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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 Institute of Molecular Medicine (IMM) 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 is a Laboratory Associated to the National Ministry of Science and Higher Education. IMM 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 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 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.

João Lobo Antunes, MD, PhD (President)
Maria Carmo-Fonseca, MD, PhD (Executive Director)
José Moniz Pereira, 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 Principal Investigators. 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 Committees
Undertake periodic evaluations to the IMM specific programmes and include international experts of scientific fields analysed.

Cell and Developmental Biology Programme — 2013
John G Gribben, Queen Mary's School of Medicine, University of London, UK
Petra Schwille, Max-Planck-Institute of Biochemistry, Germany
Phillippe Pierre, Centre d'Immunologie de Marseille-Luminy, France
Fiona Watt, King’s College London, UK

Neurosciences Programme — 2010
Michael Spyer, University College London, UK
Christine Gall, University of California, USA
Charles Warlow, Western General Hospital, Edinburgh, UK
Reinhard Dengler, Medizinische Hochschule, Hannover, Germany

Immunology and Infectious Diseases Programme — 2009
Anne O’Garra, National Institute for Medical Research, UK
Alain Fischer, Hôpital Necker Enfants Malade, Paris, France
William Paul, National Institute of Allergy and Infectious Diseases, NIH, USA
Philippe Sansonetti, Institut Pasteur, France
Antonio Freitas, Institut Pasteur, France
EVALUATION REPORTS 2013

Summary of Review Report of the Cell and Developmental Biology Scientific Advisory Committee (SAC) 2013

Period of evaluation: 2006-2013

Scientific Advisory Board members:
John G Gribben, Queen Mary's School of Medicine, University of London, UK;
Petra Schwille, Max-Planck-Institute of Biochemistry, Germany;
Phillippe Pierre, Centre d'Immunologie de Marseille-Luminy, France;
Fiona Watt, King's College London, UK.

Summary of the panel's overview:

The Board were welcomed to the Institute and provided with an overview by the Institute Director. This was followed by presentations by the Heads of Units and PIs. Finally, the SAC were given the opportunity to meet with the post-doctoral fellows and students.

Overall, the SAC were impressed by the work presented. A general comment would be that most presenters exceeded their allocated time slots for presentation, leaving less time for questions and answers, which all of the SAC felt would have been more beneficial.

With notable exceptions, there was less evidence of collaborative interactions among the units than we would have liked to see and there was little evidence that the Group Leaders had seen or contributed to each other’s talks. The students also commented that they felt they worked for individual labs, rather than as part of a larger unit, thereby missing the opportunity that that whole could be more than its individual parts. There is therefore considerable scope for increasing synergistic activity within the Institute, which would be beneficial to all groups.
Research Funding

Expenditure in 2013 by Funding Source

Total expenditure: €13,925,388,00

Competitive external: €10,573,698,00

Diagram showing the distribution of expenditure sources:
- Competitive external: 76%
- Core funding: 20%
- Industry: 4%
- Donations: 2%
- Other Nacional
- International
- FCT-AL/Infrastructure
- FCT - Grants & Contracts & Fellowships

Bar graph showing competitive external expenditure by category.
Number of Ongoing Research Grants in 2013

285 Research Grants
   - 105 Public National FCT
   - 15 Public Other National
   - 17 Public European Commission
   - 0 Public Other International
   - 111 Private National
   - 37 Private International

Number of Research Grants Initiated at IMM from 2003 to 2013

Research Funding Initiated in 2013

Research Grants (39)
   - 1 European Commission
   - 9 Other International
   - 22 FCT
   - 7 Other National
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<th>IMM Budget (euros)</th>
<th>PI - IMM</th>
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<td>Luísa Figueiredo</td>
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<td>Cardiane</td>
<td>33 044,00</td>
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<td>Congres Schweiz AG</td>
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<td>Pfizer, Bayer, Eisai Farmaceutica, Celgene, Bristol Myers, Glaxosmith, MSD, AstraZeneca, Roche, Fundação para a Ciência e a Tecnologia</td>
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<td>Steris Corporation</td>
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<td>Tourette Syndrome Association, Inc</td>
<td>56 078,96</td>
<td>Tiago Maia</td>
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## Protocols, Donations & Awards (26)

<table>
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<th>Agency</th>
<th>IMM Budget (euros)</th>
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<tr>
<td>AMC Medical Research B.V.</td>
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<td>Angelini Farmacêutica</td>
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<td>Astrazeneca</td>
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<td>Banco Espírito Santo</td>
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<td>Ciência Viva</td>
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<td>FLAD</td>
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Figure 1. Total number of IMM grant applications submitted, approved, and amount of competitive funding secured per year since 2008, for international and national funding. The data rely on the registration of the funding applications received by the Funding Programs Office (researchers are not obliged to inform the Office when they submit a grant, thus these data may underestimate the real number of IMM submissions). Funds secured correspond to the sum of the IMM budget of the approved grants in the corresponding year. Note that the national applications graph contains data from one FCT call per year since 2009, despite the 2008 and 2009 deadlines were both in 2009. The total funding secured by the IMM (international and national) was €1,815,000 in 2008, €8,651,000 in 2009, €4,945,000 in 2010, €3,566,000 in 2011, and €6,275,000 in 2012 (still unknown regarding 2013 submissions).
2013 IMM ACTIVITIES HIGHLIGHTS

People at IMM in 2013

<table>
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<th>People at IMM in 2013</th>
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<td>PhD Researchers</td>
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<td>Technical Staff</td>
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<td>Total Technical Staff</td>
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<td>Non-Bachelor Staff</td>
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<tr>
<td>Total Administrative Staff</td>
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Selection of Prizes and Awards

Prémio D. Antónia Adelaide Ferreira
Prize awarded for distinction of a personality by his entrepreneurial spirit, leadership, openness to innovation and creativity, sense of public service and social sensitivity
Maria Carmo-Fonseca

Prémio Pessoa 2013
Prize that aims to highlight personalities of Culture, Arts or Science whose work has achieved featured on national scene
Maria Manuel Mota

L’Oréal Portugal Award
Prize aimed at young researchers (under 35) who completed their doctoral studies and work in Portugal in the health and environmental areas
Ana Catarina Ribeiro

Prémio Nacional de Inovação BES 2013
National Innovation Prize to reward and divulge research, development and innovation projects in application areas linked to the endogenous resources of the country, viewing the improvement of products, processes or services
Miguel Prudêncio
Innovator Award of the Kenneth Rainin Foundation (KRF)

This award represents a Kenneth Rainin Foundation investment in groundbreaking and collaborative ideas that have the potential to yield transformative discoveries and major new insights into the causes and cures for Inflammatory Bowel Disease.

Henrique Veiga-Fernandes

Grant Ciência Sem Fronteiras

The Ciência Sem Fronteiras (Science Without Borders) Program is a Brazilian program that seeks to promote the consolidation, expansion and internationalisation of science and technology, innovation and competitiveness through the exchange and international mobility.

Miguel Castanho

1st Research Grant on Breast Cancer – Laço

Laço Associação de Solidariedade Social supports scientists working in Portugal to develop basic science research projects looking into the causes of breast cancer and metastatic breast cancer with an annual grant of 25.000€.

Sérgio Dias

Prémio Pfizer 2013

This Prize aims to stimulate research in Health Sciences in Portugal.

Luís Moita

Productivity at a glance

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<td>...in journals with an impact factor higher than 10</td>
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<tr>
<td>...in journals with an impact factor between 5 – 10</td>
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<td>Book/Book Chapters International</td>
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Published papers in each year

Citations in each year

202 papers in 2013
1251 since 2002
Sum of the Times Cited: 20233
Average Citations per Item: 16.17
h-index: 64

Query: AD=(Inst Med Mol SAME Portugal) OR AD=(Mol Med Inst SAME Portugal) OR AD=(Inst Mol Med SAME Portugal)
Refined by: Document Type=(ARTICLE OR REVIEW)
Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, CCR-EXPANDED, IC.

Note: This data is based on the information available on The Web of Science, hence it is not an exhaustive analysis of IMM publications.
Most Relevant papers 2013 (Journal IF > 10)


Ederle J, Davagnanam I, van der Worp HB, Venables GS, Lyer PA, Featherstone RL, Brown MM, Jäger HR; ICSS investigators. Effect of white-matter lesions on the risk of periprocedural stroke after carotid artery stenting versus endarterectomy in the International Carotid Stenting Study


List of Publications in International Journals


Ana Neves-Costa, Luis F. Moita. TET1 is a negative transcriptional regulator of IL-1b in the THP-1 cell line. Molecular Immunology, 54,(3-4), 264-70. (Journal IF: 2.645; Citations: 3)


Castro RE, Ferreira DM, Afonso MB, Borralho PM, Machado MV, Cortez-Pinto H, Rodrigues CM. miR-34a/SIRT1/p53 is supressed by Ursodeoxycholic acid in rat liver and activated by disease severity in human non-alcoholic fatty liver disease. *J Hepatol.* 2013, 58, (1), 119-25 (Journal IF: 9.858, Citations: 3)


Fonseca AC, Ferro JM. Drug abuse and stroke. *Current neurology and neuroscience reports* 2013; 13, 325. (Journal IF: 3.783, Citations: 0)


Lacerda JF, Oliveira CM (2013). Diagnosis and treatment of invasive fungal infections focus on liposomal amphotericin B. *Clin Drug Invest.* 33, Suppl 1, S5-14. (Journal IF: 1.9)


Machado M, Cortez-Pinto H. Leptin in the treatment of lipodystrophy-associated nonalcoholic fatty liver disease: are we there already? Expert Review of Gastroenterology and Hepatology 2013. 7(6),513-5 (Journal IF: 2.221)


Marina Colombo, Catarina Moita, Guillaume van Niel, Joanna Kowal, James Vigneron, Philippe Benaroch, Nicolas Manel, Luis F. Moita, Clotide Théry, Graça Raposo. Analysis of ESCRT functions in exosome biogenesis, composition and secretion highlights the heterogeneity of
extracellular vesicles released by different cells. *Journal of Cell Science October 8, 2013.* [Epub ahead of print]. (Journal IF: 5.877; Citations: 0)


Oliveira VG, Agua-Doce A, Curotto de Lafaille M, Lafaille JJ, Graca L. (2013) Adjuvant facilitates anti-CD4 mediated immune tolerance to recombinant factor VIII in hemophilia through a Foxp3-independent mechanism that relies on IL-10, Blood 121, 3938. (Journal IF: 10.555, Citations: 0)


Pinto S, de Carvalho M (2013) Dropped head presentation in ALS. *Amyotro Lat Scler Frontotemporal Degener* **14**, 235 (Journal IF: 2.369)


increased potency and metabolic stability. *J Med Chem.* **56**(19), 7679-90. (Jounal IF: 5.61; Citations: 1)


Sampaio C, Konopka AE (2013), Memory for non-native language: The role of lexical processing in the retention of surface form. Memory 21, 4): 537-544 (Journal IF: not indexed, Citations: 0)


fracture, men have higher mechanical properties values in comparison with women. *BMC Musculoskelet Disord.* **16**, 14:295 (Journal IF: 1.875)


(Total: 314)
Seminars and Workshops

IMM Seminars

07-01-2013
Margarida Amaral, FCUL
*Translating post-genomic knowledge into medicine: the model of Cystic Fibrosis*
Host: Domingos Henrique

14-01-2013
Luis Pereira Almeida, Center for Neurosciences and Cell Biology
*From mechanism to therapy of Machado-Joseph disease*
Host: Domingos Henrique

28-01-2013
Arturo Zychlinsky, Director of Max Planck Institute for Infection Biology, Berlin
*Host-parasite interactions in acute inflammatory intestinal diseases caused by the Gram negative bacterium Shigella*
Host: Maria Mota

04-02-2013
Georg Schett, Friedrich-Alexander University Erlangen-Nuremberg
*Bone as a clue to the pathogenesis of rheumatoid arthritis*
Host: João Eurico Fonseca

18-02-2013
Shalini Oberdoerffer, National Cancer Institute, NIH, Frederick, USA
*Chromatin Biology & RNA processing*
Host: Luis Moita, Carmo Fonseca, Sérgio de Almeida

25-02-2013
Ana Luisa Carvalho, Center for Neurosciences and Cell Biology
*Synaptic molecules & synapse connectivity*
Host: Ana Sebastião

11-03-2013
Miguel Soares, IGC Oeiras
*The Gasotransmitter Carbon Monoxide in Health and Disease*
Host: Domingos Henrique

18-03-2013
Florence Appararilly, INSERM, Institute Neurosciences Montpellier, University hospital, Montpellier
*Role of Ly6Chigh monocytes in inflammation: microRNAs as novel molecular tragets for innovative immuno-intervention in arthritis*
Host: João Eurico Fonseca
25-03-2013
Christian Machens, Champ. Neuroscience Program
Dynamics of the oculomotor integrator revealed by instantaneous optogenetic perturbations
Host: Luisa Lopes

08-04-2013
Austin Smith, Cambridge, UK
One of the leaders in Stem Cell biology
Host: Domingos Henrique

15-04-2013
Jeremy Henley, Professor of Molecular Neuroscience, MRC Center for synaptic Plasticity, University of Bristol, UK
Plasticity, death and SUMOylation
Host: Ana Sebastião

