, Etiópia, Março 23-24, 2015

Ferreira JJ. Chorea and Huntington's Disease. East-African Course on Movement Disorders, International Parkinson and Movement Disorder Society, Addis Ababa, Etiópia, Março 23-24,

2015

Valadas A. Outras causas de tremor. Curso Pré-Congresso: Tremor (Grupo de Educação da SPDMov). Congresso Nacional da Sociedade Portuguesa de Doenças do Movimento, Ofir, Março 13-15, 2015

Ferreira JJ. Principles of evidence-based medicine. Training Programme in Pharmaceutical Medicine, Systematic reviews and meta-analysis, Aveiro, March 12-14, 2015

Fernandes R. Systematic reviews. Training Programme in Pharmaceutical Medicine, Systematic reviews and meta-analysis, Aveiro, March 12-14, 2015

Ferreira JJ. Evaluation and appraisal of randomized controlled trials. Training Programme in Pharmaceutical Medicine, Systematic reviews and meta-analysis, Aveiro, March 12-14, 2015

Alarcão J. Writing a protocol. Training Programme in Pharmaceutical Medicine, Systematic reviews and meta-analysis, Aveiro, March 12-14, 2015

Alarcão J. Searching for studies. Training Programme in Pharmaceutical Medicine, Systematic reviews and meta-analysis, Aveiro, March 12-14, 2015

Costa J. Selecting studies and collecting data. Training Programme in Pharmaceutical Medicine, Systematic reviews and meta-analysis, Aveiro, March 12-14, 2015

Costa J. Meta-analysis. Training Programme in Pharmaceutical Medicine, Systematic reviews and meta-analysis, Aveiro, March 12-14, 2015

Caldeira D. Type of data. Training Programme in Pharmaceutical Medicine, Systematic reviews and meta-analysis, Aveiro, March 12-14, 2015

Costa J. Heterogeneity. Training Programme in Pharmaceutical Medicine, Systematic reviews and meta-analysis, Aveiro, March 12-14, 2015

Caldeira D. Sensitivity analysis. Training Programme in Pharmaceutical Medicine, Systematic reviews and meta-analysis, Aveiro, March 12-14, 2015

Fernandes R. Systematic reviews. Training Programme in Pharmaceutical Medicine, Module: Systematic Review and Meta-Analysis, A3D - Association for Drug Discovery and Development and UNAVE - Associação para a Formação Profissional e Investigação da Universidade de Aveiro, University of Aveiro, Aveiro, 12 March 2015.

Ferreira JJ. Overview on botulinum toxin: clinical uses, formulations, injection techniques and identification of best muscle targets. Fifth IMM Teaching Course on Botulinum Toxin. Lisbon, March 7, 2015

Valadas A. Mechanisms of action of botulinum toxin. Fifth IMM Teaching Course on Botulinum Toxin. Lisbon, March 7, 2015

Ferreira JJ. Hands on: Preparation of botulinum toxin. Fifth IMM Teaching Course on Botulinum Toxin. Lisbon, March 7, 2015

Valadas A. Hands on: blefarospasm and hemifacial spasm. Fifth IMM Teaching Course on Botulinum Toxin. Lisbon, March 7, 2015

Ferreira JJ. Hands on: upper limb spasticity. Fifth IMM Teaching Course on Botulinum Toxin. Lisbon, March 7, 2015

Lobo PP. Hands on: cervical dystonia. Fifth IMM Teaching Course on Botulinum Toxin. Lisbon, March 7, 2015

Lobo PP. Hands on: sialorrhea. Fifth IMM Teaching Course on Botulinum Toxin. Lisbon, March 7, 2015

Coelho M. Hands on: writer's cramp. Fifth IMM Teaching Course on Botulinum Toxin. Lisbon, March 7, 2015

Coelho M. Hands on: oromandibular dystonia. Fifth IMM Teaching Course on Botulinum Toxin. Lisbon, March 7, 2015

Ferreira JJ. Pharmacological treatment of Parkinson's disease. 4th Annual MDS-ES Winter School for Young Neurologists, Tel Aviv, Israel, February 25-27, 2015

Fernandes R. O2 de alto fluxo. XII Jornadas de Pediatria, Departamento de Pediatria, Hospital de Santa Maria, Faculdade de Medicina de Lisboa, Lisbon, 12 February 2015.

Ferreira JJ. Adjunctive treatments for spasticity. Toxins 2015: Basic Science and Clinical Aspects of Botulinum and other Neurotoxins, Lisboa, Portugal, 14-17 January, 2015

Guimarães I. Speech Therapy Master Degree. Specialization in oromotor function and deglutition, Escola Superior de Saúde do Alcoitão. Santa Casa da Misericórdia de Lisboa. (3rd edition, 2015)

Guimarães I. Scientific Research Seminar at the Speech Therapy Master Degree. Specialization in oromotor function and deglutition, Escola Superior de Saúde do Alcoitão. Santa Casa da Misericórdia de Lisboa. (3rd edition, 2015)

Guimarães I. Evidence Based Practice in Speech Therapy Seminar at the Speech Therapy Master Degree. Specialization in oromotor function and deglutition, Escola Superior de Saúde do Alcoitão. Santa Casa da Misericórdia de Lisboa. (3rd edition, 2015)

Science and society

Ferreira JJ (2015) Jornadas Grassa Ciência p'lo Monte, Lecturer at Auditório Municipal de Sobral de Monte Agraço, "O funcionamento do cérebro tem implicações para a ciência", Sobral do Monte Agraço 9-10 July.

Ferreira JJ (2015) Encontro as Ciências da Língua, Lecturer at Escola Secundária Henriques Nogueira, " Mecanismos neurológicos da linguagem". Torres Vedras, 30 de abril de 2015.

Ferreira, JJ (2015) Conte Connosco, RTP Informação.

Ferreira, JJ (2015) Primeiro Jornal, SIC.

Ferreira, JJ (2015) Pela Sua Saúde, RTP.

Ferreira, JJ (2015) Jornal da Uma, TVI

Ferreira, JJ (2015) Jornal da Noite, SIC.

PhD thesis completed

Sofia Reimão 12/10/2015 Magnetic resonance imaging of the substantia nigra in Parkinson's disease - Neuromelanin, iron and diffusion tensor imaging Faculdade de Medicina, Universidade de Lisboa Professor Doutor Jorge Guedes Campos Professor Doutor Joaquim Ferreira

Ricardo Fernandes 22/09/2015 Interventions and Outcomes in Bronchiolitis Clinical Trials Faculdade de Medicina, Universidade de Lisboa Professora Doutora Cristina Sampaio Professor Doutor Martin Offringa

Msc thesis completed

Ana Rita Simões Cardoso 06/03/2015 Cross-cultural adaptation and validation of the Dysarthria Impact Profile for European Portuguese individuals with Parkinson's Disease Universidade de Lisboa, Faculdade de Medicina Joaquim José Coutinho Ferreira

Pedro Câmara Pestana 20/05/2015 Medical students prescribing pattern: results from a case-scenario questionnaire Faculdade de Medicina de Lisboa, Universidade de Lisboa Joaquim José Coutinho Ferreira

João José Reis Andrade Rufino 20/05/2015 Placebo effect in essential tremor:
a meta-analysis of randomized controlled trials Faculdade de Medicina de Lisboa, Universidade
de Lisboa Joaquim José Coutinho Ferreira

Catarina Abrantes Gonçalves 20/05/2015 Pharmacological treatment of Restless Legs
Syndrome: a systematic review and critical appraisal Faculdade de Medicina de Lisboa,
Universidade de Lisboa Joaquim José Coutinho Ferreira

Ana Raquel Esteves Marques 20/05/2015 Botulinum toxin type B for cervical dystonia
Faculdade de Medicina de Lisboa, Universidade de Lisboa João Nuno Marques Parracho da
Costa

Mafalda Castelão Ferreira 20/05/2015 Botulinum toxin type A for cervical dystonia Faculdade
de Medicina de Lisboa, Universidade de Lisboa João Nuno Marques Parracho da Costa

Major Interests / Objectives

The general objective of our lab is to increase the knowledge and foster the prevention and treatment of major prevalent and disabling disorders involving the brain, such as stroke and Alzheimer's disease. The main advantage of the lab is the strong collaboration among the experienced PIs, based on common clinical investigation methodologies and particular features of research expertise, expanded by multiple national and international collaborations in the areas of basic neurosciences, clinical genetics, advanced statistical methods, biological engineering, and neuroimaging. The researchers of UNIC conducted clinical trials and assessed the clinical impact of different interventions in multinational efforts to get new treatments for these prevalent and disabling brain disorders.

Head of Laboratory

José Manuel Morão Cabral Ferro, PhD

Research Team

Alcina Fraga Luz	No degree	Investigator
Alexandre Valério de Mendonça	PhD	Senior Investigator
Ana Catarina Gaspar Fonseca	MD/PhD	Investigator
Ana Isabel Figueira Verdelho	MD/PhD	Investigator
Ana Sofia Valentim Rodrigues	Graduate	Investigator
Bruno André e Silva Miranda	Master	PhD Student
Carolina Pires Maruta	Master	PhD Student
Catarina Beatriz Silva Ferreira	Master	MSc Student
Catarina Carapeto da Silva Chester	Graduate	MSc Student
Diana de Aguiar Dias de Sousa	Master	PhD Student, Physician
Dina Lúcia Gomes da Silva	PhD	Investigator
Elisabete Mendes Lopes	No degree	Investigator
Fátima Soares	No degree	Investigator

Frederico Simões do Couto	Graduate	Investigator, MD
Helena Sofia Garrido Bárrios	Master	Investigator, Hospital do Mar, MD
Isabel Pavão Martins	PhD	Investigator
José Manuel Borges Fonseca	Master	PhD Student
Lara Isabel Pires Melo Caeiro	Master	PhD Student
Luisa Farrajota	No degree	Investigator
Maria Gabriela Mariano Leal	Graduate	Investigator
Maria Luisa Albuquerque	No degree	Investigator
Maria Luisa Mendonça Correia Pires	Undergraduate	Administrative
Maria Manuela Gil Guerreiro	PhD	Investigator
Marisa Marina Fatuda Costa	Undergraduate	Administrative
Miguel Ângelo de Oliveira Santos	Master	Investigator, Physician, (started February)
Patrícia Canhão	No degree	Investigator
Paulo Maciel Mendes Batista	Graduate	Investigator
Pedro Miguel Nascimento Alves	Master	Investigator, (started October)
Raquel Santos Gil Gouveia	Master	PhD Student
Sara Cunha Leal Rocha Coelho	Master	PhD Student
Sofia Madureira	Master	PhD Student
Teresa Pinho e Melo	No degree	Investigator
Vanda Filipa Viseu Cândido De Freitas	Master	MSc Student
Vitor Oliveira	No degree	Investigator

Keywords / Research Areas

Stroke, Aphasia, Cognitive decline, Complex diseases, Genetics, Clinical trials

Major scientific achievements

The researchers of lab made in 2015 significant scientific contributions expressed in full papers published in international peer-reviewed journals. Important results were obtained regarding cerebral venous thrombosis, age-related white matter changes and cryptogenic stroke. Advances were made on the definition of cryptogenic stroke the identification of new serum biomarkers of cardioembolic stroke. New data was published describing cognitive dysfunction during migraine attacks. Novel genetic risk factors for ischaemic stroke and its subtypes were identified, and new mutations in genes involved in complex neurodegenerative disorders were characterized.

Ongoing Research Projects

2012/2015 Biomarkers for Alzheimer's disease and Parkinson's disease. Coordinator: Alexandre Valério de Mendonça. Agency: FCT. Reference: JPND/0004/2011. Amount: € 48000.00.

2010/2016. Coordinator: Patrícia Canhão. Agency: SOS Ataque Cérébrale. Reference: TIA Registry. Amount: € 14520.00. Amount (total): € 8620.00.

2014/2017 Setting the stage for prevention trials in Genetic Frontotemporal Lobar Degeneration. Coordinator: Alexandre Valério de Mendonça. Agency: Ana Paula dos Santos Marques da Costa. Reference: GenFi. Amount: € 10000.00. Amount (total): € 10000.00.

2013/2017 ISCVT-2. Coordinator: José Manuel Morão Cabral Ferro. Agency: Congrex Schweiz AG. Reference: ISCVT-2. Amount: € 155000.00. Amount (total): € 155000.00.

2014/2017 Formação Jovens Neurologistas. Coordinator: José Manuel Morão Cabral Ferro. Agency: Biogen Idec. Reference: Formação Jovens Neurologistas. Amount: € 5000.00. Amount (total): € 5000.00.

2014/2017 Avaliação de Intervenções e Estratégias na Demência do Jovem. Coordinator: Alexandre Valério de Mendonça. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: JPND-HC/0003/2012 - Rhapsody. Amount: € 125000.00. Amount (total): € 125000.00.

2014/2016 Metastroke. Coordinator: José Manuel Morão Cabral Ferro. Agency: Bayer Portugal, S.A. Reference: Bayer. Amount: € 11000.00. Amount (total): € 6000.00.

2015/2016 1º Prémio de Comunicação Oral – 9º Congresso AVC. Coordinator: Diana de Aguiar

Dias de Sousa. Agency: Sociedade Portuguesa do Acidente Vascular Cerebral.
Coordinator Institution: 0. Reference: 1º Prémio de Comunicação Oral – 9º Congresso AVC.
Amount: € 1500.00. Amount (total): € 0.00.

Other Projects

2014/2015 Hemispatial Neglect and the Pulvinar Nucleus: an alternative pathway for selective attention. Rato. Coordinator: Isabel Pavão Martins.

2014/2016 Avaliação de capacidades cognitivas na afasia. Coordinator: José Fonseca.

2012/2015 Subjective Memory Complaints in the Early Diagnosis of Mild Cognitive Impairment. Coordinator: Manuela Guerreiro.

2014/2017 Pathophysiology of Venous infarction. Coordinator: José M. Ferro.

2013/2017 ISCVT-2 Pregnancy - Assessing the Safety of pregnancy after Cerebral Venous Thrombosis. Coordinator: José M. Ferro.

2014/2017 EXCOA-CVT - Benefit of EXtending oral antiCOAgulant treatment after Cerebral Venous Thrombosis. Coordinator: José M. Ferro.

2013/2017 DECOMPRESSIVE-2- Prospective Registry of Decompressive surgery for patients with Cerebral Venous Thrombosis. Coordinator: José M. Ferro.

2012/2017 To - Act Trial - Thrombolysis Or Anticoagulation for Cerebral venous Thrombosis study. Coordinator: José M. Ferro. Coordinator Institution: Academic Medical Centre Department of Neurology, Amsterdam The Netherlands. Coordinator PI: Jan Stam.

Original publications in peer review Journals

Bonati LH, Dobson J, Featherstone RL, Ederle J, van der Worp HB, de Borst GJ, Mali WP, Beard JD, Cleveland T, Engelter ST, Lyrer PA, Ford GA, Dorman PJ, Brown MM; International Carotid Stenting Study investigators. (2015) Long-term outcomes after stenting versus endarterectomy for treatment of symptomatic carotid stenosis: the International Carotid Stenting Study (ICSS) randomised trial. *Lancet* **385**:529-538. (Journal IF: 45.217, Citations: 18)

Castro Caldas A, Silva C, Albuquerque L, Pimentel J, Silva V, Ferro JM. (2015) Cerebral Amyloid Angiopathy Associated with Inflammation: Report of 3 Cases and Systematic Review. *J Stroke Cerebrovasc Dis* **24**:2039-2048. (Journal IF: 3.754: Citations: 1)

Correia M, Fonseca AC, Canhão P. (2015) Short-term outcome of patients with possible transient ischemic attacks: a prospective study. *BMC Neurol* **15**:78. (Journal IF: 2.040; Citations: 0)

Frederiksen KS, Verdelho A, Madureira S, Bänzner H, O'Brien JT, Fazekas F, Scheltens P, Schmidt R, Wallin A, Wahlund LO, Erkinjuntti T, Poggesi A, Pantoni L, Inzitari D, Waldemar G; LADIS Study. (2015) Physical activity in the elderly is associated with improved executive function and processing speed: the LADIS Study. *Int J Geriatr Psychiatry* **30**:744-750. (Journal IF: 2.866, Citations: 0)

Guerreiro C, Silva B, Crespo ÂC, Marques L, Costa S, Timóteo Â, Marcelino E, Maruta C, Vilares A, Matos M, Couto FS, Faustino P, Verdelho A, Guerreiro M, Herrero A, Costa C, de Mendonça A, Martins M, Costa L. (2015) Decrease in APP and CP mRNA expression supports impairment of iron export in Alzheimer's disease patients. *Biochim Biophys Acta* **1852**:2116-2122. (Journal IF: 4.381, Citations: 0)

Jokinen H, Gonçalves N, Vigário R, Lipsanen J, Fazekas F, Schmidt R, Barkhof F, Madureira S, Verdelho A, Inzitari D, Pantoni L, Erkinjuntti T; LADIS Study Group. (2015) Early-Stage White Matter Lesions Detected by Multispectral MRI Segmentation Predict Progressive Cognitive Decline. *Front Neurosci* **9**:455. (Journal IF: 3.656, Citations: 0)

Lestro Henriques I, Gutiérrez-Fernández M, Rodríguez-Frutos B, Ramos-Cejudo J, Otero-Ortega L, Navarro Hernanz T, Cerdán S, Ferro JM, Díez-Tejedor E. (2015) Intralesional Patterns of MRI ADC Maps Predict Outcome in Experimental Stroke. *Cerebrovasc Dis* **39**:293-301. (Journal IF: 3754, Citations: 1)

Llombart V, Antolin-Fontes A, Bustamante A, Giralt D, Rost NS, Furie K, Shibasaki K, Biteker M, Castillo J, Rodríguez-Yáñez M, Fonseca AC, Watanabe T, Purroy F, Zhixin W, Etgen T, Hosomi N, Jafarian Kerman SR, Sharma JC, Knauer C, Santamarina E, Giannakoulas G, García-Berrocoso T, Montaner J. (2015) B-type natriuretic peptides help in cardioembolic stroke diagnosis: pooled data meta-analysis. *Stroke* **46**:1187-1195. (Journal IF: 5.761, Citations: 2)

Maruta C, Pereira T, Madeira SC, de Mendonça A, Guerreiro M. (2015) Classification of primary progressive aphasia: Do unsupervised data mining methods support a logopenic variant? *Amyotroph Lateral Scler Frontotemporal Degener* **16**:147-159. (Journal IF: 2.405, Citations: 0)

Viana P, Rodrigues E, Fernandes C, Matas A, Barreto R, Mendonça M, Peralta R, Geraldes R. (2015) InMS: Chronic insomnia disorder in multiple sclerosis - a Portuguese multicentre study on prevalence, subtypes, associated factors and impact on quality of life. *Mult Scler Relat Disord* **4**:477-483. (Journal IF: 0.884, Citations: 0)

Other publications International

Canhão P. (2015) Transient Ischemic Attacks (TIAs) - an underrecognized and under treated disorder . Biller J, Ferro J (eds) Comon pitfalls in cerebrovascular disease. Case-based learning. Cambridge University Press 27-38.

Comon pitfalls in cerebrovascular disease. Case-based learning. (2015) Biller J, Ferro J (eds) Cambridge University Press.

Ferro JM, Canhão P. (2015) Cerebral venous thrombosis. Grotta JC, Albers GW, Broderick JP, Kasner SE, Lo EH, Mendelow AD, Sacco RL, Wong LKS (eds). Stroke. Pathophysiology, diagnosis, and management. Elsevier 716-728.

Ferro JM. (2015) Managing patients or managing the results of ancillary tests? Biller J, Ferro J (eds) Comon pitfalls in cerebrovascular disease. Case-based learning. Cambridge University Press 244-258.

Fonseca AC. Transient ischemic attacks and stroke mimics and chameleons. Biller J, Ferro J (eds) Comon pitfalls in cerebrovascular disease. Case-based learning. 2015 Cambridge University Press. pp 1-12.

Fonseca C, Aguiar de Sousa D, Ferro JM. (2015) Ischemic stroke. Palavra F, Reis F, Marado D, Sena A (Eds) Biomarkers of cardiometabolic risk, inflammation and disease. Springer 81-94.

Geraldes R. (2015) The diagnosis and overdiagnosis of cerebral vasculitis. Biller J, Ferro J (eds) Comon pitfalls in cerebrovascular disease. Case-based learning. Cambridge University Press 141-156.

Gonçalves MA, Simões MR, Castro-Caldas A. (2015) Interpreting WAIS-III performance after primary brain tumor surgery. Applied Neuropsychology: Adult. <http://dx.doi.org/10.1080/23279095.2015.1084508>.

Neuropsychiatric symptoms of movement disorders. (2015) Reichmann H (ed) Ferro JM (Series ed). Neuropsychiatric symptoms of neurological disease. Springer.

Verdelho A. (2015) Vascular dementia and vascular cognitive impairment. Biller J, Ferro J (eds) Comon pitfalls in cerebrovascular disease. Case-based learning. Cambridge University Press 199-211.

Aguiar de Sousa D, Gouveia AI, Wessling A, Geraldes R, Canhão P. (2015) Sporadic Carney complex without PRKAR1A mutation in a young patient with ischemic stroke. J Stroke Cerebrovasc Dis. 24:e79-81. (Journal IF: 1.669, Citations: 0)

Alves PN, de Carvalho M, Peralta R, Galdes R, Fonseca AC, Pinho E Melo T. (2015) Axial myoclonus after ischemic stroke. *Neurology* 85:654. (Journal IF: 8.185, Citations: 0)

Aragão Homem C, Fonseca AC, Galdes R, Pinho e Melo T. (2015) Brain Magnetic Resonance with Negative Diffusion-Weighted Imaging: Does It Preclude Acute Stroke Diagnosis? *J Stroke Cerebrovasc Dis* 24:e251-253. (Journal IF: 3.754, Citations: 0)

Coutinho JM, Stam J, Canhão P, Barinagarrementeria F, Bousser MG, Ferro JM; ISCVT Investigators. (2015) Cerebral venous thrombosis in the absence of headache. *Stroke* 46:245-247. (Journal IF: 5.761, Citations: 1)

Ferro JM. (2015) Ischaemic stroke of undetermined cause. *Lancet Neurol* 14:871-872. (Journal IF: 21.896, Citations: 0)

Fonseca AC, Ferro JM. Cryptogenic stroke. *Eur J Neurol*. 2015;22:618-623. (Journal IF: 4.055, Citations: 4)

Gil-Gouveia R, Oliveira AG, Martins IP. (2015) Assessment of cognitive dysfunction during migraine attacks: a systematic review. *J Neurol* 262: 654–665. (Journal IF: 3.377, Citations: 0)

Mares I, Custodio P, Fonseca J, Bentes C, Guerreiro M, Guimarães N, Martins IP (2015) To read or not to read: a neurophysiological study. *Neurocase* 21:793-801. (Journal IF: 1.124, Citations: 0)

Martins IP. (2015) Cyclic nocturnal awakening: a warning sign of a cluster bout. *Cephalalgia* 35:363-365. (Journal IF: 4.891, Citations: 2)

Martins M, Muršič Z, Oh J, Tecumseh F. (2015) Representing visual recursion does not require verbal or motor resources. *Cogn Psychol* 77:20-41. (Journal IF: 5.064, Citations: 1)

Ntaios G, Bornstein NM, Caso V, Christensen H, De Keyser J, Diener HC, Diez-Tejedor E, Ferro JM, Ford GA, Grau A, Keller E, Leys D, Russell D, Toni D, Turc G, Van der Worp B, Wahlgren N, Steiner T; European Stroke Organisation. (2015) The European Stroke Organisation Guidelines: a standard operating procedure. *Int J Stroke* 10:128-135. (Journal IF: 3.833, Citations: 0)

Sousa Nanji L, Melo TP, Canhão P, Fonseca AC, Ferro JM. (2015) Subarachnoid Haemorrhage and Sports. *Cerebrovasc Dis Extra* 5:146-151.

Other publications National

Cefaleias. (2015) Lidel Isabel Pavão Martins (ed).

Ferro JM, Canhão P. (2015) Cefaleias por patologia cerebrovascular. Isabel Pavão Martins (ed). Cefaleias. Lidel 183-196.

Fonseca J. (2015) Afasia e sociedade. Revista Criap Terapia da Fala. 1:6-9.

Gil-Gouveia R. (2015) Cefaleia por uso excessivo de medicação. Isabel Pavão Martins (ed). Cefaleias. Lidel 141-149.

Gonçalves MA, Simões MR, Castro-Caldas A. (2015) A systematic review on WAIS-III's research with a special focus on clinical studies. Revista E-Psi, 2015, 5 (2).

Martins IP, Gil-Gouveia R. (2015) Cefaleias trigémico-autonómicas. Isabel Pavão Martins (ed). Cefaleias. Lidel 85-99.

Martins IP, Parreira E, Morgado J, Coiteiro D, Levy-Melancia, J. (2015) Outras cefaleias secundárias. Isabel Pavão Martins (ed). Cefaleias. Lidel 197-213.

Martins IP. (2015) Cefaleias na prática clínica. Isabel Pavão Martins (ed). Cefaleias. Lidel 1-8.

Martins IP. (2015) Enxaquecas. Isabel Pavão Martins (ed). Cefaleias. Lidel 31-44.

Maruta C (2015) The musician entrapped in the aphasic mind: The tragic story of Maurice Ravel. Sinapse, Vol. 15, N.º 2, Novembro.

Invited lectures and seminars

Alves P, Maruta C, Martins IP. Alterações cognitivas em lesão isquémica do núcleo anterior do tálamo. Sessão do Serviço de Neurologia, Anfiteatro Almeida Lima, Serviço de Neurologia. Hospital de Santa Maria, Lisboa, Portugal, June 4, 2015.

Canhão P. "O que é comum, o que é diferente". 9º Congresso do AVC, Porto, Portugal, February 7, 2015.

Canhão P. Doença Vascular Cerebral na Gravidez. 9º Congresso do AVC, Porto, Portugal, February 5, 2015.

Ferro JM. A realidade, o papel de Dabigatrano em prevenção secundária e como lidar com situações complexas no dia-a-dia. 9º Congresso do AVC, Porto, Portugal, February 7, 2015.

Ferro JM. AVC e epilepsia. Unidade de Saúde Familiar do Parque, Lisboa, Portugal, February 11, 2015.

Ferro JM. AVC em Jovens e causas raras. 1º Simpósio do AVC em Maputo, Maputo, Mozambique, May 30, 2015.

Ferro JM. AVC Isquémico/ AIT & Hemorrágico. 1º Simpósio do AVC em Maputo, Maputo, Mozambique, May 29, 2015.

Ferro JM. Cerebral venous thrombosis guidelines. The European Stroke Organization Conference 2015, Glasgow, United Kingdom, April 19, 2015.

Ferro JM. Cerebral venous thrombosis. 6th World Stroke Organisation Regional Meeting – Tbilisi 2015: Stroke prevention, diagnosis and treatment, Tbilisi, Georgia, 25 Setembro 2015.

Ferro JM. Doença cerebrovascular na gravidez. A neurologia no feminino. Hospital da Luz, Lisboa, Portugal, June 5, 2015.

Ferro JM. General care of acute stroke. 7th Regional Teaching Course in Sud-Saharan Africa, Khartoum, Sudan, October 15, 2015.

Ferro JM. Ischaemic and haemorrhagic stroke in young adults: a differential diagnostic challenge. 7th Regional Teaching Course in Sud-Saharan Africa, Khartoum, Sudan, October 17, 2015.

Ferro JM. La vie après une thrombose veineuse cérébrale. Journée du Président. La pathologie neurovasculaire au-delà de l'urgence. Société Française de Neurologie, Lille, France, December 3, 2015.

Ferro JM. New perspectives in the management of cerebrovascular diseases – the neurologist perspective. 6th Lisbon Vascular Forum, Lisboa, Portugal, December 12, 2015.

Ferro JM. Personality changes after stroke. 24th European Stroke Conference, Vienna, Austria, May 15, 2015.

Ferro JM. Sinus Venous thrombosis. Danish Stroke Society's Annual Meeting, Vejle, Denmark, October 24, 2015.

Ferro JM. Stroke in the young. 6th World Stroke Organisation Regional Meeting – Tbilisi 2015: Stroke prevention, diagnosis and treatment, Tbilisi, Georgia, September 25, 2015.

Ferro JM. Trombose dos seios venosos. 1º Simpósio do AVC em Maputo, Maputo, Mozambique, May 30, 2015.

Fonseca AC. AVC criptogénico. 9º Congresso do AVC, Porto, Portugal, February 5, 2015.

Gouveia R, Martins, IP. Alterações cognitivas na enxaqueca. Sessão do Serviço de Neurologia, Anfiteatro Almeida Lima, Serviço de Neurologia. Hospital de Santa Maria, Lisboa, Portugal, October 4, 2015.

Martins IP. Bridging the gap between Medicine and Biomedical Engineering. XIII Workshop Engenharia Biomédica. Aula Magna, FMUL, Lisboa, Portugal, October 7, 2015.

Martins IP. Organização da linguagem e afasia no adulto. V Workshop “Linguistics, Language Development and Impairment”. Centro de Linguística da Faculdade de Letras, Universidade de Lisboa. Lisboa, Portugal, February 20, 2015.

Martins IP, Loureiro C, Morgado J, Tavares J, Maruta C, Freitas V, Reimão S, Lunet N, Marques P. “Mindful Aging”: Avoiding age related cognitive decline. EIT-Health Conference “Envelhecimento: Pensar o futuro hoje. Múltiplas disciplinas, múltiplas soluções, múltiplas políticas”, Lisboa, Portugal, June 23, 2015.

Maruta C Caracterização das fases precoces da degenerescência lobar fronto-temporal genética com vista a ensaios de prevenção. Anfiteatro Almeida Lima, Serviço de Neurologia. Hospital de Santa Maria, Lisboa. Lisboa, Portugal, October 8, 2015.

Maruta C. Afasia Primária Progressiva. Sessão clínica do Serviço de Neurologia do Hospital Egas Moniz, Lisboa, Portugal, May 22, 2015.

Melo TP. Terapêutica endovascular no AVC agudo. Congresso de Neurologia, Lisboa, Portugal, November 11, 2015.

Oliveira V. Noções teóricas básicas em neurosonologia. Princípios físicos e técnicos gerais. Congresso de Neurologia, Lisboa, Portugal, November 11, 2015.

Verdelho A. Challenges for women in neurology: sharing experience. 1st congress of the European Academy of Neurology Congress 2015, Berlin, Germany, June 21, 2015.

Verdelho A. Défice cognitivo vascular. Fórum de Neurologia 2015, Aveiro, Portugal, May 23, 2015.

Verdelho A. Executive dysfunctions after stroke. Verdelho A. The European Stroke Organization Conference 2015, Glasgow, United Kingdom, 18 April 2015.

Verdelho A. Predictors of cognitive decline after stroke. The European Stroke Organization Conference 2015, Glasgow, United Kingdom, 18 April, 2015.

Communications in International Conferences

Aguiar de Sousa D, Canhão P, Crassard I, Coutinho J, Arauz A, Conforto A, Giroud M, Ferro JM. Safety of Pregnancy Following Cerebral Venous Thrombosis (ISCVT2 - PREGNANCY), 1st congress of the European Academy of Neurology, Berlin, Germany, June 20-23, 2015. (Oral Presentation)

Aguiar de Sousa D, Ferro JM, Canhão P, Neto L, Barinagarrementeria F, Bousser MG, Stam J. ISCVT investigators. Extent and pattern of thrombosis as predictors of parenchymal lesions in patients with cerebral venous thrombosis The European Stroke Organisation Conference 2015, Glasgow, United Kingdom, April 17-19, 2015. (Poster presentation)

Aguiar de Sousa D, Canhão P, Ferro JM. Safety of pregnancy following cerebral venous thrombosis – A systematic review. European Stroke Organisation Conference 2015, Glasgow, United Kingdom, April 17-19, 2015. (Oral presentation)

Alves, P, de Carvalho M, Peralta, R, Geraldés R, Fonseca AC, Melo, TP. Axial myoclonus after ischaemic stroke. 1st congress of the European Academy of Neurology, Berlin, Germany, June 20-23, 2015. (Poster Presentation)

Coutinho JM, Ferro JM, Zuurbier SM, Canhão P, Crassard I, Majoie CB, Reekers J, Houdart E, R.J. de Haan, M.G. Bousser, J. Stam Thrombolysis or anticoagulation for cerebral venous thrombosis (TO-ACT trial). The European Stroke Organisation Conference 2015, Glasgow, United Kingdom, April 17-19, 2015. (Poster Presentation)

Fonseca AC, Pinho e Melo T, Geraldés R, Ferro JM. Long-term follow up of patients with cryptogenic stroke: NT –PROBNP levels and diagnosis of atrial fibrillation or stroke/TIA recurrence. The European Stroke Organisation Conference 2015, Glasgow, United Kingdom, April 17-19, 2015. (Poster Presentation)

Gil-Gouveia R, Pinto J, Figueiredo P, Vilela P, Martins IP. Perfusion changes during migraine without aura attacks an arterial spin labeling MRI perfusion study. 17th Congress of the International Headache Society – IHC 2015, Valencia, Spain, May 14-17, 2015 (Oral Presentation)

Henriques J, Martins IP Vertebrobasilar Stroke and Migraine Headache. A study in a rehabilitation center. 17th Congress of the International Headache Society – IHC 2015, Valencia, Spain, May 14-17, 2015 (Poster Presentation)

Hobeanu C, Sissani L, Rothwell PM, Albers GW, Borstein NM, Caplan LR, Donnan GA, Ferro JM, Uchiyama S, Amarenco P. Patients with TIA and minor ischemic stroke who underwent carotid revascularization remain at higher risk than other patients. The European Stroke Organisation Conference 2015, Glasgow, United Kingdom, April 17-19, 2015. (Poster Presentation)

Leal-Rato, M, Mares, I, Senju, A, Martins IP. The influence of direct gaze on hemispatial neglect. 5th Scientific Meeting of the ESN and 12th Nordic Meeting in Neuropsychology - Tampere, Finland, September 9-11, 2015 (Poster Presentation)

Nanji LS, Melo TP, Canhão P, Fonseca C, Ferro J. The role of sports as a precipitant factor in subarchnoid hemorrhage. 24th European Stroke Conference, Vienna, Austria, May 13-15, 2015. (Oral Presentation)

Communications in National Conferences

Aguiar de Sousa D, Ferro J M, Canhão P, Neto L, Barinagarrementeria F, Bousser M-G, Stam J, investigadores ISCVT. Relação entre a extensão e padrão da trombose e o desenvolvimento de lesões parenquimatosas nos doentes com trombose venosa cerebral. 9º Congresso do AVC, Porto, Portugal, February 5-7, 2015. (Oral Presentation)

Aguiar de Sousa D, Ferro JM, Canhão P, Barinagarrementeria F, Bousser MG, Stam J, the ISCVT investigators. Eficácia da acetazolamida em doentes com trombose venosa cerebral. Congresso de Neurologia, Lisboa, Portugal, November 11-14, 2015. (Oral Presentation)

Alves P, Maruta C, Martins IP. Alterações cognitivas em lesão isquémica do núcleo anterior do tálamo. Reunião da Secção de Neurologia do Comportamento. Congresso de Neurologia, Lisboa, Portugal, November 11, 2015 (Oral Presentation).

Alves P, Pinho e Melo T, Ferro JM, Fonseca AC. Acidente vascular cerebral isquémico ao acordar não se associa a fibrilação auricular diagnosticada de novo Congresso de Neurologia, Lisboa, Portugal, November 11-14, 2015. (Oral Presentation)

Alves P, Pires J, Fonseca AC. Acidente vascular cerebral isquémico e enfarte agudo do miocárdio concomitantes de etiologia embólica. Fórum de Neurologia 2015, Aveiro, Portugal, May 21-23, 2015. (Poster Presentation)

Alves, P, Dias M, Costa, Amorim I, Santos, Maruta C, Antunes AP, Martins IP, Albuquerque L (2015). Alterações neuropsiquiátricas em doentes com Lupus Eritematoso Sistémico. Reunião da Secção de Neurologia do Comportamento. Congresso de Neurologia, Lisboa, Portugal, November 11, 2015 (Oral Presentation).

Carvalho Dias M, Antunes P, Fonseca C, Pinho e Melo T. Uma causa rara de parésia facial periférica. Congresso de Neurologia, Lisboa, Portugal, November 11-14, 2015. (Oral Presentation)

Carvalho Dias M, Canhão P, Casimiro C. Infecção de hematoma intracerebral após terapêutica com rt-PA IV. Congresso de Neurologia, Lisboa, Portugal, November 11-14, 2015. (Poster Presentation)

Costa M, Azevedo L, Fonseca AC, Pinho e Melo T. Acidente Vascular Cerebral isquémico num doente com Hemoglobinúria Paroxística Noturna e foramen oval patente. 9º Congresso do AVC, Porto, Portugal, February 5-7, 2015. (Poster Presentation)

Dias M, Canhão P, Casimiro C. Infecção de hematoma intracerebral após terapêutica com rt-PA IV. Congresso de Neurologia, Lisboa, Portugal, November 11-14, 2015. (Poster Presentation)

Falcão Campos C, Ferreira J, Aguiar Sousa D, Miranda B, Morais Dias M, Antunes AP, Albuquerque L. Nevrite óptica bilateral e mielite transversa associada ao vírus Epstein-Barr: um desafio diagnóstico. Fórum de Neurologia 2015, Aveiro, Portugal, May 21-23, 2015. (Poster Presentation)

Fonseca AC, Pinho e Melo T, Geraldês R, Ferro JM. Seguimento a longo prazo de doentes com AVC criptogénico: NT-proBNP e diagnóstico de fibrilação auricular e recorrência de AVC/AIT. 9º Congresso do AVC, Porto, Portugal, February 5-7, 2015. (Oral Presentation)

Fonseca J, Leal G, Farrajota L, Martins IP. BAAL – Um novo olhar. 9º Congresso do AVC, Porto, Portugal, February 5-7, 2015. (Oral Presentation).

Fonseca J, Leal G, Farrajota L, Pinho e Melo T, Fonseca AC, Morgado J, Miranda F, Pavão Martins I (2015) Efeito da trombólise no perfil anatomoclínico da afasia. 9º Congresso do AVC, Porto, Portugal, February 5-7, 2015. (Poster Presentation).

Fonseca J, Leal G, Farrajota L, Pinho e Melo T, Fonseca AC, Morgado J, Miranda F, Pavão Martins I. Efeito da trombólise no perfil anatomoclínico da afasia. 9º Congresso do AVC, Porto, Portugal, February 5-7, 2015. (Poster Presentation).

Gil-Gouveia, Oliveira A, Martins IP. Queixas cognitivas subjetivas durante a crise de enxaqueca. Um estudo numa amostra clínica. Reunião de Outono da Sociedade Portuguesa de Cefaleias, Porto, Portugal, October 30-31, 2015. (Oral Presentation).

Gonçalves MA, Simões MR, Castro-Caldas A. Versão abreviada da Escala de Inteligência de Wechsler para Adultos (WAIS-III) para doentes epiléticos candidatos a cirurgia. Reunião da Secção de Neurologia do Comportamento. Congresso de Neurologia, Lisboa, Portugal, November 11, 2015 (Oral Presentation).

Gonçalves MA, Simões MR, Castro-Caldas A. Looking for a brain injury in the WAIS-III sum measures. I Congresso Internacional de Reabilitação Neuropsicológica na Lesão Encefálica Adquirida / III Simpósio Internacional Neuropsicologia e Reabilitação. October 9, 2015. (Oral Presentation).

Gonçalves MA, Simões MR, Castro-Caldas A. Ward's seven subtest short-form of the WAIS-III for brain lesion patients. 3º Congresso Internacional do CINEICC/1º Congresso da APTC. Coimbra, Portugal November 17-21, 2015. (Oral Presentation).

João AA, Martins IP. Cefaleia noturna na infância. Reunião de Outono da Sociedade Portuguesa de Cefaleias, Porto, Portugal, October 30-31, 2015. (Oral Presentation).

Leote J, Valls-Sole J, Costa J, Casanova J, Oleaga L, Fonseca J, Nunes RG, Ferreira HÁ. Vocal accelerometer recording of TMS evoked language disturbances. 1º Encontro de Alunos do Colégio Doutoral Mente-Cérebro da Universidade de Lisboa. Lisboa, Portugal, December 2, 2015 (Poster Presentation).

Maruta C, Ferreira C, Guerreiro M, Verdelho A, Castelo-Branco M, Miltenyi G, Ferreira C, Almeida R, Santiago B, Santana I, Taipa R, Mendonça A. Setting the stage for prevention trials for the initial phases of genetic frontotemporal lobar degeneration - an update. 29ª Reunião do Grupo de Estudos de Envelhecimento Cerebral e Demências, Aveiro, Portugal, May 29-30, 2015. (Oral Presentation)

Maruta C, Ferreira C, Guerreiro M, Verdelho A, Castelo-Branco M, Miltenyi G, Ferreira C, Almeida R, Santiago B, Santana I, Taipa R, Mendonça A. Setting the stage for prevention trials for the initial phases of genetic frontotemporal lobar degeneration - an update. 29ª Reunião do Grupo de Estudos de Envelhecimento Cerebral e Demências, Aveiro, Portugal, May 29-30, 2015 (Oral Presentation).

Maruta C, Guedes L, Caeiro L, Martins IP (2015) Alterações neuropsicológicas num caso de Ataxia Espino-Cerebelosa de tipo 17. Reunião da Secção de Neurologia do Comportamento. Congresso de Neurologia, Lisboa, Portugal, November 11-14, 2015. (Oral Presentation)

Maruta C, Guedes L, Caeiro L, Martins IP. Alterações neuropsicológicas num caso de Ataxia Espino-Cerebelosa de tipo 17. Reunião da Secção de Neurologia do Comportamento. Congresso de Neurologia, Lisboa, Portugal, November 11, 2015 (Oral Presentation).

Maruta C, Guedes L, Martins IP. Variabilidade de apresentação clínica em dois casos de Degenerescência Lobar Frontotemporal familiar associada a mutação do gene C9orf72 . Reunião da Secção de Neurologia do Comportamento. Congresso de Neurologia, Lisboa, Portugal, November 11, 2015 (Oral Presentation).

Maruta C. Contributo da neuropsicologia para o estudo da Afasia Primária Progressiva". II Simpósio "Terapia da Fala: Um Percorso a Inovar e a Cuidar", Escola Superior de Saúde de Alcoitão da Santa Casa da Misericórdia de Lisboa, Lisboa, Portugal, March 6, 2015. (Oral Presentation).

Miguel Leal-Rato M, Mares I, Senju A, Martins IP. Direct gaze partially overcomes hemispatial neglect and captures spatial attention. Reunião da Secção de Neurologia do Comportamento. Congresso de Neurologia, Lisboa, Portugal, November 11, 2015 (Oral Presentation).

Miguel R, Ribeiro O, Maruta C, Alves L, Mendonça A. Síndrome frontal na variante logopénica da doença de Alzheimer. 29ª Reunião do Grupo de Estudos de Envelhecimento Cerebral e Demências, Aveiro, Portugal May 29-30, 2015 (Oral Presentation).

Miranda F, Mineiro A, Colaço D. A influência da escolaridade na dimensão macrolinguística do discurso. Reunião da Secção de Neurologia do Comportamento. Congresso de Neurologia, Lisboa, Portugal, November 11, 2015 (Oral Presentation).

Oliveira Santos M, Geraldes R, Pinho e Melo T. Erro inato do metabolismo como causa de Acidente Vascular Cerebral isquémico no jovem. 9º Congresso do AVC, Porto, Portugal, February 5-7, 2015. (Oral Presentation)

Viana P, Leal G, Martins IP (2015) Dois casos de disgrafia pos-Acidente Vascular Cerebral-dificuldades diagnósticas e de classificação. Reunião da Secção de Neurologia do Comportamento. Congresso de Neurologia, Lisboa, Portugal, November 11, 2015 (Oral Presentation).

Viana P, Pita-Lobo A, Martins IP (2015) SUNCT (short-lasting unilateral neuralgiform headache attacks with conjunctival injection and tearing) em mãe e filho. Reunião de Outono da Sociedade Portuguesa de Cefaleias, Porto, Portugal, October 30-31, 2015. (Oral Presentation).

Viana P, Pita-Lobo A, Martins IP. SUNCT (Short-lasting Unilateral Neuralgiform Headache Attacks with Conjunctival Injection and Tearing) em mãe e filho. Congresso de Neurologia, Lisboa, Portugal, November 11-14, 2015. (Poster Presentation)

Viana P, Santos P, Correia Guedes L, Verdelho A, Pimentel J, Ferro JM. O neurologista e o gastroenterologista – consulta interna de neurologia ao Serviço de Gastroenterologia e hepatologia do CHLN. Congresso de Neurologia, Lisboa, Portugal, November 11-14, 2015. (Oral Presentation)

Organisation of Conferences

Canhão P. 9º Congresso do AVC, Porto, Portugal, February 5-7, 2015.

Canhão P. 6ª Reunião de Unidades da Sociedade Portuguesa de AVC, Outubro, 2015

Canhão P. 13ª Reunião da Sociedade Portuguesa de AVC, Lisboa, Portugal, October 24, 2015

Canhão P. The European Stroke Organisation Conference 2015, Glasgow, United Kingdom, April 17-19, 2015. - member of the Conference Support Group

Martins, I.P., Maruta, C. I Curso Pós-Graduado de Actualização - Avaliação Neuropsicológica. Laboratório de Estudos de Linguagem, Faculdade de Medicina da Universidade de Lisboa, November 7-8, December 5-6 2014 and January 9, 2015

Martins IP, Leal G, Farrajota L, Fonseca J. I Curso de Actualização em Avaliação da Afasia com a BAAL. Laboratório de Estudos de Linguagem, Edifício Egas Moniz, Faculdade de Medicina da

Universidade de Lisboa, November 28.

Prizes, honours and awards

Bolsa D. Manuel de Mello 2015 to Diana Aguiar de Sousa

European Academy of Neurology Fellowship 2016 to Diana Aguiar de Sousa

1º Prémio no Clinical Scholars Research Training Certificate da Harvard Medical School to Diana Aguiar de Sousa

11º Bolsa de Investigação Fundação AstraZeneca/FMUL to Diana Aguiar de Sousa

1º Prémio para comunicação oral no 9º Congresso do AVC to Diana Aguiar de Sousa, José M. Ferro, Patrícia Canhão, Lia Neto, Fernando Barinagarrementeria, Marie-Germaine Bousser, Jam Stam e os investigadores ISCVT

2º Prémio da European Academy of Neurology (EAN) tournament for young neurologists - Uschi Tschabitscher Prize: runner up to Diana Aguiar de Sousa

Honorary Member of the European Academy of Neurology to José Ferro

Honorary Member Société Française de Neurologie to José Ferro

Prémio Fundo para Investigação em Saúde do INFARMED to Catarina Fonseca

1º Prémio Tecnifar “Aura Status – a not so frequent aura”. na Reunião de Outono da Sociedade Portuguesa de Cefaleias 2015 to Isabel Pavão Martins IP e João A.

3º Prémio Tecnifar “Queixas cognitivas subjetivas durante a crise de enxaqueca” Reunião de Outono da Sociedade Portuguesa de Cefaleias 2015 to Raquel Gil-Gouveia, Oliveira A, Isabel Pavão Martins.

2º Prémio António Flores para poster no Congresso de Neurologia “SUNCT (Short-lasting Unilateral Neuralgiform Headache Attacks with Conjunctival Injection and Tearing) em mãe e filho” to Pedro Viana, Ana Pita-Lobo, Isabel Pavão Martins.

Industry contract research

2015-2016 A Phase 3 randomized, double-blind, placebo-controlled study to evaluate the efficacy and safety of AMG 334 in migraine prevention” Martins IP, Maruta C. (Amgen AMG334 STRIVE, 2015)

2015-2016 - A Phase 3 multicenter, randomized, double-blind, placebo-controlled, parallel-group study to evaluate the efficacy and safety of Aducanumab (BIIB037) in subjects with early Alzheimer's disease. Maruta C , in coloboration with Grupo de demênicas (Biogen Idec BIIB037-221AD301 ENGAGE & 221AD302 EMERGE, 2015)

2015-2016 - A randomized, placebo controlled phase 2b/3 study of ABT-414 with concurrent chemoradiation and adjuvant Temozolomide in subjects with newly diagnosed glioblastoma (GBM) with epidermal growth factor receptor (EGFR) amplification. Albuquerque L, Maruta C. (AbbVie M13-813 Intellance 1; 2016)

Advanced teaching

Albuquerque L, Martins IP. A pergunta do clínico. I Curso Pós-Graduado de Actualização - Avaliação Neuropsicológica. Laboratório de Estudos de Linguagem, Faculdade de Medicina da Universidade de Lisboa, January 9, 2015.

Almeida V, Pimentel J, Campos A, Bentes C, Maruta C, Morgado C, Martins IP. Bridging the Gap (Comprehensive Case Presentation) - Limbic encephalitis associated with LGI1-antibodies controlled by surgery. Lisbon Biomed PhD Programme, Faculty of Medicine, Institute of Molecular Medicine, University of Lisbon. January 8, 2015

Canhão P. Coordenadora do Módulo “Methodologies in Clinical Research Part I: Research in Clinical Neurosciences”. Master/Phd in Neurosciences, CAML. Lisboa, Portugal, May 4-22, 2015.

Canhão P. Preparação de Casos Clínicos para Publicação. Gopic. Lisboa, Setembro 2015

Canhão P. Structured case presentations: management challenges. The European Stroke Organisation Conference 2015, Glasgow, United Kingdom, April 18, 2015. Teaching Course.

Ferro JM. Consciência e conceito de pessoa: problemas éticos do estado vegetativo persistente. Curso Pós- Graduado – Decisões éticas em fim de vida, Mestrado Cuidados Paliativos, FMUL 26 March 26, 2015.

Ferro JM. Vegetative state. Master/Phd in Neurosciences, CAML, Lisboa, Portugal, December 16, 2015.

Freitas V, Maruta C Como elaborar o relatório neuropsicológico: o que dizer e o que não dizer? I Curso Pós-Graduado de Actualização - Avaliação Neuropsicológica. Laboratório de Estudos de Linguagem, Faculdade de Medicina da Universidade de Lisboa, January 9, 2015.

Martins IP. General Introduction and Aphasia. European Master in Stroke Medicine, Krems, Austria, October 14, 2015.

Martins IP. Memory disorders. European Master in Stroke Medicine, Krems, Austria, October 14, 2015.

Martins IP. Neglect. European Master in Stroke Medicine, Krems, Austria, October 14, 2015.

Martins IP. Reading and Writing Disorders. European Master in Stroke Medicine, Krems, Austria, October 14, 2015.

Martins IP. Visual agnosias". European Master in Stroke Medicine, Krems, Austria, October 14, 2015.

Martins IP. Cefaleias trigémino?autónomicas. Curso de Cefaleias Sociedade Portuguesa de Neurologia. Aveiro, Portugal, May 22, 2015.

Martins IP. Como...fazer uma tese de doutoramento. Curso de Investigação Clínica – Programa Doutoral do CAML 2015, Programa do módulo 1. Lisboa, Portugal, November 13, 2015.

Martins IP. Introduction to Cognitive Functions. Functional organization of the mind, Methods in Cognitive assessment. Language and Right hemisphere syndromes. Master in Neurosciences, Faculdade de Medicina da Universidade de Lisboa, Lisboa, Portugal, April 7, 2015.

Maruta C. Organization and assessment of memory systems. Master in Neurosciences, Faculdade de Medicina da Universidade de Lisboa, Lisboa, Portugal, April 24, 2015.

Nobrega C, Morgado C. Integração dos dados neuropsicológicos e de imagem. I Curso Pós-Graduado de Actualização - Avaliação Neuropsicológica. Laboratório de Estudos de Linguagem, Faculdade de Medicina da Universidade de Lisboa, January 9, 2015.

Canhão P. Orientação de Estágios de Investigação Clínica, Mestrado Integrado de Medicina da FMUL

Science and society

Abad A, Pompili A, Trancoso I, Martins IP, Fonseca J (2015) VITHEA – Terapia Virtual. Exposição Loucura - Ciência Viva, Pavilhão do Conhecimento. October to September 2015. www.pavconhecimento.pt/visite-nos/exposicoes/detalhe.asp?id_obj=3076.

Canhão P (2015) Organização das actividades de comemoração do Dia Nacional do Doente com AVC. Lisboa, Portugal, March 31.

Canhão P (2015): Exercício Físico e Risco Vascular. Jornadas Técnicas do Programa Nacional de Marcha e Corrida, Lisboa, Portugal.

Canhão P (2015): Papel da Corrida na Prevenção do AVC. VI Congresso Internacional de Corrida, Lisboa, Portugal.

Fonseca J (2015) “Comunicação e Linguagem: Ciência e Arte...Cruzando olhares”, Departamento de Linguagem da Sociedade Portuguesa de Terapia da Fala. Lisboa, Portugal June 6, 2015.

PhD thesis completed

Carolina Maruta 17/09/2015 Primary progressive aphasia: neuropsychological analysis and evaluation Faculdade Medicina de Lisboa da Universidade de Lisboa Manuela Guerreiro Alexandre Mendonça

Raquel Gil Gouveia 11/12/2015 Cognitive Function During Migraine Attacks. Faculdade de Medicina da Universidade de Lisboa Isabel Pavão Martins

Msc thesis completed

Liliana Nanji 22/05/2015 The role of sports as a precipitating factor of Subarachnoid Haemorrhage. Faculdade de Medicina da Universidade Lisboa José M. Ferro

Ana Madeira 24/07/2015 Influência da fibrilhação auricular na transformação hemorrágica do AVC isquémico tratado com alteplase Faculdade de Medicina da Universidade de Lisboa Teresa Pinho e Melo

Catarina Carapeto da Silva Chester 05/05/2015 Contributo de Dois Subtestes de Inteligência na Avaliação Cognitiva ao Longo do Envelhecimento. Faculdade de Medicina da Universidade de Lisboa Isabel Pavão Martins Manuela Guerreiro

Masa Tomsic 26/06/2015 Assessing cognitive decline in ALS: Portuguese adaptation of the Edinburgh Cognitive and Behavioural ALS Screen (ECAS). Faculdade de Medicina da Universidade de Lisboa Isabel Pavão Martins Mamede de Carvalho

Figueiredo, Luisa

Major Interests / Objectives

Sleeping sickness is a fatal neglected disease caused by *Trypanosoma brucei* a unicellular parasite. Parasites exploit their host to increase their reproductive success and to enhance their transmission efficiency. Efficient parasitism depends on the cross-talk between parasite, host and environment. In *T. brucei*, such mechanisms include antigenic variation, cell differentiation and interference with sleep pattern and circadian rhythm of the host. In our group, we use genetic, biochemical and molecular approaches to study these interactions with the prospect to uncover fundamental exploitable differences that can lead to new diagnostic and therapeutic tools.

Head of Laboratory

Luisa Miranda Figueiredo, PhD

Research Team

Ana Filipa de Almeida Rijo Ferreira	Master	PhD Student, UTSW, Faculdade Medicina da Universidade do Porto
Ana Margarida Roque Sanches Vaz	Master	PhD Student
Bárbara Daniela Rentroia Pacheco	Undergraduate	Trainee, (started July)
Daniel Pinto de Oliveira Gonçalves Neves	Graduate	MSc Student
Fabien Marc Guegan	PhD	Post doctoral Investigator
Fábio Pereira Bento	Graduate	MSc Student
Francisco Maria dos Santos e Silva Aresta Branco	Master	PhD Student
Helena Isabel Gomes Pires Manso	PhD	Post doctoral Investigator
Idálio de Jesus Contreiras Viegas	Graduate	PhD Student

João Miguel Barbosa Nina	Graduate	MSc Student, (started September)
Leonor Duarte Pinho	Master	Lab Manager
Sandra Isabel Gonçalves Trindade	PhD	Post doctoral Investigator
Sílvia Maria de Jesus Pimenta Teixeira da Silva	Undergraduate	Trainee, (started August)

Glycobiology group

Eleonora Aquilini	PhD	Post doctoral Investigator
Jessica Grace Morgan Bevan	Master	PhD Student
João Alexandre Guarita da Silva Rodrigues	PhD	Senior Investigator & ITN Coordinator
Miguel Correia Botelho Chaves Ferreira	PhD	Post doctoral Investigator

Keywords / Research Areas

Antigenic variation, chromatin, gene expression, parasitology, host-parasite interaction, glycobiology

Major scientific achievements

- Appointed Director of iMM post-doctoral training program;
- Award of three FCT grants (2015): Luisa M Figueiredo, João Rodrigues, Fabien Guegan;
- Graduation of first PhD student, Ana Pena;
- First invitation to act as main examiner in an international PhD juri;
- Invitation to apply to a Wellcome Trust collaborative research award composed of six laboratories.

Selected Publications

Boothroyd, C. E., Dreesen, O., Leonova, T., Ly, K. I., Figueiredo, L. M., Cross, G. A. M., and Papavasiliou, F. N. (2009). A yeast-endonuclease-generated DNA break induces antigenic switching in *Trypanosoma brucei*. *Nature* **459**, 278-281. (Journal IF: 41.456, Citations: 77)

Yang X, Figueiredo LM, Espinal A, Okubo E, Li B (2009) RAP1 is essential for silencing telomeric Variant Surface Glycoprotein genes in *Trypanosoma brucei*. *Cell*, **137**, 99-109, (Journal IF: 32.406, Citations: 30)

Pena AC, Pimentel MR, Manso H, Vaz-Drago R, Pinto-Neves D, Aresta-Branco F, Rijo-Ferreira F, Guegan F, Pedro Coelho L, Carmo-Fonseca M, Barbosa-Morais NL, Figueiredo LM (2014) *Trypanosoma brucei* histone H1 inhibits RNA polymerase I transcription and is important for parasite fitness in vivo. *Molecular Microbiology*, **93**(4), 645-63, (Journal IF: 4.419, Citations: 4)

Rodrigues JA, Acosta-Serrano A, Aebi M, Ferguson MAJ, Routier FH, Schiller I, Soares S, Spencer D, Titz A, Wilson IBH and Izquierdo L (2015) Parasite glycobiology: A bittersweet symphony. *PLoS Pathogens*, **11**(11):e1005169, (Journal IF: 7.562, Citations: 0)

Aresta-Branco F, Pimenta S, Figueiredo LM (2015) A transcription-independent epigenetic mechanism is associated with antigenic switching in *Trypanosoma brucei*. *Nucl Acids Res*, doi:10.1093/nar/gkv1459 (Journal IF: 9.112, Citations: 0)

Ongoing Research Projects

2011/2016. Coordinator: Luisa Miranda Figueiredo. Agency: EMBO. Reference: Embo Instalation Grant LF. Amount: € 250000.00. Amount (total): € 250000.00.

2012/2015. Coordinator: Luisa Miranda Figueiredo. Agency: EMBO. Reference: Embo Small Grant LF. Amount: € 5438.52. Amount (total): € 5000.00.

2012/2017. Coordinator: Luisa Miranda Figueiredo. Agency: Howard Hughes Medical Insti.. Reference: Howard Hughes Medical Institute. Amount: € 467289.34. Amount (total): € 560000.00.

2013/2015. Coordinator: Luisa Miranda Figueiredo. Agency: AXA SA. Reference: Postdoctoral Sponsorship Agreement. Amount: € 120000.00. Amount (total): € 120000.00.

2014/2016 Embo Small Grant. Coordinator: Luisa Miranda Figueiredo. Agency: EMBO. Reference: YIP - Small Grant . Amount: € 8000.00. Amount (total): € 8000.00.

2015/2019 Projecto de Investigação Exploratória. Coordinator: Luisa Miranda Figueiredo. Agency: Fundação para a Ciência e a Tecnologia, IP. Coordinator Institution: O. Reference: Projecto de Investigação Exploratória. Amount: € 46000.00. Amount (total): € 50000.00.

2013/2017 Parasite glycobiology and anti-parasitic strategies. Coordinator: João Alexandre Guarita da Silva Rodrigues. Agency: Comissão Europeia. Reference: ITN-608295 - Glycopar. Amount: € 666969.80. Amount (total): € 3450856.23.

Original publications in peer review Journals

Aresta-Branco F, Pimenta S, Figueiredo LM (2015) A transcription-independent epigenetic mechanism is associated with antigenic switching in *Trypanosoma brucei*. *Nucl Acids Res* doi:10.1093/nar/gkv1459. (Journal IF: 9.112, Citations: 0)

Cova M, Rodrigues JA, Smith TK and Izquierdo L (2015) Sugar activation and glycosylation in *Plasmodium*, *Malaria Journal*, **14**, 427. (IF: 3.11, Citations:0)

Other publications International

Pena AC, Aresta-Branco F and Figueiredo LM (2015) Epigenetic regulation in *T. brucei*: changing coats is a chance to survive in *Epigenetics and Infectious Diseases* eds Walter Doerfler, Petra Böhm, Mario Noyer-Weidner, Josep Casadesús (Springer, Berlin Heidelberg), in press.

Rodrigues JA, Acosta-Serrano A, Aebi M, Ferguson MAJ, Routier FH, Schiller I, Soares S, Spencer D, Titz A, Wilson IBH and Izquierdo L (2015) Parasite glycobiology: A bittersweet symphony, *PLoS Pathogens*, **11** (11): e1005169 (Journal IF: 7.562, Citations:0)

Invited lectures and seminars

Figueiredo LM. Adipose tissue is the main target organ in *Trypanosoma brucei* infection. 47th Trypanosomatid Metabolism microsposium, The Institute of Infection, Immunity and Inflammation, Glasgow, UK, September 21-22, 2015

Figueiredo LM. Trypanosomes accelerate the host circadian rhythm. Oberseminar at Institute of Medical Psychology, Ludwig Maximilians University, Munich, Germany, June 1, 2015

Trindade S. Consequences of *Trypanosoma brucei* accumulation in adipose tissue. Vectors and parasites in Global Health, Instituto de Higiene e Medicina Tropical, Lisboa, Portugal, December 1, 2015

Rodrigues JA. Insights into Parasite Glycobiology, Instituto Gulbenkian de Ciência, Oeiras,

Portugal, July 24, 2015

Rodrigues JA. Sweet Parasites: Insights from functional glycomics. Glycobiology Summer School, Universidade do Minho, Braga, Portugal, September 25, 2015

Rodrigues JA. Parasite glycobiology and anti-parasitic strategies: an update. Hannover Medical School, Germany, November 12, 2015

Rodrigues JA. Sweet and Dark Parasites: Insights to their force from functional glycomics. Liverpool School of Tropical Medicine, UK, December 17, 2015

Communications in International Conferences

Rijo-Ferreira F, Takahashi JS, Figueiredo LM. Trypanosoma brucei infection accelerates the mouse circadian clock. SECTS for Clocks. Center for Biological Clocks Research, Dallas, TX, USA, March 2015 (Oral Presentation)

Aresta-Branco F, Pimentel M, Figueiredo LM. Keeping an open chromatin in the active VSG expression site is associated to uncommitted switching. Kinetoplastid Molecular Cell Biology Meeting. Marine Biological Laboratory, Woods Hole, MA, USA, April 2015 (Poster Presentation)

Rijo-Ferreira F, Takahashi JS, Figueiredo LM. Trypanosoma brucei infection accelerates the mouse circadian clock. Kinetoplastid Molecular Cell Biology Meeting. Marine Biological Laboratory, Woods Hole, MA, USA, April 2015 (Oral Presentation)

Trindade S, Figueiredo LM, Rijo-Ferreira F, Carvalho T, Van Den Abbeele J, Ribeiro RM, Dias S. Adipose tissue is where most Trypanosoma brucei parasites accumulate and a probable source of relapse after treatment. Kinetoplastid Molecular Cell Biology Meeting. Marine Biological Laboratory, Woods Hole, MA, USA, April 2015 (Oral Presentation)

Bevan J, Rodrigues JA and Ventura R, Chemical probes to uncover novel glycosyltransferases in Trypanosoma brucei, 6th European Conference on Chemistry in the Life Sciences, Lisboa, Portugal, June 2015 (Poster Presentation)

Trindade S, Rijo-Ferreira F, Carvalho T, Pinto-Neves D, van Den Abbeele J, Ribeiro MR, Dias S, Figueiredo LM. Metabolic consequences of trypanosome parasite accumulation in adipose tissue. Gordon Research Conference on the Molecular & Cellular Biology of Lipids. Waterville Valley, NH, USA, July 2015 (Poster Presentation)

Rijo-Ferreira F, Takahashi JS, Figueiredo LM. Trypanosoma brucei infection accelerates the mouse circadian clock. Molecular Parasitology Meeting. Marine Biological Laboratory, Woods Hole, MA, USA, September 2015 (Oral Presentation)

Rijo-Ferreira F, Takahashi JS, Figueiredo LM. Trypanosoma brucei infection accelerates the mouse circadian clock. 64th Annual Meeting of the American Society for Tropical Medicine & Hygiene. Philadelphia, Pennsylvania, USA, October 2015 (Oral Presentation)

Communications in National Conferences

Pinto-Neves D. Do Parasites Count the Time? RNA-sequencing the Circadian Transcriptome of T. brucei. Bioinformatics Open Days, Faculdade de Ciências da Universidade de Lisboa, Lisboa, April 10, 2015. (Oral communication)

Internationalisation

Our research group acts internationally at several levels. First, by presenting our work and acting as discussion group in international meetings including Kinetoplastid Molecular and Cellular Biology meeting and Gordon Research Conference on the Molecular & Cellular Biology of Lipids. Second by establishing and maintaining collaborations (Joseph Takahashi, University of Texas Southwestern Medical Center, USA; Terry Smith, University of St Andrews, Scotland; Cedric Notredame, Center for Genomic Regulation, Spain; Jan Van Den Abbeele, Institute of Tropical Medicine, Antwerp, Belgium. Third by acting as reviewer for several international journals including Scientific Reports, PLoS Genetics, Nucleic Acids Research, Journal of Cell Science and Eukaryotic Cell, among others. Fourth, being main examiner in a PhD juri in University of Montpellier, France.