22-04-2013
Narla Mohandas, Vice President for Research and Head, Red Cell Physiology Laboratory, NY Blood center, New York, USA
Red Cell membrane structure and function: new insights into various human hematological and non-hematological disorders
Host: Carlota Saldanha

29-04-2013
Professor William Harris, Head of Department of Physiology, Development and Neuroscience, University of Cambridge, UK
Development, visual system, genetic disorders, cell determination
Host: Alexandra Rosa

06-05-2013
Sarah Teichmann, PhD, MRC Programme Leader in Genome Evolution, MRC Laboratory of Molecular Biology, Cambridge, UK and Fellow, Trinity College, Cambridge, UK
Decoding genetic switches in T helper cell differentiation
Host: Domingos Henrique

13-05-2013
Wolfgang Huber, PhD, Group Leader and Senior Scientist, Computational biology and genomics, European Molecular Biology Laboratory, Germany
I. Tissue dependent alternative exon usage II. Systematic mapping of synthetic genetic interactions with combinatorial RNAi
Host: Andreia Amaral

27-05-2013
Christine Van Broeckhoven PhD DSc, Neurodegenerative Brain Diseases Group Department of Molecular Genetics, VIB Laboratory of Neurogenetics, Institute Born-Bunge, University of Antwerp

*Genetic insights in neurodegeneration identify biological mechanisms for improved therapeutic interventions*

Host: Alexandre Mendonça

03-06-2013

Ronald N. Germain, MD, PhD, NIH, Bethesda, USA

*Revealing the unseen: using advanced optical imaging to understand how the immune system works*

Host: Ana Espada de Sousa

17-06-2013

Cornelia Van Duijn - Marja, PhD, Professor of Genetic Epidemiology, The Erasmus University Medical Center, Rotterdam, Holland

*From Genomics to Application in complex diseases*

Host: Madalena Martins

01-07-2013

Ioannis Aifantis, NYU, New York, USA

*Balance between physiological stem cell differentiation and malignant transformation.*

Host: Henrique Veiga Fernandes

08-07-2013

David Kimelman, PhD, Professor of Biochemistry and Adjunct Professor of Biology, Department of Biochemistry, University of Washington

*To divide or not to divide: Integration of proliferation and differentiation in the progenitor cells forming the vertebrate body*

Host: Leonor Saúde

23-09-2013

Anthony Watts, Professor, Head of Unit, D.Sc, University of Oxford

*Resolving nanoscale details of drugs and ligands at their binding sites of membrane-embedded, functionally competent targets*

Host: Miguel Castanho

30-09-2013

Ton Schumacher, Professor, PhD, Group Leader, The Netherlands Cancer Institute

*Dissection of antigen-specific T cell responses in mice and men*

Host: Bruno Silva Santos

07-10-2013

Joaquim Cabral, Professor, Instituto Superior Técnico, Lisboa

*Stem Cell Engineering: Bioengineering Strategies for Cellular Therapies*

Host: Domingos Henrique
21-10-2013
Jonathan Howard, Professor, Director of Instituto Gulbenkian de Ciência, Oeiras
*Genetic control of a parasitic disease: Toxoplasma gondii and the mouse*
Host: Maria Mota

28-10-2013
Miguel G. Ferreira, Head of Group, Instituto Gulbenkian de Ciência, Oeiras
*Telomerase is required for Melanoma in Zebrafish*
Host: Domingos Henrique

04-11-2013
Carla Oliveira, Affiliated Professor, Medical Faculty Porto, IPATIMUP
*Modulation of cell-cell adhesion in cancer and epithelial-mesenchymal-epithelial transition*
Host: João Barata

11-11-2013
Peter Jordan, Principal Investigator, PhD, Instituto Nacional de Saúde Doutor Ricardo Jorge, Lisboa
*WNK protein kinases: pleitropic roles in blood pressure control and cancer*
Host: João Barata

18-11-2013
Ana Pombo, Professor, Head of Group, MDC (Max-Delbrück-Centrum für Molekulare Medizin), Berlin, Germany
*At the cross-roads of gene regulation and genome architecture: Polymerase meets Polycomb*
Host: Domingos Henrique

25-11-2013
Asla Pitkänen, Professor, MD, PhD, Department of Neurobiology, University of Eastern Finland, Kuopio, Finland
*Onset of epilepsy after a traumatic brain injury: molecular and cellular mechanisms*
Host: Ana Sebastião

02-12-2013
Alisson M. Gontijo, Principal Investigator, CEDOC, Oeiras
*Molecular physiology and evolution of a new pathway promoting developmental stability*
Host: Domingos Henrique

09-12-2013
Antonio Jacinto, Principal Investigator, CEDOC, Oeiras
*Control of Tissue Growth During Fin Regeneration*
Host: Domingos Henrique

16-12-2013
Teresa Coelho, MD, Hospital Santo Antonio, Porto
*Therapeutic developments in a neurodegenerative disease, Transthyretin Amyloidosis*
Host: Luis Moita
08-01-2013
Ivo Martins, Post-Doc, Instituto de Medicina Molecular
Understanding and inhibiting the dengue virus capsid protein function

22-01-2013
Pedro Didelet Pereira, Chromatin Biology Unit
Effect of cell cycle phase and chromatin structure on DNA repair

05-02-2013
Rosângela Frita, PhD student, Instituto de Medicina Molecular
Malaria and Tuberculosis co-infection: role for hemozoin induced immunesuppression?

19-02-2013
Carolina Moreira, PhD student, Instituto de Medicina Molecular
Drosophila integrin adhesion complexes are essential for hemocyte migration in vivo
Madalena Martins, Postdoc, Instituto de Medicina Molecular
Malaria Human Genetics: inflammation-related genes (IFNAR1 and NOS2A)

05-03-2013
Alexandra Rosa, Instituto de Medicina Molecular
Understanding cell fate decisions in the embryonic neural retina
Augusto Ministro, MD, Instituto de Medicina Molecular
A Novel Approach for Therapeutic Angiogenesis: Low Doses of Ionizing Radiation

19-03-2013
Ana Ferreira Rodrigues, Instituto de Medicina Molecular
Linking Wnt pathway with bone mineralization, mechanical properties and fracture risk in osteoporosis

02-04-2013
Catarina Costa, PhD student, Instituto de Microbiologia, Faculdade de Medicina de Lisboa
Macrolide resistance in Streptococcus pyogenes in Portugal (2007-2011): diminishing resistance and clonal instability in spite of high macrolide consumption
Sandra Vaz, Post-Doc, Instituto de Medicina Molecular
BDNF-mediated enhancement of LTP is modulated by astrocytes

16-04-2013
André Faustino, PhD student FCT, Instituto de Medicina Molecular
Dengue virus capsid protein interaction with host lipid systems: implications for the viral life cycle

30-04-2013
Susana Silva, PhD student, Instituto de Medicina Molecular
I Strategies to preserve the naive CD4 T-cell pool in adults thymectomized early in life
Patrícia Silva, Postdoc, Instituto de Medicina Molecular
Post-transcriptional gene regulation during Plasmodium transmission

14-05-2013
Francisco Aresta Branco, PhD student, Instituto de Medicina Molecular
Chromatin and Transcription: always tightly linked?

28-05-2013
**Diana Carmona-Fernandes**, PhD student, Instituto de Medicina Molecular
*Coupling of atherosclerosis progression and bone disturbances in rheumatoid arthritis*

**Federico Herrera**, Post-Doc, Instituto de Medicina Molecular
*Phosphorylation pathways involved in huntingtin oligomerization, aggregation and toxicity*

11-06-2013
**Andrea Neves Horácio**, PhD student, Instituto de Medicina Molecular
*Serotypes and antimicrobial resistance of pneumococci causing invasive disease in Portuguese adults*

**Rita Mendes de Almeida**, PhD student, Instituto de Medicina Molecular
*Exploring RNA-targeted gene therapy approaches for Hypertrophic Cardiomyopathy*

25-06-2013
**Carolina Marutam** PhD student, Instituto de Medicina Molecular
*Primary Progressive Aphasis: Diagnosis and evolution*

**Robert Martin**, Postdoc, Instituto de Medicina Molecular
*Live cell visualization of pre-mRNA splicing with single molecule sensitivity*

17-09-2013
**Margarida Rei**, PhD student, Instituto de Medicina Molecular
*Major contribution of γδ T cells to IL-17A production and ovarian cancer cell growth in vivo*

**Susana Fernandes**, PhD student, Instituto de Medicina Molecular
*HIV impact on Gut associated lymphoid tissue*

01-10-2013
**Nádia Correia**, PhD student, Instituto de Medicina Molecular
*TAL1 targets beyond protein coding genes: identification of TAL1-regulated microRNA genes in T-cell acute lymphoblastic leukemia*

**Ana Ribeiro**, Post-Doc, Instituto de Medicina Molecular
*Swimming our way to spinal cord regeneration: lessons from zebrafish*

29-10-2013
**Vânia Batalha**, PhD student, Instituto de Medicina Molecular
*A single receptor approach to brain aging?*

**Daniel Carapau**, Postdoc, Instituto de Medicina Molecular
*Iron deficiency causes death in an otherwise non-lethal malaria murine model*

12-11-2013
**Rita Aroeira**, PhD Student, Instituto de Medicina Molecular
*Are glycine transporters modulated by BDNF in brain nerve terminals?*

**Miguel Muñoz Ruiz**, PhD Student, JR Regueiro Lab, Universidad Complutense de Madrid
*Altered gamma delta T lymphocytes in CD3 delta gamma double haploinsufficiency (CD3 delta /-gamma /-) mice*

26-11-2013
**Jorge Miranda**, PhD student, Instituto de Medicina Molecular
Production of CbpD, an essential step to understand pneumococcal fratricide
Ksenija Slavic, Post-Doc, Instituto de Medicina Molecular
Iron transporters in malaria parasites: functional and genetic studies

10-12-2013
Catarina Mota, PhD student, Instituto de Medicina Molecular
Delta like-1 enhances the in vitro conversion of human memory CD4 cells into FOXP3-expressing Regulatory T Cells

Parasitology Series

18-06-2013
Ghislain Cabal, Post-Doc, Instituto de Medicina Molecular
Malaria liver stage development and host cell autophagy

02-07-2013
Cristina Afonso, Post-Doc, Rui Costa Lab, Champalimaud Neuroscience Programme
Body Snatchers - Parasite infection and host behavior

16-07-2013
Kirsten Hanson, Post-Doc, Instituto de Medicina Molecular
Screening for late-acting liver stage antimalarials: can causal prophylaxis drive immunity to Plasmodium in endemic areas?

03-09-2013
Ana Filipa Ferreira, PhD student, Instituto de Medicina Molecular
Does Trypanosoma brucei alter its host circadian rhythm?

10-09-2013
Maria Mota, PhD, Instituto de Medicina Molecular
“Recent findings on Host-Plasmodium interactions”

17-09-2013
Ghislain Cabal, Post-doc, Instituto de Medicina Molecular
Malaria liver stage development and host cell autophagy

24-09-2013
Jorge Santos, PhD student, Instituto de Medicina Molecular
Novel translationally repressed gene products essential for Plasmodium life cycle progression

01-10-2013
Ana Margarida Vaz, MSc student, Instituto de Medicina Molecular
The reciprocal influence of malaria and sleeping sickness co-infections

Carolina Tempera, MSc student, Instituto de Medicina Molecular

Novel applications of a flow cytometric sensitivity assay for Plasmodium spp.: compounds screening as well as gametocyte detection

08-10-2013

Carolina Matos, PhD student, CEDOC – Centro de Estudos de Doenças Crónicas, Laboratório “Membrane Traffic in Infection & Disease” (PI-Duarte Barral)

Host PI(3,5)2 is necessary for Plasmodium berghei growth during liver stage infection

15-10-2013

Neuza Duarte, MSc student, Instituto de Medicina Molecular

Gene expression during Plasmodium transmission

Carla Bejarano, EMBO summer fellow, Instituto de Medicina Molecular

In vivo distribution of transmissible stages of Trypanosomes: differences between organs and during time of infection

22-10-2013

Luísa Figueiredo, Group Leader, Instituto de Medicina Molecular

The temperature is dropping: can a parasite feel it?

29-10-2013

Rosangela Frita, PhD student, Instituto de Medicina Molecular

Malaria and Tuberculosis co-infection: role for hemozoin-induced immunosuppression?

05-11-2013

Iset Vera, Post-doc, Instituto de Medicina Molecular

The role of microRNAs during Plasmodium infection

12-11-2013

Ana Guerreiro, Researcher, Instituto de Medicina Molecular

Is P. berghei Mei2 homologue involved in meiosis?

19-11-2013

Francisco Branco, PhD Student, Instituto de Medicina Molecular

Chromatin dynamics in African trypanosomes: Important for evading the immune system?