Through the FP7 GlycoPar ITN we currently collaborate with Mike Ferguson (Univ. Dundee), Markus Aebi (ETH Zurich), Luis Izquierdo (ISGlobal, Barcelona), Alvaro Acosta-Serrano (Liverpool School of Tropical Medicine), Rita Gerardy-Schwan (Hannover) and three SMEs, SilicoLife (Braga, PT), Ludger (Abingdon, UK) and SOMBiotech (Barcelona) and have access to GlaxoSmithKline Tres Cantos site (Madrid) devoted to neglected tropical diseases.

Prizes, honours and awards

Best talk award by American Committee of Molecular, Cellular and Immunoparasitology from ASTMH to Filipa Rijo-Ferreira in April 2015.

Advanced teaching

Figueiredo LM. Organizer and lecturer in “Host and microbe interactions” course, as part of LisbonBioMed Doctoral Programme. iMM, Lisbon, Portugal. February 9-13, 2015

GLYCOBIOLOGY GROUP:

Rodrigues JA. Lecturer in “Nano & Biochemistry” course, as part of LisbonBioMed Doctoral Programme. IMM, Lisbon, Portugal. January 20, 2015

Rodrigues JA. Lecturer in the Genomics and Proteomics modules of the MSc in Biomedical Sciences, Instituto de Higiene e Medicina Tropical, Lisboa, Portugal. February 13, 2015

PhD thesis completed

Ana Catarina Dias Pena 09/12/2015 “Role of histone H1 in chromatin and gene expression in the African Trypanosome: broad skills, specific functions?” Instituto de Medicina Molecular, Faculdade de Medicina de Lisboa, Universidade de Lisboa Luisa M. Figueiredo

Msc thesis completed

Fábio Pereira bento 03/12/2015 “Role of long non-coding RNAs in parasite differentiation” Faculdade de Ciências da Universidade de Lisboa Luisa M. Figueiredo Fabien Guegan

Filipe, Paulo

Major Interests/Objectives

We devote our efforts to the search of clinically useful markers and drug targets in common skin diseases afflicting humans such as psoriasis. After healing, psoriasis tends to recur within previously affected skin areas invoking some sort of tissue immunological memory. Knowledge-based manipulation of this memory compartment may contribute to a better long-term management of human psoriasis. We aim at characterizing the cellular components of this memory compartment in clinical samples from patients treated with phototherapy and/or anti-IL17/ IL-23 antibodies, and the mechanisms involved in its activation and maintenance, namely the role of the IL-9/Th9 axis, in the pre-clinical model.

We are also using proteomics analyses of serum proteins to identify early markers of disease recurrence.

Head of Laboratory

Paulo M.L. Filipe, MD / PhD

Research Team

João Ferreira	MD/PhD	Senior Investigator
João Nuno Maia Silva	MD/PhD	Senior Investigator
Maria Clara Bicho	MD/PhD	Senior Investigator
João Costa	MD/PhD	Senior Investigator
Luís Soares de Almeida	MD/PhD	Senior Investigator

Keywords / Research Areas

Psoriasis; Th9 and Tc9 cells; Th17 and Tc17 cells; Phototoxicity

Major Achievements

The identification of the photo-degradation product of *Vemurafenib*, a key drug in the management of advanced melanoma, whose major secondary effect is the development of severe photo-toxicity with massive lysis of keratinocytes; in collaboration with the group of Patrice Morlière (*INSERM, Amiens, France*). This has resulted in a joint publication (*Photochem Photobiol Sci. 2015; cf below*), and shall fuel subsequent research on the cellular metabolism of *Vemurafenib*. Indeed, we have recently established that *Vemurafenib* directly induces lipo-peroxidation of cell membranes leading to cell lysis (*manuscript in preparation*).

The identification by mass spectrometry of a 133977 Da peptide in the serum of psoriatic patients whose levels strongly predict disease recurrence; we are currently characterizing further this peptide in collaboration with the group of Francisco Amado (University of Aveiro) and the group of Patrice Morlière (*INSERM, Amiens, France*).

Selected Publications

Morlière P, Hug GL, Patterson LK, Mazière JC, Ausseil J, Dupas JL, Ducroix JP, Santos R, Filipe P. (2014) Chemistry of free radicals produced by oxidation of endogenous α -aminoketones. A study of 5-aminolevulinic acid and α -aminoacetone by fast kinetics spectroscopy. *Biochim Biophys Acta* 1840 (10): 3190-7. (Journal IF: 4.381; Citations: 0)

Paul C, Puig L, Kragballe K, Luger T, Lambert J, Chimenti S, Girolomoni G, Nicolas JF, Rizova E, Lavie F, Mistry S, Bergmans P, Barker J, Reich K; (2014) Transition to ustekinumab in patients with moderate-to-severe psoriasis and inadequate response to methotrexate: a randomized clinical trial (TRANSIT). *Br J Dermatol.*; 170 (2): 425-34. (Journal IF: 4.275; Citations: 5)

Filipe P, Morlière P, Silva JN, Mazière JC, Patterson LK, Freitas JP, Santos R. (2013) Plasma lipoproteins as mediators of the oxidative stress induced by UV light in human skin: a review of biochemical and biophysical studies on mechanisms of apolipoprotein alteration, lipid peroxidation, and associated skin cell responses. *Oxid Med Cell Longev.* (Journal IF: 3.516; Citations: 0)

Pinheiro T, Silva R, Fleming R, Gonçalves A, Barreiros MA, Silva JN, Morlière P, Santos R, Filipe P. (2014) Distribution and quantitation of skin iron in primary haemochromatosis: Correlation with total body iron stores in patients undergoing phlebotomy. *Acta Derm Venereol.* 94 (1) (Journal IF: 3.025; Citations: 0)

Original publications in peer review Journals

Morlière P, Boscá F, Silva AM, Teixeira A, Galmiche A, Mazière JC, Nourry V, Ferreira J, Santos R, Filipe P. (2015) A molecular insight into the phototoxic reactions observed with vemurafenib, a first-line drug against metastatic melanoma. *Photochem. Photobiol. Sci.*, 2015,14, 2119-2127 (Journal IF: 2.267; Citations: 0)

Other publications International

Lopes LN, Gouveia AL, Soares-Almeida L, Sacramento-Marques M, Filipe P. orokeratosis and malignant melanoma: A causal or incidental association? (2015) *Indian Dermatol Online J.*

Gouveia AI, Teixeira A, Freitas JP, Soares-de-Almeida L, Filipe P, Sacramento-Marques M.(2015) Linear Immunoglobulin A Bullous Dermatosi. *J Pediatr.* 2015 Dec 27. pii: S0022-3476(15)01490-0. doi: 10.1016/j.jpeds.2015.11.078.

Toda-Brito H, Lopes L, Soares-Almeida L, Filipe P. (2015) Adalimumab-induced psoriatic alopecia/alopecia areata-like reaction in a patient with Crohn's disease. *Dermatol Online J.* 2015 Nov 18;21(11). pii: 13030/qt79j1d2jv.

Torres T, Filipe P. Small Molecules in the Treatment of Psoriasis. *Drug Dev Res.* 2015 Aug;76(5):215-27. doi: 10.1002/ddr.21263.

de Vasconcelos PT, Dácio-Ferreira J, Filipe PL. (2015)Scrotal elephantiasis secondary to recalcitrant hidradenitis suppurativa. *Indian J Dermatol Venereol Leprol.* 2015 Sep-Oct;81(5):524-5. doi: 10.4103/0378-6323.158656.

Uva L, Freitas J, Soares de Almeida L, Vasques H, Moura C, Miguel D, Filipe P. (2015) Squamous cell carcinoma arising in ulcerated necrobiosis lipoidica diabetorum. *Int Wound J.* 2015 Dec;12(6):741-3. doi: 10.1111/iwj.12206.

Gouveia AI, Lopes L, Soares-Almeida L, Filipe P. (2015) Bullous hemorrhagic dermatosis induced by enoxaparin. *Cutan Ocul Toxicol.* 2015 May 5:1-3.

Massa AF, Vasconcelos P, Soares de Almeida L, Filipe P.(2015) Pityriasis rubra pilaris mixed type III/IV successfully treated with narrow band-ultraviolet B. *Indian J Dermatol Venereol Leprol.* 2015 Jul-Aug;81(4):435. doi: 10.4103/0378-6323.156196.

de Vasconcelos P, Soares-Almeida L, Filipe P, Kutzner H. (2015) Subcutaneous nodules with sporotrichoid spread in the forearm of a patient with rheumatoid arthritis. *Acta Reumatol Port.* 2015 Jan-Mar;40(1):89-90.

Lopes L, Filipe P, Alves A, Guerreiro F, Pires S. (2015) Nicolau syndrome after benzathine penicillin treated with hyperbaric oxygen therapy. *Int J Dermatol.* 2015 Apr;54(4):e103-6. doi: 10.1111/ijd.12751.

Communications in International Conferences

Paulo Filipe. *E-Dermatology Portal website and its Objectives*. European Academy of Dermatology and Venereology (EADV) Meeting, Copenhagen, 9th October, 2015.

Science and Society

Biológicos e biossimilares – contexto atual e desafios - A perspetiva da Dermatologia, Pfizer - Biosimilars Counselling Group Meeting, Lisboa, 19 Novembro 2015.

Simpósio – Actualidades Clínicas e Terapêuticas: Novidades em terapêutica médica em Dermatologia, XV Congresso Nacional de Dermatologia e Venereologia, Porto, 6 a 8 de Novembro de 2015

Industry contract research

Promoter: Associação para o Desenvolvimento da Dermatologia e Université Paris VI
Clastogenic Plasma Factors in psoriatic patients submitted to narrow-band UVB phototherapies

Period: 2013-2016 Budget : 15000 Euros

Promoter: Pfizer Inc.

Influence of Etanercept® in the Serum Proteome of Psoriatic Patients. A SELDI Approach format

Period: 2012-2016 Budget : 37000 Euros

Promotor: Abbvie EPI – IMM 12-0069.

“Impact of moderate to severe psoriasis in Portugal”– IMM-12-0069/ EPI psoríase PT”.

Promotor: Abbvie. ALIGN- IMM11- 0138.

“International study to address to what extent patient beliefs regarding medication affect adherence to treatment in chronic inflammatory diseases”

Promotor: Novartis. Gesture - Cain457A2312.

“A randomized, double blind, placebo-controlled, multicenter study to demonstrate the efficacy at 16 weeks of secukinumab 150 and 300 mg s.c. and to assess tolerability and long term efficacy up to 132 weeks in subjects with moderate to severe palmoplantar psoriasis”

Promotor: Novartis. Clear- Cain457A2317.

“A 52 week multicenter randomized, double blind study of subcutaneous secukinumab to demonstrate efficacy as assessed by psoriasis area and severity index at 16 weeks of treatment compared to ustekinumab, and to assess long term safety, tolerability and efficacy in subjects with moderate to severe plaque psoriasis”

Promotor: Pfizer. Purpose – B1801035.

“ A longterm prospective, observational cohort study of the safety and effectiveness of etanercept in the treatment of paediatric psoriasis patients in a naturalistic setting (PASS)”.

Promotor : Abbvie. EPIC.

“Effectiveness of Adalimumab in moderate to severe plaque psoriasis patients with distinct co-morbidities”.

Promotor: Amgen. AMAGINE2.

“A phase 3 study to evaluate the efficacy and safety of induction and maintenance regimens of brodalumab compared with placebo and ustekinuma in subjects with moderate to severe psoriasis”.

Advanced Teaching

Course on Psoriasis (Paulo Filipe, Organizer; with the collaboration of João Ferreira; Luis Graça; Soares de Almeida; Joana Antunes; Tiago Torres and Elsa Sousa). Hospital Santa Maria, Lisbon.
12 e 13 de Março de 2015

Fonseca, João Eurico

Major Interests / Objectives

The Rheumatology Research Lab results from a partnership between the iMM/FML and the Rheumatology Department of the Santa Maria Hospital. Basic scientists and clinicians closely work together to promote translational research and clinical excellence in the field of Rheumatology.

Our specific research objectives are the study of the impact of inflammatory joint diseases (such as Rheumatoid Arthritis (RA), Juvenile Idiopathic Arthritis (JIA), Spondyloarthritis (SpA) and Systemic Lupus Erythematosus (SLE)) on bone and vessel in order to characterize potential tools for early diagnosis and prognosis and potential targets for novel therapies. The long-term objective of the RRU is to achieve recognition as an European League Against Rheumatism Centre of Excellence in Rheumatology.

Head of Laboratory

João Eurico Fonseca, MD/PhD

Research Team

Ana Cláudia Dinis Pereira	Graduate	Trainee, (left May)
Ana Filipa Mourão	Graduate	PhD Student, Hospital Egas Moniz , MD
Ana Filipa Rodrigues Lopes	Master	Lab Manager
Ana Maria Ferreira Rodrigues	Graduate	PhD Student, Faculdade Medicina da Universidade de Lisboa
Ana Raquel Conduto Dias Maia	Graduate	Trainee, (started July)
Ana Rita Cascão Rodrigues	PhD	Post doctoral Investigator
Ânia Robim Costa e Sousa	Graduate	MSc Student, (started July)
Bruno Miguel Costa Vidal	Graduate	PhD Student
Diana de Almeida Carmona Fernandes	Master	PhD Student

Elsa Cristina Vieira de Sousa	Graduate	Investigator, Faculdade Medicina da Universidade de Lisboa
Eunice Ribeiro João Silva Paisana	Graduate	Trainee, (left July)
Helena Cristina de Matos Canhão	MD/PhD	Senior Investigator, Faculdade Medicina da Universidade de Lisboa, Assistant Professor
Inês Alexandra Pascoal Lopes	Master	Lab Manager
Inês Pedro Perpétuo	Master	PhD Student
Joana Ribeiro Caetano Lopes	PhD	Post doctoral Investigator
Joaquim Miguel Polido Pereira	Graduate	Investigator, CHLN, MD
Marco Aurélio Carmelino Cardoso Sarmento	Graduate	PhD Student, Faculdade Medicina da Universidade de Lisboa, Teaching Assistant
Maria Helena Regalo da Fonseca	MD/PhD	Senior Investigator, Faculdade Medicina da Universidade de Lisboa, Associate Professor
Maria João Gonçalves	Master	PhD Student, CHLN , MD , NA
Maria José Parreira dos Santos	MD/PhD	Senior Investigator, Faculdade Medicina da Universidade de Lisboa, Assistant Professor
Natacha Pombinho Leonardo	Graduate	MSc Student, (left July)
Rafael António Moiteiro da Cruz	Graduate	MSc Student, (started March)
Renata Inês Proença Casimiro	Graduate	MSc Student, (left October)
Rita Alexandra Pedra Aguiar de Moura	PhD	Post doctoral Investigator
Soraia Patrícia Caetano da Silva	Graduate	MSc Student
Vasco Madeira Crispim Romão	Master	PhD Student, CHLN, MD

Keywords / Research Areas

Joint inflammatory diseases - pathogenesis, early diagnosis, prognosis and pharmacogenetics- Rheumatoid Arthritis, Psoriatic Arthritis, Ankylosing spondylitis and Juvenile Idiopathic Arthritis, Systemic effects of inflammation and effects of inflammation on bone- Osteoporosis, Osteoarthritis and Rheumatoid Arthritis, Bone biology, structure, biomechanics, Chronic Inflammation and cardiovascular risk- atherosclerosis and bone, Epidemiology of Rheumatic Diseases, Cohorts, Registries and Databases. Recommendations and Guidelines, Collaboration in Clinical Trials

Major scientific achievements

1. First national register based comparative effectiveness of IL6 antagonist (tocilizumab) vs, TNF antagonists.
2. Further reinforce celestrol as a candidate compound to treat arthritis.
3. Characterization of the effect of TNF antagonists on osteoclasts from ankylosing spondylitis patients.
4. Characterization of the adjuvant arthritis rat model as an adequate model to test the impact of arthritis on bone and to test new compounds that block this effect.
5. Involvement in the organization of major scientific meetings in the field of rheumatology.
6. Involvement in the organization of training of rheumatology at a national level.
7. Engagement with patient's organizations.

Selected Publications

Cascão R, Rosário HS, Souto-Carneiro MM, Fonseca JE. (2010) Neutrophils in rheumatoid arthritis: More than simple final effectors. *Autoimmun Rev.*, **9**, 531-535, (Journal IF: 7.095, Citations: 47)

Fonseca JE, Santos MJ, Canhão H, Choy E. (2009) Interleukin-6 as a key player in systemic inflammation and joint destruction.. *Autoimmun Rev*, 538-542, **8**, (Journal IF: 7.095, Citations: 122)

Caetano-Lopes J, Canhão H, Fonseca JE. (2009) Osteoimmunology--the hidden immune regulation of bone. *Autoimmun Rev*, **8**(3), 250-5, (Journal IF: 7.095, Citations: 36)

Cascão R, Moura RA, Perpétuo I, Canhão H, Vieira-Sousa E, Mourão AF, Rodrigues AM, Polido-Pereira J, Queiroz MV, Rosário HS, Souto-Carneiro MM, Graca L, Fonseca JE. (2010) Identification of a cytokine network sustaining neutrophil and Th17 activation in untreated early rheumatoid arthritis. *Arthritis Res Ther*, **12**(5), R196, (Journal IF: 4.117, Citations: 24)

Moura RA, Weinmann P, Pereira PA, Caetano-Lopes J, Canhão H, Sousa E, Mourão AF, Rodrigues AM, Queiroz MV, Souto-Carneiro MM, Graça L, Fonseca JE.(2010) Alterations on peripheral blood B-cell subpopulations in very early arthritis patients. *Rheumatology (Oxford)*. 2010 Jun;**49**(6):1082-92. (Journal IF: 4.475; Citations: 22)

Ongoing Research Projects

2012/2015 How inflammation early affects bone's nano-properties at arthritis onset. Coordinator: João Eurico Fonseca. Agency: UCB Celltech. Reference: UCB_IIS_Cimzia - Pre Clinical. Amount: € 50000.00.

2012/2016 Understanding physician's decision to switch or keeping treatment regimen -is it dependent on patient's outcome measures?. Coordinator: Helena Cristina de Matos Canhão. Agency: Laboratórios Pfizer, Lda. Reference: Pfizer WS2120109. Amount: € 85000.00. Amount (total): € 85000.00.

2015/2016 Disease course and adult outcomes of childhood-onset rheumatic diseases. Coordinator: João Eurico Fonseca. Agency: Sociedade Port. Reumatologia. Reference: Bolsa de Inovação Diagnóstica. Amount: € 5000.00. Amount (total): € 0.00.

2011/2015 Collaboration in "A National Genome Wide Association Study to Predict the Response to Anti-TNF Treatment in Rheumatoid Arthritis". Coordinator: Helena Cristina de Matos Canhão. Agency: Abbott Laboratorios, Lda. Reference: GWAS Abbott. Amount: € 104000.00. Amount (total): € 104000.00.

2012/2016 Predictors of atherosclerosis progression in patients with rheumatoid arthritis over a period of 5 years: focus on adipose tissue and inflammation . Coordinator: Maria José Santos. Agency: Fundação AstraZeneca. Reference: Atherosclerosis progression - AstraZeneca. Amount: € 15000.00.

2013/2015 Inhibition of bone and cartilage degradation in rat induced arthritis treated with tofacitinib. Coordinator: João Eurico Fonseca. Agency: Laboratórios Pfizer, Lda. Reference: Aspire - Pfizer WI 180320. Amount: € 60000.00. Amount (total): € 60000.00.

2012/2015 Golimumab as first line DMARD therapy in MTX naive psoriatic arthritis - a 24 weeks efficacy and safety study focusing on dactylitis and enthesitis. Coordinator: Elsa Cristina Vieira de Sousa. Agency: Merck Sharp & Dohme. Reference: GO-DACT . Amount: € 36087.50. Amount (total): € 144350.00.

2014/2016 Post-transcriptional regulation of response to Etanercept in patients with rheumatoid arthritis. Coordinator: Helena Cristina de Matos Canhão. Agency: Laboratórios Pfizer, Lda. Reference: Pfizer - WI187429. Amount: € 40000.00. Amount (total): € 40000.00.

2014/2016 Linking Biomechanics, Inflammation and Bone Formation in Psoriatic Arthritis. Coordinator: João Eurico Fonseca. Agency: UCB Pharma , Lda. Reference: UCB ES. Amount: € 51350.00. Amount (total): € 51350.00.

2014/2016 Estudo aleatorizado, aberto, para investigar os mecanismos de resposta-resistência ao rituximab versus tocilizumab em doentes com artrite reumatóide com resposta inadequada

aos antagonistas do TNF (R4RA). Coordinator: João Eurico Fonseca. Agency: Centre for Experimental Medicine and Rheumatology. Reference: R4RA. Amount: € 2235.35. Amount (total): € 2235.35.

2014/2017 European Calcified Tissue Society/Amgen Bone Biology Research Fellowship. Coordinator: João Eurico Fonseca. Agency: ECTS Ltd. Reference: ECTS - Bruno Vidal. Amount: € 100000.00. Amount (total): € 100000.00.

2014/2015 Ensaio pré-clínico para a avaliação do potencial terapêutico do ImmuneSafe no tratamento de patologias reumáticas. Coordinator: João Eurico Fonseca. Agency: Cell2B. Reference: Cell2B. Amount: € 15000.00. Amount (total): € 30000.00.

2014/2016 EWRR. Coordinator: João Eurico Fonseca. Agency: Eli Lilly SA. Reference: EWRR. Amount: € 5000.00. Amount (total): € 5000.00.

2013/2016 Tuberculosis prevention in patients with immune mediated inflammatory diseases treated with biological therapy. Coordinator: João Eurico Fonseca. Agency: Bolsa CHLN 2012. Reference: BioTB. Amount: € 2500.00. Amount (total): € 2500.00.

2015/2015 Evaluation of celastrol as a candidate for the treatment of rheumatoid arthritis. Coordinator: João Eurico Fonseca. Agency: Sociedade Port. Reumatologia. Coordinator Institution: 0. Reference: CELAR. Amount: € 10000.00. Amount (total): € 10000.00.

2013/2016 Synovial pathobiology and clinical differences in elderly and younger-onset of rheumatoid arthritis. Coordinator: João Eurico Fonseca. Agency: Sociedade Portuguesa de Reumatologia. Coordinator Institution: 0. Reference: BioTB. Amount: € 3850.00. Amount (total): € 3850.00.

2013/2016 IL-6 blockade in rheumatoid arthritis patients: impact on Tfh subsets and humoral responses. Coordinator: João Eurico Fonseca. Agency: Bolsa Pfizer. Coordinator Institution: 0. Reference: BioTB. Amount: € 2500.00. Amount (total): € 2500.00.

Other Projects

2011/2015 Portuguese Epidemiologic Study of Rheumatic Diseases – EpiReumaPt. Coordinator: Helena Canhão.

Original publications in peer review Journals

Araujo GR, Fonseca JE, Fujimura PT, Cunha-Junior JP, Silva CH, Mourão AF, Canhão H, Goulart LR, Gonçalves J, Ueira-Vieira C. (2015) Anti-type II collagen antibodies detection and avidity in patients with oligoarticular and polyarticular forms of juvenile idiopathic arthritis. *Immunol Lett.* **165** (1):20-5 (Journal IF: 2.512, Citations: 0)

Canhão H, Rodrigues AM, Santos MJ, Carmona-Fernandes D, Bettencourt BF, Cui J, Rocha FL, Canas Silva J, Polido-Pereira J, Pereira Silva JA, Costa JA, Araujo D, Silva C, Santos H, Duarte C, Cáliz R, Filipescu I, Pimentel-Santos F, Branco J, Sainz J, Plenge RM, Solomon DH, Bruges-Armas J, Da Silva JA, Fonseca JE, Karlson EW. (2015) TRAF1/C5 but Not PTPRC Variants Are Potential Predictors of Rheumatoid Arthritis Response to Anti-Tumor Necrosis Factor Therapy. *Biomed Res Int.* **2015**:490295 (Journal IF: 1.579, Citations: 0)

Diogo D, Bastarache L, Liao KP, Graham RR, Fulton RS, Greenberg JD, Eyre S, Bowes J, Cui J, Lee A, Pappas DA, Kremer JM, Barton A, Coenen MJ, Franke B, Kiemeny LA, Mariette X, Richard-Miceli C, Canhão H, Fonseca JE, de Vries N, Tak PP, Crusius JB, Nurmohamed MT, Kurreeman F, Mikuls TR, Okada Y, Stahl EA, Larson DE, Deluca TL, O'Laughlin M, Fronick CC, Fulton LL, Kosoy R, Ransom M, Bhangale TR, Ortmann W, Cagan A, Gainer V, Karlson EW, Kohane I, Murphy SN, Martin J, Zhernakova A, Klareskog L, Padyukov L, Worthington J, Mardis ER, Seldin MF, Gregersen PK, Behrens T, Raychaudhuri S, Denny JC, Plenge RM. (2015) TYK2 Protein-Coding Variants Protect against Rheumatoid Arthritis and Autoimmunity, with No Evidence of Major Pleiotropic Effects on Non-Autoimmune Complex Traits. *PLoS One.* **10**(4):e0122271. (Journal IF: 3.234, Citations: 1)

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Romão VC. EMEUNET - The Emerging EULAR Network. 2ª Edição Manual do Interno, Sociedade Portuguesa de Reumatologia. September 2015

Invited lectures and seminars

Fonseca JE. Vasculites do Sistema Nervoso Periférico. Reunião de Neuroimunologia da Sociedade Portuguesa de Neurologia. Coimbra, Portugal, January 17th, 2015.

Fonseca JE. Chair closing session. Curso de Vasculites da Sociedade Portuguesa de Reumatologia. Coimbra, Portugal, January 30th-31st, 2015.

Vieira-Sousa E. What should we know in 2020? AIM, Berlim, Germany, February 6-7th, 2015

Fonseca JE . Chair the meeting

Fonseca JE. Chair the session

Vieira-Sousa E. Inflamação: Novos Alvos Terapêuticos .PFIZER SUMMIT, Lisbon, Portugal, February 7-8th , 2015.

Romão VC, DiCicco M, Mahto A, Lazarou I, Fonseca JE, Kelly S, Humby F, Pitzalis C. Clinical and pathological differences of elderly- and younger-onset rheumatoid arthritis. Reunião do Serviço de Reumatologia do Hospital de Santa Maria, CHLN, Lisbon, Portugal, March 2nd 2015.

Fonseca JE. Chair the session workshop VII: Back to the Future. 35th European Workshop for Rheumatology Research (EWRR), Budapest, Hungary, March 5-7th, 2015

Vieira-Sousa E. Psoriatic Arthritis: diagnosis and assessment. Psolara, Lisbon, Portugal, March 12th, 2015

Fonseca JE. Understanding the role of long-term data in cost predictability Satellite Symposium. European Association of Hospital Pharmacists 2015 congress, Hamburg, Germany, March 25th, 2015

Vieira-Sousa E. Psoriatic Arthritis: beyond the skin. Dermatology Series, Lisbon, Portugal, March 7th and April 23th, 2015

Fonseca JE. Chair Opening Session. ANDAR 20 anos, Lisbon, Portugal, April 10th, 2015

Romão VC, Sivera F. EMEUNET - The Emerging EULAR Network.

1º Curso de Tutores e Internos da SPR conjunta com o 14º Curso de Tutores e Residentes da SER, Lisbon, Portugal, April 10th 2015.

Fonseca JE. Chair Pening and Closing Session

Fonseca JE. Como selecionar a revista internacional certa para trabalhos nacionais
Curso de Tutores e Internos da Sociedade Portuguesa de Reumatologia da Sociedade Portuguesa de Reumatologia, Lisbon, Portugal, April 10-11th, 2015

Fonseca JE. Pharmacovigilance.

European Biosimilars Forum, Warsaw, Poland, April 16-17th, 2015

Fonseca JE. Treatment of osteoarthritis - present and future.

4th Joint Meeting of the European Calcified Tissue Society (ECTS) and the International Bone and Mineral Society (IBMS), Rotterdam, The Netherlands, on 25 – 28th April 2015.

Fonseca JE. Clinical implications of Immunogenicity Fonseca JE. Immune Aspects of Biological Therapy in Rheumatic Patients.

National Center for drug expertise, items for medical practice and medical equipment of MH of RK I International Research and Practice Conference “Drugs of Biotechnological Origin and Biosimilars. International Experience of Rational Use in Clinical Practice”. Almaty, Kazakhstan, April 29th, 2015.

Fonseca JE. How biologics and biosimilars are developed.

Pfizer Grange Castle Manufacturing Facility. Dublin, Ireland, May 8th, 2015

Fonseca JE. Implementing biosimilars in Portugal.

Mundipharma International Event. The Hague, Netherlands, May 9th, 2015

Santos MJ. Oligo/poliartrite: abordagem”.

6ª Reunião de Casos Clínicos da secção de reumatologia pediátrica da SPP. Lisbon, Portugal, May 9th, 2015

Vieira-Sousa E. Desafios da avaliação articular nas doenças Dermatológicas.

Webinar Pfizer, Lisbon, Portugal, May 13th, 2015

Fonseca JE, Chair the meeting.

Canhão H. Chair de sessão Sessão I: Imagem na Artrite Reumatóide.

Santos MJ. Utilidade da ressonância no diagnóstico das manifestações musculares das doenças difusas do tecido conjuntivo.

Vieira-Sousa E. Treat-to-target in PsA: update on treatment recommendations.

4º Simpósio SPR Imagiologia. Póvoa de Varzim, Portugal, May 14-16th, 2015.

Fonseca JE. IL6 related diseases,

Satellite Symposium. Spanish Congress of Rheumatology. Seville, Spain, May 19-22th, 2015

Fonseca JE. Chaired the opening session.

Vieira-Sousa E. New concepts and unmet needs in Psoriatic Arthritis.

Janssen Immunology Forum, Figueira da Foz, Portugal, May 30th, 2015

Fonseca JE. Biologics and biosimilars.

Pfizer Grange Castle Manufacturing Facility. Dublin, Ireland, June 5th, 2015

Fonseca JE. Chair the session: RA- small molecules 1

Fonseca JE. Chair the session: Poster Tour: RA - small molecules 1

Fonseca JE and Romão V. Chair the session: Poster Tour: RA - small molecules 2.

MJ Santos. Immunossuppression associated with biologis. Is this an issue?

Fonseca JE. Are we moving to value-driven treatment decisions? (Satellite Symposium)

Fonseca JE. Concepts on Biosimilars (Medical training)

Fonseca JE. The Therapeutic Landscape in RA – Bdmards, Biosimilars and Beyond.

Fonseca JE. Clinical and Clinical Science Highlights.

EULAR 2015. Rome, Italy, June 10-13th, 2015

Fonseca JE. Chair opening session.

Gonc?alves MJ. Eficácia da vacina influenza em doentes com Lupus Eritematoso Sistémico e outras DTCs

Reunião Treat to prevent, Lisbon, Portugal, June 26- 27th, 2015.

Fonseca JE. Rheumatology Research Unit at IMM: oportunities for cooperation.

Servier, Paris, France, July 20th, 2015.

Fonseca JE. EULAR recommendations for RA treatment

Fonseca JE. The history of rituximab development.

Rheumatology Update Meeting, São Paulo, Brazil, August 1st, 2015.

Vieira-Sousa E, Pareja Cruz A. Chair the session: Osteoimunologia: interações do sistema imunitário, muscular e esquelético.

XI Congresso da Sociedade Iberoamericana de Osteologia e Metabolismo Mineral (SIBOMM) e XIII Congresso Mexicano de Osteoporosis y Enfermedades Metabolicas Oseas, Lisbon, Portugal, August 27-29th, 2015

Vieira-Sousa E, Filipe P. Rheumatology and Dermatology Joint Clinics.

Meet the expert- Ciclo III Janssen, Lisbon, Portugal, September 2nd, 2015

Fonseca JE. Chair Session VIII: How IL-23/IL-17 initiates chronic tissue in ammation

9th European Workshop on Immune-Mediated Inflammatory Diseases, Amsterdam, The Netherlands, September 2 – 4th ,2015

Fonseca JE. Rheumatology Research Unit at IMM: oportunities for cooperation.

Roche, Basel, Switzerland, September 7th, 2015

Fonseca JE. Concepts on biosimilars.

Pfizer Grange Castle Manufacturing Facility. Dublin, Ireland, September 10th, 2015

Fonseca JE. Chaired opening session.

SPR Scleroderma Academy, Lisbon, Portugal, September 12th, 2015

Fonseca JE. Moderated session How clinical excellence look like.

Meeting Health 2015, Lisbon, Portugal, September 12th, 2015

Fonseca JE. Chaired opening session.

Fonseca JE. Síndrome de dor crónica e fibromialgia

Fonseca JE. Gestão da terapêutica crónica em Reumatologia

Workshop SPR para medicos de medicina geral e familiar, Lisbon, Portugal, September 19th, 2015

Carmona-Fernandes, D. The inflammatory and bone remodeling pathways. Pizza seminar, Instituto de Medicina Molecular, Lisbon, Portugal, september 16th, 2015

Fonseca JE. Biosimilars: Key issues.

Working Together for Rheumatology: a Global Speaker Training. Prague, Czech Republic, September 25-26th, 2015

Romão VC, Gonçalves MJ, Oliveira Ramos F, Alves A, Lopez D, Canhão H, Fonseca JE. Tocilizumab in polyarticular JIA: a challenging clinical case.

Exchange Experience Expert Meeting (E-cube meeting), Roche, Charité Campus Mitte, Berlin, Germany, 25-26th September 2015.

Moura RA, Leandro MJ, Reddy V, Fonseca JE, Cambridge G. Rheumatoid arthritis patients have alterations in inherently autoreactive 9G4+ B cell subpopulations in peripheral blood.

3rd IMM Post-Doc Day, Instituto de Medicina Molecular, Lisbon, Portugal, September 25th, 2015

Romão VC. Vacinação influenza e VHB.

Reunião do Serviço de Reumatologia do Hospital de Santa Maria, CHLN, Lisbon, Portugal, 6th October 2015.

Fonseca JE. Chaired opening session.

Vieira-Sousa E, Costa JA: Grupo de Estudo das Espondilartrites: recomendações e projetos

Romão VC, Barcelos F, Vinagre F, Martins AL, Pinto J, Gonçalves I, Fonseca JE, Santos MJ.

Protocolo Síndrome de Sjögren para Reuma.pt. Reunião do GEDRESIS,

Jornadas Outono da SPR, Figueira da Foz, Portugal, October 9-10th, 2015

Vieira-Sousa E. Unmet needs in Psoriatic Arthritis.

Celgene Meeting HSM, Lisbon, Portugal, October 20th, 2015

Fonseca JE. Responsabilidade do Aluno durante o Ensino Clínico: tese final de mestrado.
Dia da Pedagogia, FMUL, Lisbon, Portugal, October 23rd, 2015

Fonseca JE. Chaired opening session.
Forum Doente Reumático, Lisbon, Portugal, October 30th, 2015

Fonseca JE. Concepts on Biosimilars (Medical training)
Fonseca JE. Biosimilar highlights from ACR. (Medscape)
Fonseca JE. Experts Roundtable from ACR. (Medscape)
Fonseca JE. Biosimilars European Experience (Satelite Symposium)
Fonseca JE. Rituximab in RA (Satelite Symposium)
American College of Rheumatology annual scientific meeting, San Francisco, USA, November 6-11th, 2015

Vieira-Sousa E. Impact factor and citations dictatorship
Acta Médica Portuguesa, Coimbra, Portugal November 7th, 2015

Fonseca JE. Chair opening session.
Coloquio ANDAR. Lisboa, Portugal, 17th November, 2015

Fonseca JE. Putting the patient at the center
Baricitinib Academy. Lisboa, Portugal, 18th November, 2015

Fonseca JE. Clinical development, labelling and use in practice
European Biosimilars Forum. Brussels, Belgium, 19th November, 2015

Fonseca JE. Chair opening session.
Jornadas do Instituto Português de Reumatologia. Lisboa, Portugal, 26-27th November, 2015

Fonseca JE. Immunotherapy in Rheumatology
ABC Imunologia para médicos. Lisboa, Portugal, 27th November, 2015

Santos MJ. Getting research quality data from electronic medical records: Clinician reporting –
Examples of successful structured EPR data collection in rheumatology, including what works
well.
2nd EULAR Registrers and Observational Drug Studies Meeting - EULAR RODS, Prague, Czech
Republic, December 7-8th, 2015

Fonseca JE. Chair opening session
Vieira-Sousa E, Monteiro P. Chair the session: "A RMN na Artrite Psoriática" and "Cirurgia
Ortopédica na Espondilite Anquilosante".
VII Forum das Espondilartroses, Porto, Portugal, December 10-11th, 2015

Fonseca JE. Doenças reumáticas imunomediadas

Communications in International Conferences

Carmona-Fernandes, D. The inflammatory and bone remodeling pathways.
13th Medinterna International National. Fundação Cupertino de Miranda, Porto, Portugal,
February 12-14th, 2015. (Oral Presentation)

Vítor S, Meireles L, Romão VC, Freitas C, Fernandes S, Gonçalves MJ, Saavedra MJ, Canhão H,
Pereira da Silva JA, Marinho RT, Fonseca JE, Velosa J. Profile and reactivation of hepatitis B in
rheumatic and inflammatory bowel disease patients treated with TNF inhibitors. (Poster
Presentation)

10th Congress of ECCO - Inflammatory Bowel Diseases 2015, Barcelona, Spain, 18-21st
February 2015. (Poster Presentation)

Perpetuo IP, R Raposeiro, J Caetano-Lopes, E Vieira-Sousa, R Campanilho-Marques, C Ponte, H
Canhão, M Ainola, JE Fonseca. Effect of TNF blocking therapy on osteoclasts from ankylosing
spondylitis patients. (Poster Presentation)

Moura RA, Quaresma C, Vieira AR, Gonçalves MJ, Polido-Pereira J, Romão V, Martins N,
Canhão H, Fonseca JE. B-cell markers expression is affected by TNF-inhibitors and tocilizumab
treatment in rheumatoid arthritis. (Poster Presentation)

Romão VC, DiCicco M, Mahto A, Lazarou I, Fonseca JE, Kelly S, Humby F, Pitzalis C. Clinical and
pathological differences of elderly- and younger-onset rheumatoid arthritis in an early arthritis
cohort. (Oral Presentation)

35th European Workshop for Rheumatology Research (EWRR), Budapest, Hungary, March 5-
7th, 2015 (Poster Presentation)

Mahler M, Lakos G, Martis P, Bentow C, Garcia M, Viñas O, Espinosa G, Cervera R, Carmona-
Fernandes D, Santos MJ, Hanly JG. International multi-center evaluation of Quanta Flash®
dsDNA Chemiluminescent Immunoassay: Canada, Portugal, and Spain. 3rd International
Congress on Controversies in Rheumatology and Autoimmunity (CORA). Sorrento, March 12 -
14th, 2015 (Poster Presentation)

Perpetuo IP, R Raposeiro, J Caetano-Lopes, E Vieira-Sousa, R Campanilho-Marques, C Ponte, H
Canhão, M Ainola, JE Fonseca. Effect of TNF blocking therapy on osteoclasts from ankylosing
spondylitis patients. (Poster Presentation)

VC Romão, M DiCicco, A Mahto, I Lazarou, JE Fonseca, S Kelly, F Humby, C Pitzalis .Clinical and
pathological differences of elderly- and younger-onset rheumatoid arthritis in an early arthritis
cohort
B Vidal, R Cascão, AC Vale, I Cavaleiro, MF Vaz, JA Brito, H Canhão, JE Fonseca. Arthritis

induces early bone high turnover, structural degradation and mechanical weakness. (Poster Presentation)

Moura RA, Quaresma C, Vieira AR, Gonçalves MJ, Polido-Pereira J, Romão V, Martins N, Canhão H, Fonseca JE. B-cell markers expression is affected by TNF-inhibitors and tocilizumab treatment in rheumatoid arthritis. (Poster Presentation)

4th Joint Meeting of the European Calcified Tissue Society (ECTS) and the International Bone and Mineral Society (IBMS), Rotterdam, The Netherlands, on 25 – 28th April 2015. (Poster Presentation)

Vítor S, Meireles L, Romão VC, Freitas C, Fernandes S, Gonçalves MJ, Saavedra MJ, Canhão H, Pereira da Silva JA, Marinho RT, Fonseca JE, Velosa J. Profile and reactivation of hepatitis B in rheumatic and inflammatory bowel disease patients treated with TNF inhibitors. European Association for the Study of the Liver's 50th International Liver Congress, Viena, Austria, April 2015. (Poster Presentation)

Oliveira-Ramos F, Eusébio M, Martins FM, Cordeiro I, Mourão AF, Salvador MJ, et al. Juvenile Idiopathic Arthritis in Adulthood: Clinical Pattern and Long-Term Outcomes of 512 Patients. (Oral Presentation)

Gonçalves MJ, A. F. Mourão, J. Melo-Gomes, M. Salgado, C. Ribeiro, I. Brito, J. E. Fonseca, H. Canhão, Fabry's mutation screening in a nationwide cohort of Juvenile Idiopathic Arthritis patients. (Oral presentation)

Gonçalves, M.J., and Romão, V.C. Diffuse Idiopathic Skeletal Hyperostosis (DISH) in the Renaissance Italian Aristocracy: Bringing Evidence from the Past. (Poster Presentation)

Castro A, Carmona-Fernandes D, Canhão H, Fonseca JE, Santos MJ. Incidence and Predictors of Cardiovascular Events Over a Period of 5 Years in a Cohort of Women with Rheumatoid Arthritis (Abstract Presentation)

Romão, V.C., Teixeira, L., Vítor, S., Patita, M., Gonçalves, M.J., Meireles, L., Saavedra, M.J., Correia, L., Canhão, H., Canas da Silva, J., Pereira da Silva, J.A., Fonseca, C., Marinho, R.T., Velosa, J., Santos, M.J., Fonseca, J.E. Serologic Profile and Reactivation of Hepatitis B in Rheumatic and Inflammatory Bowel Disease Patients Treated with Biologic Therapies. (Poster Presentation)

Romão, V.C., DiCicco, M., Lazarou, I., Mahto, A., Fonseca, J.E., Kelly, S., Humby, F., Pitzalis, C. Higher Ultrasound Synovitis in Elderly-Onset Rheumatoid Arthritis as Compared to Younger-Onset: THE Barts Early Arthritis Cohort. (Poster Presentation)

Mourão AF, Santos MJ, Melo Gomes JA, Martins F, Mendonça S, Oliveira-Ramos F, et al. Long-term retention and predictors of anti-TNF treatment response in Juvenile Idiopathic Arthritis: data from Reuma.pt, a nation-wide register. (Poster Presentation)

Barbosa L, Cordeiro I, Cordeiro A, Santos MJ, Canas da Silva J. Medication adherence in rheumatoid arthritis and psoriatic arthritis patients. (Oral Presentation)

Foeldvari I, Katsicas M, Terreri M Teresa, Cimaz R, Kostik M, Sztajnbok F, Nemcova D, Moll M, Jose Santos M, Avcin T, Brunner J, Nielsen S, Kallinich T, Minden K, Mueller J, Janarthanan M, Uziel Y, Sifuentes-Giraldo W A, Eleftheriou D, Torok K, Helmus N. Is there a difference in the presentation of diffuse and limited subtype of juvenile systemic sclerosis in childhood? Results from the juvenile scleroderma inception cohort. (Oral Presentation)

Foeldvari I, Katsicas M, Terreri M Teresa, Cimaz R, Kostik M, Sztajnbok F, Nemcova D, Moll M, Jose Santos M, Avcin T, Brunner J, Nielsen S, Kallinich T, Minden K, Mueller J, Janarthanan M, Uziel Y, Sifuentes-Giraldo W A, Eleftheriou D, Torok K, Helmus N. Update on the Juvenile Systemic Sclerosis inception cohort. (Poster Presentation)

Beukelman T., Berntson L, Duffy CM, Guzman J, Kimura Y, Klotsche J, Magnusson B, Minden K, Nordal E, Santos MJ, Thomson W, Zilhao C, Hyrich KL. The initial treatment of systemic juvenile idiopathic arthritis: an international collaboration among 7 registries. (Poster Presentation)

Perpetuo IP, R Raposeiro, J Caetano-Lopes, E Vieira-Sousa, R Campanilho-Marques, C Ponte, H Canhão, M Ainola, JE Fonseca. Effect of TNF blocking therapy on osteoclasts from ankylosing spondylitis patients. (Poster Presentation)

Branco J, Rodrigues AM, Gouveia N, Pereira L, Eusébio M, Ramiro S, Machado P, Mourão AF, Silva I, Laires P, Sepriano A, Araújo F, Gonçalves SP, Coelho PS, Tavares V, Cerol J, Mendes JM, Carmona L, Canhão H on behalf of EpiReumaPt Team. Prevalence and Physical and Mental Health Patterns of Rheumatic and Musculoskeletal Diseases in Portugal: Results from EpiReumaPt, A National Health Survey. (Oral presentation)

Walker UA, Jaeger VK, Chatzidionysiou K, Hetland ML, Hauge E-M, Pavelka K, Nordström DC, Canhao H, Tomšić M, van Vollenhoven R, Gabay C, on behalf of Rheumatic Diseases Portugal Register. Rituximab Done! What's Next in Rheumatoid Arthritis? A European Observational Longitudinal Study Assessing the Effectiveness of Biologics After Rituximab Treatment in Rheumatoid Arthritis. (Poster Presentation)

Laires PA, Canhão H, Gouveia M, Rodrigues A, Gouveia N, Branco J. Self-Reported Rheumatic Diseases and Early Retirement in Portugal – Results from the Portuguese Epidemiology Study on Rheumatic Diseases (EpiReumaPt) (Poster Presentation)

Laires PA, Canhão H, Gouveia M, Rodrigues A, Gouveia N, Branco J. Osteoarthritis and Early Exit from Work – Results from the Portuguese Epidemiology Study on Rheumatic Diseases (EpiReumaPt) (Poster Presentation)

Canet L, Cáliz R, Lupiañez CB, Canhão H, Filipescu I, Escudero A, Segura-Catena J, Soto-Pino MJ, Ferrer M ?, Pérez-Pampin E, González-Utrilla A, López-Nevot M ?, Collantes E, Fonseca JE, Sainz J. Estrogen-Related Polymorphisms and Risk of Rheumatoid Arthritis: A Multicenter Study (Poster Presentation)

Ramos F. Juvenile idiopathic arthritis in adulthood: clinical pattern and long-term outcomes of

512 patients. (Oral Presentation) Campanilho-Marques R. Effect of TNF blocking therapy on osteoclasts from ankylosing spondylitis patients. (Poster Presentation)

Gonçalves MJ. Diffuse idiopathic skeletal hyperostosis (dish) in the renaissance italian aristocracy: bringing evidence from the past. (Poster Presentation)

Gonçalves MJ, Moore S, Cambridge G, Leandro M, High C-Reactive Protein at Baseline is Associated with Long-term Treatment Persistence in Patients with Rheumatoid Arthritis treated with Rituximab. (Poster Presentation)

Foeldvari I, Klotsche J, Stanevicha V, Alexeeva E, Katsicas MM, Terreri MT, Sakamoto AP, Cimaz R, Kostik M, Avcin T, Santos MJ, Moll M, Nemkova D, Sztajn bok F, Battagliotti C, Brunner J, Eleftheriou D, Giraldo AS, Harel L, Janarthanan M, Kallinich T, Minden K, Nielsen SM, Torok KS, Uziel Y, Helmus N. Update on the Juvenile Systemic Sclerosis Inception Cohort Project. Characteristics of the First 50 Patients at First Assessment. (Poster Presentation)

Foeldvari I, Klotsche J, Stanevicha V, Alexeeva E, Katsicas MM, Terreri MT, Sakamoto AP, Cimaz R, Kostik M, Avcin T, Santos MJ, Moll M, Nemkova D, Sztajn bok F, Battagliotti C, Brunner J, Eleftheriou D, Giraldo AS, Harel L, Janarthanan M, Kallinich T, Minden K, Nielsen SM, Torok KS, Uziel Y, Helmus N. Performance of the Adult Systemic Sclerosis Classification in Juvenile Systemic Sclerosis Patients. Results from the Juvenile Systemic Sclerosis Inception Cohort. (Poster Presentation)

Foeldvari I, Klotsche J, Stanevicha V, Katsicas MM, Terreri MT, Sakamoto AP, Cimaz R, Kostik M, Avcin T, Santos MJ, Moll M, Nemkova D, Sztajn bok F, Battagliotti C, Brunner J, Eleftheriou D, Giraldo AS, Harel L, Janarthanan M, Kallinich T, Minden K, Nielsen SM, Torok KS, Uziel Y, Helmus N. Is There a Difference in the Presentation of Diffuse and Limited Subtype of Juvenile Systemic Sclerosis in Childhood? Results from the Juvenile Scleroderma Inception Cohort. (Poster Presentation)

Gouveia N, Rodrigues AM, Eusebio M, Machado P, Ramiro S, Canhao H, Branco J, EpiReumaPt Study Group. Prevalence and Social Burden of Active Chronic Low Back Pain in the Adult Portuguese Population – Results from a National Survey. (Poster Presentation)

Laires PA, Gouveia M, Canhão H, Rodrigues A, Gouveia N, Eusébio M, Branco JC. Self-reported rheumatic diseases and early retirement in Portugal. (Poster Presentation)

Laires PA, Gouveia M, Canhão H, Rodrigues A, Gouveia N, Eusébio M, Branco JC. Years of working life lost caused by osteoarthritis in Portugal (Poster Presentation)

Laires PA, Gouveia M, Canhão H, Rodrigues A, Gouveia N, Eusébio M, Branco JC. Years of working life lost caused by rheumatic diseases in Portugal (Poster Presentation)

Laires PA, Gouveia M, Canhão H, Rodrigues A, Gouveia N, Eusébio M, Branco JC. Cost of early retirement caused by rheumatic diseases in Portugal (Poster Presentation)

Rodrigues A, Laires PA, Gouveia N, Eusébio M, Canhão H, Branco JC. Characterization of osteoporosis in Portugal - treatment patterns and reasons for under-treatment and non-

persistence with pharmacological treatments (Poster Presentation)

Communications in National Conferences

Mello-Sampayo C, Agripino A, Stilwell D, Vidal B, Lopes A, Canhão H, Vaz MF, Fernando AL, Marques MC. Diabetes, Osteoporose e o Efeito do Suplemento de Pó de Concha-de-Ostra (Ca²⁺) e Fibra Alimentar - Estudo num Modelo Animal. Congresso de Endocrinologia. Funchal, Madeira, January 22-25th, 2015. (Oral Presentation)

Mourão AF, Santos MJ, Mendonça S, Ramos FO, Bettencourt BF, Bruges-Armas J, Gonçalves MJ, Melo-Gomes JA, Salgado M, Ribeiro C, Brito I, Fonseca JE, Canhão H. Single nucleotide polymorphisms in TNFA1P3 and PTPN2 were associated with a poor outcome in Portuguese patients with juvenile idiopathic arthritis. (Poster Presentation)

Branco JC, Rodrigues AM, Gouveia N, Pereira da Costa L, Eusébio M, Ramiro S, Machado P, Mourão AF, Silva I, Laires P, Sepriano A, Araújo F, Gonçalves S, Coelho PS, Tavares V, Cerol J, Mendes JM, Carmona L, Canhão H. Prevalence, physical and mental health patterns of rheumatic and musculoskeletal diseases in Portugal: results from EpiReumaPt, a national health survey (Poster Presentation)

Gonçalves MJ, Mourão AF, Melo-Gomes JA, Salgado M, Ribeiro C, Brito I, et al. Fabry's mutation screening in a nationwide cohort of juvenile idiopathic arthritis patients. (Poster Presentation)

Gouveia N, Rodrigues A, Eusébio M, Ramiro S, Machado P, Mourão AF, et al. Prevalence and burden of active chronic low back pain in the adult Portuguese population: results from a population based study (EpiReumaPt). (Poster Presentation)

Branco JC, Rodrigues A, Gouveia N, Pereira da Costa L, Eusébio M, Ramiro S, Machado P, Mourão AF, Silva I, Laires P, Sepriano A, Araújo F, Gonçalves S, Coelho PS, Tavares V, Cerol J, Mendes JM, Carmona L, Canhão H. Prevalence, physical and mental health patterns of rheumatic and musculoskeletal diseases in Portugal: results from EpiReumaPt, a national health survey. (Poster Presentation)

Sousa MM, Romão V, Oliveira-Ramos F, Martins F, Marques R, Mourão AF, et al. Predictors of major response to methotrexate in juvenile idiopathic arthritis. (Poster Presentation)

Mourão AF, Santos MJ, Melo Gomes JA, Martins F, Mendonça S, Ramos FO. Long-term retention and predictors of anti-TNF treatment response in Juvenile Idiopathic Arthritis: data from Reuma.pt, a nation-wide register. (Oral Presentation)

Cordeiro I, Cordeiro A, Judas T; Martins V, Loureiro M, Carmona S, Santos MJ, Canas da Silva J. Pulmonary embolism in oligosymptomatic systemic sclerosis patients. (Oral Presentation)

Cordeiro I, Cordeiro A, Santos MJ, Canas da Silva J. Nailfold capillaroscopy in suspected connective tissue disease without Raynaud's Phenomenon. (Oral Presentation)

Romão VC, Teixeira L, Victor S, Patita M, Gonçalves MJ, Meireles L, Saavedra MJ, Correia L, Canhão H, Canas da Silva J, Pereira da Silva JA, Fonseca C, Marinho RT, Velosa J, Santos MJ, Fonseca JE. Serologic profile and reactivation of hepatitis B in rheumatic and inflammatory bowel disease patients treated with biologic therapies. (Oral Presentation)

Romão VC, Saraiva F, Gonçalves MG, Polido-Pereira J, Janeiro J, Távora I, Fonseca JE, Romeu CR, Pereira da Silva JA. Linfedema do membro inferior direito secundária a bursite do psoas-íliaco em doente com artrite reumatóide estabelecida. (Poster Presentation)

Fernandes SF, Furtado C, Saavedra MJ, Vieira-Sousa E, Costa M, Polido-Pereira J, Ramos F, Macieira C, Capela S, Resende C, Barros R, Madruga-Dias J, Ponte C, Campanilho-Marques R, Castro A, Romão VC, Gonçalves MJ, Khmelinskii N, Canhão H, Romeu JC, Fonseca JE, Pereira da Silva JA. Terapêutica com imunoglobulina endovenosa (IGE) nos doentes com lúpus eritematoso sistémico (LES). (Poster Presentation)

Fernandes SF, Furtado C, Saavedra MJ, Vieira-Sousa E, Costa M, Polido-Pereira J, Ramos F, Macieira C, Capela S, Resende C, Barros R, Madruga-Dias J, Ponte C, Campanilho-Marques R, Castro A, Romão VC, Gonçalves MJ, Khmelinskii N, Canhão H, Romeu JC, Fonseca JE, Pereira da Silva JA. Terapêutica com imunoglobulina endovenosa (ige) nos doentes com miopatia inflamatória idiopática (mii). (Poster Presentation)

Fernandes SF, Etcheto A, Van der heijde D, Landewé R, Van den Bosch F, Dougados M, Moltó A. Vitamin d deficiency and disease activity/severity in spondyloarthritis: results of the asas-comospa international study. (Oral Presentation)

Castro A, Carmona-Fernandes D, Canhão H, Fonseca JE, Santos MJ. Incidence and predictors of cardiovascular events over a period of 5 years in a cohort of women with rheumatoid arthritis (Oral Presentation)

Romão VC, Oliveira Ramos F, Gonçalves MJ, Polido-Pereira J, Menezes MN, David C, Romeu JC, JA Pereira da Silva. Endocardite de Libman-Sacks da válvula mitral em doente com síndrome dos anticorpos antifosfolipídicos primária. (Poster Presentation)

Khmelinskii N, Romão VC, Martins N, Oliveira Ramos F, Macieira C, Romeu JC, Pereira da Silva JA. Rituximab no tratamento de vasculares sistémicas primeiras - descrição de três casos clínicos. (Poster Presentation)

Trigueiros F, Madaleno C, Alves D, Romão VC, Coucelo J, Pereira JG, Pedro AJ, Meneses Santos J, Victorino RMM. Crioglobulinemia mista tipo II biclonal - expressão rara de infecção pelo vírus C da hepatite. (Poster Presentation)

Moiteiro da Cruz R, Carmona-Fernandes D, Fernandes M, Castro A, Barreira S, Santos P, Nicolau-Fernandes A, Gonçalves AC, Cortes-Figueiredo F, Pedro LM, Canhão H, Fonseca JE, Santos MJ. Relationship between calcium in atherosclerotic plaques and bone mineral density – a clinical and histological perspective. (Oral Presentation)

Organisation of Conferences

JEFonseca Lab organizing a series of monthly talks “iMM Rheumatology Series “ with leading international researchers in the field of Rheumatology Fonseca JE organized 4º Simpósio SPR Imagiologia. Póvoa de Varzim, Portugal, May 14-16th, 2015.

Fonseca JE. Scientific Committee. 35th European Workshop for Rheumatology Research (EWRR), Budapest, Hungary, March 5-7th, 2015

Fonseca JE. Scientific Committee. EULAR 2015. Rome, Italy, June 10-13th, 2015

Fonseca JE. Scientific Committee. 9th European Workshop on Immune-Mediated Inflammatory Diseases, Amsterdam, The Netherlands, September 2 – 4th, 2015

Fonseca JE organized Jornadas Outono da SPR, Figueira da Foz, Portugal, October 9-10th, 2015

Internationalisation

CERRERA and TOCERRA collaboration. Coordinator: Helena Canhão. Comparative patient outcome measures study in Dutch and Portuguese rheumatoid arthritis patients – data from Meteor Project. Coordinator: Helena Canhão. iMM Rheumatology Series, in each session we promote site visit and project discussions with the international speakers. Coordinator: Fonseca JE.

Fonseca JE is member of the EULAR Scientific Committee and will be abstract chair and program chair of the following 2 European Congresses of Rheumatology.

2 post docs are working in collaborative projects involving University College London and Harvard Medical School, and being co-supervised by Fonseca JE and academics in these centres. 1 PhD student is being supervised by Fonseca JE and by a researcher from the Helsinki University.

Prizes, honours and awards

Prize for best oral communication in 4º Simpósio da Sociedade Portuguesa de Reumatologia: Imagem em Reumatologia, Póvoa de Varzim, Portugal, Maio 2015. Long-term retention and predictors of anti-TNF treatment response in juvenile idiopathic arthritis: data from Reuma.pt, a nation-wide register. to Mourão AF, M. J. Santos, J. A. Melo Gomes, F. Martins, S. Mendonça, F. O. Ramos, et al.

Honourable Mention for Poster Presentation, IV Simpósio SPR - Imagem em Reumatologia, Póvoa de Varzim, Portugal, May 2015. Serologic profile and reactivation of hepatitis B in rheumatic and inflammatory bowel disease patients treated with biologic therapies. to Romão VC, Teixeira L, Victor S, Patita M, Gonçalves MJ, Meireles L, Saavedra MJ, Correia L, Canhão H, Canas da Silva J, Pereira da Silva JA, Fonseca C, Marinho RT, Velosa J, Santos MJ, Fonseca JE.

Honourable Mention for Clinical Case, IV Simpósio SPR - Imagem em Reumatologia, Póvoa de

Varzim, Portugal, May 2015. Linfedema do membro inferior direito secundária a bursite do psoas-íliaco em doente com artrite reumatóide estabelecida. to Romão VC, Saraiva F, Gonçalves MG, Polido-Pereira J, Janeiro J, Távora I, Fonseca JE, Romeu CR, Pereira da Silva JA.

2nd best poster award at the II Jornadas do Internato Médico, Centro Hospitalar Lisboa Norte, Lisbon Academic Medical Centre, Lisbon, Portugal, 6-8th November 2015. Serologic profile and reactivation of hepatitis B in rheumatic and inflammatory bowel disease patients treated with biologic therapies. to Romão VC, Teixeira L, Victor S, Patita M, Gonçalves MJ, Meireles L, Saavedra MJ, Correia L, Canhão H, Canas da Silva J, Pereira da Silva JA, Fonseca C, Marinho RT, Velosa J, Santos MJ, Fonseca JE.

Prize Bolsas Gulbenkian/FMUL de Investigação with the project “Relação entre Cálcio em Placas de Ateroma e a Densidade Mineral Óssea - Uma Perspectiva Clínica e Histológica”

Advanced teaching

Fonseca JE. Understanding the early effects of inflammation on bone: translational research towards personalized medicine Fonseca JE. Inflammasome: how does it fit in chronic arthritis? Lisbon Biomed PhD Programme. Lisbon, Portugal, January, 2015

Fonseca JE. Doenças reumáticas imunomediadas Pós graduação Universidade Católica. Lisboa, Portugal, December 11th, 2015

Perpetuo IP. Effect of TNF blocking therapy on osteoclasts from ankylosing spondylitis patients. Carmona-Fernandes D. The inflammatory and bone remodeling pathways – the link between bones and vessels Vidal B. How early inflammatory events affect bone nanoproperties at rheumatoid arthritis onset Romão VC, Canhão H, Graça L, Pitzalis C, Fonseca JE. Synovial pathobiology and patient stratification in Rheumatoid Arthritis (SynPathRA). IX IMM/CAML PhD Meeting, Lisbon, Portugal, March 26-27th, 2015

Science and society

João Eurico Fonseca and Helena Canhão participated, in several TV programs and radio programs to talk about rheumatic diseases, clinical trials and translational research.

Msc thesis completed

Inês Lopes 17/12/2015 Evaluation of a new compound for the treatment of arthritis in the AIA rat model Faculdade de Ciências da Universidade de Lisboa Rita Cascão

António Nicolau Fernandes 25/05/2015 Osteoprotegerin, rankl and bone mineral density in patients with advanced carotid atherosclerosis Faculdade de Medicina da Universidade de Lisboa Maria José Santos Diana Carmona-Fernandes

Ana Carolina Amaro Gonçalves 25/05/2015 Estatinas e densidade mineral óssea Faculdade de Medicina da Universidade de Lisboa Maria José Santos Diana Carmona-Fernandes

Filipe Cortes Figueiredo 22/06/2015 Adiponectin gene expression in established atherosclerosis: what relationship to bone mineral density? Faculdade de Medicina da Universidade de Lisboa Maria José Santos Diana Carmona-Fernandes

Natacha Leonardo 19/10/2015 The role of inflammation in the coupling of atherosclerosis and osteoporosis Faculdade de Ciências da Universidade de Lisboa Maria José Santos Diana Carmona-Fernandes

Renata Casimiro 19/10/2015 Coupling of atherosclerosis progression and bone disturbances in a mouse model Faculdade de Ciências da Universidade de Lisboa Maria José Santos Diana Carmona-Fernandes

Franco, Cláudio A.

Major Interests / Objectives

The Vascular Morphogenesis Lab has the aim to understand the molecular mechanisms regulating coordinated endothelial cell behaviour during sprouting and remodelling phases of the angiogenic process.

Improving the knowledge on the molecular regulation of vascular morphogenesis will certainly create new possibilities for medical prevention and treatment of various human conditions.

We want to:

- Finding novel regulators of endothelial cell migration in sprouting angiogenesis
- Molecular regulation of endothelial cell axial polarity
- Effects of haemodynamic forces in vascular patterning
- Novel anti-angiogenic therapies blocking tumour angiogenesis

Head of Laboratory

Claudio Areias Franco, PhD

Research Team

Aida Andreia Pereira Pires Lima	Master	MSc Student
Ana Alexandra Baptista Martins Moutinho Russo	Graduate	MSc Student, (started September)
Ana Cláudia Bernardino Raposo Alves	Master	Lab Manager, (left April)
Catarina Gonçalves Fonseca	Master	Technician
Felícia Margarida Correia Fonseca Lopes	Graduate	MSc Student
Joana Cristina Reino Carvalho	Master	PhD Student
Pedro Miguel Branco Barbacena	Master	PhD Student

Keywords / Research Areas

Angiogenesis, cell migration, tumour angiogenesis, endothelial cells, vascular patterning

Major scientific achievements

In 2015, the Vascular Morphogenesis Lab published 2 research papers at PLoS Biology and Nature Communications, one has first-author. One student concluded successfully (19/20) a master degree. Notably, the Principal Investigator was the recipient of the European Research Council Starting Grant. Principal Investigator has also participated as speaker in 3 different PhD programs.

Selected Publications

Franco CA, Jones ML, Bernabeu MO, Geudens I, Mathivet T, Rosa A, Lopes FM, Lima AP, Ragab A, Collins RT, Phng LK, Coveney PV, Gerhardt H. (2015) Dynamic endothelial cell rearrangements drive developmental vessel regression. *PLoS Biology* 13(5) e1002163. doi: 10.1371/journal.pbio.1002163 (Journal IF: 9.34, Citations: 10)

Aspalter IM, Gordon E, Dubrac A, Ragab A, Narloch J, Vizán P, Geudens I, Collins RT, Franco CA, Abrahams CL, Thurston G, Fruttiger M, Rosewell I, Eichmann A, Gerhardt H. (2015) Alk1 and Alk5 inhibition by Nrp1 controls vascular sprouting downstream of Notch. *Nature Communications* 17; 6: 7264 (Journal IF: 11.47, Citations: 8)

Bentley K, Franco CA, Philippides A, Blanco R, Dierkes M, Gebala V, Stanchi F, Jones J, Cagna G, Kutschera S, Claesson-Welsh L, Vestweber D, Gerhardt H. *Nat Cell Biol.* 2014 Apr;16(4):309-21. doi: 10.1038/ncb2926. (2014) The role of differential VE-cadherin dynamics in cell rearrangement during angiogenesis. *Nature Cell Biology* 16, 309-21. (Journal IF: 20, Citations: 54)

Bernabeu MO, Jones M, Nielsen JH, Kruger T, Nash RW, Groen D, Hetherington J, Gerhardt H, Franco CA, Coveney PV (2014) Computer simulations reveal complex distribution of haemodynamic forces in a mouse retina model of angiogenesis. *J R Soc Interface* 11, <http://rsif.royalsocietypublishing.org/content/11/99/20140543.long>. (Journal IF: 3.856, Citations: 5)

Ongoing Research Projects

2015/2015 Breakthrough Idea Grant 2015. Coordinator: Claudio Areias Franco. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BIG 2015 CFranco. Amount: € 50000.00. Amount (total): € 20000.00.