26-11-2013

Ana Pena, PhD Student, Instituto de Medicina Molecular

Trypanosoma brucei histone H1 regulates a small set of genes and is important for virulence in vivo

03-12-2013

António Mendes, Post-doc, Instituto de Medicina Molecular

RoPlaVac: A new vaccination strategy against Malaria

17-12-2013

Patrícia Silva, Post-doc, Instituto de Medicina Molecular
Post-transcriptional gene regulation during Plasmodium transmission

**Neurosciences Seminar**

14-01-2013  
**Pedro Antas**, Instituto de Medicina Molecular  
*The relationship between the gut microbiota and the brain*

21-01-2013  
**Joana Coelho**, Instituto de Medicina Molecular  
*Microglia dysregulation as trigger for chronic neuroinflammation: impact for ageing and neurodegenerative*

28-01-2013  
**Renato Martinho**, Instituto de Medicina Molecular  
*SIRT2: in the crossroad of aging, neurodegeneration and autophagy*

04-02-2013  
**Patrícia Coelho de Velasco**, Univ. Federal Fluminense, Rio de Janeiro, Brasil  
*Impact of omega-3 fatty acids nutritional restriction on the development of the rodent visual system*

25-02-2013  
**Tiago Rodrigues**, Instituto de Medicina Molecular  
*Adenosine A2A Receptors (A2ARs): novel upstream regulators of Brain-Derived Neurotrophic Factor (BDNF)-mediated attenuation of hippocampal Long-Term Depression (LTD)*

04-03-2013  
**Diogo Rombo**, Instituto de Medicina Molecular  
*Hippocampal neuronal inhibition under control: a role for adenosine receptors*

11-03-2013  
**Dina Silva**, Instituto de Medicina Molecular  
*Neuropsychological predictors of the outcome in non-demented subjects with cognitive complaints*

18-03-2013  
**João Covita**, Instituto de Medicina Molecular  
*The effect of BDNF on synaptic and extrasynaptic NMDA currents upon aging*

25-03-2013  
**Sara Carvalho**, Instituto de Medicina Molecular  
*Contribution of neuronal vs non-neuronal adenosine A2A receptors to age-related cognitive deficits*

08-04-2013  
**Luisa Lopes**, Instituto de Medicina Molecular
Journal Club

15-04-2013
**Noémia Pereira**, Instituto de Medicina Molecular
*Glycinergic transmission as a potential therapeutic target for epilepsy*

22-04-2013
**Sofia Duarte**, Instituto de Medicina Molecular
*Synaptic dysfunction in early epileptic encephalopathies*

29-04-2013
**Diana Ferreira**, Instituto de Medicina Molecular
Adenosine A2A Receptor - a putative player in alpha-synuclein induced synaptic dysfunction

06-05-2013
**Paula Pousinha**, PhD, Institute Pharmacologie Moléculaire et Cellulaire, France
*Role of APP C-terminal fragment, AICD, in hippocampal function*

13-05-2013
**Alexandre Mendonça**, Instituto de Medicina Molecular
*Uma afecção peculiar do córtex cerebral*

20-05-2013
**Sara Xapell**, Instituto de Medicina Molecular
*Hemopressin as a regulator of oligodendrogenesis in subventricular zone stem/progenitor cell cultures*

27-05-2013
**Márcia Oliveira**, Instituto de Medicina Molecular
*Modulation of α-Synuclein aggregation and toxicity*

03-06-2013
**Raquel Dias**, Instituto de Medicina Molecular
*Erythropoietin: setting the tone for homeostatic plasticity?*

17-06-2013
**Tiago Maia**, Instituto de Medicina Molecular
*The Catecholamines, Signal, and Noise: From Neuronal Processing to Cognition and Attention-Deficit/Hyperactivity Disorder*

24-06-2013
**Rita Aroeira**, Instituto de Medicina Molecular
Glycine transporters, GlyT1 and GlyT2, in brain astrocytes – recent insights

01-07-2013
**Sandra Vaz**, Instituto de Medicina Molecular
**BDNF-mediated enhanced LTP is modulated by astrocytes**

08-07-2013  
*Susana Eusébio*, MD, Instituto de Psicologia Médica, FMUL  
*Attachment and stress response in breast cancer*

15-07-2013  
*Karri Lamsa*, PhD, University of Oxford, Oxford, UK  
*Cell type specific plasticity rules in hippocampal interneurons*  
*João Peça*, PhD, Centro de Neurociências e Biologia Celular, UC  
*(Opto)Genetic Dissection of Neuronal Circuits*

09-09-2013  
*Filipe Nascimento*, Instituto de Medicina Molecular  
*Neuromuscular transmission modulation by A1 and A2A adenosine receptors in the SOD1G93A mouse model of Amyotrophic Lateral Sclerosis*

16-09-2013  
*André Santos*, Instituto de Medicina Molecular  
*Amyloid-β peptide dysregulates TrkB receptors and BDNF function by a calpain-dependent mechanism*

23-09-2013  
*Mariana Rocha*, PhD student, Mitochondrial Research Group, Institute for Ageing and Health, Newcastle University  
*Mitochondrial dysfunction in ageing skeletal muscle*

30-09-2013  
*Rui Soares*, Instituto de Medicina Molecular  
*Generation and Characterization of Novel Transgenic Zebrafish Lines to Study Parkinson’s Disease*

07-10-2013  
*Mariana Oliveira*, Instituto de Medicina Molecular  
*Synaptic modulation by adenosine in an aged-dependent epilepsy model*

14-10-2013  
*Federico Herrera*, Instituto de Medicina Molecular  
*N-terminal phosphorylation regulates huntingtin oligomerization, aggregation and toxicity*

21-10-2013  
*Sandra Tenreiro*, Instituto de Medicina Molecular  
*Phosphorylation modulates clearance of alpha-synuclein inclusions in a yeast model of Parkinson’s disease*

28-10-2013  
*João Covita*, Instituto de Medicina Molecular
BDNF signaling upon aging: effect on NMDA receptor and glutamate transporter function

04-11-2013
**Rita Ramalho**, Instituto de Medicina Molecular
*Deciphering the mechanisms underlying the loss of BDNF neuroprotection in Alzheimer’s disease*

11-11-2013
**Ana Filipa Ribeiro**, Instituto de Medicina Molecular
*Deciphering the role of adenosine A2A receptor during neuronal development*

18-11-2013
**Filipa Ferreira**, Instituto de Medicina Molecular
*Unravelling the role of BDNF on endocannabinoids-modulation of neurogenesis*

25-11-2013
**Miguel Moutinho**, PhD student, Molecular and Cell Biology of Eukaryotic Systems, iMed.ULisboa, Faculty of Pharmacy, UL
*Cholesterol 24S-hydroxylase overexpression inhibits the LXR pathway by activating sGTPases in neuronal cells*

02-12-2013
**Sara Carvalho**, Instituto de Medicina Molecular
*Subcellular localization of adenosine A2A receptors in hippocampal synapses*

09-12-2013
**Armando Cruz**, Instituto de Medicina Molecular
*The cross-talk mechanism between adenosine A1 and cannabinoid CB1 receptors in the hippocampal synaptic plasticity*

16-12-2013
**Daniela Magalhães**, Instituto de Medicina Molecular
*Deciphering the role of taurine in hyperexcitability*

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**Lisbon Area of Neuroscience meetings**

14-01-2013
**Ana Sofia Falcão**, Research Institute for Medicines and Pharmaceutical Sciences (iMed.UL/CPM), Faculdade de Farmácia, Universidade de Lisboa
*A new look on gliomas*

18-02-2013
**Cláudia Caldeira**, PhD student, Research Institute for Medicines and Pharmaceutical Sciences (iMed.UL), Faculty of Pharmacy, University of Lisbon
*Age-dependent changes in microglia reactivity to β-amyloid oligomers”*

**Maria Benedita Fonseca**, PhD student, Research Institute for Medicines and Pharmaceutical Sciences (iMed.UL), Faculty of Pharmacy, University of Lisbon
Amyloid β peptides promote autophagy-dependent differentiation of mouse neural stem cells”

11-03-2013
Carolina Cunha, PhD student, Research Institute for Medicines and Pharmaceutical Sciences (iMed.UL) Faculty of Pharmacy, Universidade de Lisboa
Exploring modulation of ALS-like motor-neurons by a neuroprotective bile acid and activation on microglia

Gonçalo Poças, PhD student, Instituto de Tecnologia Química e Biológica, Oeiras
Genetic and functional interaction of alpha-synuclein and huntingtin in Drosophila “Amyloid β peptides promote autophagy-dependent differentiation of mouse neural stem cells”

15-04-2013
Inês Palmela, PhD student, Neuron-Glia Biology in Health and Disease Unit Research Institute for Medicines and Pharmaceutical Sciences (iMed.UL) Faculty of Pharmacy, Universidade de Lisboa
Alterations in the blood-brain barrier dynamics by bilirubin

Joana Xavier, PhD student, Molecular and Cell Biology of Eukaryotic Systems Unit Research Institute for Medicines and Pharmaceutical Sciences (iMed.UL) Faculty of Pharmacy, Universidade de Lisboa
Mitochondrial translocation of p53 modulates neuronal fate by preventing differentiation-induced mitochondrial stress

13-05-2013
Ana Luisa Raposo, PhD, Assistant researcher, Cognitive Processes and Social Cognition Group, Faculty of Psychology, University of Lisbon
Making sense of nonsense: an fMRI study on inference during sentence comprehension

Claudia Santos, PhD, Sénior Researcher, Disease and stress biology Group, Instituto de Biologia Experimental e Tecnologia and Instituto de Tecnologia Química e Biológica, Oeiras
Potential of plant bioactive compounds as neuroprotective agents

17-06-2013
Moreno Coco, Post-Doc, Faculty of Psychology, University of Lisbon
The role of interactivity on cognitive alignment and decision-making during dialogue

Claudia Almeida, Principal Investigator, CEDOC - Centro de Estudos de Doenças Crónicas
Intracellular trafficking in Alzheimer's disease

IMM Internal Seminars

23-01-2013
Domingos Henrique, Instituto de Medicina Molecular
Nanog&Pluripotency: welcome to the machine

13-02-2013
Maria Carmo Fonseca, Instituto de Medicina Molecular
When splicing meets cancer

27-02-2013
Luis Moita, Instituto de Medicina Molecular
Anthracyclines induce autophagy-mediated protection against severe sepsis

13-03-2013
Alexandre Mendonça, Instituto de Medicina Molecular
Recent successes and failures of treatments for Alzheimer’s disease

10-04-2013
Miguel Castanho, Instituto de Medicina Molecular
Unraveling a new actor in Dengue virus-cell fusion

29-05-2013
João Lacerda, Instituto de Medicina Molecular
Induction of immune tolerance in allogeneic hematopoietic stem cell transplantation

19-06-2013
Francisco J. Enguita, Instituto de Medicina Molecular
The human non-coding transcriptome in cell aging

25-09-2013
Luis Graça, Instituto de Medicina Molecular
Immune regulation by specialized T cells

09-10-2013
António Diniz, Director of the National Plan for HIV/AIDS, Ministério da Saúde
30 years of HIV/AIDS in Portugal

23-10-2013
Tânia Carvalho, Instituto de Medicina Molecular
Histopathology as a research tool: insights from zebrafish, mouse and man

30-10-2013
Gonçalo Bernardes, Instituto de Medicina Molecular
Site-specific protein modification methods for bioimaging and therapeutic applications

06-11-2013
Leonor Saúde, Instituto de Medicina Molecular
Building A Perfect Body Plan

20-11-2013
Edgar Gomes, Instituto de Medicina Molecular
Amphiphysin-2/BIN1 and N-WASP function in skeletal muscle architecture: Implications for centronuclear myopathies and myotonic dystrophies

04-12-2013
Luísa Lopes, Instituto de Medicina Molecular
Clues to the 'early-aging' of memory

18-12-2013


**Tiago Maia**, Instituto de Medicina Molecular
*The Role of Norepinephrine in Cognition and Attention-Deficit/Hyperactivity Disorder*

**IMM Rheumatology Series**

04-02-2013
**Georg Schett, Friedrich-Alexander**, University Erlangen-Nuremberg
*Bone as a clue to the pathogenesis of rheumatoid arthritis*

12-03-2013
**Lucien Ionescu**, UCB Global
*An example of a development pipeline*

18-03-2013
**Florence Apparailly**, INSERN - Institut Neuoroscience Montpellier, University Hospital, Montpellier
*Role of Ly6Chigh monocytes in inflammation: microRNAs as novel molecular targets for innovative immuno-intervention in arthritis.*

14-05-2013
**Professor Costantino Pitzalis MD PhD, FRCP**
*A pathobiology driven approach to stratified medicine in rheumatoid arthritis*

04-06-2013
**Mari Ainola, PhD**, University of Helsinki Faculty of Medicine Institute of Clinical Medicine Department of Medicine
*Apoptosis-induced microparticles and apoptotic bodies as stimuli to plasmacytoid dendritic cell-mediated autoimmunity in Sjögren’s syndrome*

19-11-2013
**Maurizio Cutolo, MD**, University of Genova, Italy
*MORNING GLUCOCORTICOIDS VERSUS NIGHT GLUCOCORTICOIDS*
*How chronotherapy may optimize long-term, low dose glucocorticoid use in rheumatoid arthritis*

**IMM Oncology Series**

21-03-2013
Chair: **Isabel Fernandes** | Co-chair: **Margarida Ferreira**
Soft Tissue Sarcomas
Chair: **Pedro Cardoso** | Co-chair: **Hugo Vasques**
*Kaposi sarcoma – a single center study; Progression free survival under trabectedine – a single center study*
Immunology Club

24-01-2013
Ana Neves Costa, PhD, Instituto de Medicina Molecular
Roles for TET1 in innate immune responses

14-02-2013
Carlos Tadokoro, IGC
Liver sequestration of Plasmodium chabaudi-infected red blood cells and tolerance

28-02-2013
Manuela Ferreira, Instituto de Medicina Molecular
Cell-autonomous retinoic acid signaling regulates Lymphoid Tissue inducer cell differentiation and lymphoid organ size

21-03-2013
Several Speakers
Challenges of a Severe Combined Immunodeficiency

04-04-2013
Julie Ribot, PhD, Instituto de Medicina Molecular
Functional differentiation of human γδ thymocytes

18-04-2013
Leonor Sarmento, PhD, Instituto de Medicina Molecular
A role for checkpoint-kinase 1 in T-ALL biology.