2013/2018 Exploratório - IFCT. Coordinator: Claudio Areias Franco. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: Exploratório Cláudio Franco. Amount: € 50000.00. Amount (total): € 50000.00.

2014/2015 Decrypting SRF/MRTF-regulated transcriptome in endothelial tip cells. Coordinator:

Claudio Areias Franco. Agency: Fundação para a Ciência e a Tecnologia, IP.
Reference: EXPL/BEX-BCM/2258/2013. Amount: € 48488.28. Amount (total): € 48488.00.

Original publications in peer review Journals

Franco CA, Jones ML, Bernabeu MO, Geudens I, Mathivet T, Rosa A, Lopes FM, Lima AP, Ragab A, Collins RT, Phng LK, Coveney PV, Gerhardt H. (2015) Dynamic endothelial cell rearrangements drive developmental vessel regression. *PLoS Biology* 13(5) e1002163. doi: 10.1371/journal.pbio.1002163 (Journal IF: 9.34, Citations: 10)

Aspalter IM, Gordon E, Dubrac A, Ragab A, Narloch J, Vizán P, Geudens I, Collins RT, Franco CA, Abrahams CL, Thurston G, Fruttiger M, Rosewell I, Eichmann A, Gerhardt H. (2015) Alk1 and Alk5 inhibition by Nrp1 controls vascular sprouting downstream of Notch. *Nature Communications* 17; 6: 7264 (Journal IF: 11.47, Citations: 8)

Invited lectures and seminars

Franco CA, Endothelial cell dynamics in Vascular Remodelling. MDC, Berlin, Germany, October 2015.

Franco CA, Endothelial cell dynamics in Angiogenesis. CNC, Coimbra, Portugal, September 2015.

Franco CA, Going against the flow: endothelial cell migration in vascular remodelling. Mini-Symposium in Ocular vessel disease, IMM, Lisboa, Portugal, August 2015.

Franco CA, Going against the flow: endothelial cell migration in vascular remodelling. MPI-Muenster, Muenster, Germany, July 2015.

Franco CA, Angiogenesis and Neo-Angiogenesis in health and disease. IBILI, Coimbra, Portugal, March 2015.

Franco CA, Principles of polarity-driven vascular patterning. DIA Meeting, IGC, Oeiras, Portugal, February 2015.

Advanced teaching

Franco CA, Regulating cell behaviour in vascular morphogenesis. IMM PhD Program, Lisboa, Portugal, January 2015.

Franco CA, Regulating cell behaviour in vascular morphogenesis. IGC PhD Program, IGC, Oeiras, Portugal, February 2015.

Msc thesis completed

Aida Andreia Pereira Pires Lima 24/11/2015 Decrypting SRF/MRTF-regulated transcriptome in endothelial tip cells. Universidade Nova de Lisboa Claudio Areias Franco

Major Interests / Objectives

Connecting the nucleus to the cytoskeleton is relevant for multiple cellular processes and disruption of these connections result in multiple pathologies. Nuclear positioning within cell cytoplasm requires the connection between the nucleus and the cytoskeleton. We are interested in understanding the processes involved in these connections and the role for nuclear positioning in cell function. We study cell migration and skeletal myofiber formation which involves the connection between the nucleus and the cytoskeleton and precise nuclear positioning. We use different molecular and cellular approaches in combination with time-lapse imaging analysis to address these questions.

Head of Laboratory

Edgar Rodrigues Almeida Gomes, PhD

Research Team

Cátia Alexandra da Silva Janota	Master	Investigator
Cátia Alexandra Rebelo de Almeida	Undergraduate	Investigator, (started September)
João Pedro Nunes Paulo da Silva Martins	Graduate	MSc Student, (started August)
Mafalda Ramos de Melo Pimentel	Master	PhD Student
Maria Judite Sousa Costa	PhD	Post doctoral Investigator
Patrícia Alexandra Brito da Costa	PhD	Post doctoral Investigator, (started September)
Telma Cristina Lourenço Carrilho	Master	Technician
Vânia Raquel Gomes Glória	Master	PhD Student, (left November)
William Roman	Master	PhD Student, (started February)

Keywords / Research Areas

Skeletal Muscle, Cell Biology, Cytoskeleton, Cell Migration

Major scientific achievements

Coordinator of « Towards outstanding research and training in tumour biology at IMM - H2020-TWINN-2015 » Consortium between IMM, Curie Institut (France) and DFKZ (Germany). Total of € 999,975.

Member of the Scientific Advisory Board of the Journal of Cell Science

Publications:

D'Alessandro, M., Hnia, K., Gache, V., Koch, C., Gavriilidis, C., Rodriguez, D., Nicot, A.-S., Romero, N.B., Schwab, Y., Gomes, E.R., Labouesse, M., Laporte, J. (2015). Amphiphysin 2 Orchestrates Nucleus Positioning and Shape by Linking the Nuclear Envelope to the Actin and Microtubule Cytoskeleton. *Developmental Cell* **35**, 186–198.

Selected Publications

D'Alessandro, M., Hnia, K., Gache, V., Koch, C., Gavriilidis, C., Rodriguez, D., Nicot, A.-S., Romero, N.B., Schwab, Y., Gomes, E.R., Labouesse, M., Laporte, J. (2015) Amphiphysin 2 Orchestrates Nucleus Positioning and Shape by Linking the Nuclear Envelope to the Actin and Microtubule Cytoskeleton. *Developmental Cell* **35**, 186. (Journal IF: 9.7, Citations: 2)

Sestina Falcone, William Roman, Karim Hnia, Vincent Gache, Nathalie Didier, Jeanne Lainé, Frederic Aurade, Isabelle Marty, Ichizo Nishino, Nicolas Charlet-Berguerand, Norma Romero, Giovanna Marazzi, David Sassoon, Jocelyn Laporte, Edgar R. Gomes. 6, 1455–1475 (2014) (2014) N-WASP is required for Amphiphysin-2/BIN1 dependent nuclear positioning and triad organization in skeletal muscle and is involved in the pathophysiology of centronuclear myopathy. *EMBO Mol Med* **6**, 1455. (Journal IF: 8.245, Citations: 1)

Cadot, B., Gache, V., and Gomes, E.R. (2014) Fast, Multi-Dimensional and Simultaneous Kymograph-Like Particle Dynamics (SkyPad) Analysis. *PLoS One* **19**, **9** (2) (Journal IF: 3.5, Citations: 0)

Metzger, T., Gache, V., Xu, M., Cadot, B., Folker, E., Richardson, B., Gomes, E.R.*, Baylies, M.K.*. (2012) MAP and Kinesin dependent nuclear positioning is required for skeletal muscle function. *Nature* **484**, 120. (Journal IF: 41.45, Citations: 52) *co-corresponding authors.

Luxton GW*, Gomes ER*, Folker ES, Vintinner E, Gundersen GG. (2010) Linear arrays of nuclear envelope proteins harness retrograde actin flow for nuclear movement. *Science* **329**, 5994. (Journal IF: 32.4, Citations: 140)

Ongoing Research Projects

2014/2019 Exploratório - IFCT. Coordinator: Edgar Rodrigues Almeida Gomes. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: Exploratório Edgar Gomes. Amount: € 50000.00. Amount (total): € 50000.00.

2014/2017 EMBO Installation Grant. Coordinator: Edgar Rodrigues Almeida Gomes. Agency: EMBO. Reference: EMBO Installation Grant - Edgar Gomes. Amount: € 150000.00. Amount (total): € 150000.00.

2014/2019 Positioning the nucleus for cell migration and muscle fiber function - GA617676 - ERC . Coordinator: Edgar Rodrigues Almeida Gomes. Agency: Comissão Europeia. Reference: ERC - PhONICs. Amount: € 1968000.00. Amount (total): € 1968000.00.

Original publications in peer review Journals

D'Alessandro, M., Hnia, K., Gache, V., Koch, C., Gavriilidis, C., Rodriguez, D., Nicot, A.-S., Romero, N.B., Schwab, Y., Gomes, E.R., Labouesse, M., Laporte, J. (2015) Amphiphysin 2 Orchestrates Nucleus Positioning and Shape by Linking the Nuclear Envelope to the Actin and Microtubule Cytoskeleton. *Developmental Cell* **35**, 186. (Journal IF: 9.7, Citations: 2)

Invited lectures and seminars

Cambridge Institute for Medical Research, UK, Invited by: Gillian Griffiths

Weizmann Institut, Israel, Invited by: Maya Schuldiner

Pasteur Institut, France, Invited by: Quiara Zurzolo

Communications in International Conferences

Muscle: Excitation/Contraction Coupling Gordon Research Conference, June 2015, ME USA

Internationalisation

Different members of the group attend to international meetings such as the American Society for Cell Biology meeting (San Diego, CA, USA), EMBO Conference on RNA localization and local translation (Greece) or Muscle: Excitation/Contraction Coupling Gordon Research Conference (ME, USA). We also have collaborations with multiple groups in France, Germany, England, USA and Singapore, involving staff exchanges. The group leader is Reviewer for Science, Nature Cell Biology, Developmental Cell, Nature Reviews Molecular Cell Biology, Nature Communications, Current Biology, Journal of Cell Biology, Molecular Biology of the Cell, Journal

of Cell Science, Integrity Biology, and Journal of Neurosciences. The group leader is grant reviewer for the Wellcome Trust (UK), AFM - Association Française contre les Myopathies (France), Muscular Dystrophy Campaign (UK), Croatian Science Foundation, Research Foundation – Flanders (Belgium), GIF (German-Israeli Foundation for Scientific Research and Development).

Prizes, honours and awards

Member of the Scientific Advisory Board of the Journal of Cell Science

Advanced teaching

2015 Quantitative Fluorescence Microscopy Course, Coimbra, Portugal

2015 LisbonBioMed PhD Development and Cell biology course

Graça, Luis

Major Interests / Objectives

Our Lab studies mechanisms underlying induction and maintenance of immune tolerance. In other words, we research methods to reprogramme the immune response in situations where the immune system is causing a disease, such as allergy, autoimmunity and transplant rejection.

In addition we are interested in defining the functional properties of lymphocytes that can promote immune tolerance by suppressing pathogenic immune responses. We have been studying how different types of lymphocytes with regulatory function can be induced in the periphery.

We believe that in the foreseeable future antibody therapy, as well as other strategies to modulate the immune system, will have an important repercussion in the quality of life of people suffering from immune mediated diseases.

Head of Laboratory

Luis Graca, MD/PhD, Associate Professor

Research Team

Ana Água-Doce	PhD	Post doctoral Investigator
Ana Isabel Neves de Matos	Master	Investigator, (started September)
Ana Raquel Maceiras Oliveira	Master	PhD Student
Carina Sofia Gonçalves Peres	Master	PhD Student, (started September)
Marta Sofia Ferreira Monteiro Coelho Antunes	PhD	Post doctoral Investigator, (left August)
Patrícia Isabel Figueiredo Campos	Graduate	MSc Student, (started July)
Raquel Filipa Reis de Freitas	Master	PhD Student

Ruy Miguel Sousa Soeiro de Figueiredo Ribeiro	PhD	Senior Investigator
Sara Mulenas Sá de Matos	Master	Lab Manager
Sílvia Cristina de Paiva e Almeida	PhD	Post doctoral Investigator
Válter Bruno Ribeiro Fonseca	Master	PhD Student, CHLN - Hospital de Santa Maria, Physician, Faculdade Medicina da Universidade de Lisboa, Teaching Assistant
Vanessa Alexandra Gonçalves de Oliveira Martins	PhD	Post doctoral Investigator

Keywords / Research Areas

Immune tolerance, Regulatory T cell subsets, T follicular helper (Tfh) cells, Allergy, Autoimmunity, Transplantation

Major scientific achievements

We found Tfh and Tfr cells in the same germinal centre differ in their TCR usage: Tfh cells are specific to the immunizing antigen, and Tfr cells retain TCR specificity similar to Tregs. These results suggest Tfh cells select high-affinity BCRs during affinity maturation, while Tfrs prevent autoimmunity.

We established adoptive transfer of Foxp3+ iNKT cells, due to CXCR6-mediated preferential hepatic homing, leads to liver-specific immune suppression allowing long-term survival of allogeneic islet transplants delivered through intra-portal route in mice.

Our studies on tolerance induction to foreign proteins, such as factor VIII in hemophilic mice, have shown induction of immune tolerance following CD4-blockade can be mediated by a Foxp3-independent mechanism that relies on IL-10 that can facilitate transplantation tolerance.

Finally we have started a number of clinical studies regarding the impact of Tfh subsets in antibody-mediated human diseases.

Selected Publications

Oliveira VG, Agua-Doce A, Curotto de Lafaille MA, Lafaille JJ, Graca L. (2013) Adjuvant facilitates tolerance induction to factor VIII in hemophilic mice through a Foxp3-independent mechanism that relies on IL-10. *Blood* **121**, 3936. (Journal IF: 9.775, Citations: 9)

Monteiro M, Almeida CF, Agua-Doce A, Graca L. (2013) Induced IL-17-producing invariant NKT cells require activation in presence of TGF- β and IL-1 β . *J Immunol.* **190**, 805. (Journal IF: 5.362, Citations: 29)

Oliveira VG, Caridade M, Paiva RS, Demengeot J, Graca L. (2011) Sub-optimal CD4⁺ T-cell activation triggers autonomous TGF- β -dependent conversion to Foxp3⁺ regulatory T cells. *Eur J Immunol.* **41**, 1249. (Journal IF: 4.518, Citations: 34)

Wollenberg I, Agua-Doce A, Hernández A, Almeida C, Oliveira VG, Faro J, Graca L. (2011) Regulation of the germinal center reaction by Foxp3⁺ follicular regulatory T cells. *J Immunol.* **187**, 4553. (Journal IF: 5.362, Citations: 145)

Monteiro M, Almeida CF, Caridade M, Ribot JC, Duarte J, Agua-Doce A, Wollenberg I, Silva-Santos B, Graca L. (2010) Identification of Regulatory Foxp3⁺ Invariant NKT Cells Induced by TGF- β . *J Immunol.* **185**, 2157. (Journal IF: 5.362, Citations: 76)

Ongoing Research Projects

2015/2018 Perfil de transcrição genética de células T foliculares (Tfh) e mudança isotípica de células B induzida por adjuvantes do tipo 1 ou tipo 2. Coordinator: Luis Graca. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: FAPESP/19906/2014. Amount: € 200000.00. Amount (total): € 200000.00.

2011/2015. Coordinator: Luis Graca. Agency: PRIV-NAC. Reference: Acellera. Amount: € 25000.00. Amount (total): € 25000.00.

2015/2019 European Network linking informatics and genomics of helper T cells. Coordinator: Luis Graca. Agency: Comissão Europeia. Reference: ENLIGHT-TEN. Amount: € 433512.72. Amount (total): € 3354685.20.

2015/2017 Targeting Germinal Centre Dysregulation in Allergy. Coordinator: Luis Graca. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: HMSP-ICT/0034/2013 . Amount: € 180672.00. Amount (total): € 300000.00.

2015/2018 Immune modulatory activity of CD6-targeting monoclonal antibodies. Coordinator: Luis Graca. Agency: Center of Molecular Immunology. Reference: CUBA - CD6. Amount: € 43700.00. Amount (total): € 0.00.

2014/2016 ECBIO II. Coordinator: Luis Graca. Agency: ECBio, S.A.. Reference: ECBIO II. Amount: € 15000.00. Amount (total): € 15000.00.

2015/2018 Estratégia multidisciplinar para o desenvolvimento de um nanosistema múltiplo para modulação de resposta imunológica. Coordinator: Luis Graca. Agency: Fundação para a Ciência e a Tecnologia, IP. Coordinator Institution: 0. Reference: UTAP-ICDT/DTP-FTO/0016/2014. Amount: € 27000.00. Amount (total): € 189274.00.

Original publications in peer review Journals

Monteiro M, Agua-Doce A, Almeida CF, Fonseca-Pereira D, Veiga-Fernandes H, Graca L (2015) IL-9 expression by invariante NKT cells is not imprinted during thymic development. *J Immunol.* 195(7):3463-3471. (Journal IF: 5.745, Citations: 0)

Barcia RN, Santos JM, Filipe M, Teixeira M, Martins JP, Almeida J, Agua-Doce A, Almeida SCP, Varela A, Pohl S, Dittmar KEJ, Calado S, Simões SI, Gaspar MM, Cruz MEM, Lindenmaier W, Graca L, Cruz H, Cruz PE. (2015) What makes umbilical cord tissue-derived mesenchymal stromal cells superior immunomodulators when compared to bone marrow derived mesenchymal stromal cells? *Stem Cells Int.* 2015:**583984**. (Journal IF: 2.81, Citations: 2)

Silva JM, Zupancic E, Vandermeulen G, Oliveira VG, Salgado A, Videira M, Gaspar M, Graca L, Pr at V, Florindo HF. (2015) In vivo delivery of peptides and Toll-like receptor ligands by mannose-functionalized polymeric nanoparticles induces prophylactic and therapeutic anti-tumor immune responses in a melanoma model. *J Control Release.* **198**:91-103. (Journal IF: 7.261, Citations: 10)

Other publications International

Graca L (2015) Transplantation tolerance: context matters. *Eur J Immunol.* 45(7):1921-1925. (Journal IF: 4.52, Citations: 0).

Maceiras R, Graca L (2015) Identification of Foxp3+ T follicular regulatory (Tfr) cells by flow cytometry. *Methods Mol Biol.* 1291:143-150. (Journal IF: 1.29, Citations: 2).

Invited lectures and seminars

Graca, L. T follicular regulatory cells. European Midwinter Workshop 2015, Angerer Alm, Austria, January 14-16 2015.

Graca, L. Imunopatologia da psoríase. Dermatology Department, Hospital de Santa Maria,

Lisboa, Portugal, March 12 2015.

Graca, L. Making and breaking immune tolerance. Morphosis, Munich, Germany, April 10 2015.

Graca, L. Multiple regulatory pathways leading to immune tolerance. Institut für Virologie und Immunbiologie, Würzburg, Germany, April 10 2015.

Graca, L. Immune checkpoint blockade. 2º Congresso Luso-Brasileiro de Oncologia, Centro Cultural de Belém, Lisboa, Portugal, May 14 2015.

Graca, L. Immune oncology: back to basics. AEOP, Leiria, Portugal, May 22 2015.

Graca, L. Introduction to cancer immunology: Immune checkpoint blockade. Associação Portuguesa de Farmácia Hospitalar, Batalha, Portugal, May 29 2015.

Graca, L. Heterogeneity in Foxp3 regulatory T cells. Zing Conference, Oropesa, Spain, September 30 – October 3 2015.

Graca, L. Imuno-oncologia princípios básicos. Congresso do Cancro do Pulmão, Monte Real, Portugal, October 17 2015.

Graca, L. Making and breaking immune tolerance. Universidade de São Paulo, São Paulo, Brazil, November 3 2015.

Graca, L. Como prevenir uma doença imunomediada?. ANDAR, Fundação Calouste Gulbenkian, Lisboa, Portugal, November 17 2015.

Graca, L. Imunopatologia da esclerose múltipla. Faculdade de Farmácia da Universidade de Lisboa, Lisboa, Portugal, November 19 2015.

Communications in International Conferences

Freitas R, Água-Doce A, Leon K, Graca L. Anti-inflammatory effect of CD6 blockade. 4th European Congress of Immunology, Vienna, Austria. September 6-9 2015 (Poster Presentation)

Communications in National Conferences

Maceiras A.R., Graca L. Antigen immunization originates Tfh and Tfr populations with different TCR repertoire. Lisbon Immunity & Infection Meeting (LIIM), Lisbon, Portugal, October 16, 2015 (Oral Presentation)

Fonseca VR, Água-Doce A, Graça L. A subset of circulating human FoxP3+ Treg cells with follicular phenotype. Lisbon Immunology & Infection Meeting (LIIM), Lisbon, Portugal, October 16, 2015 (Poster Presentation)

Internationalisation

During 2015 our group has been involved in several international projects.

We have been leading a collaborative project involving the laboratories of Arlene Sharpe and Laurence Turka (Harvard), Jocelyne Demengeot (IGC), and Ana E. Sousa (iMM). The project is devoted to the study of Tfh subsets in allergic diseases.

We have started a collaboration with a leading expert on adjuvants, Momtchilo Russo, from the University of São Paulo in Brasil. In this project our groups join resources to investigate how adjuvants influence Tfh subsets during the course of humoral responses.

We have also started a collaborative project with the group of Kalet Leon (Center of Molecular Immunology, Havana, Cuba) for the study of immunomodulatory role of several molecular products.

Finally, we participate in a Marie Curie initial training network (Enlight-ten) that brings together experts in bioinformatics and immunology across Europe. The recruitment of PhD students was already initiated in 2015.

Prizes, honours and awards

Travel Grant from Sociedade Portuguesa de Imunologia to Raquel Freitas.

Industry contract research

Contract research for ECBio.

Advanced teaching

Luís Graça:

Lisbon BioMed PhD Programme, organization of the immunology module, February 2015

Gabba PhD Programme, IBMC, Porto, Portugal, March 2015

PhD Program FFUL 29 Apr 2015

Marta Monteiro:

Gabba PhD Programme, IBMC, Porto, Portugal, March 2015

Science and society

Graca L, Almeida SCP. Collaboration with visual artista Marta de Menezes leading to the development of an artwork, “Immortality for Two”, exhibited in Ljubljana, Slovenia, January 2015.

Graca L. BioArt as seen from a research laboratory. Athens School of Fine Arts, Athens, Greece, April 23 2015.

Graca L. Biology and/or art. Technological Educational Institute of Athens, Athens, Greece, April 24 2015.

Graca L. The intersection of art and biology, summer school (co-organizer), Cultivamos Cultura, Odemira, Portugal, July 2015.

Fonseca VR. Oportunidades de investigação. Lecture at IV Dia da Investigação do GAPIC, Faculdade de Medicina, Universidade de Lisboa, Lisboa, Portugal, December 16 2015.

Henrique, Domingos

Major Interests / Objectives

Research in our laboratory has been focused on understanding how cells decide which differentiation paths they follow during embryonic development to generate tissues and organs. Our aim is to elucidate the gene regulatory networks that control cell-fate decision processes in the embryo, using 2 experimental models: i) embryonic stem cells to study the mechanisms underlying their pluripotent state, and ii) neural retina to investigate how neural progenitors generate the variety of neurons that compose the adult eye. The main goal is to understand the molecular mechanisms governing decision processes that stem/progenitor cells employ to differentiate along various fates, thereby generating correctly patterned tissues and organs.

Head of Laboratory

Domingos Manuel Pinto Henrique, PhD

Research Team

Alexandra Isabel Freitas Rosa	PhD	Post doctoral Investigator, (left March)
Ana Marisa Mendes Gonçalves Vinhais Guedes	Master	PhD Student
Ana Rita Ponce Álvares de Águeda Pedrosa	Master	PhD Student
Ana Sofia Temudo Duarte António	Master	PhD Student
Andreia Sofia Faria Pereira	Graduate	MSc Student
Cláudia Sofia Cardoso Gaspar	PhD	Post doctoral Investigator
Dusan Djokovic	MD/PhD	Post doctoral Investigator, MD
Elsa Margarida Cavaco Abranches	PhD	Post doctoral Investigator, (left November)
João Manuel Coelho Carreira	Master	PhD Student, (started August)
Jorge Miguel Faustino Martins	Graduate	MSc Student, (started September)

Sanja Ivkovic	PhD	Post doctoral Investigator, (left January)
Sara Sofia Gasalho Ferreira	Graduate	Technician

Keywords / Research Areas

Stem cells, Notch signalling, Pluripotency, neurogenesis, Gene regulatory Networks, Systems Biology

Major scientific achievements

In 2015, activities in our laboratory included:

- publication of 6 papers in international scientific journals
- organization of the first joint meeting of the portuguese, british and spanish societies for Developmental Biology, at Algarve (180 participants)
- conclusion of 2 PhD thesis (Ana Sofia Duarte and Ana Guedes)
- conclusion of 1 MsC thesis (Andreia Pereira)
- organization of a 8-week course for the LisbonBioMed international PhD Program at iMM.
- organization of a 2-week course on Stem Cell Biology for the international PhD Program in Bioengineering – Cell Therapies and Regenerative Medicine
- a joint lab retreat with Ana Pombo's laboratory (Epigenetic regulation and chromatin architecture Lab, Max-Delbrück-Centrum für Molekulare Medizin, Berlin) at the Gulbenkian Foundation, Lisbon.
- Organization of the "Chalk Talk Seminar series" at iMM.

Selected Publications

Rocha, S.F, Lopes, S.S., Gossler, A. and Henrique, D. (2009) Dll1 and Dll4 function sequentially in the retina and pV2 domain of the spinal cord to regulate neurogenesis and create cell diversity. *Developmental Biology*, **328**, 54, (Journal IF: 4,407, Citations: 22)

Abranches, E., Bekman, E., Henrique, D. (2013) Generation and characterization of a novel mouse embryonic stem cell line with a dynamic reporter of Nanog expression. *PlosOne*, **8**, e59928. (Journal IF: 3,534, Citations: 9)

Abranches, E., Silva, M., Pradier, L., Schulz, H., Hummel, O., Henrique, D., Bekman, E. (2009) Neural Differentiation of Embryonic Stem Cells in vitro: a Road Map to Neurogenesis in the Embryo. *PlosOne*, **4(7)**: e6286. (Journal IF: 3,534, Citations: 35)

Vilas-Boas, F., Fior, R., Swedlow, J.D., Storey, K.G., Henrique, D. (2011) A novel Reporter of Notch Signalling indicates regulated and random Notch Activation during Vertebrate Neurogenesis. *BMC Biology* **9**, 58. (Journal IF: 5,841, Citations: 14)

Abranches, E., Bekman, E., Henrique, D. (2013) Generation and characterization of a novel mouse embryonic stem cell line with a dynamic reporter of Nanog expression. *PlosOne*, **8**, e59928, (Journal IF: 3,534, Citations: 9)

Ongoing Research Projects

2012/2015. Coordinator: Domingos Manuel Pinto Henrique. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/SAU-BID/121846/2010. Amount: € 139755.00. Amount (total): € 139755.00.

2015/2016 Bridge Grant 2015. Coordinator: Domingos Manuel Pinto Henrique. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BridgeGrant2015 DHenrique. Amount: € 15000.00. Amount (total): € 0.00.

Original publications in peer review Journals

Fernandes TG, Duarte ST, Ghazvini M, Gaspar C, Santos DC, Porteira AR, Rodrigues GM, Haupt S, Rombo DM, Armstrong J, Sebastião AM, Gribnau J, Garcia-Cazorla À, Brüstle O, Henrique D, Cabral JM, Diogo MM. (2015) Neural commitment of human pluripotent stem cells under defined conditions recapitulates neural development and generates patient-specific neural cells. *Biotechnol J*. **10**:1578-88. (Journal IF: 3.49 Citations: 1)

Henrique D, Abranches E, Verrier L, Storey KG. (2015) Neuromesodermal progenitors and the making of the spinal cord. *Development*. **142(17)**:2864-75. (Journal IF: 6.46 Citations: 1)

Nair G, Abranches E, Guedes AM, Henrique D, Raj A. (2015) Heterogeneous lineage marker expression in naive embryonic stem cells is mostly due to spontaneous differentiation. *Sci Rep*. **5**:13339. (Journal IF: 5.578 Citations: 1)

Costa A, Sanchez-Guardado L, Juniat S, Gale JE, Daudet N, Henrique D. (2015) Generation of sensory hair cells by genetic programming with a combination of transcription factors. *Development*. **142(11)**:1948-59. (Journal IF: 6.46 Citations: 0)

Preuße K, Tveriakhina L, Schuster-Gossler K, Gaspar C, Rosa AI, Henrique D, Gossler A, Stauber M. (2015) Context-Dependent Functional Divergence of the Notch Ligands DLL1 and DLL4 In Vivo. *PLoS Genet*. **11(6)**:e1005328. (Journal IF: 7.53 Citations: 0)

Other publications International

Costa A, Henrique D. (2015) Transcriptome profiling of induced hair cells (iHCs) generated by combined expression of Gfi1, Pou4f3 and Atoh1 during embryonic stem cell differentiation. *Genom Data*. 2015 Aug 18;6:77-80 (Journal IF: 0,111 Citations: 0)

Communications in International Conferences

Guedes, AMV; Abranches, E; Henrique, D. Analysis of the dynamic properties of the pluripotency network in mouse Embryonic Stem Cells, EMBO Symposia on Cellular Heterogeneity: Role of Variability and Noise in Biological Decision-Making, EMBL Heidelberg, Germany, April 15-18 – (Oral Presentation)

Guedes, AMV; Abranches, E; Ferreira, S, Henrique, D Analysis of the dynamic properties of the pluripotency network in mouse Embryonic Stem Cells, SPBD/BSDB/SEBD Joint Meeting, Algarve, October 7-10th, 2015. (Poster Presentation)

Organisation of Conferences

Henrique D; Gaspar C- Organizers of the First joint meeting of the portuguese, british and spanish societies for Developmental Biology, at Algarve, October 2015.

Internationalisation

Our lab has established productive collaborations with the following international groups:

- Arjun Raj, Penn University, Dept Engineering, Philadelphia, USA.
- Achim Gossler, Institut für Molekularbiologie, Medizinische Hochschule Hannover, Hannover, Germany
- Kate Storey, Division of Cell & Developmental Biology, College of Life Sciences, University of Dundee, UK.
- Nicolas Daudet and Jonathan Gale's laboratories, UCL Ear Institute, London, UK
- Ana Pombo, Max-Delbrück-Centrum für Molekulare Medizin, Berlin, Germany
- Nacho Molina, University of Edinburgh, UK

Domingos Henrique is an editor of PlosONE, and has reviewed scientific papers for various international journals.

Domingos Henrique has reviewed scientific grants for Horizon2020 and ERA-Net Neuron (European Union), Wellcome Foundation, MRC and BBSRC (UK), Fundação Ciência e Tecnologia (Portugal).

Advanced teaching

Domingos Henrique is Director of the LisbonBioMed PhD program, at iMM/FMUL.
Co-organized 8-week Course "Towards a Creative and Critical Mind", January/February 2015.
Domingos Henrique is also member of scientific board of the PhD Program Bioengineering - Cell Therapies and Regenerative Medicine, coordinated by IST and with participation of iMM.
Co-organized a 2-week Course on Stem Cell Biology (February 2014).

PhD thesis completed

Ana Sofia Temudo Duarte 02/11/2015 Synaptic Dysfunction In Early Encephalopathies: From Genes to Function Faculdade de Medicina da Universidade de Lisboa Domingos Henrique Ana Sebastião, Angels Garcia Cazorla

Msc thesis completed

Andreia Sofia Faria Pereira 13/11/2015 Dissecting lineage priming in mouse embryonic stem cells Mestrado em Biologia Molecular e Genética, Faculdade de Ciências da Universidade de Lisboa Domingos Henrique

Lacerda, João F.

Major Interests / Objectives

Donor-derived immune cells play a pivotal role in the protection against pathogens, such as Aspergillus, CMV and EBV, and in the emergence of graft-versus-host disease (GVHD) and graft-versus-leukemia effect arising after hematopoietic stem cell transplantation (HSCT). Our lab is interested in the study of immune reconstitution and in the development of strategies that modulate immune responses after HSCT. We are currently conducting a Phase I/II clinical trial with CliniMACS-selected donor regulatory T cells in patients with steroid-resistant chronic GVHD. We are also studying the genetic susceptibility for infections arising after HSCT and involved in the development of pathogen-specific T cell therapies with the ultimate goal of improving patient survival and quality of life.

Head of Laboratory

João Mascarenhas Forjaz de Lacerda, MD/PhD, Associate Professor, Clinical Specialist, Hospital Santa Maria

Research Team

Ana Bárbara Barroso de Matos	Graduate	MSc Student, (started June)
Ana Cristina Frazão Lopes Alho	MD/PhD	PhD Student, (started June)
Bárbara Joana Mestre Ribeiro	Undergraduate	MSc Student, (left June)
Cláudia Alexandra Martins Lobato da Silva	PhD	Visiting Researcher, (left July)
Ekaterina Minskaia	PhD	Post doctoral Investigator, (started May)
Inês Raquel Antunes Ferreira	Master	Technician
Joana Bianchi Marques Bettencourt Gesta	Master	PhD Student, (started June)
Maria Godinho A.V. Duarte Soares	PhD	Senior Investigator
Rita Isabel Silva de Azevedo	PhD	Post doctoral Investigator
Sara Ventura Bucar	Master	Investigator, (started April)

Keywords / Research Areas

Immune reconstitution after hematopoietic stem cell transplantation (HSCT), Homeostasis of regulatory T cells in patients submitted to HSCT, Adoptive immunotherapy after HSCT, Pathogen-specific immunity after HSCT, Genetic susceptibility for fungal and viral infections

Major scientific achievements

Our laboratory, officially created in July 2013, has established collaborations with national and international researchers working towards a multidisciplinary platform involving basic scientists, physicians and bioengineers with the aim of bringing into clinical practice adoptive cellular immunotherapy strategies for the prevention and treatment of severe complications after hematopoietic stem cell transplantation (HSCT).

In 2015, we started recruiting patients for a Phase I dose escalation clinical trial infusing donor regulatory T cells in HSCT recipients with steroid refractory chronic graft versus host disease.

We aim to implement novel strategies to modulate immune tolerance after HSCT.

Selected Publications

Cunha C, Aversa F, Lacerda JF, Busca A, Kurzai O, Grube M, Löffler J, Maertens JA, Bell AS, Inforzato A, Barbati E, Almeida B, Santos e Sousa P, Barbui A, Potenza L, Caira M, Rodrigues F, Salvatori G, Pagano L, Luppi M, Mantovani A, Velardi A, Romani L, Carvalho A. (2014) Genetic PTX3 deficiency and aspergillosis in stem-cell transplantation. *N Engl J Med.* 30; **370**(5):421-32 (Journal IF: 55.87; Citations: 37)

Azevedo RI, Soares MV, Albuquerque AS, Tendeiro R, Soares RS, Martins M, Ligeiro D, Victorino RM, Lacerda JF, Sousa AE (2013) Long-Term Immune Reconstitution of Naive and Memory T Cell Pools after Haploidentical Hematopoietic Stem Cell Transplantation. *Biology of Blood and Marrow Transplantation* **19**, 703. (Journal IF: 3.940, Citations: 3)

Gomes AQ, Correia DV, Grosso AR, Lança T, Ferreira C, Lacerda JF, Barata JT, Silva MG, Silva-Santos B. (2010) Identification of a panel of ten cell surface protein antigens associated with immunotargeting of leukemias and lymphomas by peripheral blood gammadelta T cells. *Haematologica* **95**, 1397. (Journal IF: 5.935, Citations: 24)

Azevedo RI, Soares MV, Barata JT, Tendeiro R, Serra-Caetano A, Victorino RM, Sousa AE (2009) IL-7 sustains CD31 expression in human naive CD4+ T cells and preferentially expands the CD31+ subset in a PI3K-dependent manner. *Blood* **113**, 2999. (Journal IF: 9.06, Citations: 35)

Ongoing Research Projects

2013/2016 Indução de Tolerância Imunológica após Transplante Alogénico de Células Estaminais Hematopoiéticas em Humanos. Coordinator: João Mascarenhas Forjaz de Lacerda. Agency: Fundação Ciência e Tecnologia. Reference: HMSP-ICT/0001/2011. Amount: € 293513.00. Amount (total): € 563495.00.

2015/2019 Repair of tissue and organ damage in refractory chronic graft versus host disease after hematopoietic stem cell transplantation by infusion of purified allogeneic donor regulatory T lymphocytes. Coordinator: João Mascarenhas Forjaz de Lacerda. Agency: Comissão Europeia. Reference: PHC - 643776 - TREGeneration. Amount: € 1547895.00. Amount (total): € 5899250.00.

2014/2017 MDS Awareness Day. Coordinator: João Mascarenhas Forjaz de Lacerda. Agency: Celgene Sociedade Unip., Lda. Reference: MDS Awareness Day. Amount: € 2500.00. Amount (total): € 2500.00.

2014/2016 LisbonLymph Debate . Coordinator: João Mascarenhas Forjaz de Lacerda. Agency: Celgene Sociedade Unip., Lda. Reference: Curso Celgene. Amount: € 25000.00. Amount (total): € 25000.00.

Other publications International

M. Monteiro, A. Água-Doce, R.I. Azevedo, J.F. Lacerda and L. Graça. Chapter 10: Regulatory T cells for the book: Translational Immunology: Mechanisms and Pharmacologic Approaches. (accepted for publication)

Oliveira-Coelho A, Rodrigues F, Campos A Jr, Lacerda JF, Carvalho A, Cunha C. (2015) Paving the way for predictive diagnostics and personalized treatment of invasive aspergillosis. *Front Microbiol.* 2015 May 5;6 411 (Journal IF 3.989)

Invited lectures and seminars

Lacerda J.F. Cell therapies after hematopoietic stem cell transplantation. 9th International Meeting of the Portuguese Society for stem cells and cell therapies WORKSHOP: MOVING CELL THERAPIES TO THE CLINIC – CLINICAL CHALLENGES & INDUSTRY HIGHLIGHTS. Oeiras, Oct 16, 2015

Lacerda J.F. Regulatory T cells in the treatment of chronic graft versus disease Amgen LIFE Symposium, Lisbon, Oct 10, 2015

Lacerda J.F. Bone marrow transplantation. Introduction week. Medical Course
15/16. Faculdade de Medicina, Universidade de Lisboa. Lisbon, Sep 16, 2015

Internationalisation

Our Lab actively collaborated in 2015 with the following investigators:

- Prof. Jerome Ritz; Dana-Farber Cancer Institute (DFCI) and Harvard Medical School (HMS), USA, under the auspices of Harvard Medical School Portugal Program
- Prof. Joaquim Cabral; IST-Universidade de Lisboa, also within the framework of Harvard Medical School Portugal Program
- Matthias Edinger; Universitaetsklinik, Regensburg, under the TREGeneration Consortium of the Horizon 2020 Programme
- Frederic Baron; Laboratory of Cell and Gene Therapy, CHU Sart-Tilman, Lie?ge, under the TREGeneration Consortium of the Horizon 2020 Programme
- Mario Arpinati; Department of Hematology "Sera?gnoli", University Hospital S.Orsola-Malpighi, Bologna, under the TREGeneration Consortium of the Horizon 2020 Programme
- Marie-Laure Yaspo; Max Planck Society, Max Planck Institute for Molecular Genetics, Berlin, under the TREGeneration Consortium of the Horizon 2020 Programme
- Hans Lehrach; Alacris Theranostics GmbH, Berlin, under the TREGeneration Consortium of the Horizon 2020 Programme
- Marta Garcí?a-Fin?ana; Department of Biostatistics, Faculty of Health & Life Sciences, University of Liverpool, Liverpool, under the TREGeneration Consortium of the Horizon 2020 Programme
- Sybille Freitag, GABO:mi, Munich, under the TREGeneration Consortium of the Horizon 2020 Programme
- Drs. Cristina Cunha and Dr Agostinho Carvalho, Universidade do Minho, for the studies of genetic susceptibility for invasive fungal infections
- Prof. Arne Akbar at the Division of Infection and Immunity at University College London and Prof Andrew Sewell at the Institute of Infection and Immunity at Cardiff University School of Medicine to pursue our studies on the evaluation of immune responses to cytomegalovirus in normal individuals and in patients after HSCT
- Prof. Britta Eiz-Vesper at the University of Hanover for the generation of third-party pathogen-specific T cells to administer after HSCT

Msc thesis completed

Barbara Joana Mestre Ribeiro 17/06/2015 Characterization of the CMV-specific Immune Reconstitution During the Post-Allogeneic Hematopoietic Stem Cell Transplantation Period. Faculdade de Medicina, Universidade de Lisboa Maria Godinho Soares João Forjaz de Lacerda

Ana Isabel da Silva Vieira 09/06/2015 Prospective Analysis of Regulatory T cell Homeostasis after Allogeneic Hematopoietic Stem Cell Transplantation Faculdade de Medicina, Universidade de Lisboa João F. Lacerda, Rita Azevedo

Lopes, Luisa V.

Major Interests / Objectives

Ageing, stress and neurodegenerative diseases are among the conditions that contribute to the accelerated loss of cognitive function. Our group's work is focused on understanding the mechanisms inducing this "early-ageing", which render the hippocampus - the brain area related to learning and memory – particularly susceptible.

We focus on characterizing the molecular mechanisms associated to hippocampal loss of function and its outcome in behavior performance and synaptic function, using rodent models. We ensure the translation to the human brain, by testing these molecular imprints in healthy and diseased human brain tissue. We are currently focused into exploring the role of adenosine A2A receptors as potential cognitive modulators both in vitro and in vivo

Head of Laboratory

Luísa Maria Vaqueiro Lopes, PhD

Research Team

Ana Inês Marques Morgado	Graduate	MSc Student
Diana Gabriela Ribeiro Ferreira	Master	PhD Student, University Medical Center Goettingen, Department of NeuroDegeneration and Restorative Research , Faculdade Medicina da Universidade do Porto
Hugo Vicente Miranda	PhD	Post doctoral Investigator
Joana Fernandes Esteves Soares Coelho	PhD	Post doctoral Investigator
João Tiago dos Santos Fernandes	Master	PhD Student, (left May)
Marcos António dos Santos Rodrigues	Master	Technician

Gomes		
Maria Teresa A.S. Faria Pais	PhD	Senior Investigator, (left August)
Mariana Temido Mendes Ferreira	Master	PhD Student
Miguel Alves Rovisco Ribeiro	Master	Trainee
Patricia Isabel da Silva Guerreiro	Master	Investigator, (left May)
Rafaela Ferreira Cássio	Graduate	MSc Student, (started February) (left May)
Rita João Rosado Serranito Ramos	Graduate	Technician, (left June)
Rui Artur Paiva Loureiro Gomes	PhD	Investigator, Assistant Professor
Sandra Isabel Nogueira Tenreiro	PhD	Post doctoral Investigator, CEDOC - Chronic Diseases Research Center , (started February)
Susana Alexandra de Barros Gonçalves	Master	PhD Student, (left June)
Vânia Luisa Neves Batalha	PhD	PhD Student, (left July)

Keywords / Research Areas

Aging, Neurosciences, Cognition, Hippocampus

Major scientific achievements

- 1) New evidence for protective effects of caffeine-like molecules against Parkinson's disease in a paper published in the journal 'Cerebral Cortex' as coordinators, with the collaboration of Univ Goettingen and CNC, Coimbra.
- 2) Published in collaboration with the INSERM, Lille and University of Bonn, a study that has shown the benefits of using an improved caffeine analog (MSX-3) in a mouse model of Alzheimer's disease, published in the journal Molecular Psychiatry.

- 3) Secured funding from FCT for two research projects starting in 2016 for a 3-year period in a total of 260kEUR
- 4) Consortium project approved from the AIRR Actions d'Initiative Régionale pour la Recherche (Coordinator: David Blum: France) for 100 kEUR for a 2 year period.
- 5) Academia-industry partnership with the IMM based start-up Technophage for a 2-year project on drug screening in animal models of Parkinson's disease
- 6) Horizon 2020 Twinning action SynaNet (Neurologic and Psychiatric Disorders) funded (Partner)

Selected Publications

Ferreira DG, Batalha VL, Vicente Miranda H, Coelho JE, Gomes R, Gonçalves FQ, Real JI, Rino J, Albino-Teixeira A, Cunha RA, Outeiro TF, Lopes LV (2015) Adenosine A2A Receptors Modulate a-Synuclein Aggregation and Toxicity. *Cerebral Cortex*, (Journal IF: 10.4, Citations: n/a)

Sousa VC, Vital J, Costenla AR, Batalha VL, Sebastião AM, Ribeiro JA, Lopes LV (2014) Maternal separation impairs long term-potential in CA1-CA3 synapses and hippocampal-dependent memory in old rats. *Neurobiol Aging*, **35**, 1680, (Journal IF: 5.13, Citations: 13)

Laurent C, Burnouf S, Ferry B, Batalha VL, Coelho JE, Baqi Y, Malik E, Mariciniak E, Parrot S, Van der Jeugd A, Faivre E, Flaten V, Ledent C, D'Hooge R, Sergeant N, Hamdane M, Humez S, Müller CE, Lopes LV, Buée L, Blum D. (2014) A2A adenosine receptor deletion is protective in a mouse model of Tauopathy. *Molecular Psychiatry*, **21**, 97-107, 2016 Jan;21(1):97-107 (Journal IF: 15.7, Citations: n/a)

Batalha VL, Pego JM, Fontinha BM, Costenla AR, Valadas JS, Baqi Y, Radjainia H, Müller CE, Sebastião AM, Lopes LV. (2013) Adenosine A(2A) receptor blockade reverts hippocampal stress-induced deficits and restores corticosterone circadian oscillation. *MOLECULAR PSYCHIATRY*, **18**, 320, (Journal IF: 15.1, Citations: 30)

Diógenes MJ, Dias RB, Rombo DM, Vicente Miranda H, Maiolino F, Guerreiro P, Näsström T, Franquelim HG, Oliveira LM, Castanho MA, Lannfelt L, Bergström J, Ingelsson M, Quintas A, Sebastião AM, Lopes LV, Outeiro TF. (2012) Extracellular alpha-synuclein oligomers modulate synaptic transmission and impair LTP via NMDA-receptor activation. *Journal of Neuroscience*, **32**, 11750, (Journal IF: 7.8, Citations: 45)

Ongoing Research Projects

2015/2015 Breakthrough Idea Grant 2015. Coordinator: Luísa Maria Vaqueiro Lopes. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BIG 2015 L Lopes. Amount: € 50000.00. Amount (total): € 50000.00.

2014/2015 Prémio Gulbenkian - Best Plenary Presentation. Coordinator: Luísa Maria Vaqueiro Lopes. Agency: AIDFM. Reference: Prémio Gulbenkian - Best Plenary Presentation . Amount: € 500.00. Amount (total): € 500.00.

2014/2016 Service-University of Macau. Coordinator: Luísa Maria Vaqueiro Lopes. Agency: Institute of Chinese Medical Sciences. Reference: Service-University of Macau. Amount: € 3000.00. Amount (total): € 3000.00.

Other Projects

2013/2015 Fritz Thyssen Foundation - “Adenosine A2A receptors and alpha-synuclein: Novel targets for Parkinson’s disease” This projects addresses the in vitro role of A2ARs to to aSyn aggregation and toxicity using cellular models of aSyn aggregation. Amount: 110 000EUR. Coordinator: Luisa Lopes/Tiago Outeiro.

2011/2015 FCT - Molecular determinants of microglial activation and neuronal dysfunction in in vivo models of Parkinson’s disease. Amount: 168 000 EUR. Coordinator: Teresa Pais. Coordinator Institution: IMM. Coordinator PI: Teresa Pais.

Original publications in peer review Journals

Ferreira DG, Batalha VL, Vicente Miranda H, Coelho JE, Gomes R, Gonçalves FQ, Real JI, Rino J, Albino-Teixeira A, Cunha RA, Outeiro TF, Lopes LV (2015) Adenosine A2A Receptors Modulate a-Synuclein Aggregation and Toxicity. *Cereb Cortex*. 2015 Nov 2. pii: bhv268. (IF: 10.4)

Moas-Héloire V, Renault N, Batalha V, Arias AR, Marchivie M, Yous S, Deguine N, Buée L, Chavatte P, Blum D, Lopes L, Melnyk P, Agouridas L. Design and synthesis of fused tetrahydroisoquinoline-iminoimidazolines. (2015) *Eur J Med Chem*. **1**;106:15-25. (Journal IF: 3.447; Citations: 0)

Tenreiro S, Rosado-Ramos R, Gerhardt E, Favretto F, Magalhães F, Popova B, Becker S, Zweckstetter M, Braus GH, Outeiro TF. (2015) Yeast reveals similar molecular mechanisms underlying alpha- and beta-synuclein toxicity. *Hum Mol Genet*. Jan 15; **25**(2):275-90 (IF: 6.677; Citations: 0)

Mbefo MK, Fares MB, Paleologou K, Oueslati A, Yin G, Tenreiro S, Pinto M, Outeiro T, Zweckstetter M, Masliah E, Lashuel HA. (2015). Parkinson Disease Mutant E46K Enhances a-Synuclein Phosphorylation in Mammalian Cell Lines, in Yeast, and in Vivo. *J Biol Chem*. 2015 Apr 10; **290**(15):9412-27. DOI: 10.1074/jbc.M114.610774 (Journal IF: 4.600; Citations: 0)

Nunes P, Ribeiro Morais G, Palma E, Silva F, Oliveira MC, Ferreira VFC, Mendes F, Gano L, Vicente Miranda H, Outeiro TF, Santos I, Paulo A. (2015) Isostructural Re (I)/^{99m}Tc(I) Tricarbonyl Complexes Functionalized with Benzothiazole Derivatives for Cancer Theranostics. *Organic & Biomolecular Chemistry*, **13**:5182-5194 (Journal IF: 3,560; Citations: 0)

Ribeiro Morais G, Palma E, Marques F., Gano L, Oliveira MC, Abrunhosa A, Vicente Miranda H, Outeiro TF, Santos I, Paulo A, (2015) Synthesis and Biological Evaluation of Novel 2-Aryl Benzimidazoles as Chemotherapeutic Agents, *Journal of Heterocyclic Chemistry*, 10.1002/jhet.2575 (Journal IF: 0.787; Citations: 0)

Other publications International

Cyril Laurent, Sylvie Burnouf, Barbara Ferry, Vania L. Batalha, Joana E. Coelho, Younis Baqi, Enas Malik⁵, Elodie Mariciniak, Sandrine Parrot, Ann Van der Jeugd, Emilie Faivre, Vanessa Flaten, Catherine Ledent, Rudi DHooge, Nicolas Sergeant, Malika Hamdane, Sandrine Humez, Christa E. Muller, Luisa V. Lopes*, Luc Buee, David Blum (2016) A2A adenosine receptor deletion is protective in a mouse model of Alzheimer disease. *Mol. Psychiatry*, in press (IF: 15.4)

David Blum, Ursula Sandau, Olivier Bousiges, Luisa V. Lopes, Vanessa Flaten, Emilie Faivre, Luc Buée, Anne-Laurence Boutillier, Detlev Boison (2015) 'Adenosine and Alzheimer's disease, a possible epigenetic link' in *Homeostatic Control of Brain Function* (eds Detlev Boison and Susan Masino), Oxford University Press

TENREIRO S, Macedo D, Marijanovic Z, Outeiro TF. 2015. Analysis of protein oligomeric species by sucrose gradients. In: *Proteostasis: Methods and Protocols*. Editor: Rune Mattiesen. Accepted for publication.

Invited lectures and seminars

Tenreiro S. Invited Talk: Molecular bases of Parkinson's disease. 2015. V Congresso Científico de Saúde Associação de Estudantes da Faculdade de Farmácia da Universidade de Lisboa, 19-20 Nov.

Communications in International Conferences

Ferreira DG, Batalha VL, Miranda HV, Coelho JE, Queiroz F, Real J, Cunha RA, Albino-Teixeira A, Lopes LV and Outeiro TF 2015 Adenosine A2A receptors as potential targets for Parkinson's disease-related cognitive deficits. Oct, 45th Annual Meeting of the Society for Neuroscience, Chicago, USA; (Oral Presentation)

Temido-Ferreira M, Coelho JE, Ferreira DG, Outeiro TF, Bader M, Marie H, Pousinha PA and

Lopes LV 2015 Neuronal Adenosine A2A Receptor Overexpression affects AMPA and NMDA currents in CA1 hippocampal neurons. Oct, 45th Annual Meeting of the Society for Neuroscience, Chicago, USA; (Oral Presentation)

Ferreira DG, Batalha VL, Vicente Miranda H, Coelho JE, Gomes R, Albino-Teixeira A, Outeiro TF, and Lopes LV 2015 Adenosine A2A receptors as a promising target in Parkinson's disease cognitive deficits. Nov 26, 12nd International Medical Postgraduate Conference, Medical Faculty, Hradec Králove University, Hradec Králove, Czech Republic; (Oral Presentation)

Batalha VL, Ferreira DG, Valadas JS, Coelho JE, Gomes RA, Canas P Buée-Scherrer V, Buée L, Müller C, Hamdane M, Cunha RA, Bader M, Blum D and Lopes LV 2015 Glucocorticoid dysregulation by Adenosine A2A Receptors is the link in Age-Related cognitive impairments. July 7-11, IBRO, Rio de Janeiro, Brazil; (Oral Presentation)

Communications in National Conferences

Ribeiro M, Coelho JE, Ferreira DG, Temido-Ferreira M, Batalha VL, Silva-Santos B, Lopes LV and Ribot JC, Exploring the impact of T cell subsets on physiological aspects of brain function; Poster at XIV Meeting of the Portuguese Society for Neurosciences, 2015, Póvoa de Varzim, Portugal. (Poster Presentation)

Temido-Ferreira M, Coelho JE, Ferreira DG, Outeiro TF, Marie H, Pousinha PA, Lopes LV; Neuronal Adenosine A2A Receptor overexpression affects AMPA and NMDA currents in CA1 hippocampal neurons; Oral Communication at XIV Meeting of the Portuguese Society for Neurosciences, June 2015, Póvoa de Varzim, Portugal; (Oral Presentation)

Ferreira DG, Batalha VL, Vicente Miranda H, Coelho JE, Gomes R, Albino-Teixeira A, Outeiro TF, and Lopes LV 2015 Adenosine A2A receptors modulate alpha-synuclein induced synaptic dysfunction and cognitive deficits. Dec 2, 1st PhD students Meeting on Mind and Brain, Mind-Brain Doctoral College, University of Lisbon, Lisbon, Portugal; (Poster Presentation)

Temido-Ferreira M, Ferreira DG, Gomes R, Coelho JE, Marie H, Pousinha PA, Outeiro TF, Lopes LV 2015 Adenosine A2A receptor overexpression – synaptic trigger for early aging? Dec 2, 1st PhD students Meeting on Mind and Brain, Mind-Brain Doctoral College, University of Lisbon, Lisbon, Portugal; (Poster Presentation)

Mouro FM, Batalha VL, Ferreira DG, Muller CE, Lopes LV, Ribeiro JA, Sebastião AM 2015 Adenosine A2A receptors: hand-in-hand with CB1Rs mediating memory consolidation deficits. Dec 2, 1st PhD students Meeting on Mind and Brain, Mind-Brain Doctoral College, University of Lisbon, Lisbon, Portugal; (Poster Presentation)

Ribeiro M, Temido-Ferreira M, Ferreira DG, Coelho JE, Lopes LV, Silva-Santos B and Ribot JC 2015 Role of murine? T cells in brain cognitive functions. Oct, Meeting of the Sociedade

Portuguesa de Imunologia, Braga, Portugal; (Poster Presentation)

Ferreira DG, Coelho JE, Batalha VL, Miranda HV, Queiroz F, Real J, Cunha RA, Albino-Teixeira A, Lopes LV and Outeiro TF 2015 Adenosine A2A receptors as potential targets for Parkinson's disease-related cognitive deficits. Jun, XIV Meeting of the Portuguese Society for Neurosciences, Póvoa do Varzim, Portugal; (Poster Presentation)

Ferreira DG, Batalha VL, Vicente Miranda H, Coelho JE, Gomes R, Albino-Teixeira A, Outeiro TF, and Lopes LV 2015 Adenosine A2A receptors as a promising target for synucleinopathies. Mar 14, National Conference on Movement Disorders, from the National Society for Movement Disorders (SPDNMov), Esposende, Portugal; (Poster Presentation)

Ferreira DG, Batalha VL, Vicente Miranda H, Coelho JE, Gomes R, Gonçalves FQ, Real JI, Rino J, Albino-Teixeira A, Cunha RA, Outeiro TF, and Lopes LV 2015 Adenosine A2A receptors modulate alpha-synuclein toxicity and aggregation. Fev 6, Portuguese Society of Pharmacology Meeting, Lisbon, Portugal; (Poster Presentation)

Mouro FM, Batalha VL, Ferreira DG, Muller CE, Lopes LV, Ribeiro JA, Sebastião AM 2015 Chronic adenosine A2A receptor blockade prevents object recognition long-term memory consolidation disruption caused by acute cannabinoid CB1 receptor activation. Fev 6, Portuguese Society of Pharmacology Meeting, Lisbon, Portugal. (Poster Presentation)

Tenreiro S, Reimão-Pinto MM, Antas P, Rino J, Wawrzycka D, Macedo D, Rosado-Ramos R, Amen T, Weiss M, Magalhães F, Gomes A, Santos CN, Kaganovich D and Outeiro TF. 2015. Phosphorylation modulates clearance of alpha-synuclein inclusions in a yeast model of Parkinson's disease. XIV Meeting of the Portuguese Society for Neurosciences. Póvoa do Varzim, 4-5 June. (Poster Presentation)

Vicente Miranda H, Cássio R, Gomes MA, Correia-Guedes L, Soares T, Coelho M, Rosa MM, Ferreira JJ, Outeiro TF, Alpha-synuclein as a blood biomarker for Parkinson's disease. Reunião da Sociedade Portuguesa das doenças do Movimento, Ofir, Esposende, Portugal. (Poster Presentation)

Internationalisation

Major collaborations with exchange students and joint publications:

Ghazaleh Sadri-Vakili, epigenetics of the stress (Harvard Medical School, Boston, US)

David Blum, AD models and pathology (INSERM, Lille, France)

Michael Bader, transgenic constructs (MDC, Berlin, Germany)

Helene Marie, aged-related excitability in the hippocampus (IPMC, Nice, France)

Jian-Fan Chen, Adenosine transgenic models (Boston Univ, USA)

Christa Muller, Development of custom made receptor ligands (Bonn Univ., Germany)

Tiago Outeiro, Alpha-synuclein based PD models (Univ Medizin Goettingen, Germany)

Current joint international projects:

AIRR Actions d'Initiative Régionale pour la Recherche

(Consortium coordinator: David Blum, France)

“COGN'ADORA Role neuro-glial des récepteurs adénoenergiques dans la cognition”.

Aims at understanding the fundamental molecular mechanisms related to adenosine contribution to cognition.

Role: Partner

International evaluator and membership (Luisa Lopes)

Since 2015 – Expert reviewer for European Union in Life Sciences (EU H2020)

Since 2010 – Peer- reviewer for research proposals: Agence Nationale de la Recherche (ANR), France; Parkinson' Foundation UK (PDUK), UK; Fondation Recherche Medicale (FRM) – France; National Science Center, Poland.

Since 2008 - Ad hoc reviewer: Journal of Neuroscience, Synapse; Annals of Neurology; Journal of Alzheimer's Disease; Current Alzheimer Research; Journal of Neurochemistry; European Journal of Neuroscience ; Brain Research; Cerebral Cortex;

Memberships of scientific societies:

Since 2013 - International Society for Neurochemistry

Since 2000 - American Society for Neuroscience

Prizes, honours and awards

2nd award for best work presented at the “12nd International Medical Postgraduate Conference”, Medical Faculty, Hradec Králove University, Czech Republic, Nov 2015, (Diana Ferreira)

Travel award to attend the “12nd International Medical Postgraduate Conference”, Medical Faculty, Hradec Králove University, Czech Republic; (Diana Ferreira)

Industry contract research

- Established a new academia-industry partnership with the IMM based start-up Technophage for a 2-year project on drug screening in animal models of Parkinson's disease

Advanced teaching

- Lopes LV. Lecturer Lisbon Biomed PhD program "Celular and molecular neuroscience ", IMM, Lisbon. Fev 11-13, 2015

- Lopes LV Lecturer Neurosciences PhD/Master program, "Stress axis and glucocorticoids: implications for plasticity and learning" FMUL, University Lisbon, October 2015

Science and society

- (Luisa Lopes) Several appearances and articles in national and international press during Brain Awareness Week 2015 on general neuroscience themes of interest to the public (newspaper i; Público and TV program Bom dia Portugal; Cerveau and Psycho;):

<http://www.ionline.pt/266521#close>

http://www.cerveauetpsycho.fr/ewb_pages/a/article-du-cafe-contre-la-maladie-d-alzheimer-32896.php

<https://www.youtube.com/watch?v=Pol7dkW3k78>

- (Luisa Lopes) Press releases and discussion on the top papers published in 2015 (Cerebral Cortex and Molecular Psychiatry) to international and national journalists:

<https://www.publico.pt/ciencia/noticia/de-como-a-cafeina-protege-contr-a-doenca-de-parkinson-1715313>

<http://lifestyle.sapo.pt/saude/noticias-saude/artigos/beber-cafe-pode-ter-beneficios-na-doenca-de-parkinson>

http://www.ulisboa.pt/wp-content/uploads/De-como-a-cafe%C3%ADna-protege-contr-a-doen%C3%A7a-de-Parkinson_24.pdf

<http://www.atlasdasaude.pt/publico/content/beber-cafe-pode-atrasar-avanco-precoce-da-doenca-de-parkinson>

Msc thesis completed

Tatiana Pinto Morais 18/12/2015 Glycine receptor in rat cortical astrocytes: expression and function MSc in Molecular Biology and Genetics (FCUL) University Lisbon Cláudia Valente Rui Gomes

Daniela Cristina Melo Magalhães 21/04/2015 Deciphering the role of inflammation in organotypic hippocampal slice model of epileptogenesis MSc in Molecular Biology and Genetics (FCUL) University Lisbon Cláudia Valente Rui Gomes

Joana Sanches Coimbra 11/12/2015 Biological characterization and vectorization of new compounds with antiproliferative effects MSc in Molecular Biology and Genetics (FCUL) University Lisbon Maria Alexandra Fernandes Rui Gomes

Rafaela Cássio 29/07/2015 Alpha-synuclein as a blood biomarker for Parkinson's disease University of Lisbon Hugo Vicente-Miranda

Morais, Nuno

Major Interests / Objectives

We have a long-term interest in the systems-level transcriptional regulation underlying mammalian cell specification, often perturbed in disease. In particular, we are studying the mechanisms responsible for the association between aberrant splicing and pathologies like cancer and neurodegenerative disorders. We employ computational biology approaches for the analysis of next-generation sequencing data to find disease-specific transcriptomic signatures, aiming to understand how the regulation of alternative splicing is affected in different pathologies and thereby to identify molecular targets for functional exploration in vitro and in vivo. We also combine molecular and clinical information for the unveiling of novel candidate prognostic factors and therapeutic targets.

Head of Laboratory

Nuno Luís Barbosa Morais, PhD

Research Team

Ana Rita Fialho Grosso	PhD	Senior Investigator, (left April)
Bárbara Sofia Ribeiro Caravela	Graduate	MSc Student, (started March)
Lina Marcela Gallego Páez	PhD	Post doctoral Investigator, (started July)
Maria Teresa Proença Mendes Maia	PhD	MSc Student, (started September)
Mariana Ascensão Ferreira	Undergraduate	MSc Student, (started July)
Marie Catherine Bordone	Master	PhD Student, (started March)
Marta Zegre Graça Oliveira Costa de Amorim	Graduate	PhD Student, Centro Hospitalar Lisboa Central, Clinical Specialist
Nuno Daniel Saraiva Agostinho	Graduate	MSc Student, (started September)

Keywords / Research Areas

Computational Biology, Transcriptomics, Alternative Splicing, Cancer, Parkinson's disease

Major scientific achievements

Following the awarding of an EMBO Installation Grant and an Investigador FCT Starting Grant to Nuno Morais, the Lab started in early 2015 and was gradually built with the recruitment of 1 postdoc (Lina Gallego), 1 LisbonBioMed PhD student (Marie Bordone), 3 Masters students (Bárbara Caravela, Teresa Maia, Nuno Agostinho) and 1 summer trainee (Mariana Ferreira). We have started projects on splicing deregulation in cancer (colorectal, neural and renal) and Parkinson's disease, as well as on the development of tools for the bioinformatics analysis of alternative splicing of large transcriptomic datasets. We are also participating in other collaborative projects (circadian regulation in trypanosomes, neural development and regeneration in vertebrates, allelic expression variation in breast cancer, etc). Our work has been presented through several invited lectures and participation in conferences.

Selected Publications

Barbosa-Morais NL, Dunning MJ, Samarajiwa SA, Darot JF, Ritchie ME, Lynch AG, Tavaré S (2010) A re-annotation pipeline for Illumina BeadArrays: improving the interpretation of gene expression data. *Nucleic Acids Research*, **38**, e17. (Journal IF: 9.112, Citations: 92)

Braunschweig U, Barbosa-Morais NL, Pan Q, Nachman EN, Alipahani B, Gonatopoulos-Pournatzis T, Frey B, Irimia M, Blencowe BJ (2014) Widespread intron retention in mammals functionally tunes transcriptomes. *Genome Research*, **24**, 1774, (Journal IF: 14.630, Citations: 31)

Pena AC, Pimentel MR, Manso H, Vaz-Drago R, Neves D, Aresta-Branco F, Ferreira FR, Guegan F, Coelho LP, Carmo-Fonseca M, Barbosa-Morais NL, Figueiredo LM (2014) Trypanosoma brucei histone H1 inhibits RNA polymerase I transcription and is important for parasite fitness in vivo. *Molecular Microbiology*, **93**, 645, (Journal IF: 4.419, Citations: 3)

Ward MC, Wilson MD, Barbosa-Morais NL, Schmidt D, Stark R, Pan Q, Schwalie PC, Menon S, Lukk M, Watt S, Thybert D, Kutter C, Kirschner K, Flicek P, Blencowe BJ, Odom DT (2013) Latent Regulatory Potential of Human-Specific Repetitive Elements. *Molecular Cell*, **49**, 262, (Journal IF: 14.018, Citations: 19)

Barbosa-Morais NL, Irimia M, Pan Q, Xiong HY, Gueroussov S, Lee LJ, Slobodeniuc V, Kutter C, Watt S, Colak R, Kim T, Misquitta-Ali CM, Wilson MD, Kim PM, Odom DT, Frey BJ, Blencowe BJ (2012) The evolutionary landscape of alternative splicing in vertebrate species. *Science*, **338**, 1587, (Journal IF: 33.611, Citations: 158)

Ongoing Research Projects

2015/2019 Projecto de Investigação Exploratória. Coordinator: Nuno Luís Barbosa Morais. Agency: Fundação para a Ciência e a Tecnologia, IP. Coordinator Institution: O. Reference: Projecto de Investigação Exploratória. Amount: € 50000.00. Amount (total): € 50000.00.

2015/2017 EMBO - Installation Grant. Coordinator: Nuno Luís Barbosa Morais. Agency: EMBO. Coordinator Institution: O. Reference: EMBO - Installation Grant - Nuno Morais. Amount: € 150000.00. Amount (total): € 150000.00.

Other Projects

2014/2015 FCT EXPL/EMS-SIS/1954/2013 - CANCERSYS - Multiscale modeling for personalized therapy of bone metastasis. Coordinator: Susana Vinga. Coordinator Institution: Instituto Superior Técnico. Coordinator PI: Susana Vinga.

2015/2018 FCT Project PTDC/EMS-SIS/0642/2014 - PERSEIDS - Personalizing cancer therapy through integrated modeling and decision. Coordinator: Susana Vinga. Coordinator Institution: Instituto Superior Técnico. Coordinator PI: Susana Vinga.

2015/2018 PTDC/BIM-MED/3295/2014 - Angiocrine factors as modulators of spinal cord regeneration. Coordinator: Leonor Saúde. Coordinator Institution: Instituto de Medicina Molecular. Coordinator PI: Leonor Saúde.

Invited lectures and seminars

Barbosa-Morais, N. Biologia Computacional: Splicing, Evolução e Cancro. Conversas: Oncobiologia (Núcleo de Biologia Celular e Molecular), FCT NOVA, Caparica, Portugal. December 2, 2015.

Barbosa-Morais, N. Alternative splicing in evolution and cancer. ICVS - Life and Health Sciences Research Institute, Braga, Portugal. April 27, 2015.

Barbosa-Morais, N. Alternative splicing landscapes of cancer. Selection Colloquium, Instituto Gulbenkian de Ciência, Oeiras, Portugal. February 5, 2015.

Communications in International Conferences

Barbosa-Morais, N. Alternative splicing landscapes of cancer. EMBO Young Investigator Meeting, PRBB Barcelona, Spain. May 13, 2015. (Oral Presentation)

Caravela B, Carvalho A, Vinga S, Morais N. Comprehensive alternative splicing classification of cancers: finding molecular signatures in renal carcinomas. iMed Conference 7.0, CCB Lisbon, Portugal. September 17-20, 2015. (Poster Presentation)

Organisation of Conferences

Amorim M. Co-organizer of the BRCA Network - European Congress, Lisbon, Portugal. November 5, 2015.

Internationalisation

Our group has established collaborations with the following international colleagues:

- Ahmed Ahmed, Weatherall Institute of Molecular Medicine, Oxford, United Kingdom;
- Ana Pombo, The Berlin Institute for Medical Systems Biology, Berlin, Germany;
- Claus Azzalin, Institute of Biochemistry, ETH Zurich, Switzerland;
- João Gonçalves, Lunenfeld-Tanenbaum Research Institute, Toronto, Canada;
- Suet-Feung Chin, Cancer Research UK Cambridge Institute, University of Cambridge, United Kingdom.

Nuno Morais presented at the EMBO Young Investigator Meeting in Barcelona, Spain.

Prizes, honours and awards

- EMBO Installation Grant to Nuno Morais
- Investigador FCT Starting Grant to Nuno Morais
- FCT Postdoctoral Fellowship to Joana Xavier (Maia Lab, University of Algarve), with Nuno Morais as co-supervisor
- Maxdata Award Excellence in Informatics to Nuno Agostinho
- Prize for the best presentation by a 1st year student at the IX IMM/CAML PhD meeting to Marie Bordone

Advanced teaching

Barbosa-Morais, N. lectured on "RNA-Seq and disease transcriptomics". FCT PhD Programme - Medicines and Pharmaceutical Innovation (i3DU), Faculty of Pharmacy of the University of Lisbon, Portugal. September 15, 2015.

Barbosa-Morais, N. lectured on "Analysis of Transcriptional Regulation and RNA Processing from RNA-Seq Data". Masters in Bioinformatics and Computational Biology, Faculty of Sciences of the University of Lisbon, Portugal. July 23, 2015.

Barbosa-Morais, N. lectured at the R and Bioconductor Workshop, Computational Biology course, Masters in Biomedical Sciences, University of Algarve, Faro, Portugal. April 21-22, 2015.

Barbosa-Morais, N. lectured on "Alternative splicing in evolution and cancer", PhD Program in Integrative Biology and Biomedicine, Instituto Gulbenkian de Ciência, Oeiras, Portugal. January 30, 2015.

Barbosa-Morais, N. lectured on "RNA-Seq and disease transcriptomics". LisbonBioMed PhD Program, Instituto de Medicina Molecular, Lisbon, Portugal. January 7, 2015.

Science and society

Nuno Morais is a member of the Executive Committee and a co-leader of the Alumni Chapter of PAPS - Portuguese-American Post-graduate Society.

Lina Gallego gave an inspirational talk at the Héroes Fest, Bogotá, Colombia. November 27, 2015.

Marie Bordone lectured at Caneças Secondary School on cancer and the iMM-Laço Fund. November 10, 2015.

Marta Amorim went twice on national TV to explain cancer predisposition and genetic diseases to the public. February and May, 2015.

Msc thesis completed

Bárbara Caravela 16/11/2015 Alternative splicing analysis for finding novel molecular signatures in renal carcinomas Instituto Superior Técnico Nuno Morais, Susana Vinga, Alexandra Carvalho

Morais, Vanessa

Major Interests / Objectives

Mitochondria homeostasis is a process involving an intimate crosstalk between energy production, quality control and mitophagy. Perturbances of this intricate system are widely speculated to contribute to neurodegeneration, highlighting the importance of these mechanisms for the functional maintenance of neurons. My research focuses on understanding synaptic mitochondria and how they go astray in neurodegeneration, to decipher the mechanisms involved in mitochondrial quality control processes and bioenergetics compensation pathways. I will use several mitochondrial proteins, namely PINK1 and Complex I subunits, as the working models to address this challenging, albeit intriguing and novel aspects of mitochondrial function to further scrutinize their relevance for the diseased brain.

Head of Laboratory

Vanessa Alexandra dos Santos Morais Epifânio, PhD

Research Team

Elvira Pequeno Leites	Master	Technician, (started June)
Filipa Alexandra Barroso Gonçalves	Graduate	MSc Student, (started September)

Keywords / Research Areas

Mitochondria, Neurodegeneration, Mitophagy, Quality control, Parkinson's Disease

Major scientific achievements

The VMorais Lab was initiated on 01/08/2015 and had as an initial goal the establishment of the following aspects:

- Contracting of human resources (at present team is composed by a technician and a master student)
- a fully functional wet lab
- a functional Tissue culture lab (process which is still in construction phase; tissue culture work

is performed in the TC room of BSSantos Lab)

Scientific publications:

1. L. Aerts, K. Craessaerts, B. De Strooper, V. A. Morais (2015) In vitro Comparison of the Activity Requirements and Substrate Specificity of Human and *Tribolium castaneum* PINK1 Orthologues. PLoS One, In press

Prizes and Awards:

1. Investigator FCT
2. FCT Exploratory Grant
3. ERC Starting Grant (to be initiated in 2016)
4. EMBO Installation Grant (to be initiated in 2016)

Ongoing Research Projects

2015/2020 Projecto de Investigação Exploratória. Coordinator: Vanessa Alexandra dos Santos Morais Epifânio. Agency: Fundação para a Ciência e a Tecnologia, IP. Coordinator Institution: O. Reference: Projecto de Investigação Exploratória. Amount: € 50000.00. Amount (total): € 50000.00.

Selected Publications

Aerts L, Craessaerts K, De Strooper B*, Morais VA* (2015). PINK1 Kinase Catalytic Activity Is Regulated by Phosphorylation on Serines 228 and 402. *J Biol Chem.* **290**: 2798-811. (Journal IF: 4.5; Citations: 8). *shared corresponding authors

Morais VA*, Haddad D, Craessaerts K, De Bock P, Swerts J, Vilain S, Aerts L, Overbergh L, Grünewald A, Seibler P, Klein C, Gevaert K, Verstreken P, De Strooper B* (2014). PINK1 Loss of Function Mutations Affect Mitochondrial Complex I Activity via Ndufa10 Ubiquinone Uncoupling. *Science.* **344** (6180), 203-207. (Journal IF: 34; Citation: 60). *shared corresponding authors

Haddad D, Vilain S, Vos M, Esposito G, Matta S, Kalscheuer V, Craessaerts K, Leyssen M, Nascimento R, Vianna-Morgante A, De Strooper B, Van Esch H, Morais VA*, Verstreken P* (2013). Mutations in the Intellectual Disability Gene Ube2a Cause Neuronal Dysfunction and Impair Parkin-Dependent Mitophagy. *Molecular Cell.* **50** (6), 831-43. (Journal IF: 14; Citations: 32). *shared corresponding authors

Vos M, Esposito G, Edirisinghe J, Vilain S, Haddad D, Slabbaert J, Van Meensel S, Schaap O, De Strooper B, Meganathan R, Morais VA, Verstreken P (2012). Vitamin K2 is a mitochondrial electron carrier that rescues pink1 deficiency. *Science.* **336** (6086), 1306-10. (Journal IF: 34; Citation: 123)

Vilain S, Esposito G, Haddad D, Schaap O, Dobрева M, Vos M, Van Meensel S, Morais VA, De Strooper B, Verstreken P (2012). The yeast complex I equivalent NADH dehydrogenase rescues pink1 mutants. *PLoS Genetics*. **8** (1). (Journal IF: 8; Citation: 49)

Morais VA, Verstreken P, Roethig A, Smet J, Snellinx A, Vanbrabant M, Haddad D, Frezza C, Mandemakers W, Vogt-Weisenhorn D, Van Coster R, Wurst W, Scorrano L, De Strooper B (2009) Parkinson's disease mutations in PINK1 result in decreased Complex I activity and deficient synaptic function. *EMBO Molecular Medicine*. **1** (2), 99-111. (Journal IF: 9; Citation: 183)

Mota, Maria M.

Major Interests / Objectives

Malaria is one of the most serious parasitic infectious diseases, with a toll of up to 600,000 deaths every year. It is now consensual that malaria control or elimination will never be feasible until we gain a better understanding of the complex interactions occurring between its main players: Plasmodium, the causative agent of disease, and its hosts. Yet, important gaps subsist in our knowledge of the processes that occur at the parasite-host interface. Thus, the overall goal of our laboratory is to identify key host factors and host-Plasmodium interactions that contribute to: (i) the establishment of a malaria infection during the initial steps of Plasmodium replication inside liver hepatocytes and (ii) the onset of malaria pathology while Plasmodium infects red blood cells.

Head of Laboratory

Maria Manuel Mota, PhD

Research Team

Ana Filipa Caetano Parreira	Graduate	Technician
Ana Filipa Pintéus da Cruz	PhD	Post doctoral Investigator, (left June)
Ana Margarida Aires Alves Vigário	PhD	Investigator, Assistant Professor
Ana Margarida Ferreira Góis	Master	Technician, (left January)
Ângelo António Ferreira Chaves do Rosário Chora	PhD	Post doctoral Investigator
Aparajita Lahree	Graduate	MSc Student
Daniel José Martins Carapau	PhD	Post doctoral Investigator, (left August)
Debanjan Mukherjee	Master	PhD Student
Dr. Sonali Setua	PhD	Post doctoral Investigator
Eliana Real	PhD	Post doctoral Investigator, (left November)
Filipe António Mainha Bica	Graduate	Trainee, (started February)

Ghislain Guillaume Nicolas Cabal	PhD	Post doctoral Investigator, (left June)
Henrique Figueiredo de Serra Pereira	Graduate	MSc Student, (started August)
Inês Fernandes Bento	PhD	Investigator
Iset Medina Vera	PhD	Post doctoral Investigator
João Tiago Carvalho Jordão de Mello Vieira	Master	PhD Student
Kirsten Hanson	PhD	Post doctoral Investigator, (left June)
Ksenija Slavic	PhD	Post doctoral Investigator
Lénia Marisa Pereira Rodrigues	PhD	Post doctoral Investigator
Liliana Mancio Silva	PhD	Post doctoral Investigator
Manuela Bernardi	Master	Lab Manager
Manuela Morgadinho Faustino Monteiro dos Santos	PhD	Consultant, Universidade de Montreal, Full Professor
Márcia Melo Medeiros	MD/PhD	Post doctoral Investigator
Margarida Maria Teles Grilo Ruivo	Master	Technician
Maria Inês Moreira Oliveira Leite Marreiros	Graduate	MSc Student, (started March)
Maurice Ayamba Itoe	PhD	Post doctoral Investigator, (left October)
Miguel Dinis Monteiro dos Santos	Undergraduate	MSc Student, (started September)
Priscila Lima dos Santos	PhD	PhD Student, (started November)
Sara de Jesus Santos Baptista	Master	PhD Student, (started September)
Sofia Pinto Guia Marques	PhD	Lab Manager
Tomás Furtado Lemos	Undergraduate	Trainee, (started December)
Vanessa Alexandra Zuzarte Luís	PhD	Post doctoral Investigator
Viriato M'Bana	Master	Investigator

Keywords / Research Areas

Host-Plasmodium interactions, Nutrient acquisition, Innate immune response against Plasmodium infection, Iron metabolism during Plasmodium infection, Using transgenic parasites as malaria vaccines

Major scientific achievements

Our team has been developing several lines of research directed towards the elucidation of fundamental questions of host-Plasmodium interactions.

In 2015, we published some of our most recent findings on our effort to understand the host contribution for the Plasmodium liver infection. Here we highlight the proteomic and transcriptomic analyses, revealing that the endoplasmic reticulum (ER)-resident unfolded protein response (UPR) is activated in hepatocytes upon *P. berghei* infection. This UPR induction increases parasite liver burden suggesting that ER stress is a central feature of *P. berghei* hepatic development. In light of our results, we postulate that resolving ER stress in the liver can mitigate malaria liver infection (Inácio et al., 2015).

Also of relevance is the development of novel and critical infection systems for the human pathogens, *P. falciparum* and *P. vivax* (Ng et al., 2015 & March et al., 2015).

Selected Publications

Portugal S, Carret C, Recker M, Armitage AE, Gonçalves LA, Epiphanyo S, Sullivan D, Roy C, Newbold CI, Drakesmith H, Mota MM. (2011) Host-mediated regulation of superinfection in malaria. *Nature Medicine* 17(6), 732-7. (Journal IF: 22.46, Citations: 94)

Hanson KK, Ressurreição AS, Buchholz K, Prudêncio M, Herman-Ornelas JD, Rebelo M, Beatty WL, Wirth DF, Hänscheid T, Moreira R, Marti M, Mota MM. (2013) Torins are potent antimalarials that block replenishment of Plasmodium liver stage parasitophorous vacuole membrane proteins. *Proc Natl Acad Sci U S A* 110(30), E2838-E2847. (Journal IF: 9.81, Citations: 15)

Liehl P, Zuzarte-Luís V, Chan J, Zillinger T, Baptista F, Carapau D, Konert M, Hanson KK, Carret C, Lassnig C, Müller M, Kalinke U, Saeed M, Chora AF, Golenbock DT, Strobl B, Prudêncio M, Coelho LP, Kappe SH, Superti-Furga G, Pichlmair A, Vigário AM, Rice CM, Fitzgerald KA, Barchet W, Mota MM. (2014) Host-cell sensors for Plasmodium activate innate immunity against liver-stage infection. *Nature Medicine* 20 (1), 47-53. (Journal IF: 28.05, Citations: 33)

Itoe MA, Sampaio JL, Cabal GG, Real E, Zuzarte-Luis V, March S, Bhatia SN, Frischknecht F, Thiele C, Shevchenko A, Mota MM. (2014) Host Cell Phosphatidylcholine Is a Key Mediator of Malaria Parasite Survival during Liver Stage Infection. *Cell Host Microbe* 16(6), 778-86. (Journal

Ongoing Research Projects

2012/2015 Mechanisms of nutrient-sensing by the malaria parasite. Coordinator: Liliana Mancio Silva. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/SAU-MET/118199/2010. Amount: € 123410.00. Amount (total): € 123410.00.

2011/2015 EVIMalaR award (Establishment of a European Virtual Institute for Malaria Research). Coordinator: Liliana Mancio Silva. Agency: University of Glasgow. Reference: EVIMalaR - fellowship award - Liliana Mancio. Amount: € 210005.11. Amount (total): € 210000.00.

2009/2015 Establishment of a European Virtual Institute for Malaria Research. Coordinator: Maria Manuel Mota. Agency: University of Glasgow. Reference: EVIMalaR. Amount: € 92846.00. Amount (total): € 12000000.00.

2012/2015 Utilization of host cell resources by the malaria parasite in the liver. Coordinator: Miguel Prudêncio. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/SAU-MIC/117060/2010. Amount: € 154755.00. Amount (total): € 154755.00.

2012/2015 Towards malaria eradication. A novel approach for multi-targeting the parasite's life cycle. Coordinator: Miguel Prudêncio. Agency: Fundação Ciência e Tecnologia. Coordinator Institution: Faculdade de Farmácia da Universidade de Lisboa. Coordinator PI: Francisca Conceição Lopes. Reference: PTDC/SAU-FAR/118459/2010. Amount: € 36741.00. Amount (total): € 132014.00.

2013/2015 Regulation of host cell metabolism during malaria liver stage. Coordinator: Ghislain Guillaume Nicolas Cabal. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/IMI-MIC/1568/2012. Amount: € 168637.00. Amount (total): € 168637.00.

2013/2015 Liver stage antimalarials that drive sterile immunity. Coordinator: Kirsten Hanson. Agency: Bill & Melinda Gates Foundatio. Reference: GATES - Grant n OPP1086189. Amount: € 76260.20. Amount (total): € 76260.20.

2013/2016 Host-Plasmodium interactions: a tale of sensing and being sensed. Coordinator: Maria Manuel Mota. Agency: Fundação Ciência e Tecnologia. Reference: EXCL/IMI-MIC/0056/2012. Amount: € 331463.00. Amount (total): € 331463.00.

2013/2016 Engineered liver platforms to study regulation of host microRNA in Plasmodium liv. Coordinator: Iset Medina Vera. Agency: National Institute of Allergy and Infectious Disea. Reference: GRANT NUMBER: 1F32AI104252-01X1. Amount: € 12379.94. Amount (total): € 12379.94.

2014/2015 A chemical proteomics approach to identify the *P. falciparum* target of the Torins. Coordinator: Ana Filipa Pintéus da Cruz. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: EXPL/BBB-BEP/0746/2013. Amount: € 50000.00. Amount (total): € 50000.00.

2014/2015 The role of Iron in Plasmodium life cycle and disease. Coordinator: Daniel José Martins Carapau. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: EXPL/BIM-MET/0753/2013. Amount: € 50000.00. Amount (total): € 50000.00.

2014/2015 Differentially chemically attenuated liver stage parasites to elucidate the determinants of unnatural acquired immunity to Plasmodium. Coordinator: Kirsten Hanson. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: EXPL/IMI-MIC/0866/2013. Amount: € 50000.00. Amount (total): € 50000.00.

2012/2017 ParasiteNutriSensing: Nutrient sensing by parasites - 311502 ParasiteNutriSensing. Coordinator: Maria Manuel Mota. Agency: Comissão Europeia. Reference: ParasiteNutriSensing . Amount: € 1500000.00. Amount (total): € 1500000.00.

Original publications in peer review Journals

Herman JD, Pepper LR, Cortese JF, Estiu G, Galinsky K, Zuzarte-Luis V, Derbyshire ER, Ribacke U, Lukens AK, Santos SA, Patel V, Clish CB, Sullivan Jr WJ, Huihao Zhou, Selina E. Bopp, Paul Schimmel, Susan Lindquist, Jon Clardy, Maria M. Mota, Keller TL, Whitman M, Wiest O, Wirth DF, Mazitschek R (2015) The cytoplasmic prolyl-tRNA synthetase of the malaria parasite is a dual-stage target of febrifugine and its analogs. *Sci Transl Med.* 20; **7**(288). (Journal IF: 14.41, Citations: 0)

Ng S, Schwartz RE, March S, Galstian A, Gural N, Shan J, Prabhu M, Mota MM, Bhatia SN. (2015) Human iPSC-Derived Hepatocyte-like Cells Support Plasmodium Liver-Stage Infection In Vitro. *Stem Cell Reports.* 10;**4**(3):348-59. (Journal IF: 3.2, Citations: 6)

Liehl P, Meireles P, Albuquerque IS, Pinkevych M, Baptista F, Mota MM, Davenport MP, Prudêncio M. (2015) Innate Immunity Induced by Plasmodium Liver Infection Inhibits Malaria Reinfections. *Infect Immun.* 83(**3**): 1172–1180. (Journal IF: 4.16, Citations: 2)

Hanson KK, March S, Ng S, Bhatia SN, Mota MM. (2015) In vitro alterations do not reflect a requirement for host cell cycle progression during Plasmodium liver stage infection. *Eukaryot Cell.* 14(**1**):96-103. (Journal IF: 3.18, Citations: 0)

Other publications International

Liehl P, Zuzarte-Luis V, Mota MM. (2015) Unveiling the pathogen behind the vacuole. *Nat Rev Microbiol.* 13(**9**):589-98. (Journal IF: 23.32, Citations: 2)

Inácio P, Zuzarte, Luís V, Ruivo MTG, Falkard B, Nagaraj N, Rooijers K, Mann M, Mair G, Fidock DA, Mota MM. (2015) Parasite induced ER stress response in hepatocytes facilitates Plasmodium liver stage infection. *EMBO Reports*. **16**: 955–964. (Journal IF: 7.86, Citations: 2)

March S, Ramanan V, Trehan K, Ng S, Galstian A, Gural N, Scull MA, Shlomai A, Mota MM, Fleming HE, Khetani SR, Rice CM, Bhatia SN. (2015) Micropatterned coculture of primary human hepatocytes and supportive cells for th

e study of hepatotropic pathogens. *Nat Protoc*. 10(12):2027-53. (Journal IF: 7.78, Citations: 0)

Invited lectures and seminars

Maria M Mota, "Malaria Biology", Tropical Infectious Diseases. Challenges, Opportunities and Successes, Gordon Research Conference, Galveston, Texas, EUA, March 2015

Maria M Mota, "Innate immunity against liver-stage Plasmodium infection", Lorne Infection and Immunity, Mantra Lorne, Lorne, Victoria, Australia, February 2015

Maria M Mota, "Host cell sensors for Plasmodium" Toll 2015. Targeting Innate Immunity., Tulesa Kenes Spain, September 2015

Maria M Mota, "Host cell sensors for Plasmodium" 32^e Journée Institut Cochin - Intracellular immunity and the sensing of pathogens- Paris, France, September 2015

Communications in International Conferences

Kirsten Hanson, "Torin2 targets Plasmodium PI4K to block protein trafficking of newly synthesized proteins during liver stage parasite development", Gordon Tropical Infectious Diseases. Challenges, Opportunities and Successes, Gordon Research Conference, Galveston, Texas, EUA, March 2015 (Poster presentation)

Ksenija Slavic, "A plant-like iron transporter acts as a detoxifier in Plasmodium", 11th Biomalpar /Evimalar Conference - Biology and Pathology of the Malaria Parasite, EMBL, Heidelberg, Germany, May 2015 (Oral Presentation)

João Vieira "Establishment of malaria liver stage infection is dependent on the ubiquitin pathway", 11th Biomalpar /Evimalar Conference - Biology and Pathology of the Malaria Parasite, EMBL, Heidelberg, Germany, May 2015 (Poster presentation)

Liliana Mancio-Silva, "Plasmodium regulates virulence upon nutrient sensing", Molecular

Parasitology Meeting, Woods Hole, MA, EUA, September 2015 (Oral Presentation)

Communications in National Conferences

Vanessa Zuzarte-Luís, “ IV Encontro Nacional de Pós-graduação em Ciências Biológicas, Aveiro, Portugal, April 2015

Organisation of Conferences

Maria M Mota, 11th Biomalpar /Evimalar Conference - Biology and Pathology of the Malaria Parasite, EMBL, Heidelberg, Germany, May 2015 (Scientific Organizer)

Maria M Mota, Gordon Research Conferences - Translating Malaria Research to the Field, Girona, Spain, June 2015 (Conference Vice-Chair, Session Discussion Leader - Biology of Sporozoites and Liverstages)

Patents/prototypes

US62/191126 "COMPOSITIONS FOR THE TREATMENT OF MALARIA" GL Maria M. Mota

US62/192004 "COMPOSITIONS FOR THE TREATMENT OF MALARIA" GL Maria M. Mota

Advanced teaching

Maria M Mota, Programa Graduado em Áreas da Biologia Básica e Aplicada (GABBA), Porto, Portugal, March 2015

Maria M Mota e Vanessa Zuzarte-Luís, Mestrado em Microbiologia, FMUL, Lisboa, Portugal, Maio 2015

Maria M Mota e Vanessa Zuzarte-Luís, Pós-graduação Ciência para o Desenvolvimento, Praia, Cabo Verde, June 2015

Msc thesis completed

Aparajita Lahree 13/07/2015 Characterizing Iron transporters in Plasmodium species Faculdade de Ciências e Tecnologia, Universidade de Coimbra Ksenija Slavic Maria M Mota

Oliveira, Sofia A.

Major Interests / Objectives

Our research focuses on understanding the genetic architecture of complex diseases such as Stroke, Behçet's Disease, Primary Spontaneous Pneumothorax, and Intracranial Aneurysms. Common diseases result from the interaction of environmental and genetic factors, and an in-depth evaluation of their genetic underpinnings will not only unravel complex inheritance patterns but will also enable a better understanding of the environmental risks. We use both traditional and new approaches to identify novel susceptibility genes. We believe that studies with a multifaceted and multidisciplinary framework will have the greatest success in dissecting the complex etiology of common disorders and that they will ultimately lead to the development of novel prevention strategies and targeted therapies.

Head of Laboratory

Ana Sofia Simões Domingues de Almeida Oliveira, PhD

Research Team

David Miguel Ferreira Francisco	Graduate	MSc Student
Inês Girão Meireles de Sousa	PhD	Post doctoral Investigator
Patrícia Alexandra Silva Santos	Graduate	MSc Student
Patricia Carla Simões Abrantes	PhD	Post doctoral Investigator, (left October)
Vânia Patrícia Ferreira Francisco	Master	Technician

Keywords / Research Areas

Genetics, Genomics, Complex traits

Major scientific achievements

In 2015, we found that:

- CCR1, KLRC4, IL12A-AS1, STAT4, and ERAP1 genes are associated with Behçet's disease in Iranian;
- Ulcerative colitis is under dual (mitochondrial and nuclear) genetic control.

Furthermore, we investigated the association of mitochondrial polymorphisms and haplogroups with several complex phenotypes and participated in the METASTROKE international collaboration to investigate the role of low-frequency and common genetic variation in ischemic stroke.

Selected Publications

Xavier JM, Shafiee NM, Ghaderi F, Rosa A, Abdollahi BS, Nadji A, Shahram F, Davatchi F, Oliveira SA. (2011) Association of mitochondrial polymorphism m.709G>A with Behçet's disease (BD). *Annals of the Rheumatic Diseases*, **70**, 1514-16, (Journal IF: 9.111, Citations: 1)

Krug T, Gabriel JP, Taipa R, Fonseca BV, Domingues-Montanari S, Fernandez-Cadenas I, Manso H, Gouveia L, Sobral J, Albergaria I, Gaspar G, Jiménez-Conde J, Rabionet R, Ferro JM, Montaner J, Vicente AM, Silva MR, Matos I, Lopes G, Oliveira SA. (2012) Tetratricopeptide repeat domain 7B emerges as a novel risk factor for ischemic stroke through the convergence of several genome-wide approaches. *Journal of Cerebral Blood Flow and Metabolism*, **32**, 1061-1072, (Journal IF: 5.398, Citations: 5)

Xavier JM, Shahram F, Davatchi F, Rosa A, Crespo J, Abdollahi BS, Nadji A, Jesus G, Barcelos F, Patto JV, Shafiee NM, Ghaderibarim F, Oliveira SA. (2012) Association study of IL10 and IL23R-IL12RB2 in Iranian Behçet's disease patients. *Arthritis & Rheumatism*, **64**, 2761-2772, (Journal IF: 7.477, Citations: 20)

Traylor M, Farrall M, Holliday EG, Sudlow C, Hopewell JC, Cheng YC, Fornage M, Ikram MA, Malik R, Bevan S, Thorsteinsdottir U, Nalls MA, Longstreth W, Wiggins KL, Yadav S, Parati EA, Destefano AL, Worrall BB, Kittner SJ, Khan MS, Reiner AP, Helgadottir A, Achterberg S, Fernandez-Cadenas I, Abboud S, Schmidt R, Walters M, Chen WM, Ringelstein EB, O'Donnell M, Ho WK, Pera J, Lemmens R, Norrving B, Higgins P, Benn M, Sale M, Kuhlenbäumer G, Doney AS, Vicente AM, Delavaran H, Algra A, Davies G, Oliveira SA, Palmer CN, Deary I, Schmidt H, Pandolfo M, Montaner J, Carty C, de Bakker PI, Kostulas K, Ferro JM, van Zuydam NR, Valdimarsson E, Nordestgaard BG, Lindgren A, Thijs V, Slowik A, Saleheen D, Paré G, Berger K, Thorleifsson G; The Australian Stroke Genetics Collaborative, Wellcome Trust Case Control Consortium 2 (WTCCC2), Hofman A, Mosley TH, Mitchell BD, Furie K, Clarke R, Levi C, Seshadri S, Gschwendtner A, Boncoraglio GB, Sharma P, Bis JC, Gretarsdottir S, Psaty BM, Rothwell PM, Rosand J, Meschia JF, Stefansson K, Dichgans M, Markus HS; on behalf of the International Stroke Genetics Consortium. (2012) Genetic risk factors for ischaemic stroke and its subtypes

(the METASTROKE Collaboration): a meta-analysis of genome-wide association studies. *Lancet Neurology*, **11**, 951-962, (Journal IF: 23.917, Citations: 63)

Xavier JM, Shahram F, Sousa I, Davatchi F, Matos M, Abdollahi BS, Sobral J, Nadji A, Oliveira M, Ghaderibarim F, Shafiee NM, Oliveira SA. (2015) FUT2: filling the gap between genes and environment in Behçet's disease? *Annals of the Rheumatic Diseases*, **74**, 618-624, (Journal IF: 9.082, Citations:0)

Ongoing Research Projects

2013/2016. Coordinator: Ana Sofia Simões Domingues de Almeida Oliveira. Agency: NEDAI. Reference: Prémio NEDAI 2012. Amount: € 8506.39. Amount (total): € 10000.00.

2013/2015. Coordinator: Ana Sofia Simões Domingues de Almeida Oliveira. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/IIM-GES/5015/2012. Amount: € 33246.00. Amount (total): € 180174.00.

2014/2018 Technology, Entrepreneurship and Innovation Policy Lab. Coordinator: Ana Sofia Simões Domingues de Almeida Oliveira. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: CMUP-ERI/TPE/0028/2013. Amount: € 89300.00. Amount (total): € 350000.00.

Other Projects

2014/2015 Prémio Robalo Cordeiro SPP/GSK 2013. Coordinator: Feijó S.

2013/2015 Prémio Robalo Cordeiro SPP/GSK 2013. Coordinator: Feijó S.

Original publications in peer review Journals

Xavier JM, Shahram F, Sousa I, Davatchi F, Matos M, Abdollahi BS, Sobral J, Nadji A, Oliveira M, Ghaderibarim F, Shafiee NM and Oliveira SA (2015) FUT2: filling the gap between genes and environment in Behçet's disease? *Annals of the Rheumatic Diseases* **74**, 618-624 (Journal IF: 9.082, Citations: 0).

Xavier JM, Davatchi F, Abade O, Shahram F, Francisco V, Sadeghi Abdollahi B, Trindade H, Nadji A, Mojarad Shafiee N, Ghaderibarmi F, Ligeiro D and Oliveira SA (2015) Characterization of the major histocompatibility complex locus association with Behçet's disease in Iran. *Arthritis Research & Therapy* **17**, **81** (Journal IF: 4.12, Citations: 0).

Abrantes P, Santos MM, Sousa I, Xavier JM, Francisco V, Krug T, Sobral J, Matos M, Jacinto A, Coiteiro D and Oliveira SA (2015) Genome-wide association study for intracranial aneurysms in Portuguese. *PLoS One* **10**, e0133422 (Journal IF: 3.53, Citations: 0).

Other publications International

Sousa I, Shahram F, Francisco D, Davatchi F, Abdollahi BS, Ghaderibarmi F, Nadji A, Shafiee NM, Xavier JM and Oliveira SA (2015) CCR1, KLRC4, IL12A-AS1, STAT4, and ERAP1 are associated with Behçet's disease in Iranian. *Arthritis & Rheumatology* **67**, 2742 (Journal IF: 7.871, Citations: 0).

Communications in International Conferences

Rosa A, Sousa I, Abrantes P, Francisco V, Santos P, Francisco D, Xavier JM, Oliveira SA. Mitochondrial genome influences susceptibility to ulcerative colitis. Poster presentation at the 2015 ACMG Annual Clinical Genetics Meeting, Salt Lake City, USA, 24-28 Mar. 2015. (Poster Presentation)

Francisco V, Oliveira P, Zejnilović L, Oliveira SA. A multiple case study approach to patients and caregivers as sources of innovative ideas and solutions. Poster presentation at the 2015 ACMG Annual Clinical Genetics Meeting, Salt Lake City, USA, 24-28 Mar. 2015. (Poster Presentation)

Oliveira SA, Oliveira P, Zejnilović L, Canhã H, von Hippel E. Patient innovation under rare diseases and chronic needs. Poster presentation at the 2015 ACMG Annual Clinical Genetics Meeting, Salt Lake City, USA, 24-28 Mar. 2015. (Poster Presentation)

Oliveira P, Zejnilović L, Oliveira SA. A multiple case study approach to patients and caregivers as sources of innovative ideas and solutions. Poster presentation at the European Human Genetics 2015 Conference, Glasgow, Scotland, UK, 6-9 Jun. 2015. (Poster Presentation)

Oliveira P, Zejnilović L, Canhã H, von Hippel E, Abrantes P. Patient innovation under rare diseases and chronic needs. Poster presentation at the European Human Genetics 2015 Conference, Glasgow, Scotland, UK, 6-9 Jun. 2015. (Poster Presentation)

Rosa A, Abrantes P, Sousa I, Francisco V, Santos P, Francisco D, Xavier JM, Oliveira SA. Ulcerative colitis is under dual (mitochondrial and nuclear) genetic control. Poster presentation at the European Human Genetics 2015 Conference, Glasgow, Scotland, UK, 6-9 Jun. 2015. (Poster Presentation)

Communications in National Conferences

Santos P, Sousa I, Francisco V, Xavier J, Patto JV, Barcelos F, Oliveira SA. Genetics of Familial Paget's Disease of Bone. Poster presentation at the 4th Bioinformatics Open Days 2015, Lisboa, Portugal, 10 Apr. 2015. (Poster Presentation)

Internationalisation

Our research depends critically on the establishment effective collaborations with clinical groups for study design, sample ascertainment and collection, and clinical input. We have been able to establish these fruitful interactions with several teams nationwide and internationally, as demonstrated by the large and well-curated biobanks we have set-up in the past ten years and the ensuing research, grants, prizes and publications. The BD biobank was mostly assembled by Iranian collaborators, while the PSP and IA samples were collected throughout Portugal.

We are also part of the METASTROKE international collaboration in the field of ischemic stroke genetics and are currently involved in the sequencing efforts of stroke patients and controls.

Advanced teaching

Oliveira SA. Lecturer in the Mestrado em Doenças Metabólicas e do Comportamento Alimentar, FML, 11 January 2015.

Oliveira SA. Lecturer in the Mestrado de Neurociências, FML, 20 May 2015.

Oliveira SA. Lecturer in the Biomarkers and assay development course, FCT PhD Programme Medicines and Pharmaceutical Innovation (i3DU), 14 September 2015.

Msc thesis completed

David Miguel Ferreira Francisco 13/11/2015 Genética Familiar do Pneumotórax Espontâneo Primário (PEP) Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa Sofia A Oliveira

Prata, Diana

Major Interests / Objectives

Our interest is the molecular biology of human behaviour, which we aim to translate into improving etiological and therapeutic models of neuropsychiatric disorders. We have reported on the influence of genetic variations on: mental illness risk, brain function/structure and drug treatment response. We are now majorly interested in: 1) the role of oxytocin in social cognition, and its relevance to psychosis, autism and anorexia; and 2) building clinically useful multimodal biomarkers for aiding clinical diagnostic and prognostic predictions. For this, we combine psychological and neuropharmacological experimentation with (epi)genetics, neuroimaging and psychophysiological tools - which is made possible by a diverse team of biophysics engineers, psychologists, biologists and medical doctors.

Head of Laboratory

Diana Maria Pinto Prata, PhD, Assistant Professor

Research Team

Daniel Artur Abreu Martins	Master	Trainee, (started August)
Elisabete Barata Fernandes	PhD	Investigator, (started April) (left June)
Júlia Monteiro Quintino dos Reis	No degree	MSc Student, (started December)
Maria Inês Oliveira Casqueiro	Graduate	Trainee, (started October)
Matilde Pós-de-Mina Pato	PhD	Trainee, (started September)
Mónica Gonçalves Barbeito Costa	Graduate	MSc Student, (started October)
Vânia Sofia Santos Tavares	Master	Investigator, (started December)

Keywords / Research Areas

Neuroimaging, Genetics, Psychiatry, Social Cognition, Machine Learning Classification, Neuropharmacology

Major scientific achievements

In 2015, we have achieved essential steps to set up our research niche. We have: 1) started setting-up multimodal MRI capabilities in CAML, 2) launched a website for study subjects' recruitment, 3) designed new experimental protocols, 4) co-organized the LisbonBioMed programme and 5) established new collaborations with Emory University (USA) and King's College London (UK), and within CAML, namely with HSM's Neuropathology and Psychiatry services (and other 2 local public hospitals) and with experts in CAML and the Champalimaud Centre for the Unknown. We have outreached to the public, e.g., via talks in Oxford Science Festival, in CCB, in Pavilhão da Ciência with Ciência Viva, and an article in Super Interessante magazine. We have attracted institutional (€30.000), national (€50.000) and EU (€100.000) grants plus an Investigator FCT award, and 3 PhD scholarships (reviewed by FCT, M2B and LisbonBioMed). We have published 4 papers in international peer-reviewed journals in 2015.

Selected Publications

PRATA DP, Mechelli A, Kapur S. (2014) Clinically meaningful biomarkers for psychosis: a systematic and quantitative review. *Neuroscience and Biobehavioural Reviews* **45**, 134. <http://www.sciencedirect.com/science/article/pii/S0149763414001274>. (Journal IF: 9.4, Citations: 15)

Prata DP, Mechelli A, Fu C, Picchioni M, Kane F, Kalidindi S, McDonald C, Kravariti E, Touloupoulou T, Bramon E, Walshe M, Murray R, Collier DA, McGuire PK. (2012) Effect of D-amino acid oxidase activator (DAOA; G72) on brain function during verbal fluency. *Human Brain Mapping*. , **33**, 143. <http://www.ncbi.nlm.nih.gov/pubmed/21391259>. (Journal IF: 7.1, Citations: 15)

PRATA DP, Mechelli A, Fu C, Picchioni M, Touloupoulou T, Bramon E, Walshe M, Murray R, Collier DA, McGuire P. (2009) Epistasis between the DAT 3'UTR VNTR and COMT Val158Met SNP on cortical function in healthy subjects and patients with schizophrenia. *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*. **106**, 13600. <http://www.pnas.org/content/106/32/13600.full>. (Journal IF: 10.4, Citations: 65)

Prata DP, Mechelli A, Picchioni M, Fu C, Touloupoulou T, Bramon E, Walshe M, Murray R, Collier DA, McGuire. (2009) Altered effect of dopamine transporter 3'UTR VNTR genotype on prefrontal and striatal function in schizophrenia.. *Archives of General Psychiatry (now JAMA Psychiatry)* **66**, 1162. <http://archpsyc.jamanetwork.com/article.aspx?articleid=210428>. (Journal IF: 16.5, Citations: 27)

PRATA DP, Mechelli A, Fu C, Picchioni M, Kane F, Kalidindi S, McDonald C, Howes O, Kravariti E, Demjaha A, Touloupoulou T, Diforti M, Murray R, Collier DA, McGuire. (2009) Opposite effects of COMT Val158Met on cortical function in healthy subjects and patients with Schizophrenia. *Biological Psychiatry* **6**, 473. [http://www.biologicalpsychiatryjournal.com/article/S0006-3223\(08\)01167-0/abstract](http://www.biologicalpsychiatryjournal.com/article/S0006-3223(08)01167-0/abstract). (Journal IF: 9.5, Citations: 57)

Ongoing Research Projects

2015/2018 Oxytocin and Dopamine Interplay in Humans – on the Biology of Social Cognition. Coordinator: Diana Maria Pinto Prata. Agency: Comissão Europeia. Reference: BIOSOCIOCO. Amount: € 100000.00. Amount (total): € 100000.00.

2015/2020 Projecto de Investigação Exploratória. Coordinator: Diana Maria Pinto Prata. Agency: Fundação para a Ciência e a Tecnologia, IP. Coordinator Institution: O. Reference: Projecto de Investigação Exploratória. Amount: € 50000.00. Amount (total): € 50000.00.

Other Projects

2015/2020 A multimodal biomarker to predict the onset of schizophrenia.. Coordinator: Diana Prata.

2010/2020 Genetic underpinnings of brain activation during verbal fluency, grey and white matter structure and dopamine synthesis. Coordinator: Diana Prata.

Original publications in peer review Journals

Bianconi F, Bonomo M, Marconi A, Kolliakou A, Stilo S, Iyegbe C, Muñoz P, Homayoun S, Mondelli V, Luzi S, Dazzan P, Prata D, La Cascia C, O'Connor J, David A, Morgan C, Murray R, Lynskey M, Di Forti M. (2015) Differences in Cannabis-related Experiences between Patients with a First Episode of Psychosis and Controls. *Psychological Medicine*. **16**:1-9. (Journal IF:5.9; Citations: 0)

Invited lectures and seminars

PRATA DP. The neurobiology of social cognition. Centre for Neuroimaging Sciences, King's College London, UK, 2015.

PRATA DP. When Genetics meets Imaging and Psychiatry. Biomedical Engineering and Biophysics BSc seminars, UL. 2015

PRATA DP. The neurobiology of social cognition. Lapsos EEG meeting, ISCTE, UL. 2015

PRATA DP. The neurobiology of social cognition. Faculty of Psychology, UL. 2015

PRATA DP. When Genetics meets Imaging and Psychiatry. Lapsos EEG meeting at ISCTE, UL. 2015

PRATA DP. When Genetics meets Imaging and Psychiatry. Champalimaud Centre for the Unknown. 2015

PRATA DP. The biology of verbal and social cognition: genes, neuropeptides and neuroimaging". IST, UL. 2015

PRATA DP. The biology of verbal and social cognition: genes, neuropeptides and

neuroimaging". LEL, FMUL. 2015

PRATA DP. Imaging Genetics. Psychiatric Research MSc Genetics module. Institute of Psychiatry, King's College London, UK. 2015

PRATA DP. The neurobiology of social cognition. LisbonBioMed PhD seminars. IMM. 2015

PRATA DP. The neurobiology of social cognition. Neurosciences MSc seminars. IMM. 2015

Communications in International Conferences

PRATA, DP: Impact of genome-wide associated psychosis?risk gene ZNF804A on white matter integrity in health and psychosis. Human Brain Mapping conference 2015, Honolulu. USA. (Poster Presentation)

Communications in National Conferences

PRATA DP. The biology of human cognition: when imaging, genetics, neuropharmacology and Psychiatry meet. NeuroLx conference 2015, Lisbon, Portugal.

Internationalisation

Our current collaborators are:

2015– - Dr Gonzalo Polavieja - Computational modelling - Champalimaud Centre for the Unknown, Portugal

2015– - Dr Tiago Maia - Reinforcement learning - IMM Lisboa, Portugal

2015– - Dr André Mata - Decision making - James William Research Centre, Portugal

2015– - Dr Sofia Meneres - Empathy - Instituto Superior de Psicologia Aplicada, Portugal

2015– - Pedro Levy - Psychosis data - University of Lisbon Hospital, Portugal

2015– - Ana Silva - Machine learning imaging - Cardiff University's Brain Research Imaging Centre, UK

2015– - Dr James Rilling - Oxytocin neuro-pharmacological data - Anthropology, Emory University, USA

2015– - Prof. Sophie Scott - Emotion vocal recognition - University College London, UK

2015– - Dr Orla Doyle - Machine learning - Centre for Neuroimaging Sciences, KCL, UK

2015– - Dr Joao Moreira - Psychology testing - Faculty of Psychology, University of Lisbon, Portugal

2015– - Dr Hugo Ferreira - Neuroimaging - Institute for Biomedical Engineering, Univ. Lisbon, Portugal

2015– - Dr Andre Marreiros - Functional connectivity - Max Planck Institute for Biological Cybernetics, Germany

Prizes, honours and awards

Start-up Grant (€30.000), IMM Lisboa, Portugal. Sole applicant. 2015.

FCT Investigator 5-year Contract Award - IF/00787/2014 (2015-2020), including €50.000 Exploratory Grant), "Oxytocin and Dopamine Interplay: On the biology of social cognition" by Fundação para a Ciência e Tecnologia (FCT). Sole applicant. 2015

EU Marie Curie 4-year Career Integration Grant - 631952 BIOSOCIOCOG FP7-PEOPLE-2013-CIG (€100.000) (2015-2019), "Oxytocin and Dopamine Interplay: On the biology of social cognition" by European Commission. Sole applicant. 2015.

Advanced teaching

PRATA DP. Lecture. The neurobiology of social cognition. LisbonBioMed PhD seminars. IMM.

PRATA DP. Lecture. The neurobiology of social cognition. Neurosciences MSc seminars. IMM.

For more (external to IMM) see previous section "Invited lectures and seminars".

PRATA DP. Organizer. Neuroscience Week at LisbonBioMed PhD Programme. IMM.

PRATA DP. Organizer. Invited speaker labmeetings of DPrata Lab. IMM.

Science and society

PRATA DP. (2015). Article 'Investigating Oxytocin' in Super Interessante magazine.

PRATA DP. (2015). Talk and Debate on 'The senses' by news media Observador at CCB.

PRATA DP. (2015). Talk 'The biology of social behaviour' at Pavilhão do Conhecimento by Ciência Viva.

PRATA DP. (2015). The European Investigators' Night.

PRATA DP. (2015). Segments "Saberás tu..." at Jornal i.

PRATA DP. (2015). 'An evening of Science and Music around love and cooperation' at Oxford Science Festival.

Prudêncio, Miguel

Major Interests / Objectives

Research Interests:

Our interests span a wide range of topics within the malaria field, with particular emphasis on the hepatic stage of infection. We are interested in elucidating novel aspects of the biology of *Plasmodium* infection, unveiling novel host-parasite interactions, understanding co-infections between *Plasmodium* and other parasites, and developing new drug- and vaccine-based anti-malarial strategies.

Research Areas

- Nutrient acquisition and metabolism during *Plasmodium* development inside hepatic cells
- Novel host-*Plasmodium* molecular interactions
- Identification of compounds active against *Plasmodium* liver stages
- Malaria vaccines
- The reciprocal influence of *Plasmodium* and *Trypanosoma* co-infections

Head of Laboratory

Miguel Prudêncio, PhD

Research Team

Ana Filipa Gonçalves Teixeira	Master	Investigator
Ana Margarida Roque Sanches Vaz	Master	PhD Student
António Manuel Barbeiro Mendes	PhD	Post doctoral Investigator
Carolina Morgado de Andrade	Master	MSc Student
Clemente da Silva	Graduate	MSc Student, (started March) (left August)
Diogo Manuel Casal Madruga	Undergraduate	Technician, (started May) (left June)
Inês Isabel Fernandes Gomes	PhD	Post doctoral Investigator
Joana da Silva Pissarra	Master	Investigator, (left June)
João Brito Sinfrónio	Graduate	MSc Student, (started June)

Jorge Manuel Santos	PhD	Post doctoral Investigator, (left October)
Marija Markovic	PhD	Post doctoral Investigator, (left September)
Marta Monteiro Maia Machado	Graduate	Technician, (left September)
Patrícia dos Santos Meireles	Master	PhD Student
Pedro Gil Gameiro Eloy Sena Rego	Undergraduate	Trainee
Rafael Costa de Sousa	Undergraduate	Trainee, (started September)
Raquel Alves de Azevedo	Graduate	MSc Student, (started June)
Sarah Goellner	Graduate	Trainee, (started July)
Sílvia Marina de Jesus Andrade	Master	Trainee, (started June)

Keywords / Research Areas

Malaria, Parasitology, Vaccines, Host-pathogen interactions, Liver-stage infection, *Plasmodium*

Major scientific achievements

During 2015, the Prudêncio lab has:

- published several papers in peer-reviewed, international journals
- been awarded a supplement of a Phase II Grand Challenges Explorations award by the Bill & Melinda Gates Foundation
- been awarded a grant by PATH-Malaria Vaccine Initiative
- filed one international patent application (Genetically modified rodent *Plasmodium* parasites as platforms for a whole-organism malaria vaccine)
- participated in several International and National conferences and meetings
- had several media appearances in relation to its scientific activities

In this period the lab has also established or furthered collaborations with several National and International research groups.

Selected Publications

Liehl P., Zuzarte-Luís V, Chan J, Zillinger T, Baptista F, Carapau D.I, Konert M, Hanson H, Carret C, Lassnig C, Müller M, Kalinke U, Saeed M, Chora A.F, Golenbock D.T, Strobl B., Prudêncio M., Coelho L.P., Kappe S.H., Superti-Furga G., Pichlmair A., Vigário A.M., Rice C.M., Fitzgerald K.A., Barchet W., Mota M.M, Lin . J., Meireles P , Engelmann S., Annoura T, Sajid M, Chevalley S, Maurel, J. Ramesar, C. Nahar, C.M.C. Avramut, A.J. Koster, K. Matuschewski, A.P. Waters, C.J. Janse, G.R. Mair, S.M. Khan (2014) Host cell sensors for *Plasmodium* activate innate immunity against liver stage infection. *Nature Medicine*, **20**, 47-53, (Journal IF: 27.4, Citations: 30)

da Cruz F.P., Martin C., Buchholz K K., Lafuente-Monasterio M.J., Rodrigues T., Sönnichsen B., Moreira R, Gamo FJ, Marti M, Mota M.M, Hannus M, Prudêncio M. (2012) Drug Screen Targeted at Plasmodium Liver Stages Identifies a Potent Multi-Stage Anti-Malarial Drug. *J. Inf. Dis.*, **205**, 1278-1286, (Journal IF: 5.8, Citations: 26)

Prudêncio M, Mota M.M, Mendes A.M (2011) A toolbox to study liver stage malaria. *Trends Parasitol*, **27**, 565-574, (Journal IF: 5.3, Citations: 25)

Oliveira R, Guedes RC, Meireles P, Albuquerque IS, Gonçalves LM, Pires E, Bronze MR, Gut J, Rosenthal PJ, Prudêncio M, Moreira R, O'Neill P.M, Lopes F. (2014) Tetraoxane-Pyrimidine Nitrile Hybrids as Dual Stage Antimalarials. *J. Med. Chem.*, **57**, 4916-4923, (Journal IF: 5.5, Citations: 7)

Liehl P, Meireles P, Albuquerque I.S, Pinkevych M, Baptista F , Mota M.M, Davenport M.P , Prudêncio M (2015) Innate immunity induced by Plasmodium liver infection inhibits malaria reinfections. *Infection and Immunity*, **83**, 1172-1180, (Journal IF: 4.1, Citations: 2)

Ongoing Research Projects

2015/2016 A P. berghei-based malaria vaccine. Coordinator: Miguel Prudêncio. Agency: PATH. Reference: MVI Project- malaria vaccine. Amount: € 195000.00. Amount (total): € 199000.00.

2015/2017 Plasmodium infection of 3D hepatic cell cultures. Coordinator: Miguel Prudêncio. Agency: IBET. Coordinator Institution: IBET. Coordinator PI: Dr. Paula Alves. Reference: Transgenic P. Berghei parasite Line. Amount: € 75000.00.

2012/2015. Coordinator: Miguel Prudêncio. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/SAU-MIC/117060/2010. Amount: € 154755.00. Amount (total): € 154755.00.

2012/2015 Towards malaria eradication. A novel approach for multi-targeting the parasite's life cycle. Coordinator: Miguel Prudêncio. Agency: Fundação Ciência e Tecnologia. Coordinator Institution: Faculdade de Farmácia Univ. Lisboa. Coordinator PI: Dr. Francisca Lopes. Reference: PTDC/SAU-FAR/118459/2010. Amount: € 36741.00. Amount (total): € 132014.00.

2013/2016. Coordinator: Miguel Prudêncio. Agency: Bill & Melinda Gates Foundatio. Reference: Bill & Melinda - Vaccine. Amount: € 721053.33. Amount (total): € 1130000.00.

2013/2017. Coordinator: Miguel Prudêncio. Agency: Banco Espirito Santo. Reference: Prémio Inovação BES categoria Saúde. Amount: € 50000.00. Amount (total): € 50000.00.

Original publications in peer review Journals

Terzić, Natasa, Konstantinovic Jelena, MiklošTot, Burojevic Jovana, Djurkovic-Djaković Olga, Srbljanovic Jelwna, Štajner Tijana, Verbic Tatjana, Zlatovic Mario, Machado Marta, Albuquerque Ines S, Prudencio, Miguel, Sciotti Richard J., Pecic Stevan, D'Alessandro Shara, Taramelli Donatella, and Š olaja Bogdan A. (2015) "Re-investigating old pharmacophores: Are 4-aminoquinolines and tetraoxanes potential two-stage antimalarials?" *J. Med. Chem.*, 2016, **59** (1), pp 264–281 (Journal IF: 5.447; Citations: 0)

Pereira N.A.L., Monteiro Â., Machado M, Gut J, Molins E, Perry M.J, Dourado J, Moreira R, Rosenthal PJ, Prudêncio M,* and Santos M.M.M* (2015), "Enantiopure Indolizinoindolones with in vitro Activity against Blood- and Liver-Stage Malaria Parasites". *ChemMedChem*. 2015 Dec; 10(12):2080-9 (Journal IF: 2.968; Citations: 0)

Gomes A, Machado M, Lobo L, Nogueira F, Prudêncio M, Teixeira C, Gomes P (2015) "N-cinnamoylation of antimalarial classics: Effects of using acyl groups other than cinnamoyl toward dual-stage antimalarials", *ChemMedChem*, **10**, 1344-1349 (Journal IF: 2.968; Citations: 0)

Kaur H, Machado M, de Kock C, Smith P, Chibale K, Prudêncio M, Singh K. (2015) "Primaquinepyrimidine hybrids: Synthesis and dual-stage antiplasmodial activity", *European Journal of Medicinal Chemistry*, **101**, 266-273 (Journal IF: 3.447; Citations: 0)

Lewis MD, Behrends J, Cunha CS, Mendes AM, Lasitschka F, Heiss K, Kooij T.W.A, Prudêncio M, Frischknecht F and Mueller A.K. (2015), "Chemical attenuation of Plasmodium in the liver modulates severe malaria disease progression", *Journal of Immunology*, **194**, 4860-4870 (Journal IF: 4.034; Citations: 0)

Rodrigues C.A.B., Frade R.F.M., Albuquerque I.S., Perry M.J., Gut J., Machado M, Rosenthal P.J, Prudêncio M., Afonso C.A.M, Moreira R. (2015), "Targeting the Erythrocytic and Liver Stages of Malaria Parasites with s-Triazine-Based Hybrids", *ChemMedChem*, (Journal IF: 2.968; Citations: 0)

Liehl P, Meireles P, Albuquerque I.S, Pinkevych M, Baptista F., Mota M.M, Davenport MP, Prudêncio M. (2015), "Innate immunity induced by Plasmodium liver infection inhibits malaria reinfections", *Infection and Immunity*, **83**, 1172-1180 (Journal IF: 3.731; Citations: 0)

Other publications National

I. Gomes, A. Reis, E. Pereira, E. Fortunato, M. Prudêncio, R. Franco (2015) "Nanoimunoensaios para diagnóstico de malária", An. Inst. Hig. Med. Trop., 14, 21-30

Invited lectures and seminars

MP- "ROPLAVAC: Revolutionizing malaria vaccination", X Jornadas de Engenharia Biológica, 16-17 March 2015, Instituto Superior Técnico, Lisboa, Portugal

MP- "Development of a new strategy for vaccination against malaria", VI Jornadas Nacionais de Ciências Biomédicas, 11-14 March 2015, Universidade do Algarve, Faro, Portugal

Communications in International Conferences

Miguel Prudêncio - "Towards Clinical Evaluation of a Rodent Plasmodium-Based Vaccine Against Human Malaria", Gordon Research Conference - Translating Malaria Research to the Field, 26-31 July 2015, Girona, Spain. (Oral Presentation)

António Mendes - "A Rodent Plasmodium Platform for Immunization Against Human Malaria", 3rd iMM Post-DOc Day, 25 September 2015. (Oral Presentation) Winner of best oral presentation award

Patrícia Meireles, Rita Aroeira, António M. Mendes, Miguel Prudêncio, "Inhibition of Plasmodium liver infection by amino acid supplementation and modulation of polyamine synthesis", BioMalPar XI: Biology and Pathology of the Malaria Parasite, EMBL Heidelberg, Germany 11 - 13 May 2015. (Poster Presentation)

Patrícia Meireles, Rita Aroeira, António M. Mendes, Miguel Prudêncio, "Plasmodium liver infection by amino acid supplementation and modulation of polyamine synthesis", Lisbon Immunology and Infection Meeting, 26th March 2015, Instituto Gulbenkian de Ciência, Oeiras, Portugal. (Poster Presentation)

Internationalisation

The lab has an extensive network of collaborations with leading International researchers, including:

Iñigo Angulo-Barturem - GSK Tres Cantos, Madrid
Angus Bell - University of Dublin
Peter Eaton - Faculty of Chemistry, Porto
Randolph Elble - Southern Illinois University
Lesley Ellies - University of California San Diego
Michael Hannus and Christophe Echeverri - Cenix Bioscience, Dresden
Thomas Hanscheid - Instituto de Medicina Molecular
Hillary Hurd - Keele University
Chris Janse and Shahid Khan - Leiden University
Stefan H. Kappe - Seattle Biomedical Research Institute
Clemens Kocken - Biomedical Primate Research Centre, Rijswijk
Ann-Kristin Mueller - University of Heidelberg
Robert Sauerwein - University of Nijmegen
Bogdan Solaja - Faculty of Chemistry, Belgrade
Henry Staines and Sanjeev Krishna - St. George's University London
Rita Tewari - University of Nottingham

These collaborations involve important scientific exchanges with researchers from these International institutions. Besides, lab members regularly participate in International conferences and meetings. Finally the lab is funded, in part, by two International organizations (the Bill & Melinda Gates Foundation and PATH-MVI) with whom it maintains close interactions.

Patents/prototypes

Genetically modified rodent Plasmodium parasites as platforms for a whole-organism malaria vaccine (WO 2013156949 A1, also published as CN104302313A, EP2838554A1, US20150071966) Provisional application (Portugal) No. 20121000030819, filed 17.04.2012 PCT international application PCT/IB2013/053050, submitted 17.04.2013, published 24.10.2013. Patent applications filed in Angola, Australia, Brazil, China, India, Japan, Mozambique, South Africa, United States, and European Patent (Euro-PCT), November 2014 Patent granted in Mozambique (17.08.2015)

Advanced teaching

MP - "Whole-organism pre-erythrocytic malaria vaccines: concepts, approaches and alternatives", Lisbon BioMed PhD Course, 10 February 2015

MP - "Scientific writing", Biomolecular Methods, Masters in Molecular Biology and Genetics Course, September 2015

MP - "Biomolecular Methods for Malaria Research", Clinical Biochemistry, Masters in Biochemistry Course, June 2015

MP - "Animal models in malaria research", Evolutionary Biology and Development Masters Course, October 2015

Msc thesis completed

Carolina Andrade 10/10/2015 Characterization of a new genetically modified Plasmodium berghei parasite – development of a pre-erythrocytic malaria vaccine Fac. Ciências Univ. Lisboa
António Mendes Miguel Prudêncio

Ramirez, Mário

Major Interests / Objectives

We aim to understand the dynamics of populations of bacterial pathogens and how they respond to selective forces. We focus on the effect of antimicrobial use, human vaccination and host diversity on bacterial populations. We are also exploring the relationships between commensal and disease causing populations of the same bacterial pathogen with the aim of identifying particularly successful clones at causing disease as well as successful colonizers for further characterization. A strong bioinformatics effort in the area of bacterial genomics, microbial typing data sharing, data analysis and visualization tools is ongoing. The development of novel laboratory methodologies for the diagnosis of infectious diseases is also an active area of research.

Head of Laboratory

Mário Nuno Ramos d'Almeida Ramirez, PhD

Research Team

Adriana Domingos Policarpo	Graduate	MSc Student
Ana Catarina Martins Lameiras	Undergraduate	Technician
Ana Isabel Aquino Friães	PhD	Senior Investigator
Ana Marta Fernandes Bica	Undergraduate	Trainee, (started October)
Andreia das Neves Horácio	Master	PhD Student
Andreia Sofia Agostinho Gravata	Master	Trainee
Anne Jamet	MD/PhD	Post doctoral Investigator
Bruno Filipe Ribeiro Gonçalves	Graduate	PhD Student, (started March)
Carolina Isabel Glória Tempera	Master	Investigator, (left May)
Catarina Costa	PhD	Senior Investigator
Catarina Inês Marques de Sousa Mendes	Graduate	MSc Student, (started September)
Catarina Teresa Condinho Pato	Master	PhD Student

Cristiano Miguel Pedroso Roussado	Graduate	MSc Student
Denise Rodrigues Francisco	Graduate	MSc Student, (started July)
Elisabete Martins	PhD	Post doctoral Investigator
Elísia Graciela da Silva Lopes	Master	Investigator, (started June)
Fábio Filipe dos Santos Luz	Graduate	MSc Student
Joana Alexandra Pimento Lopes	Graduate	Technician
Joana Gomes Martins Lopes	Graduate	MSc Student
João André Nogueira Custódio Carriço	PhD	Senior Investigator
Jorge Fernandes da Silva João	Undergraduate	Trainee, (started October)
Jorge Miguel Diamantino Miranda	Master	PhD Student
José Augusto Gamito Melo Cristino	MD/PhD	Senior Investigator
Liliana Sofia Cardoso	No degree	Investigator
Marcos Daniel Caetano Borges de Pinho	PhD	Senior Investigator
Maria João Rua Frias	PhD	Post doctoral Investigator
Maria Sousa Rebelo	Master	PhD Student
Mickael Santos da Silva	Master	Investigator
Miguel Alexandre Ferreira Maia Barbosa	Undergraduate	Undergraduate, (started October)
Miguel Paulo Machado	Master	Investigator, (started June)
Raquel Baptista Arinto Garcia	Master	Investigator
Rita Santinho Grenho	Graduate	MSc Student, (started September)
Rosângela Maria Rodrigues Carvalho Frita	Master	PhD Student
Sandra Isabel Rodrigues de Aguiar	PhD	Post doctoral Investigator
Soraia Cristina Lopes Vieira	Graduate	MSc Student, (started July)
Tânia Patrícia Martins Fernandes	Master	Investigator, (started June)
Thomas Hanscheid	MD/PhD	Senior Investigator

Keywords / Research Areas

Population biology and genomics, Bioinformatics, Detection of antimalarial drug resistance, Molecular epidemiology, Diagnostic tools, Antibiotic resistance

Major scientific achievements

Identification of a clone of *S. pyogenes* that disseminated rapidly worldwide using high throughput genomic sequence data.

Development of an automatic method for the evaluation of NET production by *S. pyogenes*.

Evaluation of the frequency and role played by alterations in the key regulators CovRS and RopB in virulence associated phenotypes in *S. pyogenes*.

Documentation of continuing changes in *S. pneumoniae* causing invasive infections with vaccination and its consequences for future potential vaccines.

Development of a novel and easy haemozoin inhibition assay to assess emerging artemisinin resistance.

Evaluation of a novel magneto-optical hemozoin detection method for diagnosis and sensitivity testing.