02-05-2013
Frank Schildberg, PhD, Percy Knolle Lab, Institute of Molecular Medicine (IMMEi) Bonn, Hepatic stellate cells veto CD8 T cell activation by a CD54-dependent mechanism

09-05-2013
Kalet Leon, PhD, Head of Research, Center of Molecular Immunology, Havana, Cuba
Cancer immunotherapy: current research strategy at the Center of Molecular Immunology

20-06-2013
Raquel Rodrigues, PhD, Instituto de Medicina Molecular
Genome-wide analysis of alternative splicing during dendritic cell response to a bacterial challenge

04-07-2013
Susana L. Silva, MD, PhD Student and Adriana Albuquerque, Post-Doc, Instituto de Medicina Molecular
Homeostasis of human naive-like regulatory T cells
03-10-2013
Carlos Almeida, Msc Student, Instituto de Medicina Molecular
Regulation of the enteric immune system by retinoic acid signaling

10-10-2013
Diana Fontinha, PhD student, Instituto de Medicina Molecular
Herpesvirus modulation of immunological synapses

24-10-2013
Russell B. Foxall, Post-Doc and Jorge Andrade, Post-Doc, Instituto de Medicina Molecular
mir34c-5p as a novel regulator of naïve CD4 T cell activation and HIV replication

31-10-2013
Ana Pamplona, Principal Investigator, Instituto de Medicina Molecular
Hepatic gamma-delta T cells are critical for the development of experimental cerebral malaria after Plasmodium sporozoites infection

21-11-2013
Marta Monteiro, PhD, Instituto de Medicina Molecular
Activation of NKT cells in the context of allergy induced by proteases

28-11-2013
Ana Teresa Veríssimo Alves Bento, Master Student, Instituto de Medicina Molecular
Role of RET signals in human hematopoietic stem cell transplantation

Computational Biology and Bioinformatics Seminars

30-01-2013
Ana Rita Grosso, Instituto de Medicina Molecular
RNA-seq data analysis: methods and challenges

27-02-2013
Francisco Enguita, Instituto de Medicina Molecular
Integrated analysis of miRNA regulatory effect in cellular pathways

27-03-2013
Daniel Sobral, Instituto Gulbenkian e Ciência
The Regulatory Genome: Surviving the ENCODE data flood

24-04-2013
Elsa Abranches, Post-Doc, Instituto de Medicina Molecular
Exploring The Pluripotency Landscape
29-05-2013  
**Andreia Amaral, Post-Doc**, Instituto de Medicina Molecular  
*RNA-seq analysis: challenges of non-human data and interaction with wet-lab coats*

26-06-2013  
**Joana Cardoso, Post-Doc**, Computational Genomics Laboratory, IGC  
*The two stemness associated genes CYR61 and TAZ are early markers of Barrett’s esophagus malignant progression*

25-09-2013  
**Francisco Enguita, PI**, Instituto de Medicina Molecular  
*Current tools and cheap strategies for lincRNA analysis*

30-10-2013  
**Nuno Barbosa-Morais, Post-Doc**, Instituto de Medicina Molecular  
*Analysis of Transcriptional Regulation and RNA Processing from RNA-Seq Data*

27-11-2013  
**Francisco Pina Martins, PhD Student**, CoBiG²/FCUL  
*Variant detection in non model organisms using 454 data with no strain information*

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**Career Path Seminar**

02-05-2013  
**Cristiana Costa, PhD**, Global Chemical Manufacturing Control Project Manager at Astellas Pharma, Japan  
**Nuno Silva, PhD**, Senior Pharmacologist at BIAL, Portugal  
*A Career in Translational Research and Development*

06-06-2013  
**David Braga Malta, PhD**, Co-Founder, President and Executive Vice-President of Cell2B  
**Orfeu Flores**, Founder and CEO of STAB VIDA  
*Entrepreneurship as a Career Option in Life Sciences & Health*

19-09-2013  
**Pedro Silva**, Coordenador de Comercialização de Ciência e tecnologia da TecMinho  
**Ana Neves**, Technology Transfer Agent, UL-INOVAR  
**Nuno Silva**, Independent Technology Transfer Agent  
*Technology Transfer: How to Make It Happen*

21-11-2013  
**Maria Hortense Matos**, Eurotrials  
**Ana Carla Gordo**, Pfizer
**Patrícia Rosa**, Boehringer Ingelheim
*A Career in Clinical Trials*

04-02-2013
**Jessica Strid**, Imperial College London
*Lymphoid Stress-Surveillance: linking tumour immune-surveillance and atopy*
Host: Bruno Silva-Santos

15-03-2013
**Igor Tsigelny**, San Diego Supercomputer Center & Department of Neurosciences, University of California, San Diego, CA
*A hierarchical coherent-gene-group model for brain development: advancing drug discovery for autism and schizophrenia*
Host: Miguel Castanho

25-03-2013
**Françoise Pflumio and Irina Naguibneva**, Institut de Radiobiologie Cellulaire et Moléculaire (IRCM), Fontenay-aux-Roses, France
*Studying the role of extra- and intra-cellular factors in human T-ALL: a team effort*

02-04-2013
**Tsvee Lapidot, PhD**, Department of Immunology, The Weizmann Institute of Science,
*Regulation of normal and leukemic human stem cells: stem cell interactions with the bone marrow microenvironment*
Host: Henrique Veiga-Fernandes

13-04-2013
**Prof Doutor Joaquim Ferreira /Fisioterapeuta Josefa Domingos/Terapêuta da Fala Ana Rita Cardoso**, Instituto de Medicina Molecular / Faculdade de Medicina da Universidade de Lisboa
*Acção de formação sobre doença de Parkinson para doentes e cuidadores & Dia Aberto Biobanco “Parkinson”*

16-04-2013
**Entrega de Bolsa Laço**
*Associação Laço & Instituto de Medicina Molecular*

16-04-2013
**Dr. F. Javier Garcia**, Banco Nacional de ADN Carlos III
*The experience of the National DNA Bank Carlos III (Spain)*
Host: João Eurico Fonseca

08-05-2013
**Zhijian 'James' Chen, PhD**, Professor, Department of Molecular Biology University of Texas Southwestern Medical Center
*The danger from within: Innate immune sensing and signaling of cytosolic DNA and RNA*
Host: Maria Mota
16-05-2013
**Professor Dr Irving Weissman**, Director, Institute For Stem Cell Biology and Regenerative Medicine (ISCBRM), Stanford University School of Medicine, California, USA
*Normal and Neoplastic Stem Cells*
Host: Lisbon Academic Medical Center PhD Program

20-05-2013
**Especialistas Esclarecem Dúvidas sobre Participação em Ensaios Clínicos**
Centro de Investigação Clínica do Centro Académico de Lisboa

04-06-2013
**Daniel Pennington, PhD**, Blizard Institute, Queen Mary University of London
*Role of the T Cell Receptor in thymic T cell development*
Host: Bruno Silva Santos

06-06-2013
**Rune Matthiesen, PhD**, Institute of Molecular Pathology and Immunology of the University of Porto
*Pharmacoproteomics: Global MS based drug profiling*
Host: Maria Carmo Fonseca

07-06-2013
**Jose Rubio, PhD**, Inserm at Institut Pasteur, France
*Antigenic variation in Plasmodium falciparum: From epigenetic regulation to the generation of diversity*
Host: Maria Carmo Fonseca

25-06-2013
**Joana Rosario, MD, MPH**, Principal at J. Rosario et Al, LLC Research Consultants, Maryland, USA
*From Scientist to Entrepreneur*

26-06-2013
**Ritu Dhand, PhD**, Chief Biological Sciences Editor at Nature
*Nature: The Journal, Review Process and the Publishing Group*
Host: Maria Carmo-Fonseca

10-07-2013
**Prof. Benhur Lee, MD**, David Geffen School of Medicine, University of California at Los Angeles
*Forging New Paradigms: Broad Spectrum Antivirals against Enveloped Viruses*
Host: Nuno Santos

15-07-2013 - 16-07-2013
**Several Speakers from EMBO**
*Cell biology-Development-Oncobiology-Immunity & Infection-Neuroscience*
Instituto de Medicina Molecular, Lisboa, Portugal

23-08-2013
**Ertugrul Ozbudak, PhD**, Albert Einstein College of Medicine, New York, USA
*Systems-level analysis of the vertebrate segmentation clock*
Host: Leonor Saúde

18-09-2013 - 20-09-2013
**The 3rd Global Cancer Genomics Consortium Symposium**
*From oncogenomics to cancer care*

21-09-2013
**Celebrating IMM’s 10th anniversary**

17-10-2013
**1st Postdoctoral Symposium**

11-11-2013
**Francisco Aresta Branco**, Mihailo Mirkovic, Ana Luisa Morgado, Alexandra Vitor, Pedro Rosmaninho, Five laboratories from IMM, IGC and FFUL
*Lisbon Chromatin Club*

13-11-2013
**Biobanco-IMM**
Novas oportunidades de desenvolvimento da investigação médica
*O que foi feito até hoje e quais as repercussões importantes que o Biobanco-IMM está a ter na investigação médica em Portugal*

27-11-2013
**Bertil Fredholm, Professor**, Karolinska Institute, Stockholm
*The huge difference in effects of low and high doses of caffeine*
Host: Alexandre Mendonça

19-12-2013
**Miguel Remondes, Senior Research Scientist**, MIT, Cambridge, MA, USA
*Cortico-hippocampal activity and reactivations in decision-making and learning*

19-12-2013
**Peter Andersen**, Chair of Research Directors Group – EFPIA
*IMI2 – a new ecosystem for European health care?*
Chair: **Isabel Vieira** – IMI Portuguese State Representative
Invited participants: **Beatriz Lima** – IMI Scientific Committee
**Heitor Costa** - Executive Director, APIFARMA
*Round table discussion: Main challenges to successful participation in IMI2*
Workshop

30-10-2013

Judith A. Swan, PhD, Associate Director for Writing in Science and Engineering at Princeton University, USA

Making sense of the science

A Course on Effective Scientific Writing
Diversity of Funding Sources of IMM Grant Applications

In 2013, IMM researchers have submitted grants to the following funding schemes:

<table>
<thead>
<tr>
<th>International</th>
<th>Private</th>
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<tbody>
<tr>
<td>ERA-Net E-Rare</td>
<td>ALSA</td>
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<tr>
<td>ERA-Net HIVERA</td>
<td>Alzheimer’s Drug Discovery Foundation</td>
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<tr>
<td>ERA-Net Infect-ERA</td>
<td>American Institute for Cancer Research</td>
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<tr>
<td>EU Joint Programme – Neurodegenerative Disease Research (JPND)</td>
<td>Axa Research Fund Post-doctoral Fellowship</td>
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<tr>
<td>European Cooperation in Science and Technology (COST)</td>
<td>Bill &amp; Melinda Gates Foundation</td>
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<tr>
<td>European Research Council (ERC) Consolidator</td>
<td>Crohn’s &amp; Colitis Foundation of America</td>
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<tr>
<td>European Research Council (ERC) Proof of Concept</td>
<td>European Calcified Tissue Society - ECTS/AMGEN</td>
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<tr>
<td>European Molecular Biology Organization (EMBO) Installation Grant</td>
<td>European Society for Vascular Surgery</td>
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<tr>
<td>European Molecular Biology Organization (EMBO) Young Investigator Grant</td>
<td>Innovation Prize Universal Biotech</td>
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<tr>
<td>FP7 Cooperation Programme - KBBE</td>
<td>International Rett Syndrome Foundation</td>
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<tr>
<td>FP7 People Programme - Career Integration Grants (CIG)</td>
<td>Jérôme Lejeune Foundation</td>
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<tr>
<td>FP7 People Programme - Intra-European Fellowships (IEF)</td>
<td>Leukemia &amp; Lymphoma Society Quest for Cure</td>
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<tr>
<td>FP7 People Programme - Initial Training Networks (ITN)</td>
<td>Mizutani Foundation for Glycoscience</td>
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<tr>
<td>Human Brain Project</td>
<td>National Alliance for Research on Schizophrenia and Depression Young Investigator Grant</td>
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<tr>
<td>Human Frontier Science Program (HFSP) Program Grant</td>
<td>National Multiple Sclerosis Society Pilot Research Grant</td>
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<tr>
<td>Human Frontier Science Program (HFSP) Young Investigators Grant</td>
<td>Parkinson’s Disease UK Innovation Grant</td>
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<tr>
<td>Innovative Medicines Initiative (IMI)</td>
<td>Parkinson Research Foundation</td>
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<tr>
<td>Multiple Sclerosis Research Program Idea Development Award</td>
<td>Pfizer Europe Aspire</td>
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<tr>
<td>National Institutes of Health, USA</td>
<td>Samsung Global Research Outreach</td>
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<tr>
<td>Territorial Cooperation Programme (SUDOE)</td>
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<tr>
<th>National</th>
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<tr>
<td>Apoio a Atividades Extracurriculares da Universidade de Lisboa</td>
<td>Laço Breast Cancer Grant</td>
</tr>
<tr>
<td>FCT Carnegie Mellon Portugal Programme</td>
<td>Bolsa de Estudos em Autoimunidade NEDAI (Núcleo de Estudos de Doenças Auto-Imunes)</td>
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<tr>
<td>FCT European Institute of Technology Preparation Projects</td>
<td>BES Innovation</td>
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<tr>
<td>FCT Exploratory Research Projects in all Scientific Domains</td>
<td>Fundação Astrazeneca Innovate Competition</td>
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<tr>
<td>FCT Harvard Medical School - Portugal Program</td>
<td>Programa Gilead GÉNESE</td>
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<tr>
<td>FCT Investigator Programme</td>
<td>Luso-American Foundation US@PT Grants</td>
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<tr>
<td>FCT PhD Programme</td>
<td>Associação Portuguesa Contra a Leucemia</td>
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<tr>
<td>FCT Protocol of Collaboration with Agence Nationale de la Recherche (ANR)</td>
<td>Building Global Innovator’s Venture Competition</td>
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<td>FCT Research Infrastructures Roadmap</td>
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<tr>
<td>FCT Scientific Community Support Fund</td>
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<tr>
<td>Santa Casa da Misericórida - Prémio Neurociências</td>
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Figure 2. Diversity of international and national funding schemes of IMM grant applications, since 2008.
IMM EDUCATION AND ADVANCED TRAINING