Selected Publications

Rebelo, M., C. Sousa, H. M. Shapiro, M. M. Mota, M. P. Grobusch, and T. Häscheid (2013) A novel flow cytometric hemozoin detection assay for real-time sensitivity testing of *Plasmodium falciparum*. *PLoS ONE* **8**:e61606, (Journal IF: 3.234, Citations: 7)

Francisco, A. P., C. Vaz, P. T. Monteiro, J. Melo-Cristino, M. Ramirez, and J. A. Carriço (2012) Phylogenetic inference and data visualization for sequence based typing methods. *BMC bioinformatics*, **13**, 87, (Journal IF: 2.576, Citations: 76)

Aguiar, S.I., M. Brito, Horácio, A. N., J. Lopes, M. Ramirez, J. Melo-Cristino, and Portuguese Group for the Study of Streptococcal Infections and the Portuguese Study Group of Invasive Pneumococcal Disease of the Paediatric Infectious Disease Society. (2014) Decreasing incidence and changes in serotype distribution of invasive pneumococcal disease in persons aged under 18 years since introduction of 10-valent and 13-valent conjugate vaccines in Portugal, July 2008 to June 2012. *Euro Surveill*, **19**, (Journal IF: 5.722, Citations: 8)

Silva-Costa, C., J. A. Carriço, M. Ramirez, and J. Melo-Cristino. (2014) Scarlet fever is caused by a limited number of *Streptococcus pyogenes* lineages and is associated with the exotoxin genes *ssA*, *speA* and *speC*. *Pediatr Infect Dis J*, **33**, 306-10, (Journal IF: 2.723, Citations: 6)

Melo-Cristino J., C. Resina, V. Manuel, L. Lito, M. Ramirez (2013) First case of infection with vancomycin-resistant *Staphylococcus aureus* in Europe. *The Lancet*, **382**, 205, (Journal IF: 45.217, Citations: 21)

Ongoing Research Projects

2012/2015 Besieged by conjugate vaccination: changes of the pneumococcal population and their genomic consequences. Coordinator: José Augusto Gamito Melo Cristino. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/DTP-EPI/1759/2012. Amount: € 174533.00. Amount (total): € 174533.00.

2013/2016 Coordinator: Thomas Hanscheid. Agency: Steris Corporation. Reference: IFDO Research. Amount: € 13000.00. Amount (total): € 11000.00.

Original publications in peer review Journals

Björnsdóttir ES, Martins ER, Erlendsdóttir H, Haraldsson G, Melo-Cristino J, Kristinsson KG, Ramirez M. (2015) Changing epidemiology of group B streptococcal infections among adults in Iceland: 1975-2014. *Clin Microbiol Infect*. (Journal IF: 5.768; Citations: 0)

Costa SS, Viveiros M, Rosato AE, Melo-Cristino J, Couto I. (2015) Impact of efflux in the development of multidrug resistance phenotypes in *Staphylococcus aureus*. *BMC Microbiology* 2015 **15**:232 (Journal IF: 2.729; Citations: 0)

Tempera C, Franco R, Caro C, André V, Eaton P, Burke P, Hänscheid T. (2015) Characterization and optimization of the haemozoin-like crystal (HLC) assay to determine Hz inhibiting effects of anti-malarial compounds. *Malar J* **14**:403. (Journal IF: 3.109; Citations: 0)

Friães A, Pato C, Melo-Cristino J, Ramirez M. (2015). Consequences of the variability of the *CovRS* and *RopB* regulators among *Streptococcus pyogenes* causing human infections. *Sci Rep* **5**:12057. (Journal IF: 5.578; Citations: 0)

Silva-Costa C, Ramirez M, Melo-Cristino J, Portuguese Group for the Study of Streptococcal Infections. (2015). Declining macrolide resistance in *Streptococcus pyogenes* in Portugal (2007-13) was accompanied by continuous clonal changes. *J Antimicrob Chemother*. **70**:2729–2733. (Journal IF: 5.313; Citations: 0)

Coutinho CP, Barreto C, Pereira L, Lito L, Melo-Cristino J, Sá-Correia I. 2015. Incidence of Burkholderia contaminans at a cystic fibrosis centre with an unusually high representation of Burkholderia cepacia during 15 years of epidemiological surveillance. *J Med Microbiol* **64**:927–935. (Journal IF 2.248; Citations: 0)

Janssen S, Hermans S, Knap M, Moekotte A, Rossatanga EG, Adegnika AA, B elard S, H anscheid T, Grobusch MP. (2015). Impact of Anti-Retroviral Treatment and Cotrimoxazole Prophylaxis on Helminth Infections in HIV-Infected Patients in Lambar en e, Gabon. *PLoS Negl Trop Dis* **9**:e0003769. (Journal IF: 4.446; Citations: 0)

Rosini R, Campisi E, De Chiara M, Tettelin H, Rinaudo D, Toniolo C, Metruccio M, Guidotti S, S orensen UBS, Kilian M, DEVANI Consortium, Ramirez M, Janulczyk R, Donati C, Grandi G, Margarit I. (2015). Genomic analysis reveals the molecular basis for capsule loss in the group B streptococcus population. *PLoS ONE* **10**:e0125985. (Journal IF: 3.234; Citations: 0)

Rebelo M, Tempera C, Fernandes JF, Grobusch MP, H anscheid T. (2015). Assessing anti-malarial drug effects ex vivo using the haemozoin detection assay. *Malar J* **14**:140. (Journal IF: 3.109; Citations: 1)

Teixeira AS, Monteiro PT, Carri o JA, Ramirez M, Francisco AP. (2015). Not seeing the forest for the trees: Size of the minimum spanning trees (MSTs) forest and branch significance in MST-based phylogenetic analysis. *PLoS ONE* **10**:e0119315. (Journal IF:3.234; Citations: 0)

Coelho LP, Pato C, Fri es A., Neumann A, von K ockritz-Blickwede M, Ramirez M, Carri o JA. (2015). Automatic Determination of NET (Neutrophil Extracellular Traps) Coverage in Fluorescent Microscopy Images. *Bioinformatics* **31**:2364–2370. (Journal IF: 4.981; Citations: 0)

Other publications International

Ramirez M, Carri o JA, van der Linden M, Melo-Cristino J. 2015. Molecular Epidemiology of *Streptococcus pneumoniae*, p. 3-19 . In Brown, JM, Hammerschmidt, S, Orihuela, C (eds.), *Streptococcus Pneumoniae - Molecular Mechanisms of Host-Pathogen Interactions*. Academic Press, San Diego. DOI: 10.1016/B978-0-12-410530-0.00001-6

Other publications National

Barreira R, Gra a AM, Gon alves C, Abrantes M, Gouveia R, Carvalho D, Lito L, Moniz C, Melo-Cristino J, Machado. 2015. Monitoriza o epidemiol gica numa unidade de cuidados intensivos neonatais. *Acta Pedi trica Portuguesa* **46**:190 –7.

Invited lectures and seminars

Carrico JA. 2015. Integrating phylogenetic inference and metadata visualisation for NGS data (WS20-Typing of Bacterial Pathogens in 2015: Expanding Scope of NGS). 115th American Society of Microbiology General Meeting (ASM2015), New Orleans, USA, 30 May-2 Jun

Carrico JA. 2015. How to compare Typing Techniques: Do's and Don't's (WS20-Typing of Bacterial Pathogens in 2015: Expanding Scope of NGS). 115th American Society of Microbiology General Meeting (ASM2015), New Orleans, USA, 30 May-2 Jun.

Carrico JA. . 2015. What bioinformatic tools should I use for analysis of high-throughput sequencing data for molecular diagnostics? (M022). 25th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID), Copenhagen, Denmark, 25-28th April (Meet The Expert Session)

Carrico JA. 2015. Whole genome and core genome MLST analysis from NGS data: from reads to trees. ESCMID capacity-building workshop "Rapid NGS for Characterization and Typing of Resistant Gram-negative bacilli" , Groningen, Netherlands, 7 - 9 October

Carrico JA. 2015. PHYLOViZ: phylogenetic inference and data visualization for sequence based typing. ESCMID capacity-building workshop "Rapid NGS for Characterization and Typing of Resistant Gram-negative bacilli" , Groningen, Netherlands, 7 - 9 October

Carrico JA. 2015. Choosing the Right Microbial Typing Method: A Quantitative Approach, Mayo Clinic, Rochester, Minnesota, USA, 3rd November.

Carrico JA. 2015. Minimum Spanning Trees in Genomics Epidemiology: The Importance of models and metadata integration 2015 2015., Mayo Clinic, Rochester, Minnesota, USA, 4th November.

Carrico JA . 2015. From reads to trees: promises and challenges of high throughput sequencing. NGS Symposium of Doctoral Program in Plant Sciences (DPPS), Helsinki, Finland, 11 December

Ramirez, M. 2015. Métodos rápidos de diagnóstico microbiológico. VI Jornadas da Associação Nacional de Controlo de Infecção, Braga, Portugal, 13th March

Hanscheid T. 2015. Malaria diagnostics (S172). 25th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID), Copenhagen, Denmark, 25-28th April (Symposium: Towards malaria elimination)

Rebelo M. 2015. Flow Cytometric Detection of Light Depolarization and Malaria Research. At XIV Congresso Sociedade Ibérica de Citometria, Las Palmas, Spain, 4-6 June 2015 (Symposium: Microbiology and HIV).

Hanscheid T. 2015. Malária: actualização no diagnostic (e no tratamento). 35º
Ciclo de Conferencias sobre Doenças Infecciosas, Lisbon, 27th February.

Communications in International Conferences

Silva-Costa C, Horácio A, Aguiar SI, Lopes JP, Brito MJ, Ramirez M, Melo-Cristino J, Portuguese Group for the Study of Streptococcal Infections, Portuguese Study Group of Invasive Pneumococcal Disease of the Paediatric Infectious Disease Society. 2015. PCV13 serotypes are still major causes of invasive pneumococcal disease in Portugal despite 10 years of conjugate vaccine use in the private market (P351). 9th World Congress of the World Society for Pediatric Infectious Diseases. Rio de Janeiro, Brazil, 18-21 November. (Poster Presentation)

Silva-Costa C, Aguiar SI, Pinho MD, Friães A, Brito MJ, Ramirez M, Melo-Cristino J. 2015. The advantage of various PCR-based techniques in the enhanced ethiological diagnosis of pediatric complicated pneumococcal pneumonia in Portugal (P651). 9th World Congress of the World Society for Pediatric Infectious Diseases. Rio de Janeiro, Brazil, 18-21 November. (Poster Presentation)

Horácio AN, Silva-Costa C, Diamantino-Miranda J, Lopes JP, Ramirez M, Melo-Cristino J 2015. PCV13 serotypes were the major constituents of the major clones causing adult IPD in Portugal in the conjugate vaccine era (P2.23). 12th European Meeting on the Molecular Biology of the Pneumococcus (EuroPneumo). Oxford, UK, 7th-10th July. (Poster Presentation)

Diamantino-Miranda J, Aguiar SA, Carriço JA, Melo-Cristino J, Ramirez M. 2015. Conjugate vaccine introduction in Portugal was followed by a decrease of serotypes 6A and 6E but not of serotypes 6B and 6C (P2.22). 12th European Meeting on the Molecular Biology of the Pneumococcus (EuroPneumo). Oxford, UK, 7th-10th July. (Poster Presentation)

Aguiar SI, Horácio A, Lopes JP, Brito MJ, Ramirez M, Melo-Cristino J, on behalf of the Portuguese Group for the study of Streptococcal Infections and the Portuguese study group of Invasive Pneumococcal Disease of the Paediatric Infectious Disease Society. 2015. Paediatric invasive pneumococcal disease in Portugal after 10 years of pneumococcal conjugate vaccine use (Poster 548). 33rd Annual Meeting of the European Society for Paediatric Infectious Diseases, Leipzig, Germany, 13-16th May. (Poster Presentation)

Aguiar SI, Silva-Costa C, Pinho MD, Brito MJ, Ramirez M, Melo-Cristino J, on behalf of the Portuguese Group for the study of Streptococcal Infections and the Portuguese study group of Invasive Pneumococcal Disease of the Paediatric Infectious Disease Society. 2015. Complicated pneumococcal pneumonia in Portugal: Enhanced ethiological diagnosis and serotype distribution (Poster 479). 33rd Annual Meeting of the European Society for Paediatric Infectious Diseases, Leipzig, Germany, 13-16th May. (Poster Presentation)

Marchaim D., Zigron R., Gordon M. M., Dassa B., Lazarovitch T., Silva M., Carrico J. A., Chalifa-Caspi V., Moran-Gilad J. 2015. Clinical and Molecular Epidemiology of Acinetobacter baumannii

bloodstream infections (EP040). 25th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID), Copenhagen, Denmark, 25-28th April (Poster Presentation)

Gordon* M., Silva* M., Dassa B., Marchaim D., Lazarovitch T., Valinsky L., Chalifa-Caspi V., Carrico J. A., Moran-Gilad J.. 2015. A Proposed Novel High-Resolution Core Genome Multi-Locus Sequence Typing (MLST) Scheme for *Acinetobacter baumannii* (P080) . 25th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID), Copenhagen, Denmark, 25-28th April (Poster Presentation)

Gordon M., Dassa B., Carriço J. A., Marchaim D., Lazarovitch T., Valinsky L., Chalifa-Caspi V., Moran-Gilad J.. 2015. Application of Whole Genome Sequencing for Streamlined Identification and Susceptibility Testing (ID/AST) of Carbapenem-Resistant *Acinetobacter* spp (O020) . 25th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID), Copenhagen, Denmark, 25-28th April (Poster Presentation)

Martins E.R., Barato P., Iregui C., Melo-Cristino J., Ramirez M.. 2015. Zebrafish model of *Streptococcus agalactiae* infection (P400). 25th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID), Copenhagen, Denmark, 25-28th April. (Poster Presentation)

Mottola C, Semedo-Lemsaddek T, Mendes JJ, Melo-Cristino J, Cavaco-Silva P, Tavares L, Oliveira M. 2015. Molecular Typing, virulence traits and antimicrobial resistance of diabetic foot staphylococci (EV0323). 25th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID), Copenhagen, Denmark, 25-28th April. (Oral Presentation)

Pires D, Zagalo A, Santos C, Cota de Madeiros F, Lito L, Melo-Cristino J, Caldeira L. 2015. Carbapenemase-producing Enterobacteriaceae in adults at a tertiary hospital at Lisbon (EV0673). 25th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID), Copenhagen, Denmark, 25-28th April. (Oral Presentation)

Rebelo M, Francisco D, Hanscheid T. A novel in vitro method to detect artemisinin resistance based on the detection of hemozoin. Poster LB5350. 64th American Society for Tropical Medicine and Hygiene Annual Meeting, Philadelphia, USA, October 25-29, 2015. (Poster Presentation)

Communications in National Conferences

B. Ribeiro-Gonçalves, M. Ramirez and J.A. Carriço. 2015. ProGenViZ: a novel interactive tool for prokaryotic genome visualization and comparison (P248 S7). Microbiotec'15, Évora, Portugal, 10-12 December. (Poster Presentation)

A.N. Horácio, J.P. Lopes, M. Ramirez, J. Melo-Cristino, Portuguese Group for the Study of Streptococcal Infections. 2015. Serotype distribution and antimicrobial resistance of the isolates causing non-invasive pneumococcal pneumonia in Portugal after the availability of the 13-valent conjugate vaccine for adults (P149 S4). Microbiotec'15, Évora, Portugal, 10-12 December.(Poster Presentation)

A.N. Horácio, C. Silva-Costa, J. Diamantino-Miranda, J.P. Lopes, M. Ramirez and J. Melo-Cristino. 2015. The dominant clonal complex causing invasive disease in Portugal still expressed PCV7 serotypes in spite of a decade of vaccine use in children (P226 S6). Microbiotec'15, Évora, Portugal, 10-12 December. (Poster Presentation)

E.R. Martins, C. Roussado, J. Melo-Cristino, and M. Ramirez. 2015. Invasive group B streptococcal infections among neonates in Portugal (O25 S4). Microbiotec'15, Évora, Portugal, 10-12 December. (Poster Presentation)

E.R. Martins, E. Björnsdóttir, H. Erlendsdóttir, G. Haraldsson, J. Melo-Cristino, K. Kristinsson, and M. Ramirez. 2015. Comparative epidemiology of group B streptococcal infections among adults in Portugal and Iceland (P126 S4). Microbiotec'15, Évora, Portugal, 10-12 December. (Poster Presentation)

Arinto-Garcia R, Lopes JP, Silva-Costa C, Ramirez M, Melo-Cristino J. 2015. Evolução da susceptibilidade aos antimicrobianos de espécies bacterianas patogénicas multirresistentes comuns em Portugal (2013-2015): avaliação da tigeciclina e linezolid enquanto alternativas terapêuticas. 6º Congresso Pandemias na Era da Globalização e 4º Simpósio Nacional da Medicina do Viajante, Coimbra, 28-30th May. (Oral Presentation)

Internationalisation

- Academic partners on the EU project PathoNGenTrace (<http://patho-ngen-trace.eu/>)
- Collaboration with STERIS, in the development of a novel hemozoin inhibition assay - Dr. Peter Burke, Steris Corporation, Mentor, OH, USA
- Working group on malaria cytometry – Howard Shapiro (USA), Brian Grimberg (USA), Grace Chojnowski (Australia), Rui Gardner (Portugal)
- Sensitivity testing using flow cytometric principles to detect hemozoin – flow cytometer for measurement in Gabon, in collaboration with Martin Grobusch, head of the Infectious Diseases department, University Hospital Amsterdam, The Netherlands.
- Assessment of a novel “Magneto-Optical Method” for detection of malaria parasites and drug sensitivity testing, in collaboration with István Kézmárki, Department of Physics, Budapest University of Technology and Economics, Budapest, Hungary.
- Collaboration in the Genome Canada IRIDA (Integrated Rapid Infectious Disease Analysis) Project (www.irida.ca)
- Collaboration in the Government of Canada Genomics R&D Initiative project - Strengthening Food and Water Safety in Canada Through an Integrated Federal Genomics Initiative.

- Collaboration with the Surveillance and Pathogenomics- Israeli Centre of Excellence (SPICE), from the Ben Gurion University of the Negev, Beer Sheva, Israel on the development of novel core genome MLST schemas for *Acinetobacter baumannii* complex

- Expert consultation for the eCDC for the elaboration of the document “ECDC strategy on harnessing whole genome sequencing for EU cross-border outbreak investigations and public health surveillance”.

Advanced teaching

J. Carriço. Participation on the second cycle course of Computational Biology for Master and PhD programmes of Instituto Superior Técnico, Universidade Tecnica de Lisboa in collaboration with the Faculty of Medicine of Lisbon. Responsible for a module on Molecular Phylogenetics.

T. Hanscheid, S. Aguiar. PGCD –Postgraduate Program for Science and Development, 2014, Universidade de Cabo Verde, Instituto Calouste Gulbenkian. Responsible for module on Clinical Microbiology.

T. Hanscheid. Lecturing two workshops at the AIMS meeting, 2015, on “Diagnosis with low resources” and “Trick or treatment”.

Msc thesis completed

Cristiano Miguel Pedroso Roussado 20/11/2015 *Streptococcus agalactiae* in neonatal infections – a changing population? Mestrado em Microbiologia, Instituto Superior Técnico, Universidade de Lisboa Mário Ramirez Isabel Sá-Correia

Adriana Policarpo 02/10/2015 Análise do pangenoma de *Streptococcus pneumoniae* e comparação de genomas dos serótipos 1 e 3 Mestrado em Bioinformática e Biologia Computacional, Faculdade de Ciências, Universidade de Lisboa João André Carriço Francisco Pinto

Remondes, Miguel

Major Interests / Objectives

Independent life relies on mentally mapping, in place and time, the distribution of resources and threats, to inform adaptive behavior. How does the brain store, update, retrieve, and use, the memory of spatial contexts? The hippocampal formation forms a complex circuit with regions of neocortex, to store neural maps of spatial context, which are subsequently "read" to inform decisions. To dissect the mechanisms underlying this process we use techniques from multiple disciplines:

- a) Anatomy, and in vitro electrophysiology, to identify neural circuits connecting HIPP with cortex.
- b) in vivo electrophysiology, to investigate neural activity in these circuits during behavior.
- c) Fine genetically-encoded neural manipulations.
- d) Behavioral tasks involving spatial memory and decision-making.

Head of Laboratory

Armando Miguel Caseiro Pires Remondes, PhD

Research Team

Carolina Costa Jorge Marcos Quintino	Graduate	MSc Student, (started February)
Denise Irene Marta Monteiro	Undergraduate	Trainee, (started July)
Emanuel Ferreira Fernandes	Master	PhD Student, (started March)
Jorge Miguel Claro Cardoso	Graduate	MSc Student, (started May)
Margarida Caldeira Brotas	Undergraduate	Undergraduate, (started March)
Mariana Alcobio Sardica Lemos Barreto	Undergraduate	Trainee, (started September)
Miriam Garrido Marguilho	Undergraduate	Trainee, (started December)
Nina Eleni Christou	Master	Trainee, (started October)
Raquel Filipa Gonçalves Fontes Laranjeira	Graduate	Trainee, (started July)
Rebeca Tatiana de Souto Santos	Master	Investigator, (started March)

Thabelo Mmamatseliso Khoboko	Master	PhD Student, (started December)
Tomás da Cruz Soares	Undergraduate	Trainee, (started October)

Keywords / Research Areas

Cortex-hippocampus, Optogenetics-pharmacogenetics, Behavior, Spatial maps, Decision, Sensory stimulus

Major scientific achievements

Remondes M * and Wilson M (2015) Slow-gamma rhythms coordinate cingulate cortical responses to hippocampal sharp-wave ripples during choice behavior, 2015 Nov 05, *Cell Reports*; Wilson M *, Varela C and Remondes M (2015) Phase organization of network computations. *Curr Opin Neurobiol*. 2015 Feb 10

Communications: FMUL Neuroscience Seminars – “Brain maps for decision-making”
 NeurULisboa International PhD Program “Brain maps for decision-making”
 University of Coimbra Center for Neuroscience and Cell Biology-“Brain maps for choice behavior”

Posters: Quintino C, Remondes M (2015); Oc2M region - connectivity matters (NeurULisboa 2015)

Cardoso J, Santos R, Remondes M (2015); Behavioral Analysis Framework in a Match-to-Trajectory Task (idem)

Ferreira-Fernandes E, Remondes M (2015); Double Retrograde anatomical tracing unravels structural connectivity gradients across the midline cortex (idem)

Selected Publications

Remondes M * and Wilson M (2015) Slow-gamma rhythms coordinate cingulate cortical responses to hippocampal sharp-wave ripples during choice behavior. *Cell Reports* <http://dx.doi.org/10.1016/j.celrep.2015.10.005> . (Journal IF: 8.4, Citations: 0)

Wilson M *, Varela C and Remondes M (2015) Phase organization of network computations. *Curr Opin Neurobiology* **31C**, 250-253. doi: 10.1016/j.conb.2014.12.011 . (Journal IF: 6.6, Citations: 4)

Remondes M * and Wilson M (2013) Cingulate-hippocampus Coherence and Trajectory Coding in a Sequential Choice Task. *CELL PRESS* **80** 5, 1277-89. (Journal IF: 16, Citations: 13)

Ongoing Research Projects

2014/2019 Exploratório - IFCT. Coordinator: Armando Miguel Caseiro Pires Remondes. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: Exploratório Miguel Remondes. Amount: € 50000.00. Amount (total): € 50000.00.

Original publications in peer review Journals

Remondes M * and Wilson M (2015) Slow-gamma rhythms coordinate cingulate cortical responses to hippocampal sharp-wave ripples during choice behavior. *Cell Reports* <http://dx.doi.org/10.1016/j.celrep.2015.10.005> . (Journal IF: 8.4, Citations: 0)

Other publications International

Wilson M *, Varela C and Remondes M (2015) Phase organization of network computations. *Curr Opin Neurobiology* 31C, 250-253. doi: 10.1016/j.conb.2014.12.011. (Journal IF: 6.6, Citations: 4)

Invited lectures and seminars

- Seminar for the FMUL Neuroscience Seminars Series– University of Lisbon Medical School – Portugal, Lisbon, November 2015 - “Brain maps for decision-making” (IAS)
- Seminar for the NeurULisboa International PhD Program get Inside IMM/FMUL/HSM – University of Lisbon Medical School – Portugal, Lisbon, October 2015 - “Brain maps for decision-making” (IAS)
- Seminar at the University of Coimbra Center for Neuroscience and Cell Biology 2015 Portugal, Coimbra, (May 2015) - “Brain maps for choice behavior” (IAS)
- Seminar at the NeuroLX 2015 meeting in NOVA Medical School, Lisbon (April 2015) - “Brain maps for choice behavior” (IAS)
- Seminar at the IMM 2015 CAML PhD Programme, Lisbon, February 2015 - “Brain maps for choice behavior” (IAS)

Communications in International Conferences

Quintino C, Remondes M (2015); Oc2M region - connectivity matters (NeurULisboa International PhD Program 2015). (Oral Presentation)

Cardoso J, Santos R, Remondes M (2015); Behavioral Analysis Framework in a Match-to-Trajectory Task (NeurULisboa International PhD Program 2015) (Oral Presentation)

Ferreira-Fernandes E, Remondes M (2015); Double Retrograde anatomical tracing unravels structural connectivity gradients across the midline cortex (NeurULisboa International PhD Program 2015). (Oral Presentation)

Internationalisation

We have presented our first research results at the NeurULisboa International PhD Program.

We have two Graduate students from International PhD Programs (NeurULisboa and Champalimaud International PhD Program)

We have ongoing collaborations with PIs in the US, and in EU countries.

Advanced teaching

-Seminar for the FMUL Neuroscience Seminars Series– University of Lisbon Medical School – Portugal, Lisbon, November 2015 - “Brain maps for decision-making” (IAS)

-Seminar for the NeurULisboa International PhD Program get Inside IMM/FMUL/HSM – University of Lisbon Medical School – Portugal, Lisbon, October 2015 - “Brain maps for decision-making” (IAS)

-Seminar at the University of Coimbra Center for Neuroscience and Cell Biology 2015 Portugal, Coimbra, (May 2015) - “Brain maps for choice behavior” (IAS)

-Seminar at the NeuroLX 2015 meeting in NOVA Medical School, Lisbon (April 2015) - “Brain maps for choice behavior” (IAS)

-Seminar at the IMM 2015 CAML PhD Programme, Lisbon, February 2015 - “Brain maps for choice behavior” (IAS)

Saldanha, Carlota

Major Interests / Objectives

Understanding how leukocyte recruitment is governed and regulated is pivotal for the comprehension of the mechanisms underlying inflammation. We are focused on deciphering what molecular partners are targeted by fibrinogen as it modulates neutrophil action and how chemokines and hydrogen peroxide cooperate in neutrophil recruitment. We aim also to develop theoretical models to simulate phenomena occurring at the leukocyte-vascular wall interface. Under our scope are as well the study of fibrinogen-mediated signal transduction on erythrocytes bioavailability of nitric oxide and the validation of inflammatory biomarkers in vascular diseases. We expect to translate our findings towards a better understanding and management of inflammatory pathologies, like sepsis and cardiovascular diseases.

Head of Laboratory

Maria Carlota Saldanha Lopes, PhD Agregação

Research Team

Ana Rosa Miranda dos Santos Silva Herdade	Master	PhD Student
Angelo Calado	PhD	Senior Investigator
Beatriz Simões Pinheiro	Undergraduate	Trainee
Catarina Duarte Lima	Master	MSc Student
Gonçalo José Lopes da Cunha	Undergraduate	MSc Student
Inês Matos de Oliveira	Undergraduate	Technician, (left September)
Patrícia Alexandra Veloso Napoleão	PhD	Post doctoral Investigator
Patrícia Raquel dos Anjos Eugénio	Graduate	MSc Student, (started September)
Pedro Miguel Araújo Guerreiro Teixeira	Master	Investigator, (started February)
Rita Maria Santos Esteves	Graduate	Technician

Sara Louro Moleirinho	Master	Trainee
Tiago Luís Pinto Pereira da Silva	Graduate	PhD Student, (started August)

Keywords / Research Areas

Inflammation, Microcirculation, Neutrophil, Erythrocyte, Leukocyte recruitment, Inflammation, Hemorheology, Microcirculation

Major scientific achievements

NO and NORS reinforce inflammatory response. Respiratory function in ELA patients associates with high NO efflux from erythrocyte (NOef). Dead sepsis patients at 24 hours present higher NOef, lower MFI and higher HI than survivors. sCD40L in AMI progression is associate to eNOS polymorphisms and VEGF . NOef in vitro under high fibrinogen levels is dependent of cAMP, PI-3K, PKC, band 3, AChE and CD47. In inflamed mice, erythrocytes became less deformable with the progression of inflammation in dependence of shear rate and WBV. Pattern of deformability is identified by numerical simulations. Both zebrafish Cxcl8 downregulation potentiates in larvae susceptibility to Salmonella infection and have impact on neutrophil recruitment to injuries and on bacterial clearance. H2O2 governs early phases and contributes to latter phases of the neutrophil recruitment to injuries, by inducing Cxcl8 expression through JNK/c-JUN/AP-1 modulating histone modification at the level of its promoter.

Selected Publications

de Almeida VV, Calado A, Silva-Herdade AS, Rosário HS, Saldanha C. (2014) An in vitro study on the modulation of the neutrophil adhesive behavior by soluble fibrinogen. *Clin Hemorheol Microcirc*, **56**, 47-56, (Journal IF: 3.398, Citations: 0)

de Oliveira S, Vitorino de Almeida V, Calado A, Rosário HS, Saldanha C. (2012) Integrin-associated protein (CD47) is a putative mediator for soluble fibrinogen interaction with human red blood cells membrane. *Biochim Biophys Acta*, **1818**, 481-490, (Journal IF: 5.000, Citations: 2)

de Oliveira, S., Reyes-Aldasoro, C.C., Candel, S., Renshaw, S.A., Mulero, V., Calado, A. (2013). Cxcl8 (Interleukin-8) mediates neutrophil recruitment and behavior in the zebrafish inflammatory response. *J.Immunol*, **190**, 4349-4359, (Journal IF: 4,922, Citations: 3)

P Teixeira, N Duro, P Napoleão, C Saldanha. (2015) Acetylcholinesterase Conformational States Influence Nitric Oxide Mobilization in the Erythrocyte. *J Membrane Biol*, **248**, 349-354. (Journal IF: 2,457; Citations: 0)

Napoleão P, Ramos C, Cabral LBP, Selas M, Monteiro MC, Criado MB, Viegas-Crespo AM, Saldanha C, Mota Carmo M, Ferreira RC, Pinheiro T. (2015) Changes of sCD40L in the progression of acute myocardial infarction associate to eNOS polymorphisms and VEGF but not to platelet CD62P expression. *Translational Research*, **166**, 650-659, (Journal IF: 5.030; Citations: 0)

Ongoing Research Projects

2012/2016. Coordinator: Maria Carlota Saldanha Lopes. Agency: Soc Portuguesa Hemorreologia. Reference: UBIMI. Amount: € 23575.00. Amount (total): € 23575.00.

2013/2016. Coordinator: Maria Carlota Saldanha Lopes. Agency: Fundação Ciência e Tecnologia. Reference: EXCL/MAT-NAN/0114/2012. Amount: € 12100.00. Amount (total): € 238000.00.

2015/2016. Bridge Grant 2015. Coordinator: Maria Carlota Saldanha Lopes. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BridgeGrant2015 CSaldanha. Amount: € 10000.00. Amount (total): € 0.00.

Other Projects

2013/2015 Evaluation of inflammatory and adaptive immunity imbalance to improve prognosis of ischemic cardiovascular diseases, Liga dos Amigos do Hospital de Santa Marta. Coordinator: P. Napoleão (Liga dos Amigos do Hospital de Santa Marta/2012). Coordinator: Patricia Napoleão.

2013/2016 Contribution of circulating microRNA to improve prognosis of ischemic cardiovascular diseases, Liga dos Amigos do Hospital de Santa Marta. Coordinator: P. Napoleão (Liga dos Amigos do Hospital de Santa Marta/2012). Coordinator: Patricia Napoleão.

2012/2015 Evaluation of inflammation profiles in septic patients – contribution to multiple cross prognostic biomarkers,. Coordinator: Carlota Saldanha.

2013/2016 “Effects of Timolol on Biochemical and Hemorheological Properties of Erythrocytes from Glaucoma Patients. Coordinator: CarLota Saldanha. Coordinator Institution: Carlos Marques-Neves FMUL Professor, ISAMB, CECU Coordenator, ALM Clinical Director.

2014/2016 Perfis da Agregação Eritrocitária e da IL-8 em sobreviventes de enfarte agudo de miocárdio. Coordinator: Carlota Saldanha. Coordinator Institution: Dr. Daniel Ferreira (Hospital da Luz).

2015/2017 Evaluation of CD40L in heart repair after cryoinjury-induced myocardial infarction in Zebrafish. Coordinator: Patrícia Napoleão Grant Post-Doc FCT: SFRH/BPD/63908/2009. Coordinator PI: Carlota Saldanha and Ângelo Calado.

Original publications in peer review Journals

Napoleão P, Ramos C, Cabral LBP, Selas M, Monteiro MC, Criado MB, Viegas-Crespo AM, Saldanha C, Mota Carmo M, Ferreira RC, Pinheiro T. (2015) Changes of sCD40L in the progression of acute myocardial infarction associate to eNOS polymorphisms and VEGF but not to platelet CD62P expression. *Translational Research* 2015, **166**:650-659. (Journal IF 5.030; Citations: 0)

Teixeira P, Napoleão P, Saldanha C. (2015) S-nitrosoglutathione efflux in the erythrocyte. *Clinical Hemorheology and Microcirculation*, **60**, 397-404 (Journal IF: 2.242, Citations: 0)

Vitorino de Almeida V, Silva-Herdade A, Calado A, Rosário H.S, Saldanha C. (2015) *Fibrinogen modulates leukocyte recruitment in vivo during the acute inflammatory response. Clinical Hemorheology and Microcirculation*, **59**, 97-106 (Journal IF: 2.242, Citations: 2)

Teixeira P, Duro N, Napoleão P, Saldanha C. (2015) Acetylcholinesterase Conformational States Influence Nitric Oxide Mobilization in the Erythrocyte. *J Membrane Biol*, **.248**, .349-354 DOI 10.1007/s00232-015-9776-y (Journal IF: 2.457, Citations: 0)

Silva-Herdade AS, Freitas T, Almeida JP, Saldanha C (2015) Erythrocyte deformability and nitric oxide mobilization under pannexin-1 and PKC dependence. *Clinical Hemorheology and Microcirculation* **59**, 155-162 (Journal IF: 2.242, Citations: 1)

Barvitenk N.N, Aslam M, Lawen A, Pantaleo A, Saldanha C, Matteucci E. (2015) Effects of Oxygen Depletion on Transmembrane Protein Activities. *Current Organic Chemistry*, **19**, 2002-2010 (IF 2,728, Citations 0)

Other publications National

Erythrocyte nitric oxide Bulletin of the SPHM 2015, 30 (1) 3-4

Physics in blood vessels evaluation Bulletin of the SPHM 2015 30 (2), 3-4

Invited lectures and seminars

Carlota Saldanha, Hemorheology and Microcirculation” "5th EuroSummer School on Biorheology & Symposium on Micro and Nano Mechanics and Mechanobiology of Cell, Tissues

and System “. Varna Bulgaria September 1st- September 5th 2015

Carlota Saldanha , Chairman of "Cell interaction and adhesion".5th EuroSummer School on Biorheology &Symposium on Micro and Nano Mechanics and Mechanobiology of Cell, Tissues and System “. Varna Bulgaria September 1st- September 5th 2015

Ângelo Calado (2015). “Studying neutrophil recruitment in acute inflammation”. June 2015. Doctoral Programme in Medicine. NOVA Medical School.

Silva-Herdade, A. New approaches to the study of the inflammatory response, Faculdade de Ciências Médicas, Universidade Nova de Lisboa, Lisboa, Portugal, June 2015

Silva-Herdade, A. The inflammatory response and the leukocyte recruitment process. Curso Livre de Bioquímica Experimental, Faculdade de Medicina de Lisboa, February 2015

Communications in International Conferences

Saldanha C, Hemorheological and Sublingual Microcirculation Profiles in Patients with Sepsis ,“28th European Society for Microcirculation (ESM) – 8th European Vascular Biology Organization (EVBO), Pisa, Italy, 3-6 Jun 2015 (Oral Presentation)

Saldanha C, Hemorheological and Biochemical Parameters in Amyotrophic Lateral Sclerosis,“28th European Society for Microcirculation (ESM) – 8th European Vascular Biology Organization (EVBO), Pisa, Italy,3th-6th Jun 2015 (Oral Presentation)

Communications in National Conferences

Saldanha C Human erythrocyte nitric oxide in healthy and disease !st Workshop on Nitric Oxide in Patho)Physiology CiiEM, Caparica , Portugal 12th Jun 2015.(Oral Presentation)

Saldanha C, “Hemorheology and Vascular Diseases” Liac Meeting on Vascular Research”Lisboa , 9 a 12 de Setembro (Oral Presentation)

Organisation of Conferences

Carlota Saldanha Organizer and is the President of the 18th Conference of the European Society of Hemorheology and Microcirculation, Lisbon 2016

Internationalisation

- Carlota Saldanha- President of the 18th Conference of European Society of Clinical Hemorheology and Microcirculation
- Carlota Saldanha - Member of the Strategic Group, European Society of Microcirculation
- Carlota Saldanha - Member of the European Clinical Hemorheology and Microcirculation Coordinating Committee
- Carlota Saldanha - Member of the Scientific Advisory Committee of the 5th Eurosummer School on Biorheology Symposium on Micro and Nano Mechanobiology of Cells, Tissues and Systems
- Carlota Saldanha - President of the Portuguese Society of Hemorheology and Microcirculation (SPHM)
- Carlota Saldanha - Member of Editorial Board of J Cellular Biotechnology
- Carlota Saldanha - Member of Editorial Board of Clinical Hemorheology and Microcirculation
- Carlota Saldanha - Member of Editorial Board of Sciedu Press, Case Reports in Clinical Pathology
- Carlota Saldanha- Member of Editorial Board of J of Eye Diseases
- Carlota Saldanha - Editor in Chief of the Bulletin Of the Bulletin of the SPHM Ana Silva-Herdade Supervision of Eliza Kurbanova, Lotta Kempainen. Determination of hemorheological parameters and intravital microscopy. Research Exchange Program, AEFML, Faculty of Medicine – Mai-Jul 2015.

Advanced teaching

Saldanha C organized the course of "Biochemistry in Physical Medicine" of the 10th Post Graduation in Sports Medicine SPMD, Lisbon, 21th March , 2015

Science and society

Saldanha C, (2015) "Há mais de 30 anos a promover o conhecimento em Hemorreologia e Microcirculação" Interview about 30 years of Hemorheology and Development in Jornal Público, www.exlibrisci.pt, Lisbon , Portugal

Msc thesis completed

Catarina Lima 19/11/2015 Identification of Biomarkers in Amyotrophic Lateral Sclerosis Lisboa
Carlota Saldanha, Jorge Marques da Silva (Faculdade de Ciências da Universidade de Lisboa)

Santos, Nuno C.

Major Interests / Objectives

Biochemical and biophysical processes occurring in membranes of human cells, as well as of their viral and bacterial pathogens. Study of two steps of the enveloped viruses life cycle (HIV-1, dengue virus, West Nile virus and pediatric respiratory viruses) that involve biomembranes – the entrance of the virus or its content into the target cell (including its inhibition) and the assembly of new virions. Study of the binding of fibrinogen to the erythrocyte membrane in cardiovascular diseases. Pre-clinical evaluation of the membrane activity and mechanism of action of antimicrobial peptides (AMP). On the Nanomedicine area, work on the development of innovative protein-ligand interactions biosensor systems (nanoparticles and amyloid-based biosensors).

Head of Laboratory

Nuno Fernando Duarte Cordeiro Correia dos Santos, PhD Agregação, Associate Professor

Research Team

Ana Filipa Barata Duarte Guedes	Master	PhD Student
Ana Souto Martins	Master	PhD Student, (started March)
André F. Faustino	Master	PhD Student
Axel Hollmann	PhD	Post doctoral Investigator
Bárbara Sofia Lopes Gomes	Master	PhD Student
Bruna Kreutzer	Graduate	MSc Student, (started February) (left April)
Catarina Isabel de Sousa Lopes	Graduate	MSc Student, (started September)
Filomena A. Carvalho	PhD	Investigator, Assistant Professor
Gabriela Maria Pereira Carvalho Guerra	Master	Technician, (left January)
Ivo Cristiano da Rocha Martins	PhD	Senior Investigator
Marcelo Alexandre da Costa Tavares Augusto	Master	PhD Student

Marcin Makowski	Graduate	MSc Student
Maria Teresa Damásia Freitas Santos	Undergraduate	Technician
Mário Romão Felício	Master	PhD Student, (started September)
Marta Franco Coimbra Marques	PhD	Post doctoral Investigator, (started September)
Patrícia Isabel Duarte Montês Carvalho	Master	PhD Student, (started March)
Patrícia Morgado da Silva	Graduate	MSc Student, (started September)
Sónia Gonçalves Abreu	PhD	Investigator
Susana dos Reis Gregório	Graduate	MSc Student, (left January)
Vera Lúcia Ribeiro Esgueira	Undergraduate	Undergraduate, (left March)

Keywords / Research Areas

Membranes, HIV, dengue, West Nile virus and respiratory viruses, Peptide-based therapies (CPPs, AMPs, pep14-23), Atomic Force Microscopy (AFM), Fibrinogen, Nanomedicine

Major scientific achievements

- Dengue virus capsid protein binds specific proteins of lipid droplets and very low-density lipoproteins. These interactions, essential for viral replication, are inhibited by a drug lead developed by us, the peptide pep14-23, which acquires alpha-helical structure in the presence of anionic phospholipids.
- Singlet oxygen produced by the new broad-spectrum antiviral LJ001 and related compounds, namely JL103 and dUY11, induce changes on the viral membrane resulting in the inhibition of the virus-cell membrane fusion necessary for cell infection by HIV and other enveloped viruses.
- The enhanced interaction with membranes of HIV fusion inhibitor peptides conjugated with cholesterol, concomitant with an enhanced exposure of the pocked binding domain, due the addition of a PEG linker, result in a more efficient blocking of HIV entry.
- The quantification of fibrinogen-erythrocyte binding forces may be used as a new prognostic marker of the risk of hospitalization on heart failure patients

Selected Publications

Carvalho FA, Connell S, Miltenberger-Miltenyi G, Pereira SV, Tavares A, Ariëns RAS, Santos NC (2010) Atomic force microscopy-based molecular recognition of a fibrinogen receptor on human erythrocytes. *ACS Nano*, **4**, 4609-4620, (Journal IF: 12.881, Citations: 63)

Padilla-Parra S, Matos PM, Kondo N, Marin M, Santos NC, Melikyan GB (2012) Quantitative imaging of endosome acidification and single retrovirus fusion with distinct pools of early endosomes. *Proc. Natl. Acad. Sci. U. S. A*, **109**, 17627-17632, (Journal IF: 9.674, Citations: 17)

Faustino AF, Carvalho FA, Martins IC, Castanho MARB, Mohana-Borges R, Almeida FC, Da Poian AT, Santos NC (2014) Dengue virus capsid protein interacts specifically with very lowdensity lipoproteins. *Nanomedicine: NBM*, **10**, 247-255, (Journal IF: 6.155, Citations: 11)

Hauser CA, Maurer-Stroh S, Martins IC (2014) Amyloid-Based Nanosensors and Nanodevices. *Chem. Soc. Rev.*, **43**, 5326-5345, (Journal IF: 33.383, Citations: 22)

Vigant F, Santos NC, Lee B (2015) Broad-spectrum antivirals against viral fusion. *Nature Rev. Microbiol*, **13**, 426-437, (Journal IF: 23.574, Citations: 4)

Ongoing Research Projects

2012/2015 AMYLOIDDETECTORS: Employing amyloid fibrils as biosensors of the interaction of peptides with phospholipids and/or protein domains. Coordinator: Ivo Cristiano da Rocha Martins. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/SAU-ENB/117013/2010. Amount: € 144010.00. Amount (total): € 144010.00.

2012/2015 Molecular characterization of the fibrinogen-erythrocyte interaction and its influence on Cardiovascular pathologies. Coordinator: Nuno Fernando Duarte Cordeiro Correia dos Santos. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/QUI-BIQ/119509/2010. Amount: € 175000.00. Amount (total): € 175000.00.

2012/2015 Adhesion, Differentiation and Invasion: different processes, common cadherin players.. Coordinator: Nuno Fernando Duarte Cordeiro Correia dos Santos. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/SAU-GMG/120049/2010. Amount: € 43500.00. Amount (total): € 169755.00.

2015/2016 Engineering protease-resistant alpha-beta for broad-spectrum antivirals. Coordinator: Nuno Fernando Duarte Cordeiro Correia dos Santos. Agency: Joan Sanford I. Weill Medical College of. Reference: Engineering protease-resistant - NIH. Amount: € 300000.00. Amount (total): € 300000.00.

2010/2015 Atomic force microscopy-based molecular recognition of fibrinogen receptors in platelets and erythrocytes. Applications in health and disease. Calouste Gulbenkian Foundation Prize Stimulus to Research. . Coordinator: Nuno Fernando Duarte Cordeiro Correia dos Santos. Agency: Fundação Calouste Gulbenkian. Coordinator Institution: O. Reference: Gulbenkian-UBM. Amount: € 10369.74. Amount (total): € 10369.74.

2014/2016 Multi-target HIV entry inhibitors delivery by cationic liposomes. Coordinator: Ana Salomé Rocha do Nascimento Veiga. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: VIH/SAU/0047/2011. Amount: € 129209.00. Amount (total): € 129209.00.

2014/2016 Uma estratégia inovadora para distribuição e entrega de inibidores de entrada do HIV multi-alvo usando lipossomas catiónicos. Coordinator: Miguel Castanho. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: HIVERA/0002/2013. Amount: € 99000.01. Amount (total): € 99000.00.

2015/2019 Innovative peptides against cancer and pathogenic bacteria, with advances in science, biopharmaceutical drug. Coordinator: Miguel Castanho. Agency: Comissão Europeia. Reference: INPACT. Amount: € 463500.00. Amount (total): € 1390500.00.

Other Projects

2014/2017 Análises moleculares comparativas de peptídeos cíclicos e lineares com atividades imunomodulatórias e antimicrobianas. Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) Ciência sem Fronteiras Project 300965/2014, Brazil. Coordinator: N.C. Santos.

2015/2019 Molecular interactions of circulating fibrinogen as a risk factor for cardiovascular and cerebrovascular pathologies. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/BBB-BMD/6307/2014. Amount: 184 965 €. Amount (total): 184 965 €. Coordinator: F.A. Carvalho.

2010/2016 The interplay between lipid droplets, RNA and the capsid protein during dengue virus assembly and encapsidation, FCG, Calouste Gulbenkian Foundation Frontiers in Life Sciences Research Prize, €50 000. Coordinator: I.C. Martins.

2015/2019 Broad-spectrum antiviral peptides against respiratory viruses. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/BBB-BQB/3494/2014. Amount: 197 839 €. Amount (total): 197 839 €.. Coordinator: N.C.Santos.

2013/2018 The Role of Fibrin Clot Structure in Thrombosis.. Coordinator: N.C. Santos. Coordinator Institution: Project of the British Heart Foundation.

2015/2015 Improving the dengue virus inhibitor peptide pep14-23, FCG, Bolsas Fundação Calouste Gulbenkian & FMUL, €2 500. . Coordinator: I.C. Martins.

2014/2016 Assessment of the changes on fibrinogen-induced erythrocyte-erythrocyte adhesion on different cardiovascular pathologies by AFM-based force spectroscopy. Faculty of Medicine, University of Lisbon. €1 380. Coordinator: F.A. Carvalho.

Original publications in peer review Journals

Faustino AF, Guerra GM, Huber RG, Hollmann A, Domingues MM, Barbosa GM, Enguita FJ, Bond PJ, Castanho MA, Da Poian AT, Almeida FCL, Santos NC, Martins IC (2015) Understanding dengue virus capsid protein disordered N-terminus and pep14-23-based inhibition, *ACS Chem. Biol.*, **10**, 517-526 (Journal IF: 5.331; Citations: 3)

Rodrigues M, Andreu D, Santos NC (2015) Uptake and cellular distribution of nucleolar targeting peptides (NrTPs) in different cell types, *Biopolymers. Pept. Sci.*, **104**, 101-109 (Journal IF: 2.879, Citations: 0)

Viana JF, Carrijo J, Freitas CG, Paul A, Alcaraz J, Lacorte CC, Migliolo L, Andrade CA, Falcão R, Santos NC, Gonçalves S, Otero-González AJ, Khademhosseini A, Dias SC, Franco OL (2015) Antifungal nanofibers made by controlled release of sea animal derived peptide, *Nanoscale*, **7**, 6238-6246 (Journal IF: 7.394, Citations: 0)

Hollmann A, Gonçalves S, Augusto MT, Castanho MA, Lee B, Santos NC. (2015) Effects of singlet oxygen generated by a broad-spectrum viral fusion inhibitor on membrane nanoarchitecture, *Nanomedicine (NBM)*, **11**, 1163-1167 (Journal IF: 6.155; Citations: 1)

Bravo-Ferrada BM, Gonçalves S, Semorile L, Santos NC, Tymczyszyn EE,, Hollmann A (2015) Study of surface damage on cell envelope assessed by AFM and flow cytometry of *Lactobacillus plantarum* exposed to ethanol and dehydration, *J. Appl. Microbiol.*, **118**, 1409-1417 (Journal IF: 2.479, Citations: 2)

Faustino AF, Martins IC, Carvalho FA, Castanho MARB, Maurer-Stroh S, Santos NC (2015) Understanding dengue virus capsid protein interaction with key biological targets, *Sci. Rep.*, **5**, 10592 (Journal IF: 5.578; Citations: 0)

Carvalho FA, Freitas T, Santos NC. (2015) Taking nanomedicine teaching into practice with atomic force microscopy and force spectroscopy, *Adv. Physiol. Educ.*, **39**, 360-366 (Journal IF: 0.944, Citations: 0)

Other publications International

Ceccaldi P, Marques MC, Fourmond V, Pereira IC, Léger C. (2015) Oxidative inactivation of NiFeSe hydrogenase. *Chem. Commun*, **51**, 14223-14226 (Journal IF: 6.834, Citations: 1)

Invited lectures and seminars

Guedes AF, Carvalho FA, Sargento L, Lousada N, Moreira C, Nogueira JB, Santos NC. Fibrinogen-erythrocyte binding as biomarker of increased cardiovascular risk. An atomic force microscopy study. 2nd ARBRE (Association of Resources for Biophysical Research in Europe) Meeting, London, UK, January 8-9, 2015.

Santos NC. Biomedical applications of AFM-based force spectroscopy – from cardiovascular risk to dengue virus replication. UC-Biotech, Centro de Neurociências e Biologia Celular (CNC) e Biocant, Cantanhede, Portugal, March 4, 2015.

Santos, NC. Interação fibrinogénio-eritrócito e risco cardiovascular. Faculdade de Medicina da Universidade de Coimbra, Coimbra, Portugal, April 27, 2015.

Santos, NC. Nanotecnologia e Nanomedicina. Universidade Católica Dom Bosco, Campo Grande, Brazil, September 3, 2015.

Felício MR. Novel methods for infection and cancer therapeutics. V Ciclos de Palestras de Ciências Biológicas, Universidade Católica Dom Bosco, Campo Grande, Brazil. September 30, 2015.

Felício MR. New strategies to develop therapeutic agents. 2º Ciclo de Palestras em Biomedicina, Faculdade Centro Universitário de Grande Dourados, Campo Grande, Brazil. September 29, 2015.

Santos, NC. New strategies against HIV and dengue virus. Instituto de Física da Universidade de São Paulo, São Paulo, Brazil, September 15, 2015.

Santos, NC. Atomic Force Microscopy. International Workshop Membrane Hydration – A Challenge to Nanosystems, Santiago del Estero, Argentina, November 2-3, 2015.

Santos, NC. Assessment of the mechanisms of action of HIV fusion inhibitors and broad-spectrum antivirals. XLIV Reunión Annual de la Sociedad Argentina de Biofísica, Santiago del Estero, Argentina, November 4-6, 2015. Gregorio Weber Plenary Lecture.

Communications in International Conferences

Guerra GM, Gonçalves S, Santos NC, Martins IC. Use of short amyloidogenic peptides in protein-ligand detection systems. Biophysical Society's 59th Annual Meeting, Baltimore, USA, February 7-11, 2015. Abstract published in (2015) *Biophys. J.*, 108, 345a (Oral presentation)

Augusto MT, Hollmann A, Castanho MARB, Porotto M, Pessi A, Santos NC. Enhanced HIV fusion inhibitors efficacy requires membrane affinity and exposure of the pocket binding domain of C34 derivatives. Biophysical Society's 59th Annual Meeting, Baltimore, USA, February 7-11, 2015. Abstract published in (2015) *Biophys. J.*, 108, 555a (Poster Presentation)

Guerra GM, Gonçalves S, Santos NC, Martins IC. Use of short amyloidogenic peptides for Nanotechnology. NanoPT 2015 – Nanoscience and Nanotechnology International Conference, Porto, Portugal, February 11-13, 2015 (Poster Presentation)

Gomes I, Pereira E, Santos NC, Mota MM, Prudêncio M, Franco R. Malaria diagnostics based on anti-Plasmodium falciparum HRPII antibody-functionalized gold nanoparticles. NanoPT 2015 – Nanoscience and Nanotechnology International Conference, Porto, Portugal, February 11-13, 2015. (Poster Presentation)

Carvalho FA, Guedes AF, Sargento L, Lousada N, Moreira C, de Oliveira E, Nogueira JB, Santos NC. AFM as a nanotool to evaluate protein-cell interactions and cell-cell adhesion on cardiovascular pathologies. NanoPT 2015 – Nanoscience and Nanotechnology International Conference, Porto, Portugal, February 11-13, 2015 (Oral Presentation)

Bento E, Guedes AF, Moreira C, Nogueira JB, Santos NC, Carvalho FA. Fibrinogen-erythrocyte interactions and erythrocyte-erythrocyte adhesion as biomarkers of cardiovascular risk. 5th AIMS Meeting (Annual International Medical Students Meeting), Lisbon, Portugal, March 13-15, 2015 (Oral and Poster Presentation)

Vasconcelos M, Artilheiro V, Martins A, Faustino AF, Santos NC, Martins IC. Understanding the structure and function of the Flavivirus capsid protein N-terminal region. 5th AIMS Meeting (Annual International Medical Students Meeting), Lisbon, Portugal, March 13-15, 2015 (Oral Presentation)

Felício MR, Franco OL, Santos NC, Gonçalves S. Antimicrobial activity of peptides derived from *Pleuronectes americanus*. EMBO (European Molecular Biology Organization) Practical Course on Modern Biophysical Methods for Protein-Ligand Interactions, Oulu, Finland, June 1-5, 2015 (Oral Presentation)

Guedes AF, Carvalho FA, Malho I, Lousada N, Sargento L, Santos NC. Atomic force microscopy as a nanotool to evaluate cardiovascular patients' risk EBSA 2015 – 10th European Biophysics Congress, Dresden, Germany, July 18-22, 2015. Abstract published in (2015) *Eur. Biophys. J.*, 44, S241 (Oral Presentation)

Hollmann A, Gonçalves S, Augusto MT, Castanho MARB, Lee B, Santos NC. Effects of singlet oxygen generated by JL103 viral fusion inhibitor on membrane nanoarchitecture. EBSA 2015 – 10th European Biophysics Congress, Dresden, Germany, July 18-22, 2015. Abstract published in (2015) *Eur. Biophys. J.*, 44, S113 (Poster Presentation)

Gonçalves S, Silva PM, de Medeiros LN, Kurtenbach E, Santos NC. Psd1 antimicrobial activity against *Candida albicans* planktonic cells and biofilms. EBSA 2015 – 10th European Biophysics Congress, Dresden, Germany, July 18-22, 2015. Abstract published in (2015) *Eur. Biophys. J.*, 44, S184 (Poster Presentation)

Gomes B, Hollmann A, Santos NC. Effect of 25-hydroxycholesterol in membrane fusion mechanism. EBSA 2015 – 10th European Biophysics Congress, Dresden, Germany, July 18-22, 2015. Abstract published in (2015) *Eur. Biophys. J.*, 44, S192 (Poster Presentation)

Faustino AF, Guerra GM, Huber RG, Hollmann A, Domingues MM, Barbosa GM, Enguita FJ, Bond PJ, Castanho MARB, Da Poian AT, Almeida FCL, Santos NC, Martins IC. Conformational changes governing dengue virus capsid protein function and its inhibition by pep14-23. EBSA 2015 – 10th European Biophysics Congress, Dresden, Germany, July 18-22, 2015. Abstract published in (2015) *Eur. Biophys. J.*, 44, S230. Winner of the best poster presentation. (Poster Presentation)

Augusto MT, Hollmann A, Castanho MARB, Porotto M, Pessi A, Santos NC. Enhanced HIV fusion inhibitors efficacy requires membrane affinity and exposure of the PBD of C34. EBSA 2015 – 10th European Biophysics Congress, Dresden, Germany, July 18-22, 2015. Abstract published in (2015) *Eur. Biophys. J.*, 44, S233 (Poster Presentation)

Felício MR, Migliolo L, Franco OL, Gonçalves S, Santos NC. Antimicrobial activity and biophysical evaluation of AMPs derived from *Pleuronectes americanus*. EBSA 2015 – 10th European Biophysics Congress, Dresden, Germany, July 18-22, 2015. Abstract published in (2015) *Eur. Biophys. J.*, 44, S235 (Poster Presentation)

Martins AS, Carvalho FA, Faustino AF, Martins IC, Santos NC. West-Nile virus capsid protein interacts with host intracellular lipid droplets and VLDL. EBSA 2015 – 10th European Biophysics Congress, Dresden, Germany, July 18-22, 2015. Abstract published in (2015) *Eur. Biophys. J.*, 44, S237 (Poster Presentation)

Faustino AF, Guerra GM, Huber RG, Hollmann A, Domingues MM, Barbosa GM, Enguita FJ, Bond PJ, Castanho MARB, Da Poian AT, Almeida FCL, Santos NC, Martins IC. Understanding dengue virus capsid protein disordered N-terminal region structure and activity. 9th Annual Symposium of the Protein Society, Barcelona, Spain, July 22-25, 2015. Winner of Hans Neurath Outstanding Promise Award from Hans Neurath Foundation (Poster Presentation)

Guedes AF, Carvalho FA, Lousada N, Sargento L, Moreira C, Nogueira JB, Santos NC. High fibrinogen levels promote erythrocyte-erythrocyte adhesion, becoming an important cardiovascular risk factor. Young Scientist Program (YSP) – 44th Annual Meeting of the

Brazilian Society for Biochemistry and Molecular Biology (SBBq), São Paulo, Brazil, 20-22 August, 2015 (Oral Presentation)

Cardoso MH, Migliolo L, Ribeiro SM, Nolasco DO, de la Fuente-Núñez C, Felício MR, Gonçalves S, Matos CO, Liao LM, Santos NC, Hancock REW, Franco OL. An alanine-rich synthetic peptide derived from polar fish with anti-infectious activities. 23rd Congress of the International Union for Biochemistry and Molecular Biology (IUBMB) and 44th Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq), Foz do Iguaçu, Brazil, August 24-28, 2015 (Poster Presentation)

Guedes AF, Carvalho FA, Lousada N, Sargento L, Moreira C, Nogueira JB, Santos NC. High fibrinogen levels promote erythrocyte-erythrocyte adhesion, becoming an important cardiovascular risk factor. 23rd Congress of the International Union for Biochemistry and Molecular Biology (IUBMB) and 44th Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq), Foz do Iguaçu, Brazil, August 24-28, 2015 (Poster Presentation)

Faustino AF, Guerra GM, Huber RG, Hollmann A, Domingues MM, Barbosa GM, Enguita FJ, Bond PJ, Castanho MARB, Da Poian AT, Almeida FCL, Martins IC, Santos NC. Conformational changes governing dengue virus capsid protein function and its inhibition by pep14-23. 23rd Congress of the International Union for Biochemistry and Molecular Biology (IUBMB) and 44th Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq), Foz do Iguaçu, Brazil, August 24-28, 2015 (Poster Presentation)

Felício MR, Franco OL, Cardoso M, Migliolo L, Santos NC, Gonçalves S. Biophysical evaluation of two different antimicrobial peptides derived from an Antarctic fish. 23rd Congress of the International Union for Biochemistry and Molecular Biology (IUBMB) and 44th Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq), Foz do Iguaçu, Brazil, August 24-28, 2015 (Poster Presentation)

Bento E, Guedes AF, Moreira C, Nogueira JB, Santos NC, Carvalho FA. Fibrinogen-erythrocyte interactions and erythrocyte-erythrocyte adhesion as biomarkers of cardiovascular risk. iMed Conference 7.0, Lisboa, Portugal, September 17-20, 2015 (Poster Presentation)

Faustino AF, Guerra GM, Huber RG, Hollmann A, Domingues MM, Barbosa GM, Enguita FJ, Bond PJ, Castanho MA, Da Poian AT, Almeida FCL, Santos NC, Martins IC. Conformational changes governing dengue virus capsid protein disordered N-terminal region and its inhibition by pep14-23. 1st NGP-NET Symposium on Non-Globular Proteins, Porto, Portugal, October 6-9, 2015 (Oral Presentation)

Maturana P, Martinez M, Santos NC, Disalvo A, Maffia P, Hollmann A. Peptide-membrane interactions: analysis of way of action of novel antimicrobial peptide. XLIV Reunión Annual de la Sociedad Argentina de Biofísica, Santiago del Estero, Argentina, November 4-6, 2015 (Poster Presentation)

Lavaisse LM, Gonçalves S, Santos NC, Nazareno MA, Hollmann A, Disalvo A. Zeta potential as reliable tool to evaluate physiological state of yeasts. XLIV Reunión Annual de la Sociedad

Argentina de Biofísica, Santiago del Estero, Argentina, November 4-6, 2015
(Poster Presentation)

Communications in National Conferences

Moreira C, Guedes AF, Carvalho FA, Nogueira JB, Santos NC. The binding between fibrinogen and the erythrocyte receptor assessment as cardiovascular risk factor in essential arterial hypertension. 9º Congresso Português de Hipertensão e Risco Cardiovascular Global, Vilamoura, Portugal, February 26 – March 1, 2015 (Oral Presentation)

Carvalho FA, Guedes AF, Moreira C, Nogueira JB, Santos NC. Fibrinogen-erythrocyte binding assessment as cardiovascular risk factor in essential arterial hypertension. XXXVI Congresso Português de Cardiologia, Salgados, Albufeira, Portugal, April 18-21, 2015 (Poster Presentation)

Carvalho FA, Guedes AF, de Oliveira EI, da Silva PC, Pinto JP, Santos NC. Evaluation of fibrinogen-erythrocyte interactions in aortic stenosis patients before and after transcatheter aortic valve replacement. XXXVI Congresso Português de Cardiologia, Salgados, Albufeira, Portugal, April 18-21, 2015 (Poster Presentation)

Internationalisation

Collaborative publications and/or funded projects with groups from the University of California at Los Angeles (USA), Mount Sinai Medical Center (New York, USA), Cornell University (New York, USA), , Massachusetts Institute of Technology (Cambridge, USA), Federal University of Rio de Janeiro (Brazil), Pompeu Fabra University (Barcelona, Spain), Federal University of Ceará (Fortaleza, Brazil), Federal University of Pernambuco (Recife), University of Leeds (UK), Emory University (Atlanta, USA), Catholic University of Brasília (Brazil), University of Brasília (Brazil), Instituto Federal de Educação, Ciência e Tecnologia de Brasília (Brazil), Dom Bosco Catholic University (Campo Grande, Brazil), EMBRAPA Recursos Genéticos e Biotecnologia (Brasília, Brazil), Oswaldo Cruz Foundation (Rio de Janeiro, Brazil), Agency for Science, Technology and Research (Singapore), National University of Singapore (Singapore) University of Santiago del Estero (Argentina), University of Quilmes (Argentina), CONICET (Buenos Aires, Argentina), University of Havana (Cuba), and PeptiPharma (Rome, Italy).

Prizes, honours and awards

Travel Award to MT Augusto to the Biophysical Society 59th annual meeting, Baltimore, United States of America, 2015.

Best Poster Award to A. Faustino at the 10th European Biophysical Societies' Association (EBSA) European Biophysics Congress, Dresden, Germany, by Biophysical Society (BPS); 2015

EBSA Bursary to A. Faustino, M. R. Felício and B. Gomes to assist to the 10th EBSA European Biophysics Congress, Dresden, Germany, by EBSA; 2015.

Hans Neurath Outstanding Promise Award to I.C Martins, Hans Neurath Foundation, 2015.

International Travel Award to IC Martins, Protein Society, Barcelona, Spain, 2015

EMBO Travel Award to MR Felício for the Practical Course in "Modern biophysical methods for protein-ligand interactions", Oulu, Finland, by EMBO, 2015.

Bursary to P. Carvalho of "Becas a la Excelencia Formativa de la Fundación Grupo Siro", Fundación Grupo Siro. Venta de Baños (Palencia), Spain, 2015.

Advanced teaching

Santos NC. LisbonBioMed PhD Program, Instituto de Medicina Molecular, Lisbon, Portugal – Coordinator of the Nano & Biochemistry module (January, 2015).

Carvalho FA. LisbonBioMed PhD Program, Instituto de Medicina Molecular, Lisbon, Portugal – Atomic force microscopy (January, 2015).

Santos NC. Molecular Biosciences PhD Program (MolBioS), of ITQB (Instituto de Tecnologia Química e Biológica), IBET (Instituto de Biologia Experimental Tecnológica), REQUIMTE (Rede de Química e Tecnologia), CREM (Centro de Recursos Microbiológicos), and IGC (Instituto Gulbenkian de Ciência), Oeiras, Portugal – Atomic Force Microscopy (January, 2015).

Santos NC. Postgraduate course in Science for the Development (PhD Program for students in Angola, Cape Verde, Guinea-Bissau, Mozambique, Sao Tome and Principe, and Timor Lorosae), Praia, Cape Verde – Several presentations and other activities during one week of classes (February, 2015).

Carvalho FA. Nanoprocesses for life sciences. Molecular Biosciences PhD Program nanocourse, ITQB (Instituto de Tecnologia Química e Biológica), Oeiras, Portugal – Single-molecule recognition approach to studying protein-ligand interactions (March, 2015).

Martins IC. Nanoprocesses for life sciences. Molecular Biosciences PhD Program nanocourse, ITQB (Instituto de Tecnologia Química e Biológica), Oeiras, Portugal – Drug design & nanotechnology (March, 2015).

Santos NC. Master degree program in Structural Biology, Instituto Superior Técnico,

Universidade de Lisboa, Portugal – Force Spectroscopy (April, 2015).

Santos NC. Master degree program in Biochemistry and Biotechnology, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Portugal – Biological applications of atomic force microscopy. (April, 2015).

Santos NC. PhD Program of Rede Pro Centro-Oeste (Rede Centro-Oeste of postgraduate Search and Innovation, involving several Universities and Research Institutes of the Brazilian states of Brasília (Distrito Federal), Goiás, Mato do Grosso e Mato Grosso do Sul), Brasília, Brazil – Nanobiotechnology and Peptide Chemistry (June, 2015).

Santos NC. Postgraduate program in Biotechnology (Master degree and PhD), Universidade Católica Don Bosco, Campo Grande, Brazil. – Responsible for the Nanobiotechnology discipline. Several presentations and other activities during one week of classes (August-September, 2015).

Science and society

With the aim of promoting the interest in science among young students, the NSantos Lab organized visits for undergraduate students via presentations and “speed-dating” style contact with the different components the Unit’s Research work.

Saúde, Leonor

Major Interests / Objectives

We would like to understand the cellular and molecular mechanisms controlling fundamental developmental processes and regenerative processes activated upon severe injuries.

Head of Laboratory

Maria Leonor Tavares Saúde, PhD, Assistant Professor

Research Team

Ana Catarina Esteves Ribeiro	PhD	Post doctoral Investigator
Ana Margarida Pereira Cristovão Pinto	Graduate	Technician
Ana Sofia Rocha Batalha	Graduate	MSc Student, (started September)
António José Fernandes da Silva Francisco	Graduate	PhD Student, Faculdade Medicina da Universidade de Lisboa, Teaching Assistant
Dalila Maria Neves Silva	Graduate	MSc Student, (started September)
Diana Martins Bordalo	Graduate	MSc Student
Henrique Caldevilla Sentieiro Lyon de Castro	Graduate	MSc Student
Isaura Vanessa Antunes Martins	PhD	Investigator, (started December)
Rita Alexandra Rodrigues Pinto	Master	PhD Student
Rui Jorge Gameiro Carreira de Seabra Correia	Undergraduate	Undergraduate, (started July)
Sara Maria Ferreira Fernandes	Master	PhD Student
Tiago André Antunes David	Graduate	Undergraduate

Tiago Filipe Ribeiro Ruas Maçarico	Master	Investigator
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Keywords / Research Areas

Left-right asymmetry, Somite formation, Tissue/organ regeneration

Major scientific achievements

- Characterized in detail the time course of vasculature formation in the zebrafish spinal cord from embryonic to adult stages.
- Characterized in the detail the remodelling of the vasculature upon a severe spinal cord injury in adult zebrafish.
- Characterized in detail the formation of the adult zebrafish spinal cord central canal from the embryonic neural tube.
- Characterized in detail the cellular organization of the adult zebrafish spinal cord central canal in homeostasis and during regenerative stages.
- Generate inducible Dmrt2a transgenic lines and Dmrt2a and Dmrt2b mutant lines and characterize their LR phenotype.
- Ana Ribeiro won a Poster Prize for her work presented at the SPBD/SEBD/BSDB Joint Meeting.
- Leonor Saúde was elected President of the Portuguese Society for Developmental Biology.

Selected Publications

Mendes R.V., Martins G.G., Martins A.M. and Saúde L. (2014) N-cadherin locks left-right asymmetry by ending the leftward movement of Hensen's node cells. *Developmental Cell*, **30**(3), 353-60, (Journal IF: 9.708, Citations: 1)

Fior R., Maxwell A.A., Ma T.P., Vezaro A., Moens C.B., Amacher S.L., Lewis J. and Saúde L. (2012) Differentiation and movement of presomitic mesoderm progenitor cells are both controlled by Mesogenin1. *Development*, **139**(24), 4656-65, (Journal IF: 6.462, Citations: 13)

Lopes S.S., Lourenço R., Pacheco L., Moreno N., Kreiling J. and Saúde L. (2010) Notch signalling regulates left-right asymmetry through ciliary length control. *Development*, Vol.137 (**21**), 3625-32, (Journal IF: 6.462, Citations: 43)

Azevedo A.S., Grotek B., Jacinto A., Weidinger G. and Saúde L. (2011) the regenerative capacity of the zebrafish caudal fin is not affected by repeated amputations. *PLoS ONE*, Vol. **6**(7), e22820, (Journal IF: 3.234, Citations: 17)

Azevedo A.S., Sousa S., Jacinto A. and Saúde L. (2012) An amputation resets positional information to a proximal identity in the regenerating zebrafish caudal fin. *BMC Developmental Biology*, 12(1), 24,(Journal IF: 3.234, Citations: 7)

Ongoing Research Projects

2012/2015. Coordinator: Maria Leonor Tavares Saúde. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/SAU-BID/119627/2010. Amount: € 109755.00. Amount (total): € 109755.00.

2015/2016 Breakthrough Idea Grant 2016 . Coordinator: Maria Leonor Tavares Saúde. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BIG 2016 LSAude. Amount: € 29303.00. Amount (total): € 29303.00.

2013/2015. Coordinator: Maria Leonor Tavares Saúde. Agency: L’Oreal Portugal Lda. Reference: Prémio L’Oreal 2012. Amount: € 20000.00. Amount (total): € 20000.00.

2013/2015 Uncovering cellular mechanisms of spinal cord regeneration in zebrafish and their modulation with aging. Coordinator: Maria Leonor Tavares Saúde. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/BIM-MED/1375/2012. Amount: € 181199.00. Amount (total): € 181199.00.

Invited lectures and seminars

Leonor Saúde, The evolution and conservation of Left-Right patterning mechanisms. Darwin’s Legacy Tea Party (2015), FCUL, Portugal, April 17, 2015

Leonor Saúde, Differentiation and cell movement in a developing embryo. SPBD/SEBD/BSDB Joint Meeting, Algarve, Portugal, October 8, 2015

Leonor Saúde, Spinal cord regeneration: lessons from the zebrafish. 1st Spinal Cord Injury Iberian Symposium, Lisboa, Portugal, November 30, 2015

Communications in International Conferences

Ribeiro, A. Foxj1a-positive cells at the center of spinal cord regeneration in zebrafish, EMBO Fellows’ Meeting, Heidelberg, Germany. 18-21 June 2015 (Oral Presentation)

Ribeiro, A. Foxj1a-positive cells at the center of spinal cord regeneration in zebrafish, 3rd Meeting of the Portuguese Society for Developmental Biology, Algarve, Portugal. 7-10 October 2015 (Poster Presentation)

Pinto R.A. Asymmetry versus Symmetry: The role of Dmrt2a in the formation of the vertebrate body plan, 3rd Meeting of the Portuguese Society for Developmental Biology, Algarve, Portugal. 7-10 October 2015 (Poster Presentation)

Ribeiro, A. Foxj1a-positive cells at the center of spinal cord regeneration in zebrafish, 1st Spinal Cord Injury Iberian Symposium, Alcoitão, Portugal. 31 November - 1 December 2015 (Poster Presentation)

Communications in National Conferences

Pinto R.A. Asymmetry versus Symmetry: The role of Dmrt2a in the formation of the vertebrate body plan, IX (IMM/CAML) PhD Student Meeting, Lisboa, Portugal. 26-27 March 2015 (Poster Presentation)

Ribeiro, A. Foxj1a-positive cells at the center of spinal cord regeneration in zebrafish, 2nd IMM Post-Doc Day, Lisbon, Portugal. 25 September 2015 (Oral Presentation)

Prizes, honours and awards

3rd Meeting of the Portuguese Society for Developmental Biology 2nd Best Poster Award to A. Ribeiro.

Advanced teaching

Saúde, L. EMT/MET processes in vertebrate development. Pro-RegeM - PhD PROGRAMME in MECHANISMS OF DISEASE and REGENERATIVE MEDICINE, CEDOC, Lisbon. February 4, 2015

Saúde, L. Genetics & Development Course, Programa de Pós-Graduação Ciência para o Desenvolvimento, Praia, Santiago, Cape Verde. February 21-28, 2015

Saúde, L. The amazing regenerative capacity of the zebrafish. GABBA PhD Programme, IBMC, Porto, Portugal. June 29, 2015

Saúde, L. Left-Right Patterning. GABBA PhD Programme, IBMC, Porto, Portugal. July 7, 2015

Fernandes, S. "Somitogenesis", Integrated Master Programme in Molecular Genetics and Biomedicine

Faculdade de Ciências e Tecnologia, Universidade Nova, Lisboa, Portugal. November 9, 2015

Ribeiro, A. "Regeneration" Integrated Master Programme in Molecular Genetics and Biomedicine

Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Lisbon, Portugal. November 16, 2015

Science and society

Saúde, L. (2015) "Speed dating", Annual International Medical Students Meeting, Lisboa, Portugal

Saúde, L. (2015) "Being a Scientist", Colégio Vasco da Gama, Belas, Portugal

Saúde, L. (2015) "Introducing the iMM", Heidelberg Medical Students visit, iMM, Lisboa, Portugal

Ribeiro, A. (2015) "Animal Models", iMM Open Day, Lisbon, Portugal

Msc thesis completed

Henrique Lyon de Castro 20/10/2015 The role of Dmrt2 in the establishment of Left-Right asymmetry in the Chick embryo Faculdade de Ciências da Universidade de Lisboa Leonor Saúde

Sebastião, Ana

Major Interests / Objectives

To fight brain diseases one has to correct abnormal synaptic function, a main challenge to Neurosciences. We aim to elucidate how the neuronal and glial components of the tripartite synapse are fine-tuned under normal and dysfunctional situations. How endogenous modulators affect the pre- post and glial components of the tripartite synapse, neuronal excitability, neuronal and glial cell renewal, neuronal and glial maturation and degeneration, under normal and pathological conditions are topics under current investigation by the Unit. As endogenous modulators we focus on neurotrophic factors, adenosine, endocannabinoids and glycine. As disease models we have been focusing on Alzheimer's disease, epilepsy, amyotrophic lateral sclerosis and multiple sclerosis.

Head of Laboratory

Ana M Sebastião, PhD, Full Professor

Research Team

Amilcar Silva dos Santos	Graduate	PhD Student, (started September)
Ana Filipa Ferreira da Cunha Ribeiro	Master	PhD Student
Ana Iolanda d'Armada Moreira	Graduate	MSc Student
Ana Sofia Cristovão Ferreira	PhD	Post doctoral Investigator
Ana Sofia Temudo Duarte António	Master	PhD Student
André Jerónimo Santos	PhD	Post doctoral Investigator
Armando Dulcídio da Silva Cruz	Master	PhD Student
Catarina Miranda Lourenço	Graduate	MSc Student
Catia Isabel Afonso Domingos	Graduate	MSc Student
Cláudia Alexandra dos Santos Valente de Castro	PhD	Investigator

Cláudia Filipa Martins Afonso	Graduate	MSc Student, (started September)
Cláudia Sofia Beltrão Cavacas	Graduate	Trainee
Daniela Cristina Melo Magalhães	Graduate	MSc Student
Diogo Miguel Rombo	Master	Investigator, (started July)
Francisco Melo Albuquerque Saraiva Mouro	Master	PhD Student
Haíssa de Castro Abrantes	Graduate	MSc Student
Isabel Maria do Amaral Rodeia Rodrigues de Brito	Undergraduate	Trainee
João Filipe Fonseca Gomes	Graduate	MSc Student
João Pedro de Almeida Jesus	Graduate	MSc Student, (started September)
Joaquim Alexandre Ribeiro	MD/PhD	Senior Investigator
Liana Shvachiy	Undergraduate	Trainee, (started February)
Luís Afonso Chambel André	Graduate	MSc Student, (started September)
Margarida Leonor Ferreira Martins	Graduate	MSc Student
Maria Alexandra Pereira Botelho	Undergraduate	Administrative
Maria José Diógenes	PhD	Investigator, Faculdade Medicina da Universidade de Lisboa, Assistant Professor
Mariana Colino Oliveira	Master	PhD Student, (left March)
Nádia Raquel Henriques Rei	Master	PhD Student, (started May)
Nuno Miguel Da Silva Rosa	Master	MSc Student, (started September)
Pedro Dinis Avelar Agostinho	Master	Investigator, (started October)
Raquel Alice da Silva Baptista Dias	PhD	Investigator, Hospital de Santa Maria, MD
Rita Cruz Coelho de Mira Ramalho	PhD	Post doctoral Investigator
Rita Isabel Pedro Aroeira	PhD	Manager

Rui Miguel Silva Rodrigues	Graduate	Trainee
Sandra Cristina Henriques Vaz	PhD	Post doctoral Investigator
Sara Alves Xapelli	PhD	Investigator
Sara Luísa Ramalho Tanqueiro	Graduate	MSc Student
Tatiana Pinto Morais	Graduate	MSc Student
Tiago Filipe Martins Rodrigues	Master	Investigator, (started December)

Keywords / Research Areas

Tripartite synapse mechanisms, Neuronal excitation/inhibition balance, Neurodegenerative Mechanisms, Ageing, Epilepsy, Drug Abuse

Major scientific achievements

1) Inhibitory synapses:

- a) Adenosine modulates phasic and tonic GABAergic transmission in selected subpopulations of interneurons (Rombo et al., 2015 – Cerebral Cortex; Rombo et al Hippocampus)
- b) BDNF-mediated modulation of glycine transporters in astrocytes (Aroeira et al, Glia) and transporter-mediated GABA release (Vaz et al., Purinerg Signal)

2) Synaptic plasticity:

- a) Plasticity modulation by activity deprivation (Felix-Oliveira et al., J Neurophysiol)

3) Neuronal maturation:

- a) Axonal growth modulation by adenosine A2AR (Ribeiro FF et al., Brain Struct Func).

4) Ageing and Neurodegeneration:

- a) A-induced cleavage of BDNF receptors (Jerónimo-Santos et al Cerebral Cortex); influence of adenosine 2A receptors upon BDNF-mediated neuronal rescuing (Jerónimo_Santos et al., Growth Factors).
- b) Age and disease-related deregulations of neuromuscular transmission control (Pousinha et al., Neurosci Lett; Nascimento et al Purinerg Signal).

Selected Publications

Diógenes MJ, Neves-Tomé R, Fucile S, Martinello K, Scianni M, Theofilas P, Lopatár J, Ribeiro JA, Maggi L, Frenguelli BG, Limatola C, Boison D, Sebastião AM (2014). Homeostatic Control of Synaptic Activity by Endogenous Adenosine is Mediated by Adenosine Kinase. *Cereb Cortex*. **24**:67-80 (IF: 8.665, Citations: 11)

Dias RB, Rombo DM, Ribeiro JA, Sebastião AM (2013) Ischemia-induced synaptic plasticity drives sustained expression of calcium-permeable AMPA receptors in the hippocampus. *Neuropharmacology*, **65**:114-122 (IF: 5.106; Citations: 24)

Rocha, MC, Pousinha PA, Correia AM, Sebastião AM, Ribeiro JA (2013) Early changes of neuromuscular transmission in the SOD1(G93A) mice model of ALS start long before motor symptoms onset. *PLOS ONE*, Sep 5;**8**(9):e73846. doi: 10.1371/journal.pone.0073846. eCollection (IF: 3.234; Citations: 19)

Dias RB, Rombo DM, Ribeiro JA, Henley JM, Sebastião AM (2012) Adenosine: setting the stage for plasticity. *Trends in Neurosciences (TINS)*. **36**, 248-257. (Journal IF: 13.555, Citations: 31)

Diogenes MJ, Costenla AR, Lopes LV, Jerónimo-Santos A, Sousa VC, Fontinha BM, Ribeiro JA, Sebastião AM (2011) Enhancement of LTP in aged rats is dependent on endogenous BDNF. *Neuropsychopharmacology* **36**:1823-1836 (IF: 7.048; Citations: 41)

Ongoing Research Projects

2012/2015 Are Microglia a New Potential Pharmacological Target in Amyotrophic Lateral Sclerosis (ALS)? Coordinator: Paula Alexandra Marçal Correia. Agency: Fundação para a Ciência e a Tecnologia. Reference: PTDC/SAU-FAR/118787/2010. Amount: € 22000.00. Amount (total): € 146273.00.

2013/2016 PhD in Biomedical Sciences, Specialty in Neuroscience. Coordinator: Ana M Sebastião. Agency: Cardlane Ltd. Reference: PhD project Armand Cruz. Amount: € 80984.00. Amount (total): € 33044.00.

2015/2016 Bridge Grant 2015. Coordinator: Ana M Sebastião. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BridgeGrant2015 ASebastiao. Amount: € 15000.00. Amount (total): € 0.00.

2014/2016 Neurophysiological mechanisms of aging: novel view of old concepts. Coordinator: Maria José Diógenes. Agency: Fundação Bial. Reference: Bial fellowship programme 57/12. Amount: € 49000.00. Amount (total): € 49000.00.

2014/2015 Rett Syndrome. Coordinator: Ana M Sebastião. Agency: Fundació Privada Per La Recerca Il·la Doència. Reference: Rett Syndrome. Amount: € 6000.00. Amount (total): € 6000.00.

2014/2015 Adenosine receptors: new pharmacological targets for Rett syndrome treatment. Coordinator: Maria José Diógenes. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: EXPL/BIM-MEC/0009/2013. Amount: € 50000.00. Amount (total): € 50000.00.

Other Projects

2014/2015 Microglial expression of SIRT: consequences for LTP. Funded: 1380€ (GAPIC). Coordinator: Maria José Diógenes (collaboration with Teresa Pais from other IMM Unit).

2014/2016 Targeting selected synapses to develop new antiepileptic drugs with minimal side effects. Coordinator: Ana M Sebastião (collab. Ken Jackobson, NIH, Bethesda).

2013/2016 Adenosine kinase deficiency and epilepsy: synaptic characterization of adenosine signaling. Coordinator: Ana M Sebastião (in collab with Detlev Boison, Portland, USA).

2010/2016 Amyloid beta peptide-induced toxicity: impact on hippocampal function. Coordinator: Maria José Diógenes.

2010/2016 Glycinergic neurotransmission at the hippocampus. Coordinator: Cláudia Valente.

2013/2016 Modulatory role of adenosine and cannabinoids in oligodendrogenesis and neurogenesis derived from neural stem/progenitor cells of the subventricular zone. Coordinator: Sara Xapelli.

2013/2016 Deciphering the role of inflammation in epileptogenesis. Coordinator: Claudia Valente.

2012/2015 Astrocytic Calcium signalling modulation by purines. Coordinator: Sandra Vaz.

2015/2017 Astrocytic influence of BDNF actions at the hippocampus. Coordinator: Sandra Vaz (Colab, João Oliveira, Neurosciences Research Domain (NeRD), ICVS/3B's Laboratório Associado, University of Minho).

2013/2016 Memory dysfunction by cannabinoids: synaptic correlates and modulation by adenosine. Coordinator: Ana M Sebastião.

2015/2016 Hebbian Plasticity-driven changes of synaptic homeostasis in Alzheimer's Disease (Financed by Bolsas Gulbenkian/FMUL: 2.500,00€). Coordinator: Maria José Diógenes.

2014/2016 Modulation of cholinergic signalling in cultured superior cervical ganglion neurons. Coordinator: Sandra Vaz. Coordinator Institution: Gulbenkian Institute of Science. Coordinator PI: Ana Domingos.

2015/2016 NR2B-Containing NMDA Receptors in the dorsal and ventral hippocampus on the behavioral consequences of Chronic Unpredictable Stress. Coordinator: Raquel Dias. Coordinator Institution: Universidade do Minho. Coordinator PI: João J. Cerqueira.

2013/2016 Synaptic activity modulation by Erythropoietin . Coordinator: Raquel Dias.

Original publications in peer review Journals

Ribeiro FF, RNeves-Tomé R, Assaife-Lopes N, Santos TE, Silva RFM, Brites D, Ribeiro JA, Sousa MM, Sebastião AM (2015) Axonal elongation and dendritic branching is enhanced by adenosine A2A receptors activation in cerebral cortical neurons. *Brain Struct & Func*, 27 May 2015 (Journal IF: 5.618; Citations: 0)

Rombo DM, Dias RB, Duarte ST, Ribeiro JA, Lamsa KP, Sebastião AM (2015). Adenosine A1 receptor suppresses Tonic GABAA receptor currents in hippocampal pyramidal cells and in a defined subpopulation of interneurons. *Cereb Cortex*, Volume 26, **3**, 1081-1095. (Journal IF: 8.665, Citations: 0)

Nascimento F, Sebastião AM, Ribeiro JA. (2015) Presymptomatic and symptomatic ALS SOD1(G93A) mice differ in adenosine A1 and A 2A receptor-mediated tonic modulation of neuromuscular transmission. *Purinerg Signal*. **11**:471-480. (Journal IF: 3.886; Citations: 0)

Rombo DM, Newton K, Nissen W, Badurek S, Horn JM, Minichiello L, Jefferys JG, Sebastiao AM, Lamsa KP (2015) Synaptic mechanisms of adenosine A2A receptor-mediated hyperexcitability in the hippocampus. *Hippocampus*, **25**:566-580. (Journal IF: 4.162; Citations: 1)

Jerónimo-Santos A, Fonseca-Gomes J, Guimarães DA, Tanqueiro SR, Ramalho RM, Ribeiro JA, Sebastião AM, Diógenes MJ (2015) Brain-derived neurotrophic factor mediates neuroprotection against A β -induced toxicity through a mechanism independent on adenosine 2A receptor activation. *Growth Factors* **12**:1-11, (Journal IF: 3.386; Citations: 0)

Aroeira RI, Sebastião AM, Valente CA (2015) BDNF, via truncated TrkB receptor, modulates GlyT1 and GlyT2 in astrocytes. *Glia*, **63**:2181-2197.(Journal IF: 6.031; Citations: 3)

Fernandes TG, Duarte ST, Ghazvini M, Gaspar C, Santos DC, Porteira AR, Rodrigues GM, Haupt S, Rombo DM, Armstrong J, Sebastião AM, Gribnau J, Garcia-Cazorla À, Brüstle O, Henrique D, Cabral JM, Diogo MM (2015) Neural commitment of human pluripotent stem cells under defined conditions recapitulates neural development and generates patient-specific neural cells. *Biotechnol J*. **10**:1578-1588. (Journal IF: 3,490; Citations: 1)

Santos AR, Mele M, Vaz SH, Kellermayer B, Grimaldi M, Colino-Oliveira M, Rombo DM, Comprido D, Sebastião AM, Duarte CB (2015) Differential Role of the Proteasome in the Early

and Late Phases of BDNF-Induced Facilitation of LTP. *J Neurosci.* **35**:3319-3329.
(Journal IF: 6.344; Citations: 3)

Pimentel VC, Moretto MB, Oliveira MC, Zanini D, Sebastião AM, Schetinger MR (2015) Neuroinflammation after neonatal hypoxia-ischemia is associated with alterations in the purinergic system: adenosine deaminase 1 isoenzyme is the most predominant after insult. *Mol Cell Biochem.* **403**:169-177. (Journal IF: 2.393; Citations: 0)

Serpa A, Correia S, Ribeiro JA, Sebastião AM, Cascalheira JF (2015) The Combined Inhibitory Effect of the Adenosine A1 and Cannabinoid CB1 Receptors on cAMP Accumulation in the Hippocampus Is Additive and Independent of A1 Receptor Desensitization. *Biomed Res Int.* 2015; 872684. (Journal IF: 1.579; Citations: 1)

Morgado AL, Xavier JM, Dionísio PA, Ribeiro MF, Dias RB, Sebastião AM, Solá S, Rodrigues CM (2015) MicroRNA-34a Modulates Neural Stem Cell Differentiation by Regulating Expression of Synaptic and Autophagic Proteins. *Mol Neurobiol.* **3**: 1168-83. (Journal IF: 5.137; Citations: 2)

Other publications International

Ribeiro FF, Telma Santos, Rui Silva, Mónica Sousa, Ana M. Sebastião (2015) Axon elongation is regulated by adenosine A2A receptors, *Int J Dev Neurosci*, 47(Pt A):83-4. IF: 2.580; (meeting proceedings)

Duarte S, Palminha C, Sebastião AM, Diógenes MJ (2015) Adenosine Receptors as new therapeutic targets in Rett Syndrome. *Eur J Paediatric Neurol* P197-3009, IF: 2.301 (meeting proceedings).

Duarte ST, Gaspar G, Fernandes T, Rombo D, Henrique D, García-Cazorla A, Sebastião AM (2015) GABAergic dysfunction in neurons derived from induced pluripotent stem cells of patients with Rett syndrome. *Eur J Paediatric Neurol* P198-3022, IF: 2.301 (meeting proceedings).

Other publications National

Cunha RA, Sebastião AM (2015) Sistema Purinérgico. In: *NEUROCIÊNCIAS*, ed: Rego AC et al, LIDEL - Edições Técnicas, Lisboa

Invited lectures and seminars

Sebastião AM (2015) Adenosine modulation of signaling at the tripartite synapse: implications for epilepsy. International Conference on Epilepsy and Treatment, Baltimore, USA, September 21-22 (Keynote speaker)

Sebastião AM (2015) Synapse-selective modulation of hippocampal GABAergic transmission by adenosine. Fifth Annual Meeting of the Brazilian Purine Club, Maresias, S. Paulo, Brasil - May 30 June 2

Sebastião AM (2015) Modulation of neuronal communication by adenosine and cannabinoids: implications for memory function. VI Jornadas Nacionais de Ciências Biomédicas, Universidade do Algarve, March 11-14.

Sebastião AM (2015) Alguns correlatos neurobiológicos da consciência. Colóquio: O que é a Consciência, Faculdade de Letras, Universidade de Lisboa, October 16

Diógenes MJ (2015) “Farmacocinética do recém-nascido aos 18 anos” - Workshop de farmacologia clínica na criança e no adolescente. Hospital de Santa Maria, December

Diógenes MJ (2015) Conferência: “Síndrome de Rett”- I Seminário de Síndrome de Rett em Portugal. ANPAR - Associação Nacional de Pais e Amigos Rett. 13 November, 2015

Vaz SH (2015) The dynamic of astrocytes in healthy and disease. 31st IBITA Congress and Annual General Meeting September 2015, Estoril, Portugal

Communications in International Conferences

de Castro-Abrantes H, Avelar P, Diógenes MJ, Sebastião AM, Vaz SH, (2015) mGluR5-mediated calcium signalling in rat cortical primary astrocytes is modulated by adenosine A1 and A2A receptors. XII European Meeting on Glial Cells in Health and Disease, 15th – 18th July, Bilbao, Spain (Poster Presentation)

Duarte S.T., C. Palminha, A.M. Sebastião, M.J. Diógenes (2015) Adenosine receptors as new therapeutic targets in Rett syndrome. European Pediatric Neurology Meeting, Vienna, Austria, May (Poster Presentation)

Duarte ST, C. Gaspar, T. Fernandes, D. Rombo, D. Henrique, A. García-Cazorla, Sebastião AM (2015) GABAergic dysfunction in neurons derived from induced pluripotent stem cells of patients with Rett Syndrome. European Pediatric Neurology Meeting, Vienna, Austria, May (Poster Presentation)

Ribeiro FF, Filipa Ferreira, Ana M. Sebastião, Sara Xapelli, Neurogenesis in the postnatal brain: the role of adenosine A2A receptors in the dentate gyrus, 9th IBRO World Congress of Neuroscience, Rio de Janeiro, Brazil, 7th – 11th July 2015. Awarded with a Travel Grant from the IBRO PERC-FENS World Congress Travel Grants program. (Poster Presentation)

Vaz SH, Sebastião AM (2015) Astrocytes modulate the BDNF effect on LTP in rat hippocampus. 9th IBRO World Congress of Neuroscience, 7th – 11th July, Rio de Janeiro, Brazil (Awarded with a Travel grant by IBRO Pan-European Regional Committee (PERC)) (Poster Presentation)

Xapelli S, Ribeiro FF, Ferreira F, Sebastião AM, Role of adenosine A2A receptors on brain-derived neurotrophic factor (BDNF)-induced neurogenesis in the subventricular zone of sprague-dawley rats - IBRO - 9th World Congress International Brain Research Organization, Rio de Janeiro (Brazil), 7-11 of July. Awarded with an IBRO World Congress Travel Grant (Poster Presentation)

Vaz SH, Jacob JP, Ribeiro JA, Sebastião AM (2015) GABA transporters are regulated by P2Y1 receptor through a calcium signalling-dependent mechanism in rat cortical astrocytes. 25th ISN-APSN Joint Biennial Meeting, 23rd – 27th August, Cairns, Australia (Awarded with a Travel grant by International Society for Neurochemistry) (Poster Presentation)

Vaz SH, Sebastião AM (2015) BDNF effect on LTP is modulated by BDNF in rat hippocampus. XII European Meeting on Glial Cells in Health and Disease, 15th – 18th July, Bilbao, Spain (Awarded with a Travel grant by Biochemical Society (UK) (Poster Presentation)

Xapelli S, Ferreira F, Pedro DM, Duarte-Samartinho M, Ribeiro FF, Sebastião AM. Role of adenosine A2A receptors on brain-derived neurotrophic factor (BDNF)-induced neurogenesis in the subventricular zone of Sprague-Dawley rats Program No. 664.03. 2015 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2015. Awarded with an International Brain Research Organization (IBRO) International Travel Grant Program (Poster Presentation).

Communications in National Conferences

Armada-Moreira A, Rodrigues R, Ribeiro FF, Sebastião AM, Xapelli S. (2015) Exploring the modulatory role of A2A receptors in oligodendrogenesis derived from rat subventricular zone neural stem/progenitor cells. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, 5th-7th February 2015, Lisboa, Portugal. (Oral Presentation)

Avelar PD, de Castro-Abrantes H, Sebastião AM, Vaz SH, Diógenes MJ (2015) Influence of BDNF on the effect of amyloid-beta peptide upon calcium signaling in rat cortical primary astrocytes. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, 5th-7th February 2015, Lisboa, Portugal (Oral Presentation)

Colino-Oliveira M, Maria José Diógenes, Joaquim A. Ribeiro, Detlev Boison, Ana M. Sebastião

(2015) Functional and molecular characterization of adenosine receptors on an age-dependent epilepsy model. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, 5th-7th February 2015, Lisboa, Portugal (Oral Presentation)

de Castro-Abrantes H, Avelar PD, Diógenes MJ, Sebastião AM, Vaz SH (2015) mGluR5-mediated calcium signalling in rat cortical primary astrocytes is modulated by adenosine A1 and A2A receptors. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, 5th-7th February 2015, Lisboa, Portugal (Oral Presentation)

Duarte S*, Palminha C*, Oliveira M, Gomes R, Batalha V, Lourenço C, Rodrigues TM, Ferreira S, Lopes LV, Sebastião AM, Diógenes MJ (2015) Adenosine receptors as new therapeutic targets in Rett syndrome. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, 5th-7th February 2015, Lisboa, Portugal (Oral Presentation)

Magalhães D, N Pereira, AM Sebastião, CA Valente (2015). Deciphering the progression of inflammatory mediators in rat organotypic hippocampal slice model of epileptogenesis. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, February 5-6, Lisbon, Portugal (Oral Presentation)

Morais T, D Coelho, AM Sebastião, CA Valente (2015). Exploring the glycine effect upon ATP-induced intracellular calcium waves in rat cortical astrocytes. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, February 5-6, Lisbon, Portugal (Oral Presentation)

Mouro FM, Vânia L Batalha, Diana G Ferreira, Joana E. Coelho, Cristha E Muller, Luísa V Lopes, Joaquim A Ribeiro, Ana M Sebastião (2015). Chronic adenosine A2A receptor blockade prevents object recognition long-term memory consolidation disruption caused by acute cannabinoid CB1 receptor activation. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, February 5-6, Lisbon, Portugal (Oral Presentation)

Ribeiro FF, Filipa Ferreira, Ana M. Sebastião, Sara Xapelli, Exploring the modulatory role of adenosine A2A receptors upon brain-derived neurotrophic factor (BDNF)-induced neurogenesis in the subventricular zone of Sprague-Dawley rats. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, 5th-7th February 2015, Lisboa, Portugal (Oral Presentation)

Rombo DM, Dias RB, Duarte ST, Ribeiro JA, Lamsa KP, Sebastião AM., Adenosine A1R suppresses tonic GABAAR currents in rat hippocampal pyramidal cells and in a defined subpopulation of interneurons, XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, 5th-7th February 2015, Lisboa, Portugal (Oral Presentation)

Sá de Almeida J, Vargas M, Sebastião AM, Diógenes MJ, Pais TF., (2015) Effect of microglial expression of Sirt2 in LTP. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, 5th-7th February 2015, Lisboa, Portugal (Oral Presentation)

Vaz SH, Sebastião AM (2015) mGluR5 BDNF-mediated enhancement of LTP is modulated by astrocytes. XLV Reunião Anual da Sociedade Portuguesa de Farmacologia, 5th-7th February 2015, Lisboa, Portugal (Oral Presentation)

Ribeiro FF, Filipa Ferreira, Ana M. Sebastião, Sara Xapelli, Neurogenesis in the postnatal brain: the role of adenosine A2A receptors in the dentate gyrus, XIV Meeting of the Portuguese Neuroscience Society, Póvoa do Varzim, Portugal, 4th and 5th June 2015. (Poster Presentation)

Almeida A, Vargas M, Sebastião AM, Diógenes MJ, Pais TF (2015) Effect of microglial expression of Sirt2 in LTP. 6th AIMS Meeting, Lisboa, Portugal, March (Poster Presentation)

Other Communications (national)

Armada-Moreira A, Rodrigues R, Ribeiro FF, Sebastião AM, Xapelli S. (2015) Exploring the modulatory role of A2A receptors in oligodendrogenesis derived from rat subventricular zone neural stem/progenitor cells. 1st meeting of the Mind-Brain College of the University of Lisbon, Lisbon, Portugal, Dec 2nd, 2015 (Poster Presentation)

Cruz A, Carlstrom M, Sebastião AM (2015) The role of adenosine a1 in the hippocampal synaptic plasticity modulated by cannabinoid cb1 receptors. 1st Meeting of Mind-Brain College of the University of Lisbon, December 2, Lisbon, Portugal (Poster Presentation)

D Magalhães, N Pereira, AM Sebastião, CA Valente (2015). "Progression of inflammatory mediators in the organotypic hippocampal slice model of epileptogenesis". 1st Meeting of Mind-Brain College of the University of Lisbon, December 2, Lisbon, Portugal (Poster Presentation)

Dias RB, Tiago M. Rodrigues, Filipa F. Ribeiro, Diogo M. Rombo, Joana Rodrigues, Jennifer McGarvey, Jeremy M. Henley, Ana M. Sebastião. "Erythropoietin: an hematopoietic hormone "messing up" things in the brain." 1st Meeting of Mind-Brain College of the University of Lisbon, December 2, Lisbon, Portugal (Poster Presentation)

Domingos C, Rombo DM, Dias RB, Sebastião AM. Probing the synaptic target of a new putative antiepileptic drug: modulation of excitatory transmission in the hippocampus. 1st Meeting of Mind-Brain College of the University of Lisbon, December 2, Lisbon, Portugal (Poster Presentation)

Fonseca-Gomes J, Jerónimo-Santos A, Sebastião AM, Diógenes MJ. Characterization of the newly discovered TrkB receptor fragment (TrkB-ICD) formed by calpain cleavage. 1st meeting of the Mind-Brain College of the University of Lisbon, Lisbon, Portugal), Dec 2nd, 2015 (Poster Presentation)

Lourenço C, Palminha C, Duarte ST, Gaspar C, Colino-Oliveira M, Gomes R, Ferreira S, Rodrigues TM, Lopes LV, Sebastião AM, Diógenes MJ. Characterization of adenosinergic system in Rett Syndrome. 1st meeting of the Mind-Brain College of the University of Lisbon, Lisbon,

Portugal), Dec 2nd, 2015 (Poster Presentation)

Martins, M.F., Shvachiy, L., Mouro, F., Perrazo, J., Coelho, J.E., Xapelli, S., Valente, C.A., Castanho M.A., Sebastião A.M. (2015) Neuroprotective action of a Kyotorphin derivative in an animal model of Alzheimer's Disease. 1st Meeting of the Mind-Brain College of the University of Lisbon, Portugal, December 2015 (Poster Presentation)

Morais T, D Coelho, AM Sebastião, CA Valente (2015). "Glycine receptor in rat cortical astrocytes: expression and function". 1st Meeting of Mind-Brain College of the University of Lisbon, December 2, Lisbon, Portugal (Poster Presentation)

Mouro FM, Vânia L Batalha, Diana G Ferreira , Joana E. Coelho, Cristha E Muller, Luísa V Lopes, Joaquim A Ribeiro, Ana M Sebastião (2015). 1st Meeting of Mind-Brain College of the University of Lisbon, December 2, Lisbon, Portugal (Poster Presentation)

Rei N, Sandra H. Vaz, Mariana Colino-Oliveira, Joaquim A. Ribeiro, Ana M. Sebastião (2015) Characterization of neuromodulatory dysfunction in Amyotrophic Lateral Sclerosis. 1st meeting of the Mind-Brain College of the University of Lisbon, Lisbon, Portugal), Dec 2nd, 2015 (Poster Presentation)

Ribeiro FF, Filipa Ferreira, Rita Soares, Rui Rodrigues, Ana Armada-Moreira, Susana Solá, Helena Mira, Ana M. Sebastião, Sara Xapelli, Neurogenesis in the postnatal hippocampus is regulated by adenosine A2A receptors both in vitro and in vivo, 1st Meeting of the the Mind-Brain Doctoral College of the University of Lisbon, Portugal, December 2015 (Oral Presentation)

Rodrigues, R., Armada-Moreira, A., Ribeiro, F.F., Sebastião, A.M., Xapelli, S.. Role of adenosine A2A receptors on cannabinoid-mediated neurogenesis in the dentate gyrus. 1st Meeting of Mind-Brain College of the University of Lisbon, December 2, Lisbon, Portugal (Poster Presentation)

Soares R, Filipa Ribeiro, Sara Xapelli, Ana Sebastião, Cecília M. P. Rodrigues, Margarida Diogo and Susana Solá. 1st Meeting of Mind-Brain College of the University of Lisbon, December (Poster Presentation)

Tanqueiro, S.R., Ramalho R.M., Sebastião, A.M., Diógenes, M.J. (2015) Deciphering the mechanisms underlying the loss of BDNF neuroprotection in an Alzheimer's Disease model. 1st the Mind-Brain College of the University of Lisbon, Lisbon, Portugal), Dec 2nd, 2015 (Poster Presentation)

Ribeiro FF, Filipa Ferreira, Ana M. Sebastião, Sara Xapelli (2015) , Neurogenesis in the postnatal brain: the role of adenosine A2A receptors in the dentate gyrus, IX PhD Student Meeting IMM/CAML, IMM, Lisbon, Portugal, 27th March 2015 (Oral Presentation)

Mouro M (2015) Cannabinoid induced memory impairments are prevented by chronic and

acute adenosine A2AR blockade in a novel object recognition paradigm.
September 29th – Pizza Seminar at IMM. (Oral Presentation)

Ramalho RM, Tanqueiro SR, Sebastião AM, Diógenes MJ (2015) Restoring the protective function of BDNF in Alzheimer's disease. 3rd IMM Postdoc Day Meeting. Lisbon, September 2015.(Oral Presentation)

Cabrita J, Macau R, Sebastião AM, Vaz SH (2015) Influência dos astrócitos na modulação da long-term potentiation (LTP) pelo brain-derived neurotrophic factor (BDNF) ao nível da região CA1 do hipocampo de ratinho, Dia da Investigação para Estudantes de Medicina (4.ª edição)-Educação pela Ciência” (GAPIC) program, 16th December, Lisboa, Portugal (Poster Presentation)

Rodrigues TM, Vaz SH, Sebastião AM, Diógenes MJ (2015). A(beta) oligomers reduce hippocampal Long-Term Potentiation (LTP putatively through BDNF signalling impairment. GAPIC Eighteenth Workshop for Science, Faculty of Medicine of the University of Lisbon (FM-UL), Lisbon, Portugal. (Oral Presentation)

Sá de Almeida J, Vargas MA, Sebastião AM, Diógenes MJ, Pais T (2015) Identificação de mediadores chave na disrupção da LTP desencadeada por um estímulo inflamatório em ratinhos que não expressam Sirt2 na microglia. GAPIC Eighteenth Workshop for Science, Faculty of Medicine of the University of Lisbon (FM-UL), Lisbon, Portugal. (Oral Presentation)

Xapelli S (2015): Postnatal oligodendrogenesis: a new potential therapy in multiple sclerosis? Invited seminar for the Clinical Sessions of Neurology at “Hospital de Santa Maria”, July (Oral Presentation)

Dias, RB (2015) Erythropoietin: an hematopoietic hormone messing things up in the brain?” Pizza Seminar, IMM, September (Oral Presentation)

Organisation of Conferences

Rita Aroeira in collab with André Jerónimo-Santos, Catarina Miranda-Lourenço, Filipa F. Ribeiro, João Fonseca-Gomes. Sara R. Tanqueiro - 1st Meeting of the Mind-Brain College of the University of Lisbon, Lisboa, December, 2015

Internationalisation

Asla Pitkänen (Univ Eastern Finland, Kuopio), Neil Dawson (Univ Lancaster, UK), Cristina Limatola (Univ Roma La Sapienza, Italy) –Neurologic and Psychiatric Disorders: from synapses to networks (SynaNet). H2020Twinning action

Christopher Parsons (Frankfurt, Germany) Neurophysiological mechanisms of aging: novel view of old concepts, funded by the Bial Foundation.

Detlev Boison (Portland, USA) Functional characterization of BDNF and adenosine signalling at the hippocampus of mice with altered expression of astrocytic adenosine kinase

Angeles García Cazorla (Barcelona, Spain) Adenosine receptors as putative new pharmacological targets for Rett syndrome treatment.

Eero Castren (Helsinki) Neurotrophin signalling dysfunction in Alzheimer disease models. .

Karri Lamsa (Oxford) Influence of adenosine receptors on selected hippocampal synapses and upon the neuroregulatory action of endocannabinoids in the hippocampus.

Jérôme Baufreton (CNRS, Bordeaux) GABA transport and GABAergic tonic inhibition in the Globulus Pallidus: dysfunction characterization in an animal model of Parkinson's Disease.

Karl Jacobson (NIH, Bethesda, USA) Characterization of the action of an antiepileptic compound at selected hippocampal synapses.

Cristha E Muller (Bonn, Germany); Sergi Ferré (Baltimore, USA) Influence of adenosine upon memory impairment by cannabinoids.

Helena Mira (Madrid, Spain) Stereological analysis of in vivo immunostainings,

COST Action BM1302 - Joining Forces in Corneal Regeneration Research - Management Committee member: Sara Xapelli

COST Action BM1402 - Development Of A European Network For Preclinical Testing Of Interventions In Mouse Models Of Age And Age-Related Diseases (MouseAGE). Management Committee Substitute Member: Sara Xapelli

Prizes, honours and awards

Xapelli S - Travel award from International Brain Research Organization (IBRO) International Travel Grant Program - Society for Neuroscience, Chicago (USA)

Xapelli S - Travel award from IBRO World Congress Travel Grant – 9th IBRO World congress, Rio de Janeiro (Brasil)

Vaz SH - Travel award from International Society for Neurochemistry, 25th ISN-APSN Joint Biennial Meeting, Cairns, Australia

Vaz SH - Travel award from Biochemical Society (UK), XII European Meeting on Glial Cells in

Health and Disease, Bilbao, Spain

Vaz SH - Travel award from IBRO Pan-European Regional Committee (PERC) 9th IBRO World Congress of Neuroscience, Rio de Janeiro, Brasil.

Ribeiro FF - Travel Award from IBRO PERC-FENS World Congress Travel Grants program, World Congress of the IBRO 2015, Rio de Janeiro, Brasil.

Ribeiro FF - Short-term scientific mission (3 months) award from COST (EU) to Instituto de Salud Carlos III, Majadahonda, Madrid, Spain

Rodrigues R - Scholarship award from Federation of European Neuroscience Societies and International Brain Research Organization/Pan European Regional Committee (FENS and IBROPERC), summer school "Neural Circuit Development and Plasticity" organized by the University of Utrecht.

Advanced teaching

AM Sebastião – Director of the Doctoral College 'Mind and Brain', University of Lisbon

AM Sebastião – Director of the Integrated Neurociences PhD Programme (Funded by FCT)

AM Sebastião - Member of the Scientific Board of the Ms/PhD in Neurosciences, Faculdade de Medicina da Universidade de Lisboa

AM Sebastião - Member of the Scientific Board Ms/PhD Programme in Cognitive Sciences, Universidade de Lisboa

AM Sebastião – Member of the Coordination Board of the Master in Biomedical Engineering, IST/FMUL

Ribeiro JA - Lecturer of Ms/PhD in Neurosciences, Faculdade de Medicina da Universidade de Lisboa and of the Ms/PhD Programme in Cognitive Sciences, Universidade de Lisboa.

Sebastião - Lecturer of Ms/PhD in Neurosciences, Faculdade de Medicina da Universidade de Lisboa and of the Ms/PhD Programme in Cognitive Sciences, Universidade de Lisboa. Faculdade de Medicina da Universidade de Lisboa

Ribeiro JA - Coordinator of the Module on Neuroethics, Ms/PhD in Neurosciences.

Sebastião AM – Coordinator of the following modules of the Ms/PhD in Neurosciences: 'Cellular and Molecular Neurosciences', 'Neuronal Networks', 'Neuronal Degeneration and Regeneration'

Lab members presented the following lectures or seminars as part of the Master and PhD Programmes in Neurosciences:

Diogo Rombo - Evaluation of synaptic activity through electrophysiological recording Techniques, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, September, 2015

Sandra Vaz - Calcium signalling in astrocytes: relevance for excitability control, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, September, 2015

Claudia Valente - Imaging molecules by immunofluorescence – Applications to neuroscience, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, September, 2015

Nádia Rei - Receptor quantification assays: binding and Western Blot, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal September 2015

Diogo Rombo - Synapse-specific modulation at the hippocampus, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, October, 2015

Raquel Dias - Synaptic plasticity: an overview with focus upon synaptic and extrasynaptic modulation of ionotropic glutamate receptors, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, October, 2015

Francisco Mouro - Influence of cannabinoids upon memory: synaptic basis and behavioral evidence. Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, October, 2014Lisboa, Lisbon, Portugal, October, 2015

Maria José Diógenes - Neurotrophic factors: key molecules for neuronal survival and plasticity, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, November, 2015

Claudia Valente - Neuroinflammation in epilepsy, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, November, 2015

Ana Filipa Ribeiro - Modulation of neuronal outgrowth in cultured neurons, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, December, 2015

Sara Xapelli - Postnatal Neurogenesis and oligodendrogenesis – role and disease implications, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, December, 2015

Sofia Duarte - Modeling Neurodevelopmental Disorders with Human Induced Pluripotent Stem Cells: From Genes to Function, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, December 2015

Lab Members presented Lectures, under invitation at Post-graduate programmes at other Schools (2015):

Ribeiro JA; Sebastião AM; Diogenes MJ - Mestrado em Técnicas de Diagnóstico e Intervenção Cardiovascular, Escola Superior de Tecnologia de Saúde de Lisboa, Instituto Politécnico de Lisboa, Lisbon, Portugal, 2015.

Sebastião AM. - Master in Physics, Instituto Superior Técnico, Lisbon, Portugal, 2015.

Sebastião AM – Master in Biophysics and Biomedical Engineering – Faculty of Sciences, University of Lisbon, December 2015

Sebastião AM – Master in Neuropsychology, Universidade Católica Portuguesa Lisboa, Lisbon, Portugal, 2014.

Mouro FM - Cannabinoids and Memory, Master in Human and Environmental Biology. Faculdade de Ciências da Universidade de Lisboa, 17th June, 2015

Sebastião, AM, Ribeiro, JA, Diógenes MJ – Neurosciences, Faculty of Medicine, optative curricular unit for the. Master in Biomedical Engineering, IST/FMUL.

Lab members presented the following ‘Neuroscience Seminars’ at IMM (2015):

05/01 – Pedro Avelar, “Influence of BDNF on the effect of amyloid-beta peptide upon calcium signaling in rat cortical primary astrocytes.”

12/01 – Haissa de Castro, “mGluR5-mediated calcium signaling in rat primary astrocytes:

modulation by adenosine A1 and A2A receptors."

19/01 – Ana Moreira, "Exploring the modulatory role of A2A receptors in oligodendrogenesis derived from neural stem/progenitor cells of the subventricular zone."

26/01 – Rui Rodrigues "Unveiling the role of A2A receptors on neurogenesis induced by activation of cannabinoid receptors in rat stem/progenitor cell cultures."

02/02 – Mariana Oliveira "Functional and molecular characterization of adenosine receptors on an age-dependent epilepsy model."

09/02 – João Gomes "Study the function of the newly discovered TrkB receptor fragment (TrkB-ICD) formed by calpain cleavage."

16/02 – Tatiana Morais "Exploring the glycine effect upon ATP-induced intracellular calcium transients in rat cortical astrocytes."

02/03 – Ana Filipa Ribeiro "Neurogenesis in the postnatal brain: the role of adenosine A2A receptors."

09/03 – Catarina Lourenço "Impact of in vivo administration of adenosine on BDNF-mediated signaling in Rett Syndrome."

16/03 – Sandra Vaz "Astrocytes, gliotransmitters and BDNF: working together to shape synaptic plasticity?"

23/03 – Sara Tanqueiro "Deciphering the mechanisms underlying the loss of BDNF neuroprotection in an Alzheimer's Disease model."

13/04 – Margarida Martins (Master student, Sebastião Lab and Castanho Lab)

"The potential neuroprotective action of Kyotorphin-derivatives in an Alzheimer's Disease rat model."

20/04 – Tiago Rodrigues "A toolbox for wiring Drosophila's brain"

15/06 – Cátia Domingos "Targeting selected synapses to develop new antiepileptic drugs with minimal side effects."

06/07 – Francisco Mouro "Cannabinoid induced memory impairments are prevented by chronic and acute adenosine A2AR blockade in a novel object recognition paradigm."

07/09 – Rui Rodrigues "Unveiling the role of A2A receptors on neurogenesis induced by activation of cannabinoid receptors in rat SVZ and DG stem/progenitor cell cultures."

14/09 – Nádia Rei "Characterization of neuromodulatory dysfunction in Amyotrophic Lateral Sclerosis (ALS)."

12/10 – Ana Moreira "Exploring the modulatory role of A2A receptors in oligodendrogenesis derived from neural stem/progenitor cells of the subventricular zone."

19/10 – Armando Cruz "The interaction of A1R signalling with CB1R in hippocampal pyramidal cells."

26/10 – Sofia Duarte "Synaptic Dysfunction In Early Encephalopathies: From Genes to Function."

02/11 – Rita Ramalho "Inhibition of extrasynaptic NMDA receptors restores BDNF function."

09/11 – Raquel Dias "Erythropoietin: shaping synapses to keep them talking."

23/11 – João Gomes "Study the function of the newly discovered TrkB receptor fragment (TrkB-ICD) formed by calpain cleavage."

07/12 – Tatiana Morais "Glycine receptor in rat cortical astrocytes: expression and function."

Science and society

Brain Awareness Week (BAW)

Members of the group were involved in the activities regarding the Brain Awareness Week (BAW) and Brain European Year, which included lectures and hands-on activities with the goal of increasing public awareness of the progress and benefits of brain research. These activities included:

1. National closing ceremony of the “Brain Awareness Week 2015”, March 21st, Instituto de Medicina Molecular (iMM) and Faculdade de Medicina da Universidade de Lisboa.

2. BAW Sessions in Basic and High Schools:

João Gomes: 9th March 2015 - Voluntary work as science communicator during the Brain Awareness Weeks at Escola Secundária de Camarate; audience: 48 students with 15-21 years old.

Catarina Lourenço- “Brain curiosities”, Brain Awareness Week, Escola Secundária de Camarate.

Maria José Diógenes- “O que é ser neurocientista”- Escola Secundária do Viso, Setúbal. Dezembro, 2015.

Sara Xapelli, March 2015: Invited lecture on the sequence of the Brain Awareness Week held in “Escola Básica das Laranjeiras”, Lisboa.

Ana Sebastião - Como o cérebro é influenciado por drogas - Escola Náutica, Paço de Arcos, April 2015

Other Science and Society activities

Rui Rodrigues e Sara Tanqueiro – Open Day IMM Lisboa promoted by Ciência Viva. 27th November 2015. Audience: 40 students with 15-18 years old.

Ana M Sebastião – Interview Antena 1, Programa Dias do Futuro

PhD thesis completed

Aroeira RI 30/01/2015 Molecular features of glycine-mediated neurotransmission in rat brain Universidade de Lisboa Cláudia Valente Ana M Sebastião

Rombo DM 18/12/2015 Modulatory role of adenosine upon GABAergic transmission: consequences for excitability control Universidade de Lisboa Ana M Sebastião

Msc thesis completed

Tatiana Pinto Morais 14/12/2015 Glycine receptor in rat cortical astrocytes: expression and function Universidade de Lisboa Cláudia Valente

Daniela Cristina Melo Magalhães 12/02/2015 Deciphering the role of inflammation in the organotypic hippocampal slice model of epileptogenesis Universidade de Lisboa Cláudia valente

Pedro Dinis Avelar Agostinho 10/04/2015 Influence of Brain-derived neurotrophic factor on the effect of amyloid-beta peptide upon calcium signalling in rat cortical astrocytes Universidade de Lisboa Maria José Diógenes Sandra Vaz

Catarina Miranda Lourenço 28/09/2015 Characterization of adenosinergic system in Rett Syndrome Universidade de Lisboa Maria José Diógenes Cláudia Gaspar; Sofia T Duarte

Joana Rita Alves Sá de Almeida 09/06/2015 Effect of microglial expression of SIRT in Long Term potentiation Universidade de Lisboa Maria José Diógenes

Afonso Moreira 14/07/2015 The Role of Chocolate and Theobromine in the Prevention of Alzheimer's Disease Universidade de Lisboa Maria José Diógenes Alexandre de Mendonça

Ana Iolanda d'Armada Moreira 18/12/2015 Exploring the modulatory role of A2A receptors in oligodendrogenesis derived from neural stem/progenitor cells of the subventricular zone Universidade de Lisboa Sara Xapelli

Haíssa de Castro Abrantes 11/05/2015 mGluR5-mediated calcium signaling in rat forebrain astrocytes: modulation by adenosine A1 and A1A receptors Universidade de Lisboa Sandra Vaz Ana M Sebastião

Silva-Santos, Bruno

Major Interests / Objectives

We study the biology of T lymphocytes and their key roles in immunity to infection and cancer. Our projects focus on the development of these cells in the vertebrate thymus, and on their functions upon export to the periphery. We investigate differentiation and activation signals for T cells in the mouse system, which provides crucial in vivo models for infectious (such as malaria) and autoimmune diseases. We also study human peripheral blood T cells and, in particular, their recognition and elimination of lymphomas and leukemias. Overall, we envisage the identification of molecular mechanisms involved in the differentiation, activation and function of T cells, aiming towards the design of new treatments for cancer, on the one hand, and (auto) immune disorders, on the other.

Head of Laboratory

Bruno Silva Santos, PhD, Associate Professor

Research Team

Ana Maria de Amarante Pamplona Dias dos Santos	PhD	Senior Investigator
Anita Raquel Quintal Gomes	PhD	Investigator, Escola Superior de Tecnologia da Saúde de Lisboa, Assistant Professor
Beatriz Santos de Almeida	Undergraduate	Trainee, (started March)
Cláudia Filipa Balseiro Reforço	Graduate	MSc Student, (started September)
Daniel Vargas Correia	PhD	Post doctoral Investigator
Diogo Maia e Silva	Undergraduate	Trainee, (started September)
Francisco Landeck Moreira Franco Caiado	PhD	Post doctoral Investigator
Gisela Silva Gordino	Graduate	MSc Student, (started September)
Haakan Rolf Norell	PhD	Investigator
Hiroshi Kubo	PhD	Post doctoral Investigator, (started March)

Joana Luísa de Barros Martins	Graduate	MSc Student, (left April)
Julie Cecile Caroline Ribot	PhD	Senior Investigator
Karine Serre	PhD	Post doctoral Investigator
Miguel Alves Rovisco Ribeiro	Master	Trainee
Miguel Muñoz Ruiz	Master	PhD Student
Natacha Maria Gonçalves Silva Sousa	Master	Lab Manager
Nina Alexandra Schmolka	PhD	Post doctoral Investigator
Pedro Henrique Papotto Rosa	Master	PhD Student
Rafael Alexandre Teodoro da Silva	Undergraduate	Trainee, (left May)
Rita Sofia Simões Faria	Graduate	MSc Student
Sérgio Tiago de Freitas Ribeiro	Master	PhD Student
Sofia Mensurado Santos	Graduate	MSc Student
Tiago Maria de Carvalho da Costa Amado	Master	PhD Student
Tomás Laia McGuire	Graduate	MSc Student

Keywords / Research Areas

T cell development/differentiation, T cell activation, Tumour immunology, Immunopathogenesis of Severe Malaria, Leukaemia clonal evolution, Neuroimmunology

Major scientific achievements

We have concluded four projects that are now at the revision/ publication stage, which have demonstrated: a) that T cell receptor (TCR) signaling strength controls the functional differentiation of pro-inflammatory $\gamma\delta$ T cells in vivo; b) that these subsets that distinct transcription factor requirements (particularly with regard to BATF and ROR α) than their conventional CD4⁺ T helper counterparts; c) that Casein Kinase 2 (CK2) is a key determinant of the survival of normal and malignant (leukaemic) $\gamma\delta$ T cells; and d) that V δ 1⁺ $\gamma\delta$ T cells

expressing Natural Cytotoxicity Receptors (like NKp30 and NKp44) are strikingly capable of preventing human leukaemia cell dissemination in pre-clinical xenograft models.

We have published 6 papers in international peer-reviewed journals, including an invited review in *Nature Reviews Immunology* on the role of $\gamma\delta$ T cells in cancer. We made 3 oral communications in the European Congress of Immunology (Vienna). We completed/ defended 3 master theses and obtained 4 project grants, including an ERC Consolidator Grant (2015-2020)

Selected Publications

Ribot JC, deBarros A, Pang DJ, Neves JF, Peperzak V, Girardi M, Borst J, Hayday AC, Pennington DJ and Silva-Santos B. (2009) CD27 is a thymic determinant of the balance between interferon- γ - and interleukin 17-producing $\gamma\delta$ T cell subsets. *Nature Immunology*, **10**, 427-36, (Journal IF: 26.218, Citations: 203)

Lança T, Correia DV, Moita CF, Raquel H, Ferreira C, Ramalho JS, Barata JT, Moita LF, Gomes AQ and Silva-Santos B. (2010) The MHC class Ib protein ULBP1 is a nonredundant determinant of leukemia/lymphoma susceptibility to gammadelta T-cell cytotoxicity. *Blood*, **115**, 2407-11, (Journal IF: 10.555, Citations: 42)

Correia DV, Fogli M, Hudspeth K, da Silva MG, Mavilio D and Silva-Santos B. (2011) Differentiation of human peripheral blood Vdelta1+ T cells expressing the natural cytotoxicity receptor NKp30 for recognition of lymphoid leukemia cells. *Blood*, **118**, 992-1001, (Journal IF: 10.555, Citations: 39)

Coquet J*, Ribot JC*, Babala N, Middendorp S, Xiao Y, Neves JF, Fonseca-Pereira D, Jacobs H, Pennington DJ, Silva-Santos B** and Borst J** (*Co-first Authors; **Co-senior Authors) (2013) Epithelial and dendritic cells in the thymic medulla promote CD4+ Foxp3+ regulatory T cell development via the CD27-CD70 pathway. *Journal of Experimental Medicine*, **210**(4), 715, (Journal IF: 13.216, Citations: 30)

Schmolka N*, Serre K*, Grosso AR, Rei M, Pennington DJ and Silva-Santos B (2013) Epigenetic and transcriptional signatures of stable versus plastic differentiation of proinflammatory $\gamma\delta$ T cell subsets. *Nature Immunology*, **14** (10), 1093, (Journal IF: 26.199, Citations: 19)

Ongoing Research Projects

2010/2015 Differentiation of pro-inflammatory T cell subsets in vivo. Coordinator: Bruno Silva Santos. Agency: Comissão Europeia. Reference: ERC_260352_BSS. Amount: € 1500000.00. Amount (total): € 1500000.00.

2015/2016 Modulation of T cell fitness in the tumor environment. Coordinator: Bruno Silva Santos. Agency: AstraZeneca-Produtos Farmacêuticos. Reference: AstraZeneca. Amount: €

6000.00. Amount (total): € 0.00.

2015/2020 MicroRNA determinants of the balance between effector and regulatory T cells in vivo. Coordinator: Bruno Silva Santos. Agency: Comissão Europeia. Reference: DevoTed_miR - 646701. Amount: € 2000000.00. Amount (total): € 0.00.

2014/2016 Preprogrammed versus stochastic clonal evolution of relapsing Acute Myeloid Leukaemia: Impact on disease development and therapeutic responses. Coordinator: Haakan Rolf Norell. Agency: Associação Portuguesa contra. Reference: APCL-SEMAPA 2013-2015. Amount: € 40000.00. Amount (total): € 40000.00.

2014/2015 Deciphering the outside-in mechanisms of human $\gamma\delta$ T cell differentiation. Coordinator: Julie Cecile Caroline Ribot. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: EXPL/IMI-IMU/0170/2013. Amount: € 50000.00. Amount (total): € 50000.00.

2014/2015 Quantitative analysis of clonal evolution and characterization of tumor escape variants in relapsing Acute Myeloid Leukemia. Coordinator: Haakan Rolf Norell. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: EXPL/BIM-ONC/1656/2013. Amount: 50000.00. Amount (total): 50000.00.

2015/2020 Projecto de Investigação Exploratória. Coordinator: Karine Serre. Agency: Fundação para a Ciência e a Tecnologia, IP. Coordinator Institution: 0. Reference: Projecto de Investigação Exploratória. Amount: € 50000.00. Amount (total): € 50000.00.

2015/2020 Projecto de Investigação Exploratória. Coordinator: Julie Cecile Caroline Ribot. Agency: Fundação para a Ciência e a Tecnologia, IP. Coordinator Institution: 0. Reference: Projecto de Investigação Exploratória. Amount: € 50000.00. Amount (total): € 50000.00.

Other publications International

Ribeiro S. T., Ribot J. C., T. Silva-Santos B. (2015) Five Layers of Receptor Signaling in $\gamma\delta$ T-Cell Differentiation and Activation. Review. *Frontiers in Immunology* **6**(6):15. (Journal IF: NA Citations: 1)

Schmolka N, Wencker M, Hayday AC, Silva-Santos B.(2015) Epigenetic and transcriptional regulation of $\gamma\delta$ T cell differentiation: Programming cells for responses in time and space. Review. *Seminars in Immunology* **27**(1):19-25. (Journal IF: 5.170, Citations: 1)

Rei M, Pennington DJ, Silva-Santos B. (2015) The emerging Protumor role of $\gamma\delta$ T lymphocytes: implications for cancer immunotherapy. Review. *Cancer Research* **1;75**(5):798-802. (Journal IF: 9.329, Citations: 4)

Amado T, Schmolka N, Metwally H, Silva-Santos B, Gomes AQ. (2015) Cross-regulation between cytokine and microRNA pathways in T cells. Review. *European Journal of Immunology* **45**(6):1584-95. (Journal IF: 4.034, Citations: 0)

Silva-Santos B, Serre K, Norell H. (2015) $\gamma\delta$ T cells in cancer. *Nature Reviews Immunology* **15**(11):683-91. (Journal IF: 34.985, Citations: 0)

Bonneville M, Chen ZW, Déchanet-Merville J, Eberl M, Fournié JJ, Jameson JM, Lopes RD, Massaia M and Silva-Santos B (2015). Meeting report: Chicago 2014 – 30 years of $\gamma\delta$ T cells. *Cellular Immunology*. 296(1):3-9. (Journal IF: 1.924, Citations: 1)

Invited lectures and seminars

B. Silva-Santos. Beyond the conventional: immuno-oncology in NSCLC lung cancer. 9th Inspired Evolution, Amadora, 24 January 2015.

H. Norell. Quantitative analyses of the cancer cell population dynamics and clonal evolution that drive relapse of acute myeloid leukaemia escape variants. National Institutes of Health (USA), 25 February 2015.

B. Silva-Santos. Of Mice and Men: Gamma-delta T cell responses to tumors. University of Palermo (Italy), 4 March 2015.

B. Silva-Santos. Gamma-delta T cell differentiation and tumor targeting. University of Lund (Sweden), 4 May 2015.

J. Ribot. Preceptorship in cancer immunology. Searching other opportunities in basic research. Hospital Santa Maria, Lisboa, 22 May 2015.

B. Silva-Santos. Why so much hope in cancer immunotherapy? Preceptorship in Cancer Immunology. IMM Lisboa, 22 May 2015.

B. Silva-Santos. Molecular determinants of gamma-delta T cell differentiation. Institut für Immunologie, Ludwig-Maximilian University, Munich (Germany), 16 July 2015.