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

Team

Executive Manager: Alexandra Manaia, PhD

PhD Training Director: Ana Espada de Sousa, MD, PhD

LisbonBioMed Program Director: Maria Mota, PhD

Postdoctoral Training Director: Bruno Silva-Santos, PhD

Career Development Director: Henrique Veiga Fernandes, PhD

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 a completely integrated form of education and training in Biomedicine and Clinical Research, combining multisectorality 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. GABBA e BEB) and international PhD Programs (e.g. INT, MIT-PT).

In 2013, IMM was awarded FCT funding to create the Lisbon Biomedical and Clinical Research PhD Program (LisbonBioMed). Therefore, from January 2014, IMM will also count with 10 LisbonBioMed PhD students per year, during 4 years. Furthermore, IMM will be hosting PhD students from two other new multi-institutional FCT PhD Programs: the Bioengineering - Cell Therapies and Regenerative Medicine (CTRM), and the Medical Biochemistry and Biophysics (M2B) PhD Programs.

Overall, the integrated management of ongoing and new PhD Programs will further enrich our scientific environment promoting multidisciplinarity and facilitating the development of individual projects within the full-spectrum of Biomedicine and Clinical Medicine.
Advanced Training in numbers

In 2013, 85 PhD students conducted research at IMM:  
*73 Lisbon AMC PhD students plus 12 PhD students from other Programs/ Institutions*

**73 LisbonBioMed PhD students conducted research at IMM**  
69 out 73 have individual fellowships  
- 57 FCT PhD fellowships;  
- 2 FCT MD-PhD/ Resident-PhD;  
- 3 Marie Curie Initial Training Network- INT;  
- 3 Programa de Formação Médica Avançada- FCG/FCT/Min Saúde;  
- 1 MIT-Portugal;  
- 3 IMM (1 through ERC Grant).

Besides Lisbon AMC PhD students, IMM hosted 12 PhD students from other PhD Programs/ Institutions:  
- 2 GABBA PhD Program,  
- 2 BEB PhD Program,  
- 2 Budapest University,  
- 1 Karmanos Cancer Institute,  
- 2 UNESP- Brazil,  
- 1 Instituto Carlos Chagas Filho-Brazil,  
- 1 supported by Sonangol EP and 1 supported by IMM.

**10 other Lisbon AMC PhD Students are training abroad, with IMM co-supervision:**  
10 Lisbon AMC PhD students who are conducting research mainly abroad benefit from co-supervision from IMM Faculty:  
- 6 FCT PhD Fellowships;  
- 1 FCT MD-PhD/ Resident-PhD.

**New PhD Students in 2013:**  
*12 IMM /Lisbon AMC PhD Students*, within a total of 19 new Lisbon AMC PhD Students

Helder Horta Pereira, **Armando Dulcidio da Silva Cruz**, Joana Margarida Branco dos Santos,  
Joana Cabrita Afonso, **Nataniel João Gonçalves Cleto Rosa**, Ângela Raquel Amaro Leal, Josefa Domingos, Filipa Gil Marques, Sandra Pinheiro Garcês Gama, Inês Sofia Alvarenga Martins, Ana Paula Martins do Nascimento, Frederico Miguel Bento do Rosário, **Inês Maria Vaz Duarte Luís**,  
Tiago Alexandre Mestre, **Mônica Sofia Inácio Duarte Inês**, Fernando Manuel Magalhães Martins, Pedro Miguel Zuzarte Luís, Carlos Alberto Costa Noronha Ferreira and Tiago dos Reis Matos.

**Advanced Courses**  
A total of 10 Advanced Courses were organized

Courses organized under the CAML PhD Programme

**Nanomedicine**  
Organizers: Nuno C. Santos and Ivo Martins, IMM/FMUL  
Date: Feb 18-20 (1 ECTS)  
Nº of Participants: 12  
The course focused on: i) nanotechnology-based diagnostics; ii) nanotechnology-
based imaging; iii) targeted drug delivery and release; and, iv) regenerative medicine. Plus, practical sessions on atomic force microscopy (AFM) and “force spectroscopy”.

**Laboratory Animal Science**  
*Organizer: Joana Marques, IMM*  
*Date: Feb 13- Mar 14 (1 ECTS)*  
*No of Participants: 30*  
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.

**Applied Biostatistics**  
*Organizer: Ruy Ribeiro*  
*Date: Feb 26 – Mar 22 (4 ECTS)*  
*No of Participants: 12*  
The objective of the course was to teach basic statistical skills that must be part of researcher’s culture, and at the same time to sow the seeds allowing for further exploration. Emphasis was given to practical examples to understand statistics, not to ready-made recipes to analyze specific datasets.

**Biosafety**  
*Organizer: Miguel Prudêncio, IMM*  
*Date: Feb 28 – Mar 1 (0.5 ECTS)*  
*No of Participants: 9*  
The course was aimed at training researchers for use of the IMM BSL3 Facility.

**Protein expression and purification: tips and tricks**  
*Organizer: Francisco Enguita, IMM/FMUL*  
*Date: Mar 14-15 (1 ECTS)*  
*No of Participants: 12*  
The students were trained in theoretical and practical topics related with heterologous protein expression in several hosts.

**Introduction to Clinical Research**  
*Organizers: António Vaz Carneiro and José Ferro(IMM/FMUL/HSM)*  
*Date: Mar 15- June 29 (the course includes 8 modules that could be taken independently, each module corresponding to 7.5 ECTS)*  
*No of Participants: 8*  
Aimed at MDs and other biomedicine-related professionals with interest in conducting clinical research projects, this course provided a multidisciplinary and integrated view of clinical research focusing on the analysis of practical study cases.
Flow Cytometry: from basic concepts to multicolor analysis
Organizer: Maria Soares, IMM
Date: June 17-21 (1 ECST)
N° of Participants: 14
This course introduced participants to the basic concepts of flow cytometry and addressed potential applications. The course had a strong component addressing instrument set-up and calibration, including “hands-on” calibration of FACSalibur and FACSCanto.

Challenges in Immunology
Organizer: Bruno Silva-Santos, IMM/FMUL
Date: June 3-5 (5 ECTS)
N° of Participants: 28
This course exposed participants to some of the hottest topics in Immunology, including challenges in: in T Cell development, response and regulation; in Innate Lymphoid Cells; in TB research, in HIV research and in Cancer immunotherapy.

miRNAs and non-coding RNAs in cell biology and human disease
Organizer: Francisco Enguita, IMM/FMUL
Date: July 11-12 (1 ECTS)
N° of Participants: 23
In this course, the students were introduced to the biology of non-coding RNAs with special focus on miRNAs by comprehensive lectures and bioinformatic tutorials, and also to their role within cell physiology and human disease.

Complementary skills courses:

Scientific Career Development 101
Organizer: Joana do Rosário, MD, MDH
Date: June 26
N° Participants: 15
Participants were led to expand their professional horizons by actively discussing scientific careers in academic and non-academic milieus including, industry, non-profit, government, multilateral organizations, etc. To explore and put into practice the information gained and the targeted concepts participants took part in several role play activities, such as situational sketches and mock interviews.

PhD Students Activities
PhD students are challenged to actively suggest activities to foster both scientific and social networking between the IMM research community. Every year a group of students volunteers to form the students’ commission, who is responsible for the organization of the different initiatives: “Students’ Annual Retreat”, the “Annual PhD Students Meeting” and a seminar series - the “Pizza Seminars”.

2013 PhD Students commission

2013 PhD Students representatives
Alice Melão and Jorge Santos

Pizza Seminars
These seminars happen every other Tuesday, at noon and pizza is served. Two students present their work and there is time for discussion.

VI IMM/CAML PhD Students Retreat
Date: May 3-5
Place: Pousada da Areia Branca, Lourinhã
Participants: Total 42; PhD students (27), post-docs (3), master students (5), lab managers (2) technicians (3), it-support (1) and UEFA executive manager (1).

Programme:
1) Sniper Adventure Park; 2) Breaking the ice quiz - testing participants’ knowledge on general issues regarding IMM (history, areas of research, facts & figures etc); 3) Walk along the “Dinosaur road trip”; 4) Scientific discussion - Round table.

VII PhD Students Meeting IMM/CAML
Date: December 5-6
Place: IMM/FMUL
Participants: 61 PhD students presenting their research work (33 posters and 28 oral presentations), 4 Guest Speakers (2 Keynote Lectures and 2 Science Outreach Lectures), 12 Chairs, 6 Members of Jury (3 for oral presentations and 3 for poster sessions). Total: 83 participants; plus other attendants from IMM/FMUL/HSM community.

December 5

Opening Session
Carmo Fonseca (Executive Director, IMM), João Lobo Antunes (President, IMM) and José Fernandes e Fernandes (Director, FMUL).

Keynote Lecture
Prof. Art Horowich (Yale School of Medicine, Lasker Award 2011)

Oral Presentation Session I
Chairs: Diana Cunha-Reis (UFCT, IMM; Fisiologia FMUL) and Helena Cabaço (AE Sousa Lab).
Speakers:
L. Lucas-Neto: The human nucleus accumbens – from anatomy to imaging and clinic
F. Rijo-Ferreira (L Figueiredo Lab): *Trypanosoma brucei* interferes with the mouse circadian rhythm
I.P. Perpétuo (E Fonseca Lab): RANK expression is reduced in circulating monocytes from ankylosing spondylitis patients
M. Gonçalves: A systematic review on wais-III in ebscohost database: a special focus on acquired brain injury.
V.L. Batalha (L Lopes Lab and A Sebastião Lab): Glucocorticoid receptors and memory impairments: modulation by adenosine A2A receptors
C.G.A. Moreira (A Jacinto Lab): Drosophila integrin adhesion complexes are essential for hemocyte migration *in vivo*

**Poster Session I**

**Oral Presentation Session II**
Chairs: Robert Martin (Maria Carmo-Fonseca Lab) and Ana Ribeiro (L Saúde Lab)
E.F. Marques: Efficacy, safety and cost utility of a dual-optic accommodating intraocular lens for surgical correction of presbyopia in patients with senile cataracts
R.I. Aroeira (A Sebastião Lab): Glycine-mediated neurotransmission in rat brain – recent insights
D. Ribeiro (J Barata Lab): IL-7 activates the JAK/STAT5/PIM1 kinase axis thereby mediating viability and growth of T-cell acute lymphoblastic leukemia cells
T. Pereira: Physical exercise and the capacity to form, consolidate and inhibit new motor memories
P. Meireles (M Prudêncio Lab): The role of D-glucose uptake by glucose transporter 1 during the liver stage of *Plasmodium* infection

**Oral Presentation Session III**
Chairs: Ana de Barros (S Dias Lab) and Diogo Fonseca-Pereira (HV Fernandes Lab)
J.M. Santos (G Mair Lab): IPET: a translationally repressed gene product essential for host cell invasion and transmission of malaria parasites
D.M. Rombo (A Sebastião Lab): Hippocampal network disinhibition of parvalbumin expressing interneurons by adenosine A2A receptors
S.M. Fernandes (AE Sousa Lab): Recovery of enteric mucosa integrity in the presence of preserved innate IL-22 compartment in HIV-1 treated individuals
N. Schmolka (B Silva-Santos Lab): Epigenetic and transcriptional signatures of stable versus plastic differentiation of proinflammatory gamma delta T cell subsets

**December 6**

**Outreach Science Lecture I**
Professor Sílvia Conde (CEDOC, FCM/UNL)

**Oral Presentation Session IV**
Chairs: Federico Herrera (T Outeiro Lab) and Ivo Martins (N Santos Lab)
A.P. Barbosa: VFA: a pioneer technique in hyperthyroidism
T. Pereira (A Jacinto Lab): The cell’s cycle around the wound
A. Melão (J Barata Lab): CK2 activity regulates IL-7 pro-oncogenic signaling pathways in T-cell acute lymphoblastic leukemia
F.F. Ribeiro (A Sebastião Lab): The adenosine A2A receptor and microtubule dynamics during axon elongation