B. Silva-Santos. Functional differentiation and tumor targeting by gamma-delta T cells. Institut Necker Enfants Malades, Paris (France), 18 September 2015.

B. Silva-Santos. Pro-inflammatory gamma-delta T cells: differentiation and tumor targeting. Karolinska Institutet, Stockholm (Sweden), 19 October 2015.

H. Norell. Dynamics of the single-tumor-cell-lineages that underpin clonal evolution and relapse of human acute myeloid leukemia. 3rd IMM Postdoc Day, 25 September 2015.

B. Silva-Santos. Towards an understanding and the manipulation of gamma-delta T cells in cancer. CEDOC – Centro de Doenças Crónicas, Universidade Nova de Lisboa, 9 December 2015.

Communications in International Conferences

Muñoz-Ruiz M., Ribot J.C., Regueiro J.R., Fernández-Malavé E., and Silva-Santos B.. T Cell Receptor expression levels and downstream signaling control the functional differentiation of gamma-delta T cells in the murine thymus. Keystone Symposium on Effector and Regulatory T cells. Snowbird Resort, Salt Lake City (USA), 29 March – 2 April 2015. (Poster Presentation)

Muñoz-Ruiz M, Ribot JC, Pennington DJ, Regueiro JR, Silva-Santos B* and Fernández -Malavé E*. T Cell Receptor expression levels and downstream signaling control the functional differentiation of gd T cells in the murine thymus. Venice Thymus Meeting 2015. Venice (Italy). 9-13 April 2015. (Oral Presentation)

J.Ribot, S. Ribeiro, D. Correia, A. Sousa, B. Silva-Santos. Cytokine-induced transcriptional signatures during functional differentiation of human gd thymocytes. Thymus meeting, Venice (Italy). 9-13 April 2015. (Poster Presentation)

B. Silva-Santos. T cell differentiation and tumor targeting. 15th EMBO Young Investigator Programme Meeting. Barcelona (Spain), 15 May 2015 (Invited Speaker)

Silva-Santos B. Functional subsets of gamma-delta T lymphocytes defined by flow cytometry analysis of CD27 and Nkp30 expression. European Congress of Flow Cytometry. Las Palmas (Spain), 6 June 2015. (Invited Speaker)

Sofia Mensurado, Margarida Rei, Natacha Goncalves-Sousa, Karine Serre* and Bruno Silva-Santos*. Molecular regulation of $\gamma\delta$ T cell tumour responses. Cell Symposia: Cancer and Inflammation and Immunity. 14-16 June 2015 – Sitges, Spain (Poster Presentation)

Muñoz-Ruiz M, Ribot JC, Pennington DJ, Regueiro JR, Silva-Santos B* and Fernández -Malavé E*. T Cell Receptor expression levels and downstream signaling control the functional differentiation of gd T cells in the murine thymus. 4th European Congress of Immunology (ECI) Vienna (Austria), 6-9 September 2015 (Oral Presentation)

Ribeiro S. T., Ribot J. C., Barata J. T. Silva-Santos B. Casein Kinase 2 regulates AKT signaling to promote the survival of normal and leukemic $\gamma\delta$ T-cells. 4th European Congress of Immunology, Vienna (Austria), 6-9 September 2015 (Poster Presentation)

Schmolka N., Amado T., Silva-Santos B.* and Gomes A.Q.*. MicroRNA-146a controls the functional plasticity of gamma-delta T cells". 4th European Congress of Immunology, Vienna

(Austria), 6-9 September 2015 (Oral Presentation)

Sofia Mensurado, Margarida Rei, Telma Lança, Natacha-Gonçalves-Sousa, Karine Serre* and Bruno Silva-Santos*. Sometimes myeloid suppressive cells get it wrong: tumour-associated neutrophils inhibit pro-tumour IL-17-producing gd T cells. European Cost Action. Regulatory myeloid cells (MRC) in health and disease - Conference and Workshop. 14-16 September 2015 – Krakow - Poland (poster Presentation)

Rodrigues, A. F., Schmolka, N., Silva-Santos, B., Alves, PM, Coroadinha, A.S. Generation of high-titer retroviral and lentiviral vectors encoding microRNAs: Escaping vector self-targeting. Collaborative Congress of the European-Society-of-Gene-and-Cell-Therapy (ESGCT) and Finnish-Society-of-Gene-Therapy (FSGT), Helsinki, Finland, 17-20 September 2015

B. Silva-Santos. Pro-inflammatory gamma-delta T cells: differentiation and tumor targeting. Zing Conference – The immune system for therapeutic benefit. Oropesa (Spain), 3 October 2015 (Invited Speaker)

B. Silva-Santos. Delta One T cells for leukemia immunotherapy. 9th International Meeting of Portuguese Society for Stem Cells and Cell Therapies. Oeiras, 15 October 2015 (Invited Speaker)

B. Silva-Santos. Immunomodulation in cancer – the case for gamma-delta T cells. II Congresso Internacional da Saúde Gaia-Porto, Escola Superior de Tecnologia da Saúde do Porto, 21 November 2015 (Invited Speaker)

Communications in National Conferences

B. Silva-Santos. Imunologia tumoral: do reconhecimento molecular à imunoterapia do cancro. 1ª Conferência Anual da Rede Saúde, Lisboa, 2 February 2015 (Invited Speaker)

Caiado F., Carvalho T., Faria R., Maia-Silva D., Gomes da Silva M., Schumacher T., Silva-Santos B. and Norell H. Quantitative analyses of the cancer cell population dynamics and clonal evolution that drive relapse of acute myeloid leukemia escape variants. XXIII Porto Cancer Meeting: Stem Cells and Cancer, Porto (Portugal), 7-8 May 2015 (Poster Presentation)

H. Norell. ABC of Immuno-Oncology. 2nd Luso Brasileiro oncology pre-congress meeting of the Portuguese Society of Oncology, 14 May 2015 (Invited Speaker)

Ribeiro S. T., Ribot J. C., Barata J. T. Silva-Santos B. Casein Kinase 2 regulates AKT signaling to promote the survival of normal and leukemic $\gamma\delta$ T-cells. Thymus@Lisbon symposium, Lisbon 12 June 2015 (Poster Presentation)

Mensurado S., Rei M., Lança T., Gonçalves-Sousa N., Serre K., Silva-Santos S. In vivo inhibition of gd T cell response by polymorphonuclear myeloid-derived suppressor cells.

Thymus@Lisbon, Lisboa, 12 June 2015 (Poster Presentation)

Mensurado S., Rei M., Lança T., Gonçalves-Sousa N., Serre K., Silva-Santos S. In vivo inhibition of gd T cell response by polymorphonuclear myeloid-derived suppressor cells. 1st Symposium on Immunomodulation in Cancer & Regeneration, Porto, 2nd July 2015 (Oral Presentation)

B. Silva-Santos. Modulation of gamma-delta T cells for cancer immunotherapy. 1st Symposium on Immunomodulation in Cancer and Regeneration. Porto, 2 July 2015 (Invited Speaker)

Mensurado S., Rei M., Lança T., Gonçalves-Sousa N., Serre K., Silva-Santos S. Modulation of T cell fitness in the tumour microenvironment. iMed Conference 7.0, Lisboa, 17-20 September 2015 (Oral & Poster Presentation)

Caiado, F., Maia-Silva, D., Silva-Santos, B. and Norell, H. Quantitative analysis of the cancer cell population dynamics that drive relapse of acute myeloid leukemia escape variants. iMed 7.0 Conference, 17 - 20 September 2015 (Oral & Poster presentation)

Ribeiro S. T. Casein Kinase 2 controls the survival of normal thymic and leukemic $\gamma\delta$ T-cells via modulation of AKT signaling. Lisbon Immunology & Infection Meeting, Lisboa 16 October 2015 (Oral presentation)

Gordino G., Ribeiro S., Correia D. V., Sousa A. E., Gomes A. Q., Silva-Santos B., and Ribot J. C. Cytokine-induced transcriptional and post-transcriptional signatures during functional differentiation of human gd thymocytes. Lisbon Immunology & Infection Meeting, Lisboa 16 October 2015, (Poster Presentation)

Ribeiro, M. Temido-Ferreira, D. Ferreira, J. Coelho, L. Lopes, B. Silva-Santos and J. Ribot. Role of murine gd T cells in brain cognitive function. SPI annual meeting. Braga. 26-28 October 2015 (Poster Presentation)

Mensurado S., Rei M., Lança T., Gonçalves-Sousa N., Serre K., Silva-Santos S. In vivo inhibition of tumour-associated $\gamma\delta$ T cells by polymorphonuclear myeloid-derived suppressor cells. XLI Annual Meeting of the Portuguese Society for Immunology, Braga, 26-28 October 2015 (Oral Presentation)

Gordino G., Ribeiro S., Correia D. V., Sousa A. E., Gomes A. Q., Silva-Santos B., and Ribot J. C. Cytokine-induced transcriptional and post-transcriptional signatures during functional differentiation of human gd thymocytes. XLI Annual Meeting of the "Sociedade Portuguesa de Imunologia". 26-28 October 2015, Braga (Poster Presentation)

Ribeiro S. T., Ribot J. C., Barata J. T. Silva-Santos B. Casein Kinase 2 controls the survival of normal thymic and leukemic $\gamma\delta$ T-cells via modulation of AKT signaling. XLI annual meeting Portuguese society for immunology, Braga, 26-28 October 2015 (Poster presentation)

Almeida A.R.M., Correia, D., Fernandes-Platzgummer, A., da Silva, C., Gomes da Silva, M.,

Anjos, D., and Silva-Santos B. Delta One T cells for leukemia immunotherapy: clinical-grade expansion and differentiation, mode of action and in vivo proof-of-concept. XLI annual meeting of the Portuguese Society for Immunology, Braga, 26 - 28 October 2015 (Oral presentation)

H. Norell. Cancer immunotherapy and tumor escape. Annual meeting of SPGH, 7 November 2015. (Invited speaker)

Organisation of Conferences

J. Ribot and N. Gonçalves-Sousa co-organized the symposium Thymus@Lisbon, Instituto de Medicina Molecular, Lisboa, 12 June 2015.

Internationalisation

Collaborative work with Drs. Daniel J. Pennington (Blizard Institute, Queen Mary College, London, UK), Adrian Hayday (Cancer Research UK, London, UK), Ton Schumacher (The Netherlands Cancer Institute, Amsterdam, The Netherlands), José Ramon Regueiro (Universidad Complutense, Madrid, Spain).

Prizes, honours and awards

Nina Schmolka was with a Travel Grants from Boehringer Ingelheim funds and a short term fellowship from EMBO, Heidelberg.

Ribeiro S. T. was awarded with an individual travel grant from European Federation of Immunological Societies

Julie Ribot was awarded an individual Travel Grant from Sociedade Portuguesa de Imunologia.

Miguel Muñoz-Ruiz was awarded individual travel grants from European Federation of Immunological Societies

Sofia Mensurado was awarded the Fundação AstraZeneca Innovate Award from Fundação AstraZeneca.

Advanced teaching

B. Silva-Santos lectured on “Immunology and immunotherapy of cancer” in the Oncobiology course of the LisbonBioMed PhD Program, IMM, 13 January 2015.

B. Silva-Santos co-organized and lectured on “Gamma-delta T cell responses to tumors” in the Immunology course of the LisbonBioMed PhD Program, IMM, 2-6 February 2015.

Karine Serre lectured on “Molecular mechanisms of gamma-delta T cell differentiation” in the Immunology course of the LisbonBioMed PhD Program, IMM, 2-6 February 2015.

B. Silva-Santos lectured on “T cell differentiation” in the GABBA PhD Program course, Instituto de Biologia Molecular e Celular, Universidade do Porto, 6 March 2015.

B. Silva-Santos co-organized and lectured on “Tumor immunology” in the Oncoimmunology course of the CAML Oncobiology MSc Program, iMM Lisboa, 20-29 May 2015.

H. Norell co-organized and lectured in the Oncoimmunology course of the CAML Oncobiology MSc Program, iMM Lisboa, 20-29 May 2015.

Science and society

B. Silva-Santos co-organized and lectured on the Cancer Immunotherapy Workshop for Media, iMM Lisboa, 26 May 2015.

The INFARMED grant awarded to J. Ribot was announced in the following press release (Diário da Saúde Online , 19-11-2015):

<http://www.diariodasaude.pt/investigadora-do-imm-lisboa-recebe-financiamento-do-fundo-para-a-investigacao-em-saude/>

Msc thesis completed

Joana Martins 05/02/2015 Role of transcription factors in the functional development of gamma-delta T lymphocytes Faculdade de Ciências, Universidade de Lisboa Karine Serre

Sofia Mensurado Santos 23/10/2015 Crosstalk between immunosuppressive myeloid and effector lymphoid cells in the tumour microenvironment Faculdade de Ciências, Universidade de Lisboa B. Silva-Santos Karine Serre

Rita Faria 28/10/2015 New perspectives on leukemia initiating cell dynamics – Redefining concepts by tracing single tumor cell lineages through barcoding technology Instituto de Ciências Biomédicas Abel Salazar, Universidade do Porto B. Silva-Santos H. Norell

Simas, Pedro

Major Interests / Objectives

We utilize murid herpesvirus 4, which causes persistent infection in B lymphocytes in laboratory mice, as a model to study human gammaherpesvirus pathogenesis, namely Kaposi's sarcoma associated herpesvirus (KSHV).

KSHV is the etiologic agent of KS and primary effusion lymphoma. KSHV infection of tumor cells is primarily latent and KSHV drives cells to proliferate. KSHV persists in latently infected tumor cells as an extrachromosomal, multi-copy episome (plasmid). KSHV latency-associated nuclear antigen (kLANA) mediates KSHV episome persistence, thus tumor cell viability. Since there is no tractable animal model for KSHV, the MuHV-4 model provides a unique opportunity to study gammaherpesviruses in vivo.

Head of Laboratory

João Pedro Monteiro e Louro Machado de Simas, PhD

Research Team

Ana Patrícia Páscoa Quendera	Master	Trainee, (started March)
André Filipe Coimbra e Seixas	Graduate	MSc Student, (started September)
Diana Marisa Pinto Freire Fontinha	Master	PhD Student
Francesca Patricia Regales Martin	Graduate	MSc Student, (started September)
Inês Marques Basto	Graduate	MSc Student
Maria Leonor dos Santos Diniz Orge	PhD	Investigator
Marta Pires de Miranda	PhD	Post doctoral Investigator
Sofia Isabel Arriaga Mimoso Cerqueira	Master	PhD Student

Keywords / Research Areas

herpes virus, B lymphocytes, chronic infection, Kaposi sarcoma herpesvirus (KSHV), B cell and Lymphomas, MuHV-4 and animal model of infection

Major scientific achievements

Rhadinoviruses cause tumors through latent infection, when the viral genome forms an extrachromosomal episome. The viral latency-associated nuclear antigen (LANA) promotes episome replication and segregation between daughter cells. This requires binding to the terminal repeat units of the viral genome, which show little obvious inter-virus conservation. In 2015 our major achievement was to show that LANA of Murid Herpesvirus-4 (MuHV-4) (mLANA) maintained episomes with terminal repeats of the Kaposi's Sarcoma-associated Herpesvirus (KSHV), and kLANA maintained episomes with the terminal repeats of MuHV-4. Moreover kLANA largely rescued in vivo latent infection by mLANA-deficient MuHV-4. Thus despite more than 60 Ma of evolutionary divergence, mLANA and kLANA reciprocally maintained each others' episomes, allowing kLANA function to be studied in vivo and therapeutic strategies to fight tumors developed.

Selected Publications

Decalf Jérémie, Godinho-Silva Cristina, Fontinha Diana, Marques Sofia, Simas J. Pedro (2014) Establishment of Murine Gammaherpesvirus Latency in B Cells Is Not a Stochastic Event. *PLoS Pathogens* 10(7), e1004269. (Journal IF: 8.06, Citations: 0)

Godinho-Silva, C., Marques, S., Fontinho, D., Stevenson, P.G., Simas, J.P (2014) Defining Immune Engagement Thresholds for in vivo Control of virus-driven Lymphoproliferation. *PLoS Pathogens* 10(6):, e1004220. (Journal IF: 8.06, Citations: 1)

Pires de Miranda M, Lopes FB, McVey CE, Bustelo XR, Simas JP. (2013) Role of Src-homology domain binding in signaling complexes assembled by the murid gammaherpesvirus M2 protein. *Journal of Biological Chemistry* 288, 3858. (Journal IF: 4.773, Citations: 5)

Correia, B., Cerqueira, S.A., Beauchemin, C., Pires de Miranda, M., Li S., Ponnusamy, R., Rodrigues, L., Schneider, T.R., Carrondo, M.A., Kaye, K.M., Simas, J.P., McVey C.E. (2013) Crystal structure of the gamma-2 herpesvirus LANA DNA binding domain identifies charged surface residues which impact viral latency. *PLoS Pathogens* 9(10), e1003673. (Journal IF: 8.06, Citations: 2)

Lénia Rodrigues, Nikita Popov, Kenneth M. Kaye and J. Pedro Simas (2013) Stabilization of Myc Through Heterotypic Poly-Ubiquitination by mLANA is Critical for?-Herpesvirus Lymphoproliferation. *PLoS Pathogens* 9(8), e1003554. (Journal IF: 8.02, Citations: 2)

Ongoing Research Projects

2011/2015 . Coordinator: João Pedro Monteiro e Louro Machado de Simas. Agency: Fundação Ciência e Tecnologia. Reference: HMSP-ICT/0021/2010. Amount: € 294892.00. Amount (total): € 599130.00.

2015/2015 Breakthrough Idea Grant 2015. Coordinator: João Pedro Monteiro e Louro Machado de Simas. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: BIG 2015 PSimas. Amount: € 80000.00. Amount (total): € 80000.00.

Original publications in peer review Journals

Fontinha D, Lopes FB, Marques S, Simas JP. (2015) Murid Gammaherpesvirus Latency-Associated Protein M2 Promotes the Formation of Conjugates between Transformed B Lymphoma Cells and T Helper Cells. *PLoS ONE*. 10(11): e0142540. doi:10.1371/journal.pone.0142540. (Journal IF: 3.234; Citations: 0)

Ponnusamy R, Petoukhov MV, Correia B, Custodio TF, Juillard F, Tan M, Pires de Miranda M, Carrondo MA, Simas JP, Kaye KM, Svergun DI, McVey CE.(2015) KSHV but not MHV-68 LANA induces a strong bend upon binding to terminal repeat viral DNA. *Nucleic Acids Research*. 2015 Sep 30. pii: gkv987. (Journal IF: 9.112; Citations: 0)

Li S, Tan M, Juillard F, Ponnusamy R, Correia B, Simas JP, Carrondo MA, McVey CE, Kaye KM. (2015). The Kaposi's sarcoma herpesvirus latency-associated nuclear antigen DNA binding domain dorsal positive electrostatic patch facilitates DNA replication and episome persistence. *J. Biol. Chem*. 2015 **290**: 28084-28096. (Journal IF: 4.573; Citatons: 0)

Orge L, Machado CG, Ramalho L, Carvalho R, Silva J, Almeida P, Tavares P, Ochoa C, Lima C, Pinto MJ, Simas JP. (2015) Identification of H-type BSE in Portugal. *Prion*. 9(1):22-8. doi: 10.1080/19336896.2014.997615. (Journal IF: 2.24; Citations: 0)

Internationalisation

Active collaboration with Dr Kenet Kaye, Harvard Medical School.

Sousa, Ana E.

Major Interests / Objectives

- Human Immunodeficiency & Immune Reconstitution Lab research focuses on human T cell homeostasis and immune regulation with the ultimate goal of identifying new strategies for immunological reconstitution and targets for immune-based therapies.
- An important part of Human Immunodeficiency & Immune Reconstitution Lab research effort is centered on HIV/AIDS immunopathogenesis, mainly through the study of HIV-2 infection, a naturally attenuated form of HIV disease.
- Human Immunodeficiency & Immune Reconstitution Lab prioritizes the “bedside to the bench” approach and, given the transversal nature of Clinical Immunology, brings together physician/clinical researchers, from different medical areas, and basic researchers.

Head of Laboratory

Ana Espada de Sousa, PhD Agregação, Associate Professor, MD

Research Team

Adriana Silva de Albuquerque	PhD	Post doctoral Investigator, (left November)
Alcinda Melo	Graduate	Technician, Faculdade Medicina da Universidade de Lisboa, (left October)
Ana Berta da Fonseca Vieira Álvares e Sousa Ferrand de Almeida	MD/PhD	Investigator, HSM - CHLN, Clinical Specialist, Faculdade Medicina da Universidade de Lisboa, Assistant Professor
Ana Cláudia Viseu Varandas	Graduate	MSc Student
Ana Isabel Gouveia Costa da Fonseca Lopes	MD/PhD	Investigator, HSM/CHLN, Clinical Specialist, Faculdade Medicina da Universidade de Lisboa , Assistant Professor
Ana Isabel Vieira Antão	Graduate	MSc Student, (started September)

Ana Luisa Caetano	Graduate	Technician, Faculdade Medicina da Universidade de Lisboa
Ana Rita Varanda Correia Pires	Graduate	Investigator
Andreia de Jesus Amaral Gomes Barbosa Fonseca	PhD	Post doctoral Investigator, BioFIG
Andreia Sofia Ramalho dos Santos	Graduate	MSc Student, (started September)
Catarina Sofia Fino Caseiro	Graduate	MSc Student, (started September)
Helena Nunes Cabaço	PhD	Post doctoral Investigator
Inês Filipa dos Santos Martins	Master	Consultant
Íris Maria Ferreira Caramalho	PhD	Investigator, (left February)
Isabel Cristina e Castro de Menezes Esteves	Master	Investigator, HSM/CHLN , Clinical Specialist , Faculdade Medicina da Universidade de Lisboa , Teaching Assistant
Joana Gomes Cochicho	Undergraduate	MSc Student, (started October)
José Gonçalo Duque Pereira Monteiro Marques	Master	Investigator, HSM/CHLN , Clinical Specialist , Faculdade Medicina da Universidade de Lisboa , Teaching Assistant
Maria Catarina Mota da Silva	Master	Investigator, HSM/CHLN, Clinical Specialist
Maria da Conceição Galvão Barata Pinto Pereira dos Santos	PhD	Investigator, Faculdade Medicina da Universidade de Lisboa
Paula Cristina Frade dos Santos Matoso	Master	Investigator
Robert Alfred Badura	Master	Investigator, (started November)
Rui Manuel Martins Victorino	MD/PhD	Principal Investigator, Faculdade Medicina da Universidade de Lisboa , Full Professor , Clinical Service Director
Russell Bourne Foxall	PhD	Post doctoral Investigator
Sandra Duque Maurício	Graduate	MSc Student
Sara Branco Pereira da Silva	Master	Investigator, HSM/CHLN, MD

Susana Clara Barão Lopes da Silva dos Anjos	Master	PhD Student, HSM/CHLN, Clinical Specialist, Faculdade Medicina da Universidade de Lisboa , Teaching Assistant
Susana Mendes Fernandes	Master	Investigator, HSM/CHLN, Clinical Specialist, Faculdade Medicina da Universidade de Lisboa , Teaching Assistant
Vânia Patrícia Mendes Passos	Graduate	MSc Student, (left October)

Keywords / Research Areas

Human T cell Homeostasis, Immune Regulation, HIV/AIDS Immunopathogenesis, HIV-2 Infection, Primary Immunodeficiencies, Immunological Reconstitution

Major scientific achievements

Our study of HIV-2 infection uncovered a post-transcriptional control of viral replication that may help explain why HIV-2-infected individuals control viremia despite the presence of viral reservoirs, and pave the way to the discover of new strategies to deal with persistent HIV-1 infection.

We showed that human regulatory T-cell development is dictated by IL-2 and IL-15 expressed in a non-overlapping pattern in the thymus, with implications for a better understanding of the pathogenesis of autoimmunity and for the therapeutic targeting of immune regulation.

The follow-up of our studies on the mechanisms of tolerance induction under bee venom immunotherapy revealed that bee venom per se induces the differentiation of human regulatory Foxp3-expressing CD4 T cells.

Regarding our Primary Immunodeficiency Centre, it is worth emphasizing the joining of our lab to the EuroFlow PID international consortium.

Selected Publications

Fernandes SM, Pires AR, Ferreira C, Foxall RB, Rino J, Santos C, Correia L, Poças J, Veiga-Fernandes H, Sousa AE. (2014) Enteric mucosa integrity in the presence of a preserved innate IL-22 compartment in HIV-1 treated individuals. *J Infect Dis*, **210**, 630-40. (Journal IF: 5.997, Citations: 5)

Tendeiro R, Foxall RB, Baptista AP, Pinto F, Soares RS, Cavaleiro R, Valadas E, Gomes P, Victorino RM, Sousa AE. (2012) PD-1 and its ligand PD-L1 are progressively up-regulated on CD4 and CD8 T-cells in HIV-2 infection irrespective of the presence of viremia. *AIDS*, **26**, 1065-1071. (Journal IF: 5.554, Citations: 7)

Markert ML, Marques JG, Neven B, Devlin BH, McCarthy EA, Chinn IK, Albuquerque AS, Silva SL, Pignata C, de Saint Basile G, Victorino RM, Picard C, Debre M, Mahlaoui N, Fischer A, Sousa AE (2011) First use of thymus transplantation therapy for FOXP1 deficiency (nude/SCID): a report of 2 cases. *Blood*, **117**, 688, (Journal IF: 10.452, Citations: 20)

Soares RS, Tendeiro R, Foxall RB, Baptista AP, Cavaleiro R, Gomes P, Camacho R, Valadas E, Doroana M, Lucas M, Antunes F, Victorino RM, and Sousa AE. (2011) Cell-associated viral burden provides evidence of ongoing viral replication in aviremic HIV-2 infected patients. *J Virol*, **85**, 2429-38. (Journal IF: 4.439, Citations: 18)

Azevedo RI, Soares MV, Barata JT, Tendeiro R, Serra-Caetano A, Victorino RM, Sousa AE (2009) IL-7 sustains CD31 expression in human naive CD4+ T cells and preferentially expands the CD31+ subset in a PI3K-dependent manner. *Blood*, **113**, 2999, (Journal IF: 10.452, Citations: 35)

Ongoing Research Projects

2013/2015 Bee Venom as a tool to expand the human regulatory T-cell compartment. Coordinator: Rui Manuel Martins Victorino. Agency: Fundação Ciência e Tecnologia. Reference: PTDC/DTP-PIC/0508/2012. Amount: € 145081.00. Amount (total): € 145001.00.

2013/2016 Plataforma para o Desenvolvimento de Médicos-Cientistas. Coordinator: Ana Espada de Sousa. Agency: Fundação Calouste Gulbenkian. Reference: Plataforma Desenv Medicos-Cientistas. Amount: € 100000.00. Amount (total): € 100000.00.

2013/2016 RESERVATÓRIOS E REPLICAÇÃO VIRAL NAS CÉLULAS T CD4 DE MEMÓRIA-CENTRAL E FOLICULARES NA INFECÇÃO HIV-2. Coordinator: Ana Espada de Sousa. Agency: Gilead Sciences, Lda. Reference: Gilead. Amount: € 14500.00. Amount (total): € 14500.00.

2015/2017 HIV-2 Infection: Clinical and Biological Repository. Coordinator: Ana Espada de Sousa. Agency: Gilead Sciences, Lda. Reference: Programa Gilead Génese - Ana Sousa. Amount: € 20000.00. Amount (total): € 20000.00.

2015/2017 Targeting Germinal Centre Dysregulation in Allergy. Coordinator: Luis Graca. Agency: Fundação para a Ciência e a Tecnologia, IP. Reference: HMSP-ICT/0034/2013. Amount: € 180672.00. Amount (total): € 300000.00.

2015/2019 European Network linking informatics and genomics of helper T cells. Coordinator: Ana Espada de Sousa. Agency: Comissão Europeia. Reference: ENLIGHT-TEN. Amount: € 433512.72. Amount (total): € 3354685.20.

2015/2017 HIV-2 impact on Lymph Nodes. Coordinator: Susana Mendes Fernandes. Agency: Gilead Sciences, Lda. Reference: Programa Gilead Génese - Susana Fernandes. Amount: € 20000.00. Amount (total): € 20000.00.

Original publications in peer review Journals

Nunes-Cabaço H, Matoso P, Foxall RB, Tendeiro R, Pires AR, Carvalho T, Pinheiro AI, Soares RS, Sousa AE. (2015) Thymic HIV-2 infection uncovers posttranscriptional control of viral replication in human thymocytes. *J Virol.* **89**, 2201-8. (Journal IF:4.439; Citations: 0)

Other publications International

Brito S, Póvoas M, Dupont J, Lopes AI. (2015) Peutz-Jeghers syndrome: early clinical expression of a new STK11 gene variant. *BMJ Case Rep.* pii: bcr2015211345 doi: 10.1136/bcr-2015-211345

Dias FM, Marçal F, Oliveira J, Póvoas M, Mouzinho A, Marques JG. (2015) Exuberant varicella-zoster exanthema and pneumonia as clinical clue for HIV infection. *J Pediatr.* 166, 199.

Martins J, Almeida S, Nunes P, Prata F, Lobo ML, Marques JG. (2015) Grisel syndrome, acute otitis media, and temporo-mandibular reactive arthritis: A rare association. *International Journal of Pediatric Otorhinolaryngology* 79, 1370–1373.

Lourenço R F, Gouveia AI, Oliveira JA, Marques JG. A rare cause of genital ulcer. (2015) *BMJ Case Rep.* Published online: 27 July 2015. doi:10.1136/bcr-2015-211175.

Viegas LP, Silva SP, Silva SL, Campos Melo A, Serra-Caetano A, Branco-Ferreira M, Azevedo P, Pereira-Santos MC, Pereira-Barbosa M. (2015) Severe bronchiectasis in a patient with common variable immunodeficiency. *Eur Ann Allergy Clin Immunol.* 47, 95-98.

Viegas LP, Silva SP, Lopes A, Campos Melo A, Branco-Ferreira M, Pereira-Santos MC, Pereira-Barbosa M. (2015) Patent blue anaphylaxis. *J. Allergy Clinical Immunology: In Practice.* 3, 112-113.

Pereira Santos MC, Campos Melo A, Serra-Caetano A, Caiado J, Mendes A, Pereira Barbosa M,

Branco Ferreira M. (2015) Longitudinal study of the expression of Fc ϵ RI, IgE on basophils and dendritic cells in association with basophil function in two patients with severe allergic asthma treated with Omalizumab. *Eur Ann Allergy Clin Immunol.* 47, 38-40.

Other publications National

Fernandes AS, Prata F, Mouzinho A, Marques G, Marques JG. (2015) Resistência Primária aos Antirretrovirais na Criança (2000 - 2013). *Acta Pediatr Port;* 46, 226-31.

Costa AC, Campos Melo A, Duarte F, Pereira Barbosa M, Pereira Santos MC. (2015) Eficácia e tolerância de Imunoterapia sublingual com Pru p 3 em doentes com alergia grave ao pêssigo – evolução clínica e imunológica ao longo de 12 meses. *Rev. Portuguesa de Alergologia e Imunologia Clínica.* 23, 11-19

Pereira Santos MC. Alergénios recombinantes imunoterapia específica. In: Manuel Branco Ferreira, Manuel Pereira Barbosa (Eds). *Manual de Imunoterapia com Alergénios.* 1ª ed, Lisboa: Bial Aristegui; 2015: 23-28

Pereira Santos MC, Branco Ferreira M. Mecanismos de acção da imunoterapia específica. In: Manuel Branco Ferreira, Manuel Pereira Barbosa (Eds). *Manual de Imunoterapia com Alergénios.* 1ª ed, Lisboa: Bial Aristegui; 2015: 29-42

Silva, SL. Misturas de alergénios: sim ou não? In: Manuel Branco Ferreira, Manuel Pereira Barbosa (Eds.). *Manual Imunoterapia com alergénios.* 1ª ed. Lisboa: BialAristegui; 2015:121-124

Invited lectures and seminars

Sousa AE. Design of new T cell tubes. EuroFlow PID. Zurich, Switzerland, November 2, 2015

Pereira Santos MC. Chair of the Workshop: Progress in molecular and cellular diagnosis- 6th International Symposium on Molecular Allergology-ISMA, EAACI, Lisbon, November 19-21, 2015

Sousa AE. Human Immunodeficiency as a research tool. UMIB SUMMIT 2015. Porto, Portugal, September 24, 2015.

Sousa AE. Chair of the Session: HIV Infection and Immune Control. 4th European Congress of Immunology, Vienna, Austria, September 9, 2015.

Lopes AI. Nutritional Issues in Crohn's Disease. Nutrition and drugs: combination is key.

13. ESPEN MEETING Lisbon, Portugal, 5-7 September 2015

Foxall RB. "The importance of HIV-specific T cell immunity". Global Health and Tropical Medicine Meeting: HIV challenges. Instituto de Higiene e Medicina Tropical, Lisboa, Portugal, July 10, 2015.

Lopes AI. Hereditary pancreatitis in childhood. Semana Digestiva, Porto, June, 2015.

Esteves I. Imunodeficiência Primária (IDP) no Serviço de Urgência - Conduta Geral e Particularidades. XIV Jornadas Nacionais de Infecçologia Pediátrica, Curso Pós-Jornadas de Imunodeficiências Primárias, Guimarães, Portugal, June 20, 2015.

Sousa AE. Memory B cell depletion in HIV-2 infection. ESF-EMBO Symposium - Be there or die? The role of the microenvironment in B cell behaviour in health and disease. Sant Feliu de Guixols, Spain, May 20, 2015.

Foxall RB. "Gut Mucosa: at the front-line of HIV Immunopathogenesis" Lisbon Immunology & Infection Meeting, Instituto Gulbenkian de Ciência, Oeiras, Portugal, 26th March 2015.

Lopes AI. Hereditary cholestasis. Clinical presentation. Congresso Português de Hepatologia 2015, 18ª Reunião Anual da APEF, Clinical Symposium, Centro Cultural de Belem, Lisbon, 13-14 February, 2015

Silva, SL. Paradigma da IgE: síndromes de hiper-IgE. XI Jornadas de Alergologia de Lisboa. Lisbon, January 30, 2015.

Communications in International Conferences

Pestana L, Campos Melo A, Mendes A, Pedro E, Pereira-Barbosa M, Pereira Santos MC. Added value of biomarkers of primary sensitization and cross-reactivity in patients with hymenoptera venom allergy, 6th International Symposium on Molecular Allergology (ISMA), Lisboa, Portugal, November 19-21, 2015 (Poster Presentation)

SM Fernandes, AR Pires, P Matoso, C Ferreira, L Correia, E Valadas, J Poças, P Pacheco, AE Sousa, RB Foxall. "HIV-2+ individuals feature preserved gut homeostasis despite evidence of mucosal viral replication." 4th European Congress of Immunology, Vienna, Austria, September 6-9, 2015. (Poster Presentation)

Mendes-Passos, V., Sousa, AE. Nunes-Cabaço, H, Expression and regulation of Human Endogenous Retroviruses in human T cells. 4th European Congress of Immunology, Vienna, Austria, September 6-9 2015 (Poster Presentation)

Mendes-Passos, V., Sousa, AE. Nunes-Cabaço, H, Expression and regulation of Human Endogenous Retroviruses in human T cells. LISA Summer Academy in Immunology, Hannover,

Germany, August 15-30, 2015 (Poster Presentation).

Ruben Duarte Ferreira, Cristina Ornelas, Sara Pereira da Silva, Susana Lopes da Silva, Cilénia Baldaia, Isabel Távora, Manuel Pereira Barbosa. “Spleen embolization as a strategy for controlling cytopenia in patients with Common Variable Immunodeficiency.” XXXIV Congress of the European Academy of Allergy and Clinical Immunology, Barcelona, Spain, June 6-10, 2015. (Poster Presentation)

Ruben Duarte Ferreira, Sara Pereira da Silva, Manuel Branco Ferreira, Susana Lopes da Silva, Manuel Pereira Barbosa. “Para-infectious pericarditis as rare complication in X-linked agammaglobulinemia.” XXXIV Congress of the European Academy of Allergy and Clinical Immunology. Barcelona, Spain, June 6-10, 2015. (Poster Presentation)

Almeida JP, Lopes A, Caiado J, Pereira Santos MC, Pereira Barbosa M. Selective hypersensitivity to cefazolin-contribute of the basophil activation test. .XXXIV Congress of the European Academy of Allergy and Clinical Immunology, Barcelona, Spain, June, 6-10, 2015 (Poster Presentation)

Pestana L, Campos Melo A, Mendes A, Pedro E, Pereira-Barbosa M, Pereira Santos MC. Biomarkers of primary sensitisation and cross-resctivity in patients allergic to hymenoptera venom. . XXXIV Congress of the European Academy of Allergy and Clinical Immunology, Barcelona, Spain, June 6-10, 2015 (Poster Presentation)

João M, Aguiar R, Viegas L, Costa AC, Pereira Santos MC, Pereira Barbosa MA. Bird-egg and egg-bird syndromes: which came first? XXXIV Congress of the European Academy of Allergy and Clinical Immunology, Barcelona, Spain, June 6-10, 2015 (Poster Presentation)

Marcelino J, Silva P, Pereira Santos MC, Costa AC, Pereira Barbosa M. Food anaphylaxis associate with thaumatin-like proteins. XXXIV Congress of the European Academy of Allergy and Clinical Immunology, Barcelona, Spain, June 6-10, 2015 (Poster Presentation)

Torres E, Lourenço R, Prata F, Virtuoso MJ, Mouzinho A, Marques JG. First antiretroviral treatment failure. 33rd Annual Meeting of the European Society for Paediatric Infectious Diseases (ESPID 2015) Leipzig, Germany, 12-16 May, 2015. (Poster Presentation)

I Asseiceira, T Furtado, S Azevedo, T Rodrigues, AC Moreira. Al Lopes . Body composition, Physical activity and dietary intake in paediatric patients with Crohn’s Disease. ESPGHAN ANNUAL MEETING, Amsterdam, Netherlands, May, 2015 (Poster presentation)

Nunes-Cabaço, H,, Mendes-Passos, V., Foxall, RB., , Matoso P., Pires, AR., Tendeiro, R., Pinheiro, Al., Soares, RS., Sousa, AE. Host restriction factors of retroviral replication in the human thymus. Venice Thymus Meeting, San Servolo Island, Italy, April 9-13 2015 (Poster Presentation)

Jotta R, Azevedo S, Loreto H, Mourato H, Lopes Al. Prevalence of anemia at presentation in

pediatric Crohn's Disease patients: single center experience ECCO Meeting, Barcelona, Spain, February 2015 (Poster Presentation)

Azevedo S, Maltez C, Lopes AI. Pediatric Crohn's disease with iron deficiency anemia: A follow-up study of intravenous iron treatment ECCO Meeting, Barcelona, Spain, February 2015 (Poster Presentation)

Pestana L, Campos Melo A, Mendes A, Pedro E, Pereira-Barbosa M Pereira Santos MC. Biomarkers of primary sensitization and cross-reactivity in patients allergic to hymenoptera venom. 13th Immunology Winter School "Basic Immunology Research in Allergy and Clinical Immunology", Les Arcs, France, February 5-11, 2015 (Poster Presentation)

Communications in National Conferences

Varandas AC, Silva SP, Barbosa RR, Serra-Caetano A, Barbosa MP, Sousa AE, Silva SL. From immune phenotype to clinical manifestations in CVID. 18.º Workshop Educação pela Ciência – Dia da Investigação GAPIC/FMUL, Lisboa, Portugal, December 16, 2015 (Oral presentation)

Cochicho J, Albuquerque AS, Anjos R, Abecassis M, Pereira-Santos MC, Sousa AE, Silva SL. Allergy in adults submitted to thymectomy in early infancy. 18.º Workshop Educação pela Ciência – Dia da Investigação GAPIC/FMUL, Lisboa, Portugal, December 16, 2015 (Poster Presentation)

Fernandes SM, Pires AR, Matoso P, Ferreira C, Correia L, Valadas E, Poças J, Pacheco P, Sousa AE, Foxall RB. "HIV-1 and HIV-2 differentially impact gut epithelial tight junction integrity." Meeting of the Sociedade Portuguesa de Imunologia (SPI), Braga, Portugal, 26th-28th October, 2015. (Poster Presentation)

Nunes-Cabaço, H., Martins L., Mendes-Passos, V., Ramalho-dos-Santos A., Caramalho I., Foxall, RB., Barata JT., Sousa, AE. IL-4 and IL-7 induce the upregulation of CD8 α and CD8 β on human CD4SP thymocytes, generating, phenotypically mature DP and CD8SP cells. XLI Annual Meeting of the Portuguese Society of Immunology, Braga, Portugal. October 26-28, 2015, (Oral Presentation)

Amara AJ, Andrade J, Foxall RB, Matoso P, Matos AM, Soares RS, Tendeiro R, Serra-Caetano A, Guerra-Assunção JA, Gonçalves J, Gama-Carvalho M, Sousa AE. Deep sequencing of human naive CD4 T cells identifies miR-34c-5p as a novel regulator of T cell activation and HIV replication. Lisbon Immunology & Infection Meeting, IMM, Lisbon, Portugal, October 16, 2015 (Oral Presentation)

Almeida JP, Lopes A, Caiado J, Pereira Santos MC, Pereira Barbosa M. Hipersensibilidade selectiva à cefazolina-Contributo do teste de activação de basófilos. XXXVI Reunião Anual da Sociedade Portuguesa de Alergologia e Imunologia Clínica, Coimbra, October, 9-11, 2015 (Oral

Presentation)

Ferreira RD, Silva S, Carrapatoso I, Regateiro F, Santos N, Silva D, Sousa F, Oliveira S, Paiva M, Costa JT, Câmara R, Faria E, Silva SL? Grupo de Interesse de IDP SPAIC. “Imunodeficiência Primárias (IDP) no Adulto - Contributo da Imunoalergologia para a realidade nacional”. 36ª Reunião Anual da SPAIC, Coimbra, Portugal, October 10, 2015. (Poster Presentation)

Ferreira RD, Silva SP, Baldaia C, Correia L, Silva SL, Barbosa MP. “Hiperplasia Nodular Regenerativa como complicação na Imunodeficiência Comum Variável” 36ª Reunião Anual da SPAIC, Coimbra, Portugal, October 10, 2015. (Poster Presentation)

Ferreira RD, Silva S, Carrapatoso I, Regateiro F, Santos N, Silva D, Sousa F, Oliveira S, Paiva M, Costa JT, Câmara R, Faria E, Silva SL Grupo de Interesse de IDP SPAIC. Imunodeficiências Primárias (IDP) no Adulto. Contributo da Imunoalergologia para a realidade nacional. 36ª Reunião Anual da SPAIC. Coimbra, Portugal, October 10, 2015 (Oral Presentation)

SM Fernandes, AR Pires, P Matoso, C Ferreira, L Correia, E Valadas, J Poças, P Pacheco, AE Sousa, RB Foxall. “HIV-1 and HIV-2 differentially impact gut epithelial tight junction integrity.” IMM Post-Doc meeting, IMM, Lisboa, Portugal, September 25, 2015. (Poster Presentation)

Cunha M, Pereira A, Esteves I, Marques JG. Infecção disseminada por micobactérias em crianças abaixo dos 5 anos de idade (2002-2014). XIV Jornadas Nacionais de Infecçologia Pediátrica. Guimarães, Portugal, June 18-19, 2015 (Oral Presentation)

Cosme J, Prata F, Mouzinho A, Marques JG. Reações Adversas a Antirretrovirais na Criança - Estudo Retrospetivo 2004-2014. XIV Jornadas Nacionais de Infecçologia Pediátrica. Guimarães, Portugal, June 18-19, 2015 (Oral Presentation)

Azevedo S, Maltez C, Lopes AI. Anemia ferropénica na doença de Crohn pediátrica: estudo de follow-up do tratamento com ferro endovenoso. Semana Digestiva, Porto, Portugal, June 11-13, 2015. (Oral Presentation)

Mendes-Passos V., Foxall RB., Tendeiro R., Matoso P., Sousa AE., Nunes-Cabaço H.. Expression and modulation of Human Endogenous Retrovirus during Human T cell development, “Thymus@Lisbon”, SPI, Instituto de Medicina Molecular, Lisbon, June 12, 2015, (Poster Presentation)

Nunes-Cabaço, H., Mendes-Passos, V., Foxall, RB., Matoso P., Pires, AR., Tendeiro, R., Pinheiro, AI., Cavaco, T., Soares, RS., Sousa, AE. Host defense against retroviral infection of the human thymus: expression and modulation of restriction factors. Thymus@Lisbon, SPI, Lisbon, Portugal, June 12, 2015 (Poster Presentation)

Nunes-Cabaço, H., Martins L., Mendes-Passos, V., Caramalho I., Foxall, RB., Barata JT., Sousa, AE. IL-4 induces the upregulation of CD8 α and CD8 β on human CD4SP thymocytes, generating, phenotypically mature DP and CD8SP cells. Thymus@Lisbon, SPI, Lisbon, Portugal, June 12,

2015 (Poster Presentation)

Albuquerque A, Silva SL, Marques JG, Cheynier R, Ligeiro D, Pignata C, Markert ML, Sousa AE. Deciphering the human FOXP1-null phenotype through thymic transplantation. Thymus@Lisbon, SPI, Lisbon, Portugal, June 12, 2015 (Poster Presentation)

Silva SL, Albuquerque AS, Charmeteau B, Anjos R, Abecasis M, Victorino RMM, Cheynier R, Sousa AE. sj/?TREC ratio in adults submitted to total or partial thymectomy in early infancy. Thymus@Lisbon, SPI, Lisbon, Portugal, June 12, 2015. (Poster Presentation)

Mendes-Passos V., Foxall RB, Matoso P, Tendeiro R, Sousa, AE., Nunes-Cabaço, H. Expression and modulation of Human Endogenous Retrovirus in Human T cells, “Lisbon Immunity and Infection meeting”. Instituto Gulbenkian de Ciência, Oeiras, March 26, 2015 (Poster Presentation)

Nunes-Cabaço, H., Mendes-Passos, V., Foxall, RB., Matoso P., Pires, AR., Tendeiro, R., Pinheiro, AI., Soares, RS., Sousa, AE., Host restriction factors of retroviral replication in the human thymus. Lisbon Immunology & Infection Meeting, IGC, Lisbon, Portugal, March 26, 2015. (Poster Presentation)

Silva SL, Albuquerque AS, Serra-Caetano A, Foxall RB, Pires AR, Fernandes SM, Ferreira J, Cheynier R, Victorino RMM, Caramalho I, Barata JT, Sousa AE. Human naïve regulatory T-cells are maintained by IL-7 IX PhD Students Meeting, Lisbon, March 26-27, 2015 (Oral Presentation)

Marcelino J, Esteves I, Silva SL, Caetano A, Albuquerque A, Melo A, Silva SP, Sousa A, Marques JG. Síndrome de Hiper-IgE, da clínica ao diagnóstico. XI Jornadas de Alergologia de Lisboa, Lisboa, Portugal, January, 2015 (Oral Presentation)

Organisation of Conferences

Pereira Santos MC, Organizer 6th International Symposium on Molecular Allergology-ISMA, Lisbon, November, 19-21, 2015.

Nunes-Cabaço H, Organizer Lisbon Immunology & Infection Meeting, IMM, Lisbon, Portugal, October 16, 2015.

Pereira Santos MC, Organizer 65 Anos Sociedade portuguesa de Alergologia e Imunologia Clínica –SPAIC, Lisbon, July 10, 2015.

Lopes AI. 2nd Consensus Meeting of the Pediatric IBD-Anemia Working Group, Coimbra, July 8, 2015 (Coordinator)

Nunes-Cabaço H, Organizer Thymus@Lisbon, Portuguese Society for Immunology (SPI) , IMM, Lisbon, Portugal, June 12, 2015.

Lopes AI et al. Organizer Severe and rare presentation of pediatric liver disease, April 29 ,2015 HSM-CHLN, Lisbon

Nunes-Cabaço H, Organizer Lisbon Immunology & Infection Meeting, IGC, Lisbon, Portugal, March 26, 2015.

Internationalisation

Sousa AE. National Coordinator and Member of the Management Committee of the COST Action BM1404 “European Network of Investigators Triggering Exploratory Research on Myeloid Regulatory Cells (Mye-EUNITER)”. 2014/2017. Agency: Comissão Europeia. Reference: COST BM1404. <http://www.mye-euniter.eu/>

Sousa AE and Serra-Caetano A. Integration in the EuroFlow International Consortium on Primary Immunodeficiency. <http://euroflow.org/>

Sousa AE. Integration in ENLIGHT-TEN - European Network Linking Informatics and Genomics of Helper T cells comprising TEN beneficiaries. 2015/2019 – ETN funded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No.: 675395. <http://www.enlight-ten.eu/>

Sousa AE. Member of the evaluation committee of the research unit Centre International de recherche en infectiologie (CIRI), at Lyon – CIRI to be coordinated by HCERES – Haute conseil de l'évaluation de la recherche et de l'enseignement supérieur. France, 2015.

Prizes, honours and awards

2015 First Prize Award NEDAI 2015 | 2015 NEDAI Award in Research in Autoimmunity, NEDAI/Portuguese Society of Internal Medicine.

Prize for the best Abstract - . XXXIV Congress of the European Academy of Allergy and Clinical Immunology, Barcelona, Spain, June 6-10, 2015. Pestana L, Campos Melo A, Mendes A, Pedro E, Pereira-Barbosa M, Pereira Santos MC. Biomarkers of primary sensitisation and cross-reactivity in patients allergic to hymenoptera venom.

GAPIC 2nd Prize to the project: From immune phenotype to clinical manifestations in CVID. Lisboa, Portugal, December 16, 2015 to Varandas, AC.

Industry contract research

Scientific Project entitled, “A Longterm Non-Interventional Registry to assess safety and effectiveness of Humira (Adalimumab) in Pediatric Patients with moderately to severely active Crohn’s Disease – CAPE”. International Multicenter CAPE STUDY , 2015. Funded by ABBVIE. National PI: Lopes AI

Scientific Project entitled: “An Open-Label, Multicenter, Multiple-Dose Pharmacokinetic and Safety and Efficacy Trial of Maraviroc in Combination With Optimized Background Therapy for the Treatment of Antiretroviral-Experienced CCR5-Tropic HIV-1 Infected Children 2 -

Scientific Project entitled: “Infecções crónicas por Candida albicans e defeitos intrínsecos do sistema imunitário: optimização dos cuidados de saúde através do diagnóstico de imunodeficiências primárias”. 2013-2015, €20.000, funded by Gilead Sciences. PI: Silva SL.

Scientific Project entitled: “O papel das células T reguladoras na infecção pediátrica por H. pylori” , Ana Isabel Lopes, Ana Palha, Ana Rute M, Mónica Oleastro, Afonso Fernandes. Funded by SPG. PI: Lopes AI

Scientific Project entitled: “estudo multicentrico internacional: registo infecção pediátrica por H pylori (ESpghan Study Group Task Force) 2015. Funded by ESPGHAN. (co-investigator)

Scientific Project entitled: “An Open-Label, Multicenter, Multiple-Dose Pharmacokinetic and Safety and Efficacy Trial of Maraviroc in Combination With Optimized Background Therapy for the Treatment of Antiretroviral-Experienced CCR5-Tropic HIV-1 Infected Children 2 -

Scientific Project entitled: “Infecções crónicas por Candida albicans e defeitos intrínsecos do sistema imunitário: optimização dos cuidados de saúde através do diagnóstico de imunodeficiências primárias”. 2013-2015, €20.000, funded by Gilead Sciences. PI: Silva SL.

Scientific Project entitled: “O papel das células T reguladoras na infecção pediátrica por H. pylori” , Ana Isabel Lopes, Ana Palha, Ana Rute M, Mónica Oleastro, Afonso Fernandes. Funded by SPG. PI: Lopes AI

Scientific Project entitled: “estudo multicentrico internacional: registo infecção pediátrica por H pylori (ESpghan Study Group Task Force) 2015. Funded by ESPGHAN. (co-investigator)

Government/Organisation contract research

Sousa AE. Member of the National Ethical Committee for Clinical Investigation.

Sousa AE. Member of the evaluation committee of the research unit Centre International de recherche en infectiologie (CIRI), at Lyon – CIRI to be coordinated by HCERES – Haute conseil

de l'évaluation de la recherche et de l'enseignement supérieur. France, 2015.

Victorino RMM and Sousa AE, Members of the Scientific Council, Faculdade de Medicina, Universidade de Lisboa.

Victorino RMM, Chairman, and Sousa AE, Member, of the Scientific Board of the PhD Program of the Lisbon Academic Medical Centre.

Victorino RMM, Member of the Directive Board of the Sociedade de Ciências Médicas de Lisboa.

Victorino RMM. Member of the Scientific Council of the Fundação Pulido Valente.

Victorino RMM. Member of the Clinical Research Committee from University Hospital Santa Maria.

Sousa AE. Participation in grant evaluation, Fundação para a Ciência e Tecnologia (FCT).

Silva SL. Membro da Comissão Técnica de Vacinação da Direção-Geral de Saúde.

Marques JG. Colaboração na elaboração das “Recomendações Portuguesas para o tratamento da infeção por VIH-1 e VIH- 2 2015.”

Marques JG. Colaboração na elaboração da Orientação 007/2015 da Direção-Geral de Saúde “Terapêutica e quimioprofilaxia da gripe sazonal”.

Marques JG. Colaboração na elaboração da Norma 017/2015 da Direção-Geral de Saúde “Procedimento para disponibilização da formulação endovenosa de zanamivir (zanamivir e.v.)”.

Marques JG. Membro da Comissão Técnica de Vacinação da Direção-Geral de Saúde.

Marques JG. Membro da Comissão Nacional de Verificação da Eliminação do Sarampo e da Rubéola.

Lopes AI. Member, of the Pedagogic Council, Faculdade de Medicina, Universidade de Lisboa.

Lopes AI. Member of the Working Group for Clinical Curriculum Review, Faculdade de Medicina de Lisboa, Universidade de Lisboa

Lopes AI. Member of the Board of the Pediatric Gastroenterology College - Portuguese Medical Association (Ordem dos Médicos)

Advanced teaching

Sousa AE, Pereira-Santos MC, Victorino RMM, Silva SL, Fernandes SM, and Serra-Caetano A. Clinical Immunology teaching in the core curriculum for Medical Students, Area: Medicine 2, 5th year. Faculdade de Medicina da Universidade de Lisboa.

Sousa AE, Pereira-Santos MC, Victorino RMM, Silva SL, Fernandes SM, Mota C and Serra-Caetano A. Teaching of the Discipline of Clinical Immunology of the 4th and 5th year of the Degree in Medicine – Faculdade de Medicina, Universidade de Lisboa

Sousa AB and Sousa AE: Collaboration in the teaching of Immunology in the core curriculum for Medical Students, 2nd year. Faculdade de Medicina da Universidade de Lisboa.

Amaral AJ. Participation in the BioSys PhD program: module of Bioinformatics and Computational Modelling. Lisbon, Portugal.

Sousa AE, HIV pathogenesis, GABBA PhD Program, Porto, March 11, 2015.

Serra-Caetano A. “Como investigar IDP? Laboratório de Imunologia Clínica”, Curso Pós-Jornadas Imunodeficiências Primárias, 20 Junho 2015, Guimarães, Portugal

Serra-Caetano A. “Potential Flow Cytometry Applications”, IMM Flow Cytometry Course, 17 Novembro 2015, Lisboa, Portugal

Pereira Santos MC. Organizer and Lecturer of Workshop “Alergénios e imunoterapia- a abordagem molecular. Annual meeting of the Sociedade Portuguesa de Alergologia e Imunologia Clínica (SPAIC), Coimbra, Portugal, October 9-11, 2015

Silva, SL. Bases do Sistema Imunológico. Classificação das IDP. Curso Pós- XV Jornadas Nacionais de Infecçiology Pediátrica. Guimarães, June 20, 2015.

Silva, SL. Imunodeficiências primárias. 2as Jornadas de Imunoalergologia do Hospital à Comunidade, Loures; January 23, 2015

Ferreira RD, Silva SP, Silva SL. Linfoproliferação na Imunodeficiência Comum Variável. Curso SPAIC Physalis. Módulo V Imunodeficiências Primárias. Aveiro, February 2015.

Esteves I. IDP - Casos Clínicos Interactivos. XIV Jornadas Nacionais de Infecçiology Pediátrica, Curso Pós-Jornadas de Imunodeficiências Primárias, Guimarães, Portugal, June 20, 2015.

Esteves I. Submissão de um artigo científico na perspectiva do editor. Workshop de Escrita Científica do Núcleo de Formação e Investigação do Departamento de Pediatria do Hospital de Santa Maria. Lisbon, Portugal, March 20, 2015.

Esteves I. Doença de Kawasaki refractária – como tratar? XIV Jornadas Nacionais de Infeciologia Pediátrica, Guimarães, Portugal, June 19, 2015.

Esteves I. Fotografia Clínica – sobre a Secção de Imagens da Acta Pediátrica Portuguesa. V Jornadas de Pediatria do Hospital de Vila Franca de Xira. Vila Franca de Xira, Portugal, May 29, 2015.

Esteves I. Criopirinopatias – S. autoinflamatória familiar associada ao frio, S. de Muckle-Wells, D. inflamatória multissistémica de início neonatal/ S. neurológica, cutânea e articular crónica infantil (NOMID/CINCA). XXI Jornadas de Pediatria do Departamento de Pediatria do Hospital de Santa Maria, CHLN. Lisbon, Portugal, February 11, 2015.

Esteves I. Síndromes pustulares – Artrite piogénica estéril, pioderma gangrenoso e acne (PAPA), Deficiência do antagonista do recetor de IL-36 (DITRA), Psoríase mediada por CARD14 (CAMPS) e D. inflamatória intestinal precoce. XXI Jornadas de Pediatria do Departamento de Pediatria do Hospital de Santa Maria, CHLN. Lisbon, Portugal, February 11, 2015.

Esteves I. Asma Induzida por Vírus – Infecções respiratórias na criança: prevenir ou fomentar? 2ª Reunião Temática da Sociedade Portuguesa de Alergologia Pediátrica. Coimbra, Portugal, February 7, 2015.

Marques JG. Orientador do seminário sobre Vacinas do currículo de Pediatria I, 4º ano, Faculdade de Medicina da Universidade de Lisboa.

Marques JG. Infecções por Haemophilus influenzae não B na criança. 10º Curso de Infeciologia Pediátrica. Coimbra, 29 e 30 de Janeiro de 2015.

Marques JG. Febres periódicas – PFAPA, Febre Mediterrânica Familiar, Hiper IgD e TRAPS. Curso “Síndromes Autoinflamatórias”, satélite das XXI Jornadas de Pediatria do CHLN. Lisboa, 11 de Fevereiro de 2015.

Marques JG. Vacina BCG. Prós e Contras. XIV Jornadas Nacionais de Infeciologia Pediátrica. Guimarães, 18 e 19 de Junho de 2015.

Marques JG. Vacina da Gripe. 16º Congresso Nacional de Pediatria. Albufeira, 22 a 24 de Outubro de 2015.

Marques JG. BCG. Curso Satélite Das XII Jornadas Do Serviço De Pediatria. Departamento Materno-Infantil CH Algarve. Faro, 3 de dezembro de 2015.

Marques JG. Princípios da terapêutica antimicrobiana. I Workshop de Farmacologia Clínica na Criança e no Adolescente. Lisboa, 9 de dezembro de 2015.

Marques JG. BCG – que estratégia. Sessão Clínica do Hospital Dona Estefânia. Lisboa, 15 de dezembro de 2015.

Marques JG. Síndromes Autoinflamatórias. Curso satélite das XXI Jornadas de Pediatria do CHLN. Lisboa, 11 de Fevereiro de 2015.

Marques JG. Vacinas em Pediatria. Curso Satélite Das XII Jornadas Do Serviço De Pediatria. Departamento Materno-Infantil CH Algarve. Faro, 3 de dezembro de 2015.

Science and society

Silva SL.(2015) Managing PID diagnosis and care in all countries. IPOPI EU PID Forum: Principles of Care for Primary Immunodeficiencies. European Parliament. Brussels

Silva SL, Medical Advisor for Associação Portuguesa de Doentes com Imunodeficiências Primárias.

Msc thesis completed

Vânia Mendes-Passos 30/10/2015 “Expression and Regulation of Human Endogenous Retroviruses (HERVs) in developing and mature T cells” Faculdade de Ciências da Universidade de Lisboa Supervisor: Helena Nunes-Cabaço Co-Supervisor: Maria Filomena Caeiro Sandra Duque Maurício 25/06/2015 “HIV-2 Impact on Lymph Nodes” Faculdade de Medicina da Universidade de Lisboa Supervisor: Susana Mendes Fernandes

PhD thesis completed

Maria Catarina Mota da Silva 17/12/2015 Towards the use of regulatory T cells for the treatment of human autoimmune diseases Universidade de Lisboa Supervisor: Íris Caramalho Co-Supervisor: Rui MM Victorino

Susana Mendes Fernandes 12/05/2015 HIV infection and gut associated lymphoid tissue Faculdade de Medicina da Universidade de Lisboa Supervisor: Ana E. Sousa

Veiga - Fernandes, Henrique

Major Interests / Objectives

The immune system is a key player in the resolution and prevention of severe pathologies, such as infectious and inflammatory diseases. To accomplish their function throughout life, immune cells interact with each other and with their external environment. Thus, all immune cell processes, ranging from haematopoiesis to immune cell response to pathogens, require the establishment of effective cellular and molecular interactions. However, the mechanisms that underpin immune cell function and communication with their environment remain largely elusive. Our research is centered on novel communication pathways that determine immune cell fate and disease progression in the context of lymphoid organogenesis and lymphoid cell development and function.

Head of Laboratory

José Henrique Veiga Fernandes, PhD

Research Team

Bethania García Cassani	Master	PhD Student
Bruno Miguel Belchior Raposo	Master	Technician, (started July)
Chesne Julie Michelle Evelyne	PhD	Post doctoral Investigator, (started December)
Cristina Sofia Godinho da Silva	No degree	Investigator
Diogo da Fonseca Pereira	PhD	Post doctoral Investigator, (left October)
Hélder Manuel Piedade Ribeiro	Master	Technician
Luís Miguel Ferreira de Almeida	Graduate	MSc Student
Manuela Cristina Fernandes Ferreira	PhD	Post doctoral Investigator
Rita Gomes Domingues	Master	PhD Student
Sales Ibiza	PhD	Post doctoral Investigator
Sílvia Moura Arroz Nobre Madeira	Master	PhD Student
Vânia Rita de Faria Cardoso	Master	PhD Student

Keywords / Research Areas

Lymphoid organogenesis, Haematopoiesis, Innate Lymphoid Cells, Lymphocyte function

Major scientific achievements

Publications:

Xu W.*, Domingues R.G.*, Fonseca-Pereira D.*, Ferreira M., Ribeiro H., Lopez-Lastra S., Motomura Y., Moreira-Santos L., Bihl F., Braud V., Kee B., Brady H., Coles M.C., Vosshenrich C., Kubo M., Di Santo J.P. and Veiga-Fernandes H. (2015) NFIL3 orchestrates the emergence of common helper innate lymphoid cell precursors. *Cell Reports* **10**, 2043–2054 (Journal IF: 8.358: Citations: 14)

ERC Consolidator grant by ERC, UE.

Henrique Veiga-Fernandes: Nomination - EMBO Member by EMBO, UE.

Henrique Veiga-Fernandes: Nomination - Commander of Ordem Militar de Sant'ago da Espada by Presidência da República, Portugal.

Cristina Godinho-Silva: Best poster presentation honorable mention in the 3rd iMM PostDoc Day, iMM Lisboa, 2015.

Silvia Madeira: Outstanding Poster Award - Fonseca-Pereira, D., Arroz-Madeira, S. et al. 10th ENII-EFIS/EJI Immunology Summer School, 2015, Porto Cervo, Sardinia, Italy.

Selected Publications

Xu W*, Domingues RG*, Fonseca-Pereira D, Ferreira M, Ribeiro H, Lopez-Lastra S, Motomura Y, Moreira-Santos L, Bihl F, Braud V, Kee B, Brady H, Coles MC, Vosshenrich C, Kubo M, Di Santo JP, Veiga-Fernandes H. (2015) NFIL3 orchestrates the emergence of common helper innate lymphoid cell precursors. *Cell Reports* **10**, 2043-2054. (Journal IF: 8.358, Citations: 14)

Veldhoen M, Veiga-Fernandes H. (2015) Feeding immunity: skepticism, delicacies and delights. *Nature Immunology* **16**, 215-219. (Journal IF: 20.004, Citations: 1)

van de Pavert, S. A., M. Ferreira, R. G. Domingues, H. Ribeiro, R. Molenaar, L. Moreira-Santos, F. F. Almeida, S. Ibiza, I. Barbosa, G. Goverse, C. Labao-Almeida, C. Godinho-Silva, T. Konijn, D. Schooneman, T. O'Toole, M. R. Mizee, Y. Habani, E. Haak, F. R. Santori, D. R. Littman, S. Schulte-Merker, E. Dzierzak, J. P. Simas, R. E. Mebius, and Veiga-Fernandes, H. (2014) Maternal retinoids control type 3 innate lymphoid cells and set the offspring immunity. *Nature*

508, 123-127. (Journal IF: 41.456, Citations: 63)

Fonseca-Pereira, D., Arroz-Madeira, S., Rodrigues-Campos, M., Barbosa, I., Domingues, R.G., Bento, T., Almeida, A.R.M., Ribeiro, H., Potocnik, A., Enomoto, H. and Veiga-Fernandes, H. (2014) The neurotrophic factor receptor RET drives haematopoietic stem cell survival and function. *Nature* **514**, 98-101. (Journal IF: 41.456, Citations: 5)

Patel, A, Harker, N, Moreira-Santos, L, Ferreira, M, Alden, K, Timmis, J, Foster, K, Garefalaki, A, Pachnis, P, Andrews, P, Enomoto, H, Milbrandt, J, Pachnis, V, Coles, M, Kioussis, D, Veiga-Fernandes, H. (2012) Differential RET Signaling Pathways Drive Development of the Enteric Lymphoid and Nervous Systems. *Science Signaling* **5** (235), ra55. (Journal IF: 6.279, Citations: 13)

Ongoing Research Projects

2015/2016 Control of innate lymphoid cells and intestinal homeostasis by neurotrophic factors. Coordinator: José Henrique Veiga Fernandes. Agency: Kenneth Rainin Foundation. Reference: Kenneth Award. Amount: € 90818.27. Amount (total): € 90818.27.