**Oral Presentation Session V**

Chairs: Rita Fragoso (J Barata Lab) and Sandra Aguiar (M Ramirez Lab)
A. Jerónimo-Santos (A Sebastião Lab): Dysregulation of TrkB receptors and BDNF function by amyloid-β peptide is mediated by calpain
J.M. Freire (M Castanho Lab): Intracellular nucleic acid delivery by the supercharged dengue virus capsid protein: putative role during viral infection
C. Mota (AE Sousa Lab): Delta like-1 enhances the *in vitro* conversion of human memory CD4 cells into FOXP3-expressing regulatory T cells
I. Henriques: Hydrogen sulphide reduces infarct size and enhances recovery in a rat model: protection mechanism includes NOX-4 downregulation

**Keynote Lecture**

Professor Maria Leptin (EMBO Director, EMBL)

**Poster Presentation Session II**


**Outreach Science Lecture II**

Professor Elvira Fortunato (CENIMAT/I3N, FCT/UNL)

**Oral Presentation Session VI**

Chair: Madalena Martins (S Oliveira Lab) and Axel Hollmann (N Santos Lab)
V. Geraldes (M Carvalho Lab): Chronic depression of central neuronal activity produces sustained hypotension in hypertensive rats
M. Rei (B Silva-Santos Lab): Major contribution of γδ T cells to IL-17A production and ovarian cancer cell growth *in vivo*
M. Neto: Temporal aspects and interrelationships of psychosocial health determinants in workplace settings
A.C. Pena (L Figueiredo Lab): Histone H1 regulates a small set of genes but is important for virulence of African trypanosomes
M.C. Oliveira: Synaptic modulation by adenosine on an age-dependent epilepsy model

**Awards Ceremony and Closing Remarks**

Alice Melão, Jorge Santos and Alexandra Manaia

**PhD Meeting Dinner**
PhD theses

10 Lisbon AMC theses: 9 of which were from IMM/Lisbon AMC PhD Students


(Total 9 PhD IMM/ Lisbon AMC Thesis)


(Total 10 Lisbon AMC PhD Theses)
Ongoing Partnerships

Centro Académico de Medicina de Lisboa: IMM is associated with the Faculdade de Medicina da Universidade de Lisboa and with the Santa Maria teaching hospital through the Medical Academic Centre of Lisbon (CAML). CAML is consortium that represents an infrastructure aiming to promote the academic dimension in clinical practice, renewing the teaching hospital concept.

IMM is also a partner of the Harvard Medical School – Portugal programme, sponsored by Fundação para a Ciência e Tecnologia. This programme, directed by M. Carmo-Fonseca (IMM/FMUL), results from a Memorandum of Understanding between Portuguese Ministry of Science, Technology and Higher Education and Harvard Medical School to encourage internationalization and cooperation between Portuguese schools of medicine and major national research centers working in biomedical and health sciences.

Furthermore, IMM is associated with the Doctoral Programme for Physicians, PFMA, supported by the Gulbenkian and Champalimaud Foundations, the Ministry of Health and the Foundation for Science and Technology.

Besides education IMM also fosters scientific ideas to turn into products and technologies that make difference in health care. To achieve this goal IMM develops ties and strategic plans with companies, namely companies incubated at IMM: Genomed, Technophage, Lymphact and TcLab (see companies). In addition, IMM is one of the leading founders of the Health Cluster Portugal. This consortium promotes initiatives and research projects that increase the national competitiveness, innovation and technology and also encourages cooperation between companies, organizations, universities and public entities, seeking to expand economic areas related to health and to the improvement of health care.
In 2013, IMM hosted 36 research Labs.

Of these:
- 33 are located at Edifício Egas Moniz (IMM-FMUL)
- 1 at Hospital Santa Maria (Joaquim Ferreira Lab)
- 2 at the Faculdade de Farmácia da Universidade de Lisboa (Elsa Anes Lab and João Gonçalves Lab)
SÉRGIO ALMEIDA LAB

Major Interests / Objectives

Our research focuses on the mechanisms that control chromatin dynamics during transcription and DNA damage repair and how they coordinate with the processes that safeguard the genome integrity. Our general aims are twofold: first, we aim at investigating molecular aspects of the different stages of the transcription cycle, focusing on pre-mRNA processing and chromatin modification events; 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, pre-mRNA processing, chromatin modification and DNA damage response are linked to the development of human diseases such as cancer.

Head of Unit

Sérgio Alexandre Fernandes de Almeida, PhD, - Assistant Professor, FMUL

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree / Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexandra Coitos Vítor</td>
<td>Graduate Technician (started June)</td>
</tr>
<tr>
<td>Ana Filipa Batalha Martins</td>
<td>Master Technician (left September)</td>
</tr>
<tr>
<td>Ana Rita Fialho Grosso</td>
<td>PhD Post-doctoral Investigator (started November)</td>
</tr>
<tr>
<td>Joana Posa</td>
<td>Graduate MSc Student (started September)</td>
</tr>
<tr>
<td>Joana Patrícia Moreira Tavares</td>
<td>Graduate MSc Student (started September)</td>
</tr>
<tr>
<td>S R CHAITANYA. SRIDHARA</td>
<td>Master PhD Student</td>
</tr>
<tr>
<td>Silvia Filipa Camoeira Gonçalves de Carvalho</td>
<td>Master Technician (started June)</td>
</tr>
</tbody>
</table>

Keywords / Research Areas

Chromatin dynamics, Epigenetics, Cancer Biology, DNA damage response.
Major scientific achievements

In 2013 the members of our Lab have:

- Published an original manuscript in the international journal "Nucleic Acids Research" (Carvalho et al. 2013);
- Been elected Associate Members of the European network of excellence "EpiGeneSys";
- Started a new research project funded by FCT;
- Presented our research work in 7 national and international conferences;
- Been awarded the "Best Poster Award" at the IMM PhD students meeting;
- Participated in advanced teaching in PhD and MSc programs;
- Completed one MSc thesis.

Recent Most Relevant Publications


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. Amount: €184.516,00
Other Projects


Invited lectures and seminars


Communications in International Conferences


Communications in National Conferences


Sridhara SC, Carvalho S, Carmo-Fonseca M and de Almeida SF. "The role of Serine-Arginine Protein Kinases as mediators of cancer-related signaling pathways" VII PhD Students Meeting CAML, Lisbon, December 5-6, 2013.

Internationalisation

In the year 2013 we have been elected Associate Members of the European network of excellence "EpiGeneSys". This Network gathers some of the most productive and influential European labs working on the epigenetics field.
During this year, we published one original research paper in the international journal "Nucleic Acids Research" and our team members presented our research work in 3 international conferences.

**Prizes, honours and awards**

2013 - Elected Associated Member of "EpiGeneSys Network of Excellence"

2013 - Best Poster Award. IMM PhD Students Meeting (Sridhara Chaitanya).

**Advanced teaching**

de Almeida SF. Lecturer on the Gene Expression module of the GABBA PhD program, Universidade do Porto, May 13, 2013.

Grosso AR. Lecturer on the Computational Biology in Biomedicine module of the Masters in Bioinformatics and Computational Biology, Faculdade de Ciências da Universidade de Lisboa, July 22-23, 2013.

**Opponent to PhD theses defense:**
de Almeida SF. Member of the jury of the dissertation of Mariluz Gomez, Instituto Gulbenkian de Ciência. Thesis supervised by Dr Lars Jansen. November 18, 2013.

**Opponent to MSc thesis defense:**

**Msc theses completed**

**Major Interests / Objectives**

We aim to understand the role of cell-autonomous alterations and microenvironmental cues in the development of cancer, in particular lymphoid leukemias. We focus on the dissection of signaling pathways activated by cell-intrinsic events and extra-cellular factors to characterize the mechanisms implicated in the acquisition of a selective advantage by malignant cells. To do so, we integrate different biochemical, cellular and molecular biology techniques with appropriate in vitro and in vivo models. The basic and pre-clinical research performed in the lab is translation-oriented and complemented by ongoing collaborations with clinicians. Ultimately, our research aims to identify and characterize molecular targets for the development of novel, more selective therapies against cancer.

**Head of Unit**

João Pedro Taborda Barata, PhD.

**Research Team**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Position</th>
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<tbody>
<tr>
<td>Alice Sofia dos Santos Melão</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Ana Rita Freitas Martins de Matos Fragoso</td>
<td>PhD</td>
<td>Post-doctoral Investigator (started May)</td>
</tr>
<tr>
<td>Ana Sofia Gírio Veloso</td>
<td>PhD</td>
<td>Post-doctoral Investigator (left March)</td>
</tr>
<tr>
<td>Daniel Ribeiro</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Ines Lopes Antunes</td>
<td>PhD</td>
<td>Investigator (left May)</td>
</tr>
<tr>
<td>Joana Filipa Pereira de Matos</td>
<td>Graduate</td>
<td>MSc Student (started May)</td>
</tr>
<tr>
<td>João Paulo Tavanez da Silva Fernandes</td>
<td>PhD</td>
<td>Post-doctoral Investigator (left September)</td>
</tr>
<tr>
<td>Leila Raquel Galveias Casquinha Pires Martins</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Maria Leonor Saraiva de Carvalho Morais Sarmento</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Mariana Lobato de Oliveira</td>
<td>Graduate</td>
<td>MSc Student (started October)</td>
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<tr>
<td>Nádia G. Cavaleiro Sousa Correia</td>
<td>Master</td>
<td>Investigator</td>
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<tr>
<td>Vanda Cristina Barroso Póvoa</td>
<td>Master</td>
<td>Investigator</td>
</tr>
</tbody>
</table>
Keywords / Research Areas

Oncobiology, Leukemia, Signal transduction, Cellular and molecular biology.

Major scientific achievements

Previously, we showed that PI3K/Akt signaling is hyperactivated in T-ALL and CLL due to CK2 overexpression. We now demonstrated that clinical-grade inhibitors of CK2 or PI3K delay tumor progression in vivo in pre-clinical models of T-ALL and CLL (Martins et al, Oncotarget 2013; Martins et al, Leukemia 2013; Lonetti, Antunes et al, Leukemia 2013; Buontempo et al, Leukemia 2013). These observations should contribute to the integration of CK2 and PI3K specific inhibitors in the therapeutic arsenal against these malignancies.

We identified several microRNA genes (e.g. miR-223, miR-146b-5p) that are regulated by SCL/TAL1, a transcription factor which is aberrantly expressed in T-ALL (Correia et al, Leukemia 2013). This is the first contribution to the understanding of the network of microRNA genes modulated by TAL1 that may contribute to its oncogenic potential.

We received a distinction from the Ministry of Health for our contributions to Biomedical research.

Recent Most Relevant Publications


Ongoing Research Projects


2012/2015 Dissecando o impacto de mutações ganho-de-função do gene IL7R em leucemia T.
Coordinator: João Pedro Taborda Barata. Agency: FCT. Amount: €165.000,00

2013/2015 Conversas cruzadas entre miRNAs e TAL1? Novas perspectivas sobre a regulação e função de um dos principais oncogenes de células T. Coordinator: João Pedro Taborda Barata. Agency: FCT. Amount: €125.797,00

**Publications in peer review Journals**


**Invited lectures and seminars**


J.T. Barata. Too much of a good thing: IL-7 and IL-7R in T-cell leukemia, 3rd International Symposium on Translational Oncology, Barretos, SP, Brazil, August 29-30, 2013.


J.T. Barata. Signals from the outside, signals from within: IL-7 and IL-7R in acute T-cell leukemia, 8th Annual Helsinki Biomedical Graduate Program Symposium, Biomedicum Helsinki, Finland, May 16-17, 2013.


J.T. Barata. O lado obscuro da lua: IL-7 e IL-7R em leucemia de células T [The dark side of the moon: IL-7 and IL-7R in T-cell leukemia]. IV Science and Medicine Meeting, University of Minho, Braga, Portugal, April 20, 2013.

**Communications in International Conferences**


Communications in National Conferences


Organisation of Conferences

J.T. Barata was a member of the evaluation panel, Poster Session II; Research Day for Medical Students / 16th Workshop “Education through Science”, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, December 11, 2013.

R. Fragoso was Chair of the Oral session V of the VII IMM/CAML PhD Students meeting, Lisbon, Portugal, December 5-6, 2013.

J.T. Barata was a member of the Scientific Committee and co-Chair of Session V, SINAL 2013 – 7th National Meeting on Cell Signalling, University of Aveiro, Portugal, December 6-7, 2013.

J.T. Barata was Co-Chair of Sessions II and V, Second ESH-EHA Scientific Workshop on T-cell Acute Lymphoblastic Leukemia, Lisbon, Portugal, March 22-24, 2013.

Internationalisation
All our projects involve some degree of collaborative work with international research groups in Europe, US and Brazil. Our publication track record illustrates this extensively. Our FCT funded projects systematically include foreign researchers as consultants or participants.

Current international collaborators include: Andres Yunes (Centro Infantil Boldrini, Campinas, SP, Brazil), Paul Coffer (Utrecht University Medical Center, The Netherlands), Jules Meijerink (Erasmus MC Rotterdam, The Netherlands), Ben Seddon (NIMR, London, UK), Adolfo Ferrando (Columbia University, New York, NY, USA), Scott Durum (NCI, Frederick, MD, USA), Silvio Perea (CIGB, Havana, Cuba) and Alberto Martelli (University of Bologna, Italy).

The lab head, Dr. J.T. Barata, is regularly invited to give talks at research institutes abroad and at international meetings (see Invited Lectures and Seminars section for examples regarding 2013). Furthermore, in 2013 Dr. Barata was asked to act as referee for prestigious international journals (including Nature Medicine, EMBO Molecular Medicine, Blood, Leukemia and PLoS One). He is Associate Editor of the American Journal of Cancer Research since October 2011 and Ad Hoc Section Editor for Leukemia.

We welcome regularly foreign students. In 2013, we hosted a visiting post doc from Cuba and a visiting MSc student from Spain.

**Prizes, honours and awards**

J.T. Barata was awarded the Silver Medal for Distinct Services from the Portuguese Ministry of Health.

**Advanced teaching**


J.T. Barata lectured the topic “Signaling in Cancer and Leukemia”, Masters in Biomedical Sciences, University of Algarve, Faro, Portugal, April 24, 2013.

J.T. Barata lectured the topic “Basic Concepts on Signaling in Cancer”, Advanced Course on Oncobiology, BEB PhD Program of the Center for Neuroscience and Cell Biology (CNC), University of Coimbra, Coimbra, Portugal, February 26, 2013.


**Science and society**
J.T. Barata was interviewed on public broadcast TV for the “Maratona da Saúde” fundraising for science effort.

Several members of the lab were involved in IMM laboratories’ showcase for medical students during the FMUL students’ day.

I. Lopes and J.T. Barata wrote perspective articles for the news@FMUL – the institutional Newsletter from Faculdade de Medicina da Universidade de Lisboa.
GONÇALO BERNARDES LAB

Major Interests / Objectives

Our research programme lies under the broader field of Chemical Biology. In particular, we are interested in the development of site-selective and rapid protein modification methods in aqueous systems as a means to understand key biological processes and to generate targeted therapeutics.

Head of Unit

Gonçalo José Lopes Bernardes, PhD, Assistant Professor, Department of Chemistry, University of Cambridge.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Start Date</th>
</tr>
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<tbody>
<tr>
<td>João Alexandre Guarita da Silva Rodrigues</td>
<td>PhD Principal Investigator (started October)</td>
<td></td>
</tr>
<tr>
<td>Miguel Correia Botelho Chaves Ferreira</td>
<td>PhD Technician (started October)</td>
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</tbody>
</table>

Keywords / Research Areas

Site-selective protein modification, Protein therapeutics, Targeted cancer therapeutics, Carbohydrate-based vaccines, Small molecule drug discovery, Bioorthogonal labelling strategies.

Major scientific achievements

The Lab has made strong contributions in the fields of protein chemistry and protein therapeutics. Just recently, the antibody drug conjugate the PI developed while at the ETH Zürich has reached clinical development.

The PI has published 4 papers in 2013, published 1 patent and filled 1 patent application.
Funding: Marie Curie CIG, Marie Curie ITN, Investigador FCT 2012, Hovione PhD studentship (start 2014).

The PI won the European Federation of Medicinal Chemistry – Young Investigator Award in Academia and the 2013 Royal Society of Chemistry/BMOS Young Investigator Award. For his efforts in translational research, Gonçalo was distinguished by the Portuguese Ministry of Health (MH) of Portugal for relevant services to Public Health and Medicine.
**Recent Most Relevant Publications**


**Other Projects**

2013/2017 Marie Curie Career Installation Grant. Coordinator: Gonçalo Bernardes. Amount: €100.000,00

2013/2017 Marie Curie Initial Training Network. Coordinator: João Rodrigues. Amount: €670.000,00 Total amount: €3.500.000,00

**Publications in peer review Journals**


**Invited lectures and seminars**

Site-selective protein modification for bioimaging and protein therapeutics. Memorial Sloan-Kettering Cancer Center (MSKCC), New York (US), 2013

Site-selective protein modification for bioimaging and protein therapeutics. 15th Brazilian Meeting in Organic Synthesis (BMOS), Campos do Jordão (Brazil), 2013

Site-selective protein modification for bioimaging and protein therapeutics. Department of Chemistry, Technische Universität München, München (Germany), 2013

Site-selective protein modification for bioimaging and protein therapeutics. Institut Curie, Paris (France), 2013

Site-selective protein modification for bioimaging and protein therapeutics. Sanofi Aventis, Frankfurt (Germany), 2013

Site-selective protein modification for bioimaging and protein therapeutics. European Biophysics Congress, EBSA2013, Lisbon (Portugal), 2013

Site-selective protein modification for bioimaging and protein therapeutics. EMBO fellows meeting, Heidelberg (Germany), 2013

Site-selective protein modification for bioimaging and protein therapeutics. Chemistry for Life Sciences, 5th European Conference, Barcelona (Spain), 2013

Site-selective protein modification for bioimaging and protein therapeutics. Advances in Synthetic and Medicinal Chemistry, Moscow (Russia), 2013

Site-selective protein modification for bioimaging and protein therapeutics. Stereochemistry @ Bürgenstock (Switzerland), 2013

Site-selective protein modification for bioimaging and protein therapeutics. Portugal and the Royal Society, Imperial College London (UK), 2013

Site-selective protein modification for bioimaging and protein therapeutics. Department of Chemistry, University of Zürich (Switzerland), 2013
Prizes, honours and awards

Royal Society of Chemistry and Brazilian Meeting in Organic Synthesis Young Investigator Award - 2013

EFMC Prize for a Young Medicinal Chemist in Academia - 2013

Silver Medal - Portuguese Ministry of Health (MH) of Portugal for relevant services to Public Health and Medicine - 2013

Selected for The Lindau Nobel Laureate Meeting – sponsored by AKB Stiftung - 2013

Journals Grant for International Authors, Royal Society of Chemistry - 2013

Patents/prototypes


“Chemical modification of protein with metal carbonyl reagents and uses thereof for the treatment of inflammatory conditions and cancer” Bernardes, G.J.L.; Application filled and submitted.

Industry contract research

Novartis Vaccines - development of glycoproteins as vaccine candidates. From October 2013 onwards – PhD Studentship in partnership.
**Maria Ermelinda Camilo Lab**

**Major Interests / Objectives**

Clinical and translational biomedical/nutritional research in nutrition/metabolism in tune with investigators’ interests. Disease management, nutrition/life-style related risk factors prevail, e.g. nutrition & cancer, nutrition & Quality of Life, metabolic dysfunction, body composition & genetic predisposition for cachexia, nutrients and disease modulation/therapy/prognosis, obesity, fatty liver & insulin resistance. Investigate interconnections with basic science, thus genetic polymorphisms studies of inflammatory /immuno-modulatory cytokines, as pathogenic mechanisms of lesion, nutritional deterioration or metabolic implications; the role of nutrigenetics in cancer and inflammatory diseases, as well as apoptosis in alcoholic/non-alcoholic liver disease.

**Head of Unit**

Maria Ermelinda Camilo, MD/PhD.

**Research Team**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Position</th>
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<tbody>
<tr>
<td>Ana Isabel Paulos Ramos de Almeida</td>
<td>Master</td>
<td>PhD Student, Teaching Assistant</td>
</tr>
<tr>
<td>Catarina Ferreira Murinello de Sousa Guerreiro</td>
<td>PhD</td>
<td>Investigator, Teaching Assistant</td>
</tr>
<tr>
<td>Catarina João Monteiro Ferreira</td>
<td>Graduate</td>
<td>Investigator</td>
</tr>
<tr>
<td>Dina Raquel Fernandes João</td>
<td>Master</td>
<td>PhD Student, Teaching Assistant</td>
</tr>
<tr>
<td>Helena Maria Ramos Marques Coelho Cortez Pinto</td>
<td>MD/PhD</td>
<td>Investigator, Clinical Specialist, Associate Professor</td>
</tr>
<tr>
<td>Inês Vaz Bravo Carretero</td>
<td>Graduate</td>
<td>MSc Student</td>
</tr>
<tr>
<td>Maria Isabel de Freitas Ferreira Queimado Monteiro Grillo</td>
<td>MD/PhD</td>
<td>Principal Investigator, Clinical Department Director</td>
</tr>
<tr>
<td>Mariana Verdelho Machado</td>
<td>Graduate</td>
<td>PhD Student, MD</td>
</tr>
<tr>
<td>Paula Ravasco</td>
<td>MD/PhD</td>
<td>Principal Investigator, Assistant Professor</td>
</tr>
<tr>
<td>Sofia Catarina Carvalhana</td>
<td>Master</td>
<td>Investigator</td>
</tr>
</tbody>
</table>
Keywords / Research Areas

Hepatology, steatohepatitis, obesity, insulin resistance, Oncology /radiotherapy, sarcopenia, cachexia.

Major scientific achievements

Still the only Research Nutrition and Metabolism Lab in Portugal, its high quality of Advanced Education and Research are widely recognized. Both achievements are highlighted by Publications in Journals with high impact factors and in the internationalization with relevant roles in international bodies, lectures in major international Congresses and advanced teaching.

A small multidisciplinary team has reached international recognition via cutting edge research of excellence in two main areas:

- Cortez-Pinto H focus on liver fat metabolism, from clinical to translational research, is an internationally recognized expert in steatohepatitis.
- Ravasco P is a prized speaker in international meetings as expert in Nutrition and Cancer.

The Lab is increasingly requested for advanced teaching: to guide and/or supervise future professionals in their research projects: e.g. integrated Master Degree in Medicine, Nutrition Master Programs.

Recent Most Relevant Publications


**Ongoing Research Projects**


2013/2016 Treat liver diseases by targeting hepatocyte necroptosis. Coordinator: Helena Cortez-Pinto. Agency: FCT. Amount: €35.000,00 Total amount: €526.947.000,00

2012/2016 Eicosapentaenoic acid in Cancer: does it affect inflammation, body composition, treatment’ toxicity, Quality of Life and prognosis? A randomized, prospective controlled trial. Coordinator: Paula Ravasco. Agency: FCGulbenkian. Amount: €120,000,00 (in negotiation)

**Other projects**


**Publications in peer review Journals**


Machado M, Cortez-Pinto H. Leptin in the treatment of lipodystrophy-associated nonalcoholic fatty liver disease: are we there already? *Expert Review of Gastroenterology and Hepatology* 2013. 7(6),513-5 (Journal IF: 2.221)

Castro RE, Ferreira DM, Afonso MB, Borralho PM, Machado MV, Cortez-Pinto H, Rodrigues CM. miR-34a/SIRT1/p53 is supressed by Ursodeoxycholic acid in rat liver and activated by disease severity in human non-alcoholic fatty liver disease. *J Hepatol.* 2013, 58(1), 119-25 (Journal IF: 9.858, Citations:3)


**Other publications International**


**Invited lectures and seminars**

Cortez-Pinto H. How to manage patients with metabolic syndrome and fatty liver on Ultrasound. Lunch Session. UEG Week, Berlin, Germany, October 12-16, 2013.

Cortez-Pinto H. The burden of alcohol worldwide. UEG Week, Berlin, Germany, October 12-16, 2013.

Steatosis: how to identify the patients who progress into steatohepatitis. Congresso Brasileiro de Hepatologia, Rio de Janeiro, Brazil, October 2-5, 2013.


Cortez-Pinto H. The obese alcoholic: NASH/ASH interactions. 14th ESBRA Meeting, Varsow, Poland, September 8-11, 2013.

Epidemiology and importance of alcoholic liver disease from a public health point of view. The International Liver Congress, EASL, Amsterdan, Holland, April 24-27, 2013.

Cortez-Pinto H. Diagnostic Work Up of ALD: Biopsy or Non-Invasive Assessment. The International Liver Congress, EASL, Rio de Janeiro, Brazil, October 2-5, 2013.

Cortez-Pinto H. Importância e custos das doenças associadas ao álcool. Fórum Nacional Álcool e Saúde. Lisbon, Portugal, April 4, 2013.


Monteiro-Grillo I. Chairman: Are we the same radiation oncologists? trends and visions of the future. 5º Congresso da Sociedade Portuguesa de Radioterapia Oncologia, Coimbra, Portugal, March 7-9, 2013.

Ravasco P. Nutritional in hematological and oncological patients. OeGHO Congress on Nutrition and Oncology, Linz, Austria, April 20, 2013.


Guerreiro, CS. FODMAPS – Quando e como a sua utilização. XV Congresso da APNEP, Oporto, Portugal, April 22, 2013.