2012/2015 . Coordinator: José Henrique Veiga Fernandes. Agency: Comissão Europeia. Reference: Stroma. Amount: € 220704.56. Amount (total): € 4296181.91.

2013/2016 Controlo da função das células inatas linfoides e da homeostasia intestinal por fatores neurotróficos . Coordinator: José Henrique Veiga Fernandes. Agency: Fundação Ciência e Tecnologia. Reference: FCT-ANR/IMI-IMU/0094/2012. Amount: € 250300.00. Amount (total): € 562000.00.

2013/2015 . Coordinator: José Henrique Veiga Fernandes. Agency: Kenneth Rainin Foundation. Reference: Innovator Awards Program Kenneth Rainin. Amount: € 202086.06. Amount (total): € 150975.80.

2015/2020 Glia-derived factors in innate lymphoid cell sensing and intestinal defence. Coordinator: José Henrique Veiga Fernandes. Agency: Comissão Europeia. Reference: ERC - 647274 - GliaInnateSensing. Amount: € 2270000.00. Amount (total): € 0.00.

2014/2015 EMBO Conference Poster Award. Coordinator: Sales Ibiza. Agency: Bio-Techne. Reference: EMBO Conference Poster Award. Amount: € 500.00. Amount (total): € 500.00.

2014/2017 Regulation of Innate Lymphoid Cell function and intestinal defense by neuroregulatory factors. Coordinator: José Henrique Veiga Fernandes. Agency: Cronh's & Colitis. Reference: Lymphoid Cell Function - CCFa. Amount: € 280258.06. Amount (total): € 254277.00.

2014/2015 A novel solution to efficient Haematopoietic Stem Cell regeneration - 207057 -

RetImmuneFunction. Coordinator: José Henrique Veiga Fernandes. Agency: Comissão Europeia. Reference: StemCell2max - ERC-PoC. Amount: € 149890.00. Amount (total): € 149885.00.

Original publications in peer review Journals

Xu W*, Domingues RG*, Fonseca-Pereira D, Ferreira M, Ribeiro H, Lopez-Lastra S, Motomura Y, Moreira-Santos L, Bihl F, Braud V, Kee B, Brady H, Coles MC, Vosshenrich C, Kubo M, Di Santo JP, Veiga-Fernandes H. (2015) NFIL3 orchestrates the emergence of common helper innate lymphoid cell precursors. *Cell Reports* **10**, 2043-2054. (Journal IF: 8.358, Citations: 14)

Monteiro M, Agua-Doce A, Almeida CF, Fonseca-Pereira D, Veiga-Fernandes H, Graca L. (2015) IL-9 Expression by Invariant NKT Cells Is Not Imprinted during Thymic Development. *Journal of Immunology* **195**, 3463-3471. (Journal IF: 4.922, Citations:)

Alden K, Andrews PS, Polack FA, Veiga-Fernandes H, Coles MC, Timmis J. (2015) Using argument notation to engineer biological simulations with increased confidence. *Journal of the Royal Society Interface* **1014**, 6-12. (Journal IF: 3.917, Citations: 0)

Alden K, Andrews PS, Veiga-Fernandes H, Timmis J, Coles M. (2015) Utilising a simulation platform to understand the effect of domain model assumptions. *14*, 99-107. (Journal IF: 0.757, Citations: 0)

Other publications International

Veldhoen, M and Veiga-Fernandes, H (2015). Feeding immunity: skepticism, delicacies and delights. *Nature Immunol.* 16:215-219.

Invited lectures and seminars

Henrique Veiga-Fernandes:

October 2015, EMBO members meeting, Heidelberg, Germany.

"Environmental Sensing by Blood Cells", Annual meeting of the Portuguese Society for Immunology, Braga, Portugal, October 2015.

"Control of Innate Lymphoid Cells and Intestinal Homeostasis by Neurotrophic Factors", Annual scientific meeting Kenneth Rainin Foundation, San Francisco, US, July 2015.

"NFIL3 orchestrates the emergence of common helper innate lymphoid cell precursors", IGC, Portugal, June 2015,.

"Role of diet-derived retinoids in natural intraepithelial lymphocytes", Cambridge University, UK, March 2015.

"The neurotrophic factor receptor RET drives haematopoietic stem cell survival and function", IMP, Viena, Austria, January 2015.

Communications in International Conferences

Garcia-Cassani, B., "Gut Microbiota Modulation of Host Physiology: The Search for Mechanism" 1-6 March 2015, Keystone, USA . (Poster Presentation)

Fonseca-Pereira, D., Arroz-Madeira, S. et al., "The neurotrophic factor receptor RET drives haematopoietic stem cell survival and function", 44th Annual Meeting from the International Society for Experimental Haematology, 17-19 September 2015, Kyoto, Japan – (Poster Presentation)

Fonseca-Pereira, D., Arroz-Madeira, S. et al., "The neurotrophic factor receptor RET drives haematopoietic stem cell survival and function", 10th ENII-EFIS/EJI Immunology Summer School, 12-19 May 2015, Porto Cervo, Sardinia, Italy – (Poster Presentation)

Domingues R.G. et al., "NFIL3 orchestrates the emergence of common helper innate lymphoid cell precursors" - 10th ENII - EFIS/EJI Immunology Summer School, 12th-19th of May 2015 in Porto Cervo Olbia, Sardinia (Italy) – (Oral and Poster Presentation)

Garcia-Cassani B., Ibiza S., Ribeiro H., Veiga- Fernandes H., "Control of Innate lymphoid cells and intestinal homeostasis by neurotrophic factors"- 10th ENII - EFIS/EJI Immunology Summer School, 12th-19th of May 2015 in Porto Cervo Olbia, Sardinia (Italy) – (Poster Presentation)

Garcia-Cassani B., STROMA ITN final meeting "Interplay between glia and innate lymphoid cells in gut homeostasis", Strasbourg, France – (Oral Presentation)

Communications in National Conferences

Manuela Ferreira, Bruno Belchior Raposo, Carlos Labão-Almeida, Afonso Almeida, Henrique Veiga-Fernandes, "Role of diet-derived retinoids in natural intraepithelial lymphocytes"; XLI Annual Meeting of the Portuguese Society for Immunology; Braga; ICVS | ECS University of Minho; 26th to 28th October 2015 – (Oral Presentation)

Vânia Cardoso, "Control of mucosal defense and innate immunity by neuroregulators" - IX PhD Students Meeting, Lisbon Academic Medical Centre; Lisboa 2015 – (Oral Presentation)

Cristina Godinho-Silva, Circadian control of innate lymphoid cell fate and function; 3rd iMM PostDoc Day, Instituto de Medicina Molecular, Lisbon, 25th September 2015 – (Poster Presentation)

Cristina Godinho-Silva, Circadian control of innate lymphoid cell fate and function; XLI SPI Annual Meeting; Braga, 26th to 28th October 2015 – (Poster Presentation)

Domingues R.G., et al., “NFIL3 orchestrates the emergence of common helper innate lymphoid cell precursors” - IX PhD Students Meeting, Lisbon Academic Medical Centre; Lisboa, 2015 – (Poster Presentation)

Domingues R.G. et al., “NFIL3 orchestrates the emergence of common helper innate lymphoid cell precursors” - XLI Annual Meeting from the Portuguese Society of Immunology: “From basic immunology to the latest clinical breakthroughs”, Braga, 26 - 28 October 2015 – (Poster Presentation)

B.Garcia-Cassani, S.Ibiza, H.Ribeiro, H. Veiga- Fernandes, "Control of Innate lymphoid cells and intestinal homeostasis by neurotrophic factors" IMM-Lisbon, Portugal – (Poster Presentation)

Fonseca-Pereira, D., Arroz-Madeira, S. et al., "The neurotrophic factor receptor RET drives haematopoietic stem cell survival and function", IX International Meeting of the Portuguese Society for Stem Cells and Cellular Therapies, 15 - 16 October 2015, Oeiras, Portugal – (Oral Presentation)

Prizes, honours and awards

ERC Consolidator grant by ERC, UE.

Henrique Veiga-Fernandes: Nomination - EMBO Member by EMBO, UE.

Henrique Veiga-Fernandes: Nomination - Commander of Ordem Militar de Sant’Iago da Espada by Presidência da República, Portugal.

Advanced teaching

Rita G. Domingues, Silvia Arroz-Madeira, Bethania Garcia-Cassani: 10th ENII-EFIS/EJI Immunology Summer School, 12-19 May 2015, Porto Cervo, Sardinia, Italy.

Bethania Garcia-Cassani: STROMA ITN final meeting, 1-3 October 2015, Strasbourg, France

Bethania Garcia-Cassani: Carl Zeiss Microscopy GmbH, lightsheet Z.1 microscope training, 3-5 May 2015, Munich, Germany

Hélder Ribeiro, Manuela Ferreira: Workshop Applications of CRISPR to genetically tractable organisms, 11th December 2015, Fundação Champalimaud, Congento, Lisbon, Portugal.

Bruno Raposo, Luís Almeida: Laboratory Animal Science (according to FELASA cat.B), March 2015, IMM, Lisbon, Portugal.

Science and society

Cristina Godinho-Silva: Best poster presentation honorable mention in the 3rd iMM PostDoc Day, "Circadian control of innate lymphoid cell fate and function" Instituto de Medicina Molecular, Lisbon, Portugal, 25th of September 2015.

Silvia Madeira: Outstanding Poster Award - Fonseca-Pereira, D., Arroz-Madeira, S. et al. "The neurotrophic factor receptor RET drives haematopoietic stem cell survival and function", 10th ENII-EFIS/EJI Immunology Summer School, 12-19 May 2015, Porto Cervo, Sardinia, Italy;

Silvia Madeira: Best Oral Presentation - Fonseca-Pereira, D., Arroz-Madeira, S. et al. "The neurotrophic factor receptor RET drives haematopoietic stem cell survival and function", IX International Meeting of the Portuguese Society for Stem Cells and Cellular Therapies, 15 - 16 October 2015, Oeiras, Portugal.

Rita G. Domingues: SPI Travel Grant – Portuguese Society of Immunology.

Rita G. Domingues: Waiver fellowship of the 10th ENII-EFIS/EJI Summer School on Advanced Immunology and the School.

Rita G. Domingues: IX PhD Students Meeting, Lisbon Academic Medical Centre; Lisboa 2015. – Best Poster Presentation Award.

Msc thesis completed

Bruno Raposo 16/11/2015 Role of diet-derived retinoids in natural intraepithelial lymphocytes FCUL
Manuela Ferreira Henrique Veiga-Fernandes

Luís Almeida 12/12/2015 Role of Neurotrophic factor receptors in Innate Lymphoid Cell Immunity FCUL
Sales Ibiza Henrique Veiga-Fernandes

Facilities

Technical Facilities

Animal Facility

Major Interests / Objectives

The rodent facility of the iMM Lisboa aims to support state-of-the-art animal research. For that purpose we provide the best housing and care of laboratory rodents and support training and education in Laboratory Animal Science.

Head of Facility

Joana Margarida da Silva Marques, PhD

Research Team

Ana Catarina Jorge Mendes	Graduate	Technician
Ana Rita da Silva Pereira	Graduate	Technician, (started October)
Andreia Joana Miguel Madalena	Undergraduate	Technician
Carlos Barata da Silva	Graduate	Technician
Cecília Gonçalves Simão	Undergraduate	Technician
Felícia Maria Augusto Ramos	Undergraduate	Technician
Filipe Fernandes Delgado	Graduate	Technician, (started December)
Iolanda Safira Sousa Moreira	Graduate	Technician
José António Vila Chã	No degree	Auxiliary
Maria Dolores Paulos Bonaparte Figueira	Graduate	Veterinary
Mihaela Elena Morari	Undergraduate	Technician
Olena Pavlovska Borges de Pinho	Undergraduate	Technician

Pedro Manuel Nogueira dos Santos	Undergraduate	Technician
Sara Ghirelli	Undergraduate	Technician

Keywords / Research Areas

Rodents, Laboratory Animal Science, Animal welfare

Major scientific achievements

One of the major achievements in 2015 was the purchase and implementation of a facility management software. This software allows us to increase the efficiency of the communication between the staff and researches as well as to centralize all the facility's relevant information. Therefore, this tool will help us increase the quality of the services provided.

During 2015 we also acquired new housing equipments for our rats, hence improving considerably their welfare.

Other Projects

2013/2016 “Modelos animais de doenças humanas: refinamento de estratégias e implementação de novas tecnologias”. Coordinator: Joana Marques.

Biobank

Major Interests / Objectives

Biobanco-iMM is a structure created by the Instituto de Medicina Molecular (iMM Lisboa), which receives and stores a wide collection of biological samples donated voluntarily and its correspondent clinical information in order to foster biomedical research.

Biobanco-iMM aims to achieve sustainable growth, focused on improving quality, not only in samples but also in data management. We are working on several aspects of serum and DNA quality control parameters. Other strategic goals are to promote national biobanking networking with standardized procedures and established synergies as well as international integration of biobanking networks.

Head of Facility

Sérgio Jerónimo Rodrigues Dias, PhD

Research Team

Ana Sofia Zhao	Master	Technician
Ângela Maria Cerqueira Coelho Afonso	Master	Technician
Joana Mara Marques Sotero	Master	Trainee, (started September) (left November)
Joaquim Miguel Polido Pereira	Graduate	Co-director, CHLN, MD

Keywords / Research Areas

Biobanks, Human Samples, Clinical Information, Biomedical Research

Major scientific achievements

In 2015 samples from the Biobanco-iMM, Lisbon Academic Medical Centre was requested for research projects resulting in 10 scientific publications and 5 master's thesis. During 2015, 4767 samples have left Biobanco-iMM increasing the demand by 99.48%, mostly through collaboration with research institutions in Portugal (85.92%), Spain (8.24%) and Germany (3.48%). Serum was the sample type that received more requests, 3605 aliquots of Serum

(75.62%). The most requested collection was EpiReuma.pt collection, nearly 3200 samples were used. A new service was available, immortalization of lymphocyte by Epstein-Barr Virus (EBV). EBV immortalization of lymphocytes will be an advantage because it's a way to monetize the biological product from a single time. Biobank-iMM would implement immortalization research emerging areas, such in donors with primary immunodeficiency's. Biobanco-iMM is certified with ISO 9001 Quality Management System by TÜV Rheinland Portugal, as part of iMM Certification.

Selected Publications

A Afonso, Polido-Pereira J, Dias S. (2014) Biobank Profile: Biobanco-iMM, Lisbon Academic Medical Centre. *Biopreservation and Biobanking* **12**, 433-434. (Journal IF: 1.578, Citations: 0)

Rodrigues AM, Gouveia N, da Costa LP, Eusébio M, Ramiro S, Machado P, Mourão AF, Silva I, Laires P, Sepriano A, Araújo F, Coelho PS, Gonçalves S, Zhao A, Fonseca JE, de Almeida JM, Tavares V, da Silva JA, Barros H, Cerol J, Mendes J, Carmona L, Canhão H, Branco JC. (2015) EpiReumaPt- the study of rheumatic and musculoskeletal diseases in Portugal: a detailed view of the methodology. *Acta Reumatológica Portuguesa* **40**, 110. (Journal IF: 0.726, Citations: 0)

Invited lectures and seminars

Polido-Pereira, J. Collecting samples for future use – clinical & research biobanks. Berlin, Germany, September 25, 2015

Polido-Pereira, J. Hands On Biobank. Milan, Italy, July 29-31, 2015

Communications in National Conferences

Polido-Pereira, J. Biobanco-iMM at Curso de Investigação do Centro Académico de Medicina de Lisboa. Lisbon, Portugal, April 24, 2015 (Oral Presentation)

Polido-Pereira, J. Biobanco – IMM e doenças reumáticas. Porto Salvo, Portugal, October 24, 2015 (Oral Presentation)

Polido-Pereira, J. Biobanco – da investigação à terapêutica personalizada at XVIII Fórum de Apoio ao Doente Reumático session "Como participo em estudos" . Lisbon, Portugal, October 30, 2015 (Oral Presentation)

Organisation of Conferences

Polido-Pereira, J. and Dias, S. BBMRI-ERIC-Visit. Lisbon, Portugal, January 21, 2015

Bioimaging

Major Interests / Objectives

The Bioimaging Facility acts as a support structure to carry out and nurture research done with Light Microscopy inside the institute. Besides managing resources, the Facility provides iMM Lisboa scientists and visitors with excellence in scientific know-how and expertise in using light microscopy methods for their research. We assist in planning microscopy-oriented projects, choosing materials and equipment, analyzing experimental results, processing acquired images and presenting data. Together with continuous training of new users, we organize regular courses to introduce users to the most recent microscopy techniques and foster interactions and collaborations between microscopy users at the iMM Lisboa.

Head of Facility

José Miguel Rino Henriques, PhD

Research Team

Ana Margarida Santos do Nascimento	Master	Technician
António Francisco Pinção Loução Homem Temudo	Master	Technician

Keywords / Research Areas

Fluorescence Microscopy, Laser Scanning Confocal Microscopy, Image Processing and Analysis, Quantification of protein dynamics and interactions, Training in Microscopy

Major scientific achievements

Scientific collaboration with 3 iMM Lisboa research Labs and one external research unit resulted in 4 publications in which José Rino is co-author:

- Rino J et al, *Methods Enzymol* (PMID: 26068754)
- Ferreira DG et al, *Cereb Cortex* (PMID: 26534909, IF: 8.665)
- Simões M et al, *Viruses* (PMID: 26389938, IF: 3.353)
- Cascão R et al, *PLoS One* (PMID: 26658436, IF: 3.234)

In 2015 the Bioimaging Facility services were used by 180 users from 38 different research units, 4 of them from outside the iMM Lisboa. We trained 64 new users in different microscopy systems during the year.

The Bioimaging Facility became a Zeiss labs@location Partner, integrating a community of leading research facilities with expertise in specific applications of technologies that provide in depth knowledge and scientific support to Zeiss customers community.

Selected Publications

Martin RM*, Rino J*, Carvalho C*, Kirchhausen T, Carmo-Fonseca M (2013) Live-Cell Visualization of Pre-mRNA Splicing with Single-Molecule Sensitivity. *Cell Reports* **4**(6), 1144-1155. (Journal IF: 7.207, Citations: 15) * these authors have contributed equally to this work.

Carvalho S, Raposo AC, Martins FB, Grosso AR, Sridhara SC, Rino J, Carmo-Fonseca M, de Almeida SF (2013) Histone methyltransferase SETD2 coordinates FACT recruitment with nucleosome dynamics during transcription. *Nucleic Acids Res* **41**(5), 2881-2893. (Journal IF: 8.278, Citations: 28)

Martins SB*, Rino J*, Carvalho T, Carvalho C, Yoshida M, Klose JM, de Almeida SF, Carmo-Fonseca M. (2011) Spliceosome assembly is coupled to RNA polymerase II dynamics at the 3' end of human genes. *Nat Struct Mol Biol* **18**, 1115. (Journal IF: 12.712, Citations: 40) * these authors have contributed equally to this work.

Publications in peer review Journals

Ferreira DG, Batalha VL, Vicente Miranda H, Coelho JE, Gomes R, Gonçalves FQ, Real JI, Rino J, Albino-Teixeira A, Cunha RA, Outeiro TF and Lopes LV (2015) Adenosine A2A Receptors Modulate α -Synuclein Aggregation and Toxicity. *Cereb Cortex* pii: bhv268. (Journal IF: 8.665)

Simões M, Rino J, Pinheiro I, Martins C and Ferreira F (2015) Alterations of Nuclear Architecture and Epigenetic Signatures during African Swine Fever Virus Infection. *Viruses* **7**(9):4978-96 (Journal IF: 3.353, Citation: 1)

Cascão R, Vidal B, Lopes IP, Paisana E, Rino J, Moita LF and Fonseca JE (2015) Decrease of CD68 Synovial Macrophages in Celastrol Treated Arthritic Rats. *PLoS One* **10**(12):e0142448 (Journal IF: 3.234, Citation: 1)

Rino J, Martin RM, Carvalho C, de Jesus AC and Carmo-Fonseca M (2015) Single-Molecule Imaging of RNA Splicing in Live Cells. *Methods Enzymol* **558**:571-85 (Journal IF: 2.088, Citation: 0)

Internationalisation

The Bioimaging Facility became a Zeiss labs@location Partner, integrating a community of leading research facilities with expertise in specific applications of technologies that provide in depth knowledge and scientific support to Zeiss customers community.

José Rino lectured at the FEBS Practical Course "Advanced Imaging of molecular complexes in living cells", 8 - 12 June 2015, van Leeuwenhoek Centre for Advanced Microscopy, Amsterdam, The Netherlands

Advanced teaching

Rino, J. lectured at the FEBS Practical Course "Advanced Imaging of molecular complexes in living cells", van Leeuwenhoek Centre for Advanced Microscopy, Amsterdam, The Netherlands. 8 - 12 June 2015

Rino, J. lectured at the "I Leica Course on Advanced Widefield and Confocal Microscopy and STED Super-Resolution", Institute for Molecular and Cell Biology, Porto, 7 - 9 July, 2015

Rino, J. lectured (both theoretical lectures and hands-on practicals) at the "Quantitative Fluorescence Microscopy Course", Center for Neuroscience and Cell Biology, Coimbra, 5 - 9 October, 2015

Rino, J. organized and lectured the "Bioimaging Microscopy Nanocourse", IMM, Lisbon, 4 - 6 November, 2015

Biosafety Level 3 Laboratory

Major Interests / Objectives

The iMM Lisboa houses a 70 m² BSL3 Facility meeting the highest safety standards as defined by European and International guidelines. The purpose of this facility is to enable researchers to carry out work with infectious agents that require BSL3 or ABSL3 containment conditions.

The Facility is available to iMM Lisboa internal and affiliated researchers, and, with the exception of ABSL3, to external researchers from academia, pharma and biotech. Work in the BSL3 Lab follows SOPs defined in the Facility's Rules and Guidelines Manual.

The iMM Lisboa BSL3 Facility comprises two fully equipped tissue culture rooms and one animal experimentation room for rodents. Available equipment includes incubators, benchtop centrifuges, refrigerators and freezers, microscopes, a -80 freezer, and an ultracentrifuge.

Head of Facility

Miguel Prudêncio, PhD

Research Team

Inês Antunes Cabral Queiroz de Matos	Graduate	Technician
Maria Dolores Paulos Bonaparte Figueira	Graduate	Veterinary

Keywords / Research Areas

Biosafety level 3, HIV, Mycobacterium tuberculosis, ABSL3

Major scientific achievements

In 2015 the Facility continued to provide a high-quality service to users. The Facility is now a full member of the Lab-PT-BioNet network of the Portuguese laboratory biosafety network (<http://www.labptbionet.ibmc.up.pt/>). Several training and refreshment courses were organized for new and existing users, and facility staff participated in biosafety seminars and workshops.

Communications in National Conferences

Miguel Prudêncio, 5th Workshop “Biossegurança, Saúde e Legislação no laboratório de Microbiologia”, INSARJ, Lisbon, Portugal, 4 November 2015

Internationalisation

The iMM Lisboa BSL3 facility is a member of the LabPTBioNet network of Portuguese high containment facilities. One of the aims of this network is to apply for membership with EBSA (European Biosafety Association). The facility is actively contributing to this goal, through its participation in network meetings and providing its Guidelines to serve as the basis for a uniform set of procedures to be adopted by BSL3 facilities nationally. Besides, since his appointment as Head of the iMM Lisboa BSL3 facility, Dr. Miguel Prudêncio has participated in several international biosafety training events.

Advanced teaching

Prudêncio, M., Matos I. - Course “iMM BSL3 Facility”, IMM, Lisbon, Portugal, 18 February 2015

Prudêncio, M., Matos I. - Course “iMM BSL3 Facility”, IMM, Lisbon, Portugal, 13 October 2015

Prudêncio, M., Matos I. - Course “iMM BSL3 Facility”, IMM, Lisbon, Portugal, 12 November 2015

Flow Cytometry

Major Interests / Objectives

The Flow Cytometry facility provides support and training to iMM Lisboa and external researchers who require this technology in their research projects. The facility is equipped with 4 cell analysers (1 FACSCalibur, 2 BD LSR Fortessa and 1 BD Accuri C6) and 2 cell sorters (FACS Aria IIu and FACS Aria III). One LSR Fortessa is equipped with High Throughput Sampler, which allows the automated acquisition of samples from 96 and 384 well plates. A substantial part of our work is to provide training in flow cytometry concepts, experiment planning, experimental controls, instrument operation and data analysis. Our staff further ensures quality control and maintenance procedures on all instruments and the implementation of the Quality Management System, according to ISO 9000.

Head of Facility

José Henrique Veiga Fernandes, PhD

Research Team

Ana Isabel da Silva Vieira	Master	Technician
Ana Sílvia Pacheco Gonçalves	Master	Technician, (left October)
Andreia Pereira Gameiro	Master	Technician, (started May)
Filipa Gomes de Almeida Dias	Master	Technician, (left March)
Mariana Rafael Fernandes	Master	Technician, (started November)

Keywords / Research Areas

Flow Cytometry, High Speed Cell Sorting, Multiparametric Analysis, Fluorochrome, Fluorescent Protein

Major scientific achievements

In 2015 a total of 25 iMM Lisboa Labs used Flow Cytometry facility, in addition to 6 external units, representing a total of 144 users. From September we extended our work hours on cell sorters to 12h/day. Since we applied new rules and penalties (2014), last minute cancellations and no-shows have decreased 58%. In February we installed a new flow cytometer, BD Accuri C6, the first that allows absolute particle counting and, following the installation we provide training to 37 researchers. Both LSR Fortessa cell analyzers were upgraded with two more colors, therefore, the facility is currently equipped with cytometers enabling the detection of up to 10 colors. Moreover, a fluidic upgrade was performed on BD FACSAria I in order to prevent fluidic contaminations.

Advanced teaching

Vieira, A. organized and lectured the course "Flow Cytometry", CAML, Lisbon. November 16th-17th, 2015

Histology and Comparative Pathology Laboratory

Major Interests / Objectives

The Histology and Comparative Pathology Laboratory aims at providing histology and comparative pathology support to iMM scientists investigating animal models of human disease, and scientists/physicians investigating human disease. Services are also available for extramural investigators.

Services include HISTOLOGY (tissue processing for paraffin-embedding; gelatin/OCT-embedding and cryosectioning; histochemistry), IMMUNOHISTOCHEMISTRY, TRANSMISSION ELECTRON MICROSCOPY and VETERINARY PATHOLOGY. We also provide assistance in study design and procedural training for researchers (necropsy, tissue harvesting).

Head of Facility

Tânia Gilot Mendes de Carvalho Barão, PhD

Research Team

Ana Margarida Biscaia Fernandes dos Santos	Graduate	Technician
Andreia Lúcia do Nascimento Pinto	Master	Technician
Bruna Camila Coelho Almeida	Graduate	Trainee, (started March)

Keywords / Research Areas

Histology, Comparative Pathology, Transmission Electron Microscopy, Immunohistochemistry

Selected Publications

Nunes-Cabaço H, Matoso P, Foxall RB, Tendeiro R, Pires AR, Carvalho T, Pinheiro AI, Soares RS, Sousa AE (2014) Thymic HIV-2 infection uncovers post-transcriptional control of viral replication in human thymocytes. *Journal of Virology* (Journal IF: 4.648, Citations: 0)

Publications in peer review Journals

T Hänscheid, T Carvalho, MP Grobusch (2015) Hemozoin Detection for Human Malaria Diagnosis Investigated in Rodent Models: How Similar Is Similar? *Trends Parasitol.* Dec 15. pii: S1471-4922(15)00256-1 (Journal IF: 5.513, Citations:0)

MB Afonso, PM Rodrigues, T Carvalho, M Caridade, P Borralho, H Cortez-Pinto, RE Castro, CM Rodrigues (2015) Necroptosis is a key pathogenic event in human and experimental murine models of non-alcoholic steatohepatitis. *Clin Sci (Lond).* Oct 1;129(8):721-39 (Journal IF: 5.598, Citations:0)

AES Simões, DM Pereira, SE Gomes, M Caridade, T Carvalho, RE Castro, CJ Steer, SN Thibodeau, PM Borralho, CMP Rodrigues. (2015) Aberrant MEK5/ERK5 signalling contributes to human colon cancer aggressiveness via NF-kappaB activation. *Cell Death and Disease* Apr 9;6:e1718 (Journal IF: 5.17, Citations:0)

Cascão R, Vidal B, Lopes IP, Paisana E, Rino J, Moita LF, Fonseca JE (2015) Decrease of CD68 Synovial Macrophages in Celastrol Treated Arthritic Rats. *Plos One*, December 11, 2015 DOI: 10.1371/journal.pone.0142448

Invited lectures and seminars

Carvalho, T. Instituto Gulbenkian Ciência's Practical Course on Animal Handling and Experimentation in mouse and zebrafish, September 2015

Carvalho, T. The many faces of Plasmodium. XVI Congresso Técnico de Anatomia Patológica, Maio 2015

Carvalho T. Cancer and Aging: Lessons from Zebrafish Models through the eyes of the Pathologist. XX Meeting of the Portuguese Society of Animal Pathology, Abril 2015

Organisation of Conferences

Carvalho T. Organizer and Lecturer of the Workshop: Mice vs Humans. 6th AIMS Meeting (Annual International Students Meeting), IMM Lisboa, Lisboa, Março 2016

Advanced teaching

Carvalho T. Organizer and Lecturer of the Workshop: Mice vs Humans. 6th AIMS Meeting (Annual International Students Meeting), IMM Lisboa, Lisboa, Março 2016

Information Systems

Major Interests / Objectives

The Information Systems mission is to help researchers reach their maximum productivity by using adequate Information Technology resources. Our aims are:

1. Provide state-of-the-art information technology infrastructure and support services.
2. Contribute to improve productivity of researchers and research outcomes.
3. Facilitate and optimize management business processes.

USI intervenes mainly in the following areas:

1. Information Technology (IT) support to iMM users.
2. Planning, implementation and maintenance of the infrastructure that stores, processes and protects research data.
3. Design, implement and integrate information systems to facilitate scientific and management processes.

Head of Facility

José Joaquim Carvalho da Costa Braga, PhD

Research Team

Daniel José Vilhena Guerreiro	Graduate	Technician
Emanuela Simões	Graduate	Technician, (left March)
Nuno Andrade da Cruz Henriques	Master	Technician, (left March)
Pedro Miguel Bernardino Eleutério	Graduate	Technician
Pedro Viana Maya de Oliveira Pires	Graduate	Technician, (started September)

Keywords / Research Areas

IT support, Data protection, Information integration, Web Services and applications

Major scientific achievements

USI implemented a ticketing system to better serve researchers and administrative staff. This system improves communication between a ticket requester and the IT team. It allows statistics and centralized monitoring of helpdesk activities. On average, 205 tickets are closed each month with a typical solution time of 12.6 hours.

By integrating the input of all facilities we implemented a new version of the iMM intranet with updated contents, layout and applications. We were also involved in the successful implementation of the the new iMM public website.

USI implemented general deployment of software updates for domain computers, increasing security, response times and, user satisfaction.

The iMM file sharing service, a critical piece of infrastructure, was migrated to more powerful servers, thus increasing its reliability and performance.

A high performance printing service was implemented, with gains in printing costs, reduced occupation of lab space and environmental impacts.

Quality and Safety in Laboratory

Major Interests / Objectives

The Lab Management Facility is divided in three different areas, each one dedicated to improve the quality of research of the Institute and comply with National and International guidelines and best practices.

The Washing Room is responsible for the cleaning and sterilization of lab material, both common and specific of all research labs. The Purchasing Office centralizes all the Institute acquisitions, namely products, services and equipments and provides important information related to prices and ongoing promotions to all research labs.

The Lab Management is responsible for the adequate selection and installation of new equipment, the preventive and corrective maintenance of common equipment; design/renewal of laboratory infrastructures; advisory and authority regarding safety with products, equipment and infrastructure.

Head of Facility

Alexandra Maralhas, Graduate

Research Team

Alexandre Manuel Raposo de Jesus	Master	Technician
Ana Rita Fonseca Vicente	Graduate	Technician
Edna Neias F. Gomes	Graduate	Technician
Fernanda Vila-Chã	Undergraduate	Technician
Maria Jardim Caramelo Dias Cabral	Master	Technician, (started December)
Rossandro Martins Gomes	Undergraduate	Technician
Sandra Isabel Francisco Lopes	Graduate	Technician
Sara Diana Pinheiro dos Santos	Master	Technician
Sara Filipa Pires Gonçalves Silva	Undergraduate	Technician, (started October)

Susana Maria Andrade	Undergraduate	Auxiliary, (left August)
Vânia Isabel Estevens Polido Marques Paula	Graduate	Technician

Keywords / Research Areas

Infrastructure and equipments maintenance, Health and Safety in Work, Laboratory Design, Purchases, Budgeting, Technical Consulting

Zebra Fish Facility

Major Interests / Objectives

Provide a fully functional facility to be used by the iMM research labs.

Provide technical assistance to facilitate the use of zebrafish in a wide range of experimentation sets.

Head of Facility

Maria Leonor Tavares Saúde, PhD, Assistant Professor

Research Team

Aida Gonçalves Lino Barros	Undergraduate	Technician
Lara Carvalho	Master	Lab Manager
Tiago Filipe Ribeiro Ruas Maçarico	Master	Technician, (started December)

Keywords / Research Areas

Zebrafish, development, regeneration, disease models, small molecules screening

Major scientific achievements

Implement the software SENYE to automatically control the water parameters.

Selected Publications

Fior R., Maxwell A.A., Ma T.P., Vezaro A., Moens C.B., Amacher S.L., Lewis J. and Saúde L. (2012) Differentiation and movement of presomitic mesoderm progenitor cells are both controlled by Mesogenin1. *Development* **139**(24), 4656-65. (Journal IF: 6,273, Citations: 10)

Invited lectures and seminars

Carvalho, L. Bem estar e manutenção do peixe zebra. Curso de experimentação animal do iMM Lisboa, Portugal, March 2015.

Science and society

Carvalho, L. and Barros, A. (9 de Janeiro de 2015) "iMM School Visit" Escola Secundária de São João da Talha, 30 students of the 11^º grade of Science and Technology.

Carvalho, L. and Barros, A. (24 de Fevereiro de 2015) "iMM School Visit" Escola Secundária Fernando do Pó no Bombarral, 22 students of the 12^º grade of Science and Technology.

Carvalho, L. and Barros, A. (6 de Março de 2015) "iMM School Visit" Escola Secundária da Covilhã, 40 students of the 11^º grade of Science and Technology.

Carvalho, L. and Barros, A. (13 de Março de 2015) "iMM School Visit" Escola Secundária de Torres Novas, 44 students of the 12^º grade of Science and Technology.

Carvalho, L. and Barros, A. (22 de Abril de 2015) "iMM School Visit" Escolar Secundária de José Afonso, em Loures, 24 students of the 12^º grade of Science and Technology.

Carvalho, L. and Barros, A. (8 de Abril de 2015) "iMM School Visit" Escola Secundária Vergílio Ferreira, 35 students of the 12^º grade of Science and Technology.

Carvalho, L. and Barros, A. (27 de Abril de 2015) "iMM School Visit" Escola Secundária de São João da Talha, 30 students of the 12^º grade of Science and Technology.

Administrative Facilities

Communication

Major Interests / Objectives

The Communication is IMM's first line of interaction with society providing updated, reliable and relevant information on all of IMM's thematic areas, as well as promoting the very best scientific successes made by its research teams. Its mission is to support the internal and external communication of IMM's activities as well to advise IMM Direction on Public Affairs issues. With the firm belief that science should inform decisions because it impacts everyone's lives, the Communication targets a wide range of audiences (policy makers, public opinion, patients associations, medical societies, schools, academia, industry, media, arts, amongst others). It serves as spokesman for the institute and it's responsible to manage IMM's image aligned with the institute values and mission.

Head of Facility

José Henrique Veiga Fernandes, PhD

Team

Andreia Sofia Moita Machado	Graduate	Administrative
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Keywords / Research Areas

Corporate and Institucional Communication, Science Communication, Public Affairs

Education & Advanced Training

Major Interests / Objectives

General Aim: Provide training opportunities for success in science to researchers at different stages in their careers.

Ongoing Activities:

- Ensure full running of ongoing PhD (CAML, LisbonBioMed) and Postdoctoral Programs: Launch Calls; Administrative execution; Managerial Support to PhD and Postdoctoral fellows activities; Support PhD and Postdoctoral Fellows throughout their training. Update Webpage within new IMM site.
- Run Advanced Courses, scheduled upon CAML & LisbonBioMed Scientific Boards approval; cover all organizational aspects.

New Programs:

- Launch & implementation of Mindthegap- Postdoctoral Training Program approved for funding under Marie Curie Actions;
- Join EMBL- lead international consortium for Horizon 2020 application: outreach as post-graduate training.

Head of Facility

José Henrique Veiga Fernandes, PhD

Research Team

Sónia Maria Arroz	Master	Administrative, (left March)
Filipa Pontes de Moraes	PhD	Administrative, (started October)

Keywords / Research Areas

Education, Advanced-Training, PhD-Program, Postdoctoral-Program, Career Development, Advanced Courses

Major scientific achievements

Specific Achievements:

- Launch & administrative execution of LisbonBioMed PhD Program: Internal call for potential PI supervisors; international call launch, info dissemination, applications management, coordination of the selection and admission process, production of overall program metrics and statistics and reporting. Building the 8-week initial training program and its implementation.

- Transversal managerial support to:

- i) FCT grant applications, renewals, spontaneous applications, general queries;
- ii) Advanced courses and other scientific events.

Funding Programs Office

Major Interests / Objectives

Initially created in 2008 the Funding Programs Office has been restructured in September 2015. With the vision of becoming the strategic front door for funding at iMM, aiming its sustainable growth and its placement as scientific excellence leader and societal influencer, the Office develops its core activities in two main pillars: i) to support the securing of funding at iMM (by disseminating funding opportunities, supporting the preparation & submission of applications, and supporting the negotiation of funded projects); ii) to increase the competitiveness of iMM in the long-term attraction of funding (by developing new and improving existing tools and processes, and diversifying funding sources).

Head of Facility

Joana Catarina da Rocha Lamego, PhD

Research Team

Ana Filipa Duarte Nunes Almeida	PhD	Director, (left August)
Joana Costa	PhD	Manager

Keywords / Research Areas

Increase the awareness and motivation towards the securing of international competitive funds, Support the securing of national and international competitive funding, Liaise with national and international funding and policy agencies

Major scientific achievements

The Funding Programs Office has:

- Supported 82 and 169 applications submitted to international and national competitive funding agencies, respectively;

- Supported 99 applications submitted to the internal funding schemes of The Director's Fund;
- Supported the negotiation of 20 and 10 international and national applications retained for funding, respectively;
- Supported the implementation of the technical activities of Horizon 2020 ERA Chair project EXCELLtoINNOV, requiring the orchestration of the contributions of different services at iMM Lisboa;
- Liaised with national and international funding and executive agencies, including but not limited to the Comissão de Coordenação e Desenvolvimento Regional de Lisboa e Vale do Tejo and the European Commission Research Executive Agency;
- Prepared and submitted an application to Portugal 2020 11/SI/2015 call – Sistema de Incentivos à Investigação e Desenvolvimento Tecnológico (SI & DT): Internacionalização da I&D.

Invited lectures and seminars

Costa, J. Call for Scientific Research and Technological Development (SR&TD) Project Grants. Informative session requested by the iMM Lisboa postdoctoral community. Lisbon, Portugal, January 6, 2015.

Lamego, J. Innovation & Entrepreneurship @ iMM Lisboa. Conferência da Rede Valor, Universidade de Lisboa: Incubação na U Lisboa. Lisboa, Portugal, November 24, 2015.

Advanced teaching

Nunes, F. organised the training module on “Introduction to research” of the MSc in Oncobiology, Faculdade de Medicina, Universidade de Lisboa. January 21-30, 2015. Provided lectures:

- Nunes, F. Entrepreneurship and strategies to take scientific ideas into the market, January 22, 2015
- Costa J., Funding Scientific Research, January 29, 2015
- Lamego J., European Collaborative Projects, January 30, 2015

Management

Major Interests / Objectives

iMM legal, Human Resources and general administrative and financial matters:

- Accounts –iMM statutory accounts and tax returns; cost accounting;
- Projects Management - from contractual start until final report submission; related support to researchers;
- Human Resources - contracts and salaries; performance assessment
- Legal – Institutional and researchers support: namely on intellectual property and consortium agreements;
- Quality Management System
- General Administrative and financial support

The Management facility also gives support to the Executive Director and the other Statutory Boards in relation to organizational issues, inter-institutional collaborations, financial and budget management strategy.

Head of Facility

Maria Margarida Mendonça Correia Pires Pinto Gago, Graduate

Research Team

André Rebelo da Silva Fialho	Graduate	Lawyer
Andreia Sofia Gonçalves Almeida Vaz Veiga	Graduate	Manager
Cláudia Aurora Mira Soeiro	Graduate	Administrative
Daniela Filipa Ferreira Madeira	Graduate	Administrative, (left February)
Eduarda Maria Seabra Rosmaninho	Master	Administrative
Isabel Pequenino Roque	Graduate	Administrative
Maria José Flores Marques Antunes	Graduate	Administrative
Mónica Aurora Malheiro Vieira	Graduate	Administrative
Patricia Cucio	No degree	Secretary, (left March)
Pedro Gaspar Rebelo Lopes Moura	Master	Administrative

Rosa Manuela Figueira de Oliveira	Graduate	Administrative, (started May)
Sandra Paula da Silva Duarte	Graduate	Accountant
Sara Sofia de Almeida Nunes	Graduate	Administrative
Susana Isabel dos Santos Pedroso	Undergraduate	Administrative
Tânia Cristina Torres Pereira Ascensão	Graduate	Administrative
Teresa Maria Paulo Ferreira da Conceição Saúde Fernandes	Graduate	Lawyer
Vera Cristina Felício Conceição Rego	Undergraduate	Administrative

Keywords / Research Areas

Continuous improvement, Human Resources, Accounts and Budget control, Project Management, Quality Management System, Legal

Major scientific achievements

Restructuring of the HR service; First phase of the implementation of IMM Career's framework and Performance Assessment;

Definition of requirements and early search of HR SW, which can provide a single HR database and an integrated management system.

Restructuring plan for project management service, with the identification of requirements for the upgrade of projects' management software;

Quality Management - continuous improvement

Legal: Development of IPR Rules and Regulations, as well as revision of IMM Statutes.

Preparation of IMM/FML Collaboration Protocols

Startups

GENOMED

Major interests / Objectives

GenoMed is a spin-off company of IMM Lisboa created in 2004. GenoMed's mission is to provide cutting-edge technology transfer services relevant for medical applications. Currently, GenoMed offers over 420 different tests that are used in diagnosis, prognosis and therapeutic follow up. The main medical areas covered include Oncology, Hematology, Cardiology, Neurology, Gastroenterology/Hepatology, Nephrology, Endocrinology/Metabolic diseases, Obstetrics/Gynecology, Pneumology, Dermatology, Ophthalmology, Otorhinolaryngology, Pediatrics, Urology and Pharmacogenetics. Additionally, GenoMed provides parental and ancestry DNA testing.

Head

Teresa Porta Nova, MSc – Executive director / Technical director

Maria Carmo-Fonseca, MD, PhD – Scientific director

Team

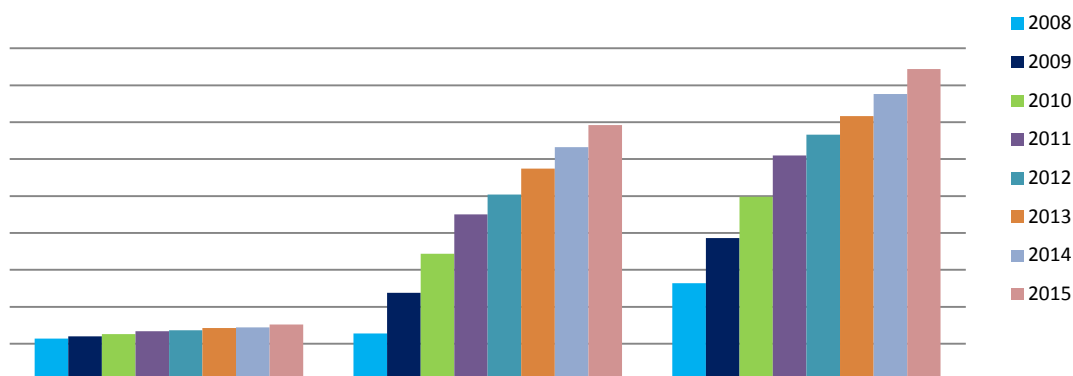
Ana Coutinho	PhD	Area Manager, Technician
Catarina Silveira	PhD Student	Technician
Cindy Castelão	MSc	Technician (started in September 2015)
André Janeiro	Graduate	Technician
Joana Tavares	MSc	BioInformatic (started in September 2015)
Sónia Matos	MSc	Area Manager, Technician
Hélia Guerreiro	Graduate	Technician
Vânia Martins	MSc	Technician
Sónia Santos	PhD	Area Manager, Technician
Paula Costa	Graduate	Technician
Ana Carla Sousa	Graduate	Technician
Sara Malveiro	Graduate	Technician
Inês Silva	MSc	Technician, Quality Manager
Ana Clemente,	MSc	Business Developer (started in November 2015)
Fernanda Barbosa	Undergraduate	Direction Assistant (started in

		April 2015)
Ana Flores	Undergraduate	Management Assistant

Major scientific achievements

This year we focused on a new approach in the Genetics field, that allows the clinicians to establish a more clear clinical diagnosis, by achieving more information within less time and with less costs. With the Next Generation Sequencing technology, we are able to give answers to several diseases, in almost all medical fields, by analyzing several gene panels. Increased number of tests available, in overall.

Graphical Abstract



Ongoing Research Projects

Starting in 2015: *ASXL1* mutations in patients with Primary Myelofibrosis Disease. Novartis. Coordinator: José Alves do Carmo, Lurdes Guerra and Blanca Polo. Participants: Sónia Matos

2014/present: Non-small-cell lung cancer *ALK* positive incidence study in Portugal. Pfizer. Coordinator: Encarnação Teixeira. Participant: Sónia Santos e Paula Costa

2014/present: Diagnosis and monitoring of Chronic Myeloid Leukemia (CML) patients: Molecular and Cytogenetic analysis. Bristol-Myers Squibb. Coordinator: Ricardo Costa, H. Garcia de Orta. Participants: Sónia Santos and Sónia Matos

2013/present: Analysis of CD34+ peripheral blood cells by FISH as cytogenetic monitoring of MDS. Celgene. Coordinator: Maria João Costa. Participant: Sónia Santos

Invited Lectures and Seminars

Silveira, C. Diagnóstico das Porfírias: Diagnóstico Laboratorial. *Training Center for Rare Diseases*, Actividades Clínicas da Casa dos Marcos, Centro de Informação e Formação para Doenças Raras, Moita, October 02, 2015 (Oral presentation).

Matos, S. Síndromes Hipereósinofílicas – Aspectos Moleculares. Sessão Clínica HIPEREÓSINOFILIA: Das Causas Óbvias à Doença Clonal, Lisbon, Portugal, January 22, 2015.

Communications in International Conferences

Costa P., Mimoso P., Janeiro A., Sousa A.C., Carmo-Fonseca M. Prevalence of Human Papillomavirus infection. Seven-year experience at Genomed- Instituto de Medicina Molecular, 30th International Papillomavirus Conference & Clinical and Public Health Workshops, Lisbon, Portugal, September 17-21, 2015 (Poster presentation)

Communications in National Conferences

Costa, M.J., Ferreira, A., Espada, E., Santos, S., Melo, J. A., Campelo, M.D., Alves, D., Valle, S. and Carmo, J.A. Análise de células CD34+ obtidas a partir de sangue periférico, por FISH para monitorização de doentes com Síndrome Mielodisplásica, Reunião Anual da Sociedade Portuguesa de Hematologia, Figueira da Foz, November 12-14, 2015 (Oral presentation).

Matos, S., Mimoso, P., Malveiro, S., Guerra, L., Polo, B., Lacerda, J., Raposo, J. and Alves do Carmo, J. Caracterização molecular de uma população de doentes com TE e MFP sem mutação *JAK2* V617F, Reunião Anual da Sociedade Portuguesa de Hematologia, Figueira da Foz, November 12-14, 2015 (Poster presentation).

Miguel, R., Dias, S., Santos, S., Fernandes, M., Marques, J., Albuquerque, L. and Pimentel, J. Oligodendrogliomas em localização atípica, Congresso de Neurologia, Lisbon, November 11-14, 2015 (Oral presentation).

Silveira, C., Coutinho, A. M., Tavares, J., Carmo-Fonseca, M., Aguiar, P. Genetic testing strategy of idiopathic metabolic disorders by NGS, VI Simpósio do Núcleo de Estudos de Doenças Raras, Sociedade Portuguesa de Medicina Interna, October 30-31 2015 (Oral presentation).

Advanced teaching

Matos, S. Curso de Pós-Graduação em Medicina Laboratorial, lecturer of the module “Genética Aplicada à Hemato-oncologia – Biologia Molecular”, Instituto de Ciências da Saúde da Universidade Católica Portuguesa e o Centro de Medicina Laboratorial Germano de Sousa, Lisbon, May 09, 2015.

Santos, S. Curso de Pós-Graduação em Medicina Laboratorial, lecturer of the module “Genética Aplicada à Hemato-oncologia – Citogenética e FISH”, Instituto de Ciências da Saúde da Universidade Católica Portuguesa e o Centro de Medicina Laboratorial Germano de Sousa, Lisbon, May 8-9, 2015.

LYMPHACT

Lymphact is a biopharmaceutical start-up focused on developing innovative personalised medical treatments. Our first product - DOT-Cells® - can target not only cancer and virus-infected cells, but also chemotherapy-resistant cancer stem cells and viral reservoirs, believed to cause disease recurrence. An improved anti-tumour function and the absence of severe associated side-effects are distinctive and unique features of our therapeutic approach.

Head

Diogo R. Anjos, MBA – CEO, Lymphact S.A.

Research Team

Afonso Almeida, PhD	Senior Scientist
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Keywords

Cellular Therapies, Immunology, Oncology, Immunotherapies, Lifesciences Start-up

Major scientific achievements

- Successfully completed all agreed project milestones
- Successfully completed in-vivo preclinical trials for CLL
- Obtained ATMP Classification for the therapy
- Obtained Orphan Medicinal Product Designation for CLL
- Won a FCT Grant in partnership with IMM for further explore the technology
- Obtained further private investment from Venture Capitalists

Selected Publications

Correia, D.V., et al. (2011) Differentiation of human peripheral blood Vδ1+ T cells expressing the natural cytotoxicity receptor NKp30 for recognition of lymphoid leukemia cells. *Blood*, **118**(4): p. 992-1001 (Journal IF: 10.45, Citations: 19)

Ongoing Research Projects

Proprietary Research

Patents

Proprietary Patent- PCT IB2012/052545

RoPlaVac

RoPlaVac is a spin-off company of iMM Lisboa, created in 2014. The mission of RoPlaVac is to develop medical solutions against malaria, one of the most prevalent diseases worldwide. Malaria is caused by *Plasmodium* parasites, injected into their mammalian host as sporozoites, through the bite of an infected mosquito. Currently, RoPlaVac is engaged in three main endeavors: Vaccination: Development of a new whole-organism vaccine against malaria, based on the use of genetically modified rodent Plasmodium parasites. *Plasmodium* sporozoite cryopreservation: Development of an effective method to cryopreserve Plasmodium sporozoites for use in research and vaccination. *In vitro Plasmodium* sporozoite production: Development of a cell culture-based method to produce infective *Plasmodium* sporozoites for use in research and vaccination.

Head

Miguel Prudêncio, PhD, Instituto de Medicina Molecular, Group Leader – Prudêncio Lab

Research Team

Miguel Prudêncio	Group Leader, iMM Lisboa
António M. Mendes	Post Doc Fellowship, iMM Lisboa
Maria M. Mota	Group Leader, iMM Lisboa

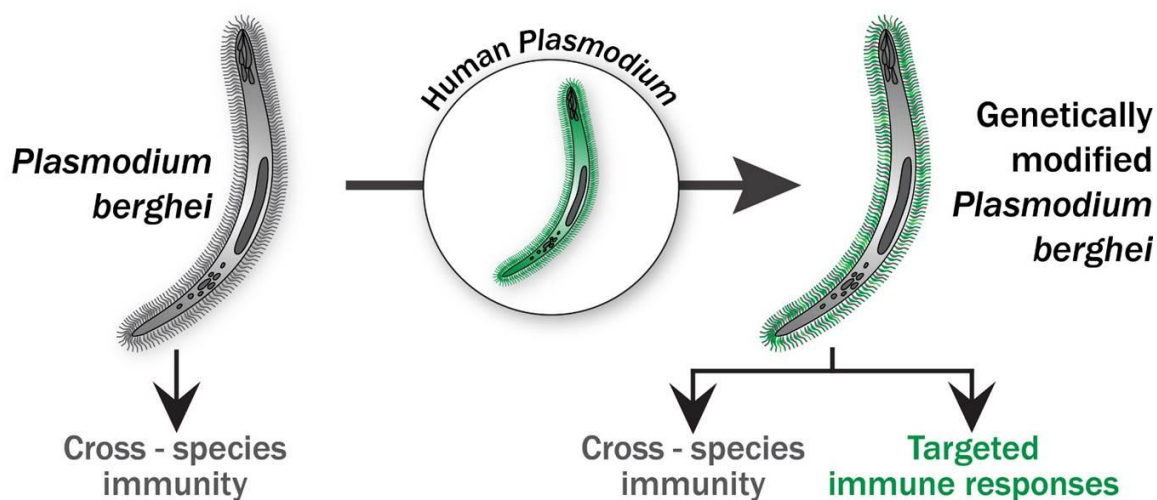
Keywords/Research Areas

Malaria, *Plasmodium*, Vaccines, Liver Infection, Sporozoites, Cryopreservation

Major scientific achievements

- With the support of Fundação Luso-Americana (FLAD), ROPLAVAC secured the funds required for the maintenance of its Intellectual Property over a new strategy for vaccination against malaria.
- The first vaccine candidate employing ROPLAVAC's patented technology is expected to enter Phase I/IIa clinical trials in 2016.
- An effective cryopreservation method for Plasmodium sporozoites was developed in collaboration with the company Smartfreez.

Graphical Abstract



Selected Publications

M.D. Lewis, J. Behrends, C.S. Cunha, A.M. Mendes, F. Lasitschka, K. Heiss, T.W.A. Kooij, M. Prudêncio, F. Frischknecht and A.-K. Mueller (2015), "Chemical attenuation of *Plasmodium* in the liver modulates severe malaria disease progression", *Journal of Immunology*, **194**, 4860-4870 (Journal IF: 4.9, Citations: 4)

M. Prudêncio, M.M. Mota, A.M. Mendes (2011) "A toolbox to study liver stage malaria", *Trends Parasitol.* **27**, 565-574 (Journal IF: 5.3, Citations: 25)

Ongoing Research Projects

Prémio BES Inovação 2013

Fundação Luso-Americana (FLAD)

Publications in peer review Journals

M.D. Lewis, J. Behrends, C.S. Cunha, A.M. Mendes, F. Lasitschka, K. Heiss, T.W.A. Kooij, M. Prudêncio, F. Frischknecht and A.-K. Mueller (2015), "Chemical attenuation of Plasmodium in the liver modulates severe malaria disease progression", *Journal of Immunology*, **194**, 4860-4870 (Journal IF: 4.9, Citations: 4)

Invited Lectures and Seminars

M. Prudêncio, "ROPLAVAC: Revolutionizing malaria vaccination", X Jornadas de Engenharia Biológica, Instituto Superior Técnico, Lisboa, Portugal, 16-17 March 2015

M. Prudêncio, "Development of a new strategy for vaccination against malaria", VI Jornadas Nacionais de Ciências Biomédicas, Universidade do Algarve, Faro, Portugal, 11-14 March 2015

Communications in International Conferences

M. Prudêncio, "Towards Clinical Evaluation of a Rodent Plasmodium-Based Vaccine Against Human Malaria", Gordon Research Conference - Translating Malaria Research to the Field, Girona, Spain, 26-31 July 2015 (Oral presentation)

Communications in National Conferences

António Mendes, "A rodent Plasmodium platform for immunization against human malaria", 3rd IMM Post-Doc Day, Instituto de Medicina Molecular, Lisboa, Portugal, 25 September 2015

Patents/prototypes

Genetically modified rodent Plasmodium parasites as platforms for a whole-organism malaria vaccine (WO 2013156949 A1, also published as CN104302313A, EP2838554A1, US20150071966)

Provisional application (Portugal) No. 20121000030819, filed 17.04.2012
PCT international application PCT/IB2013/053050, submitted 17.04.2013, published 24.10.2013.

Patent applications filed in Angola, Australia, Brazil, China, India, Japan, Mozambique, South

Africa, United States, and European Patent (Euro-PCT), November 2014
Patent granted in Mozambique (17.08.2015)

Msc thesis completed

Pedro Gil Gameiro Eloy Sena Rego, 2014, "Paving a freezing way to defeat malaria", Instituto Superior Técnico, Lisboa, António M. Mendes, M. Prudêncio

StemCell2MAX

Major interests / Objectives

StemCell2MAX is a biotechnology spin-off from Instituto de Medicina Molecular in the field of regenerative medicine which markets a proprietary mix of neurotrophic factors that are able to stimulate the expansion of haematopoietic stem cells (HSCs), highly improving their utility in research and potential clinical use.

StemCell2MAX markets StemCell2MAX™ Mix for HSC expansion for research use only (RUO), addressing the market for blood stem cell research products with a growing sales track record. Now, following extensive proof of concept StemCell2MAX is preparing StemCell2MAX™ Med for the clinical market. The innovation is protected in the EU, USA and Japan for stem cell maintenance, expansion or transplantation, for both research and clinical use.

Head

Maria Brandão de Vasconcelos, MBA, StemCell2MAX, CEO & Co-founder

Filipa Matos Baptista, PhD, StemCell2MAX, CMO & Co-founder

Henrique Veiga - Fernandes, PhD, StemCell2MAX, CSO & Co-founder; Group Leader & Board Director, iMM Lisboa

Research Team

Henrique Veiga-Fernandes, PhD	Board Director, iMM Lisboa
Diogo Fonseca-Pereira, PhD	Post-doc Student, Harvard T.H. Chan School of Public Health
Silvia Arroz-Madeira, PhD Student	PhD Student, iMM Lisboa

Keywords/Research Areas

Biotechnology, cellular therapy, hematopoietic stem cells

Major scientific achievements

November 2015 | StemCell2MAX in the news: the startup that multiplies blood stem cells

October 2015 | A leading cord blood bank publishes remarkable results using StemCell2MAX for quality purposes

October 2015 | Henrique Veiga-Fernandes present at the EMBO Members' Meeting 2015

Describe the major achievements of the unit in 2015. You may use text, bulleted topics or both. Major achievements should highlight scientific publications and/or other relevant activity such as patents, technology transfer, prizes, honours and awards, public engagement, training and organisation of national and international conferences or other.

Communications in International Conferences

Veiga-Fernandes, Neurotrophic factors control HSC survival and transplantation, UK Humanised Mouse Symposium, Cambridge, UK. September 2015 (Oral presentation)

Arroz-Madeira, the neurotrophic factor receptor ret drives haematopoietic stem cell survival and function, Kioto, Japan. September 2015 (Poster presentation)

Communications in National Conferences

Benevides et al. Poster 9th Int. Meet. Port. Soc. Stem Cells, 2015 (Poster Presentation)

Internationalization

StemCell2MAX has commercialized StemCell2MAX MIX product for research-use-only purposes in Portugal, UK, France, Switzerland and United States

Prizes, honours and awards

Most Investible Company, EBAN 2015, StemCell2MAX

Best presentation Award, 9th International Meeting of SPCETC, 2015, Silvia Arroz-Madeira

Distinguished as Commander of the Ordem Militar de Sant'Iago de Espada by the President of Portugal, 2015, Henrique Veiga-Fernandes

TECHNOPHAGE

Major interests / Objectives

TechnoPhage is an innovative biopharmaceutical company engaged in the R&D of new molecules - chemical and biological - in diverse therapeutic areas, such as infection, inflammation & immunology, neurology and metabolic disorders. TechnoPhage's strategy is based on developing new therapeutics in early phases of R&D, with a view to then enter into collaboration deals for pre-clinical and/or clinical development.

TechnoPhage is developing proprietary drug discovery products in either discovery, pre-clinical or clinical stage. The company has several patents in place and successfully developed one of its products into clinical Phase I. TechnoPhage is focused on increasing its portfolio of proprietary technologies and deriving products. This is achieved through an active R&D program and collaboration agreements with national and international pharmaceutical companies, research centers and universities across the US, Europe and Asia.

The company's laboratories are located at iMM, in Lisbon, under a scientific collaboration protocol signed by both entities. Close proximity to the renowned Santa Maria Hospital and the iMM help facilitate the creation of powerful multidisciplinary teams, essential to the process of translational medicine. Furthermore this proximity helps to facilitate access to the necessary equipment and talent required to develop full product solutions, including direct collaboration with leading experts from the clinical fields covering the therapeutic products under development.

Head

Miguel Garcia, PharmD, PhD, MBA, TechnoPhage, SA

Research Team

Ana Patricia Cebola Cachucho	BSc or similar	MSc Student
Ana Raquel Martins Barbosa	MSc	Scientist
Catarina Rodrigues Amorim	BSc or similar	Trainee
Clara Isabel Rodrigues Leandro	MSc	Senior Scientist

Diana Sofia Chapela Duarte Pires	MSc	PhD Student
Joana Henriques Ministro	MSc	PhD Student
João Miguel Sotinho Oliveira	PharmD	Innovation Manager
Marta Raquel Salvado Silva	BSc or similar	trainee
Miguel Ângelo da Costa Garcia	PharmD, PhD, MBA	CEO
Nádia Cristina Gameiro Mendes	BSc or similar	MSc Student
Patricia Alexandra Norte Ferreira Pinto	BSc or similar	Technician
Pedro David Pereira Mendes Fontes	BSc or similar	MSc Student
Rita Leitão Landeiro Vaz	MSc	PhD Student
Sara Cristina Mauricio de Sousa	PhD	Senior Scientist
Sofia Volker Corte-Real	PhD	R&D Director
Soraia Rafaela Santiago de Oliveira	PhD	Senior Scientist

Keywords/Research Areas

R&D of therapeutics for human disease; Bacteriophage Therapeutics; Small domain Antibodies; Zebrafish models for *in vivo* screening.

Major scientific achievements

Based on 10 years of R&D, TechnoPhage is now in a position to bring its products to commercial stage, and is entering a new growth phase, with its first authorization to enter clinical trials (IND) cleared by the FDA in 2014 for the development of bacteriophages for the treatment of chronic ulcers (TP-102). The company expects three CTAs in 2016/2017.

Also, TechnoPhage has obtained from Portuguese Science Funding Agency (FCT) the highest rank in previous evaluations for PhD students at the company. The company has had during almost 10 years of existence, 4 PhD students with FCT PhD grants, including two who already attained successfully the objectives of their PhD research projects (1 defense in 2014, 1 defense in 2015).

Selected Publications

Antibody Approaches To Treat Brain Diseases Vera Neves,^{1,*} Frederico Aires-da-Silva,^{2,*} Sofia Corte-Real,³ and Miguel A.R.B. Castanho¹

Proença D, Leandro C, Garcia M, et al. (2015) EC300: a phage-based, bacteriolysin-like protein with enhanced antibacterial activity against *Enterococcus faecalis*. *Appl Microbiol Biotechnol* 99(12):5137-49. (Journal IF: 3.337: Citations:)

Pirnay JP, Blasdel BG, Bretaudeau L, et al. (2015) Quality and Safety Requirements for Sustainable Phage Therapy Products. *Pharm Res* 32(7):2173-9. (Journal IF: 3.42)

Proença D, Velours C, Leandro C, et al. (2015) A two-component, multimeric endolysin encoded by a single gene. *Molecular Microbiology* (2015) 95(5), 739–753 . (Journal IF: 5.026)

Neves V, Silva FA, Corte-Real S, et al. (2015) Antibody Approaches To Treat Brain Diseases *Trends in Biotechnology* 34(1). (Journal IF: 11,96)

Ongoing Research Projects

Current projects are focused in inflammatory, metabolic, musculoskeletal, neurological, infectious and rare diseases.

Publications in peer review Journals

Semedo-Lemsaddek, Mottola, Alves-Barroco, Cavaco-Silva, Tavares, Oliveira M (2015) Characterization of multidrug-resistant diabetic foot ulcer enterococci. *Enferm Infecc Microbiol Clin*;34(2):114-6. (Journal IF: 1.15: Citations: NA)

Communications in National Conferences

Vaz R, Chapela D, Coelho J, et al. (2015). Poster: From the fishbowl to the bedside: creating hopes for Parkinson's disease at the IX IMM PhD meeting, Lisbon, March 01, 2015.

Ministro J, Leandro C, Barbosa R, et al. (2015) Poster: Development of a Biologic Combination for the Treatment of Hospital-Acquired Bacterial Pneumonia at the IX IMM PhD meeting, Lisbon, March 01, 2015.

Patents/prototypes

Several patentes in National Phases, PCTs and provisionals.