Communications in International Conferences

Carvalhana S, Leitão J, Alves AC, Bourbon M, Cortez-Pinto H. Controlled attenuation parameter (CAP) for non-invasive assessment of liver steatosis in the general population: correlation with ultrasound (US) and fatty liver index (FLI). 48th annual meeting of the European Association for the Study of Liver (EASL), Amsterdam, Netherlands, April 24-28, 2013. (Poster presentation)

Carvalhana S, Marinho R, Cortez-Pinto H, Velosa J. Wilson’s Disease: Long-term outcome seems to be influenced by presentation form. 21st United European Gastroenterology (UEGW), Berlin, Germany, October 12-16, 2013. (Poster presentation)

Carvalhana S, Marinho R, Cortez-Pinto H, Velosa J. Wilson’s Disease: Long-term outcome seems to be influenced by presentation form. 21st United European Gastroenterology (UEGW), Berlin, Germany, October 12-16, 2013. (Poster presentation)
Ferreira D, Borralho P, Machado M, Cortez-Pinto H, Rodrigues C, Castro R. Skeletal muscle miRNAs in non-alcoholic fatty liver disease and targeting by tauroursodeoxycholic acid in vitro. 21st United European Gastroenterology (UEGW), Berlin, Germany, October 12-16, 2013. (Oral communication)

Afonso M, Ferreira D, Cortez-Pinto, Castro R, Rodrigues C. Necroptosis in primary rat hepatocytes and in patients with chronic liver disease. 21st United European Gastroenterology (UEGW), Berlin, Germany, October 12-16, 2013. (Poster presentation)


Marta B. Afonso, Duarte M. Ferreira, Helena Cortez-Pinto, Rui E. Castro, Cecília M. Rodrigues. Necroptosis in liver disease patients and in primary rat hepatocytes. The Liver Meeting 2013, AASLD, Washington DC, USA, November 1-5, 2013. (Poster presentation)

Almeida Al, Ferreira C, Monteiro Grillo I, Camilo M, Ravasco P. Phase angle in cancer predicts Quality of Life and prognosis. EXPERIMENTAL BIOLOGY 2013, Boston, USA, April 19-24, 2013. (Poster presentation)

Almeida Al, Ferreira C, Monteiro Grillo I, Camilo M, Ravasco P. Bioelectrical impedance analysis (BIA) and phase angle: how relevant in cancer?. EXPERIMENTAL BIOLOGY 2013, Boston, USA, April 19-24, 2013. (Poster presentation)


Ferreira C, Russo A, Mariano A, Ravasco P. The diet of university students in Portugal: what are the food habits? 35th Congress of ESPEN (European Society for Clinical Nutrition and

Communications in National Conferences


Carvalhana S, Cortez-Pinto H, Velosa J. Síndrome de sobreposição de hepatite autoimmune e hepatite C: dificuldades nas decisões terapêuticas. 16ª Reunião da APEF, Coimbra, Portugal, April 2013.


Beatriz Matos Nunes, Laurentiu Bujor, Catarina Duarte, José Miguens, Isabel Monteiro Grillo. (Re)descobrindo a Radioterapia em Doença Benigna — O Papel no Craniofaringioma. 5º Congresso da Sociedade Portuguesa de Radioterapia Oncologia, Coimbra, Portugal, March 7-9, 2013. (Oral communication)


Catarina Duarte, Laurentiu Bujor, Ana Amado, Isabel Monteiro Grillo. Linfoma da Glândula Lacrimal Tratado com RT de Baixa Dose. 5º Congresso da Sociedade Portuguesa de Radioterapia Oncologia, Coimbra, Portugal, March 7-9, 2013. (Oral communication)

Beatriz Matos Nunes, Isabel Monteiro Grillo, Marília Jorge, Vera Mendonça. “15 Anos de Follow up após Terapêutica Conservadora em Carcinoma da Mama” 5º Congresso da Sociedade Portuguesa de Radioterapia Oncologia, Coimbra, Portugal, March 7-9, 2013. (Poster presentation)

Catarina Duarte, Beatriz Nunes, Laurentiu Bujor, Isabel Monteiro Grillo. BT-HDR Intersticial Perioperatória no Tumor da Língua Localizado. 5º Congresso da Sociedade Portuguesa de Radioterapia Oncologia, Coimbra, Portugal, March 7-9, 2013. (Poster presentation)


André Abrunhosa-Branquinho, Filomena Pina, Isabel Monteiro Grillo. Radioterapia na consolidação de tratamento de osteossarcoma extra-óseo recidivado localmente avançado. 5º Congresso da Sociedade Portuguesa de Radioterapia Oncologia, Coimbra, Portugal, March 7-9, 2013. (Poster presentation)

Virgínia Mareco, Filomena Pina, Isabel Monteiro Grillo. Braquiterapia de Alta Taxa de Dose de Resgate após Radioterapia num Doente com Carcinoma da Próstata: Caso Clínico. XVIII Workshop de Urologia Oncológica, Braga, Portugal, April, 12-14, 2013. (Poster presentation)

Almeida Al, Ferreira C, Monteiro Grillo I, Camilo M, Ravasco P. Ingestão alimentar, ângulo de fase e sarcopénia em Oncologia: que relação? XV Congresso Anual da Associação Portuguesa de


Organisation of Conferences

Cortez-Pinto H. Member of the Organizing Committee of the XXIth United European Gastroenterological Week (UEGW) 2013, held in Berlin.

Isabel Monteiro Grillo, co-organizer, member of the scientific committee of the IV Congresso ALATRO, Asociacion Latino Americana de Terapia Radiante Oncologica, Cartagena de Índias, Colombia, July 2013.

Ravasco P. Member of the Scientific and Organizing Committee of the XV Annual Congress of APNEP (Portuguese Association of Parenteral and Enteral Nutrition) 2013, Oporto, Portugal.

Ravasco P. Member of the Organizing Committee of the 37th Annual Congress on Clinical Nutrition and Metabolism by ESPEN (European Society of Clinical Nutrition and Metabolism) to be held in 2015 in Lisbon, Portugal.

Guerreiro CS. Member of the Scientific Committee of the XV Congress of Portuguese Association of Enteral and Parenteral Nutrition, Oporto, Portugal, April 22-23, 2013.

Internationalisation

Cortez-Pinto H. Member of the Scientific Committee of the United European Gastroenterologic Federation (UEGF), as a representative of the European Association for the Study of the Liver (EASL).

Monteiro-Grillo I.: Co-Editor and Editorial Board of Reports of Practical Oncology and Radiotherapy, Poland; Editorial Board of the Journal of Contemporary Brachytherapy, Journal of the Polish Brachytherapy Society, Poland; Board member (European representative) of the Asociación Latinoamericana de Terapia Radiante Oncológica.

Ravasco P.: member of the ESPEN Faculty (European Society for Clinical Nutrition and Metabolism), Associated Editor of Clinical Nutrition, official journal of ESPEN; Portuguese representative at the Educational and Clinical Practice Committee of ESPEN; member of the Scientific Committee of the International Research Group of EORTC (European Organisation for Research and Treatment of cancer); Scientific consultant in the area of clinical nutrition in the Program Harvard Medical School-Portugal; member of the Scientific Committee of the Focus Group on Nutrition in Foregut Cancers - Nutrition, Function, Patient Centered Care, promoted by ESPEN and University of Alberta, Canada; member of the nutrition section of the Editorial Advisory Board of the EJSO - European Journal of Surgical Oncology, official journal of Association for Cancer Surgery and European Society of Surgical Oncology.

Guerreiro CS.: Partner of the European Project: “Equity creating equality in health through capacity building in Europe between health care workers” inscribed in a Lifelong Learning Program, Leonardo Da Vinci financed by the European Commission; external revisor for nutrition projects at European Clinical Research Infrastructures Network.
Prizes, honours and awards

Almeida Al, Ferreira C, Monteiro Grillo I, Camilo M, Johns N, Fearon K, Ravasco P. Travel Award for the original research work entitled: Computed tomography and bioelectrical impedance: relevance for body composition assessment in Oncology, classified among the 20 best abstracts of the 35th Congress of ESPEN (European Society for Clinical Nutrition and Metabolism), Leipzig, Germany, August 31 - September 3, 2013.

Cortez-Pinto H. Editor-in-chief of Jornal Português de Gastroenterologia (GE)

Cortez-Pinto H. President of the Portuguese Association of the liver (APEF), since June 2013

Cortez-Pinto H. Director of the Liver Programme of the Post-graduate Course of the United European Week in Berlin, Germany, October 2013


Advanced teaching

Cortez-Pinto H, President of the Scientific board of a Master Course in Clinical Nutrition (2011/2013; 2012-2014; 2013-2015), collaboration between the Faculty of Medicine of the University of Lisbon and the “Escola Superior de Tecnologia da Saúde de Lisboa do Instituto Politécnico de Lisboa”, with the collaboration of the Faculty of Pharmacy of the University of Lisbon.

Cortez-Pinto H. Director of the Liver Programme of the Post-graduate Course of the United European Week in Berlin, Germany, October 2013.


Ravasco P. Mechanisms and clinical features of cancer cachexia. Advanced Teaching Course for Creditation in Medical Education (CME): Educational Long Life Learning on Nutritional support in cancer promoted by ESPEN (European Society for Clinical Nutrition and Metabolism), Cairo, Egypt, November 15-17, 2013.

Ravasco P. Nutrition in oncology. Clinical Session and Advanced Teaching for clinicians involved in cancer management at Unidade Local Saúde de Matosinhos - Hospital Pedro Hispano, Portugal, March 8, 2013.


2012/2013: Ravasco P. supervisor of the training and research project for the conclusion of the Degree in Nutritional Sciences of Inês Bravo Carretero of Universidade Atlântica. Classification: 19/20 (Excellent).


2012/2013: Ravasco P. teacher and coordinator of the Module of Oncology and Nutrição at the Master Course in Clinical Nutrition (collaboration project between FMUL and ESTES-L: Prof. Helena Cortez Pinto, Prof. Marília Cravo, Prof. Catarina Guerreiro, MSc Lino Mendes); course started in 2011/2012.


2013 Guerreiro CS. Voluntary Auxiliary Professor at the Unidade Curricular de Nutrição e Metabolismo of the integrated Master Degree of Medicine of the Faculdade de Ciencias
Médicas, Lisbon, Portugal.

**Science and society**

Ravasco P.: Supervisor of the research training in the area of nutrition and oncology of 3 high-school students: Pedro Mendonça (10th grade), Inês Pires (12th grade) and Inês Grazina (12th grade). These trainings were integrated in the program “Ciência Viva no Laboratório - Ocupação Científica de Jovens nas Férias (OCJF)”, to provide opportunities to students to have a proximity to the reality of scientific research, July 2013.

Ferreira C, Almeida AI, Ravasco P. Everything you should know about sports supplementation. Expert article for the magazine Mens’s Health (Public Perception of Science). July 27 2013.

Ferreira C, Almeida AI, Carretero I, Ravasco P. The best whey for you. Expert article for the magazine Mens’s Health (Public Perception of Science), August 10 2013.


Guerreiro CS. Member of the board of the Portuguese Association of Dietitians.

Guerreiro CS. Member of the general Council of the Ordem of Nutricionists.

Guerreiro CS. President of the Commission which oversees the preparation of Dietitians before admission to the Ordem of Nutricionists.

Guerreiro CS. Scientific Revisor of Revista Saúde e Tecnologia. ISSN:1646-9704.

**PhD theses completed**


**Msc theses completed**


**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 Unit**

Maria do Carmo Salazar Velez Roque da Fonseca, MD, PhD.

**Research Team**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexandra Coitos Vitor</td>
<td>Graduate MSc Student</td>
<td>(left May)</td>
</tr>
<tr>
<td>Ana Catarina de Jesus</td>
<td>Master Technician</td>
<td></td>
</tr>
<tr>
<td>Ana Paula Santos Botelho Oliveira Leite</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>André Daniel Faustino Mesquita</td>
<td>Undergraduate</td>
<td>Undergraduate (started March)</td>
</tr>
<tr>
<td>Bruno Miguel Bernardes de Jesus</td>
<td>PhD</td>
<td>Post-doctoral Investigator (started August)</td>
</tr>
<tr>
<td>Catarina Alves do Vale</td>
<td>Undergraduate</td>
<td>Undergraduate (started March)</td>
</tr>
<tr>
<td>Catarina Pereira Santos</td>
<td>Graduate MSc Student</td>
<td>(started September)</td>
</tr>
<tr>
<td>Célia Carvalho</td>
<td>PhD</td>
<td>Investigator, Assistant Professor</td>
</tr>
<tr>
<td>Dinora Levy</td>
<td>Graduate Administrative</td>
<td></td>
</tr>
<tr>
<td>Francisco Javier Enguita</td>
<td>PhD</td>
<td>Principal Investigator, Assistant Professor</td>
</tr>
<tr>
<td>Joana Desterro</td>
<td>MD/PhD</td>
<td>Post-doctoral Investigator, Assistant Professor</td>
</tr>
<tr>
<td>Jorge Gabriel Palma da Luz</td>
<td>Graduate MSc Student</td>
<td>(started September)</td>
</tr>
<tr>
<td>Marina Célia Nunes Ferreira C. H.</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Name</td>
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<tr>
<td>Silva</td>
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<tr>
<td>Marisa Cabrita</td>
<td>Graduate</td>
<td>Lab manager, Assistant Professor</td>
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<tr>
<td>Miguel Maria das Neves Sousa Pereira</td>
<td>Graduate</td>
<td>MSc Student (left October)</td>
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<tr>
<td>Noélia Maria Fernandes Custódio</td>
<td>PhD</td>
<td>Investigator, Assistant Professor</td>
</tr>
<tr>
<td>Nuno Luís Barbosa Morais</td>
<td>PhD</td>
<td>Post-doctoral Investigator (started June)</td>
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<tr>
<td>Paula Sofia Faria Oliveira</td>
<td>Graduate</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Rita Catarina Vaz Drago</td>
<td>Master</td>
<td>PhD Student (started March)</td>
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<tr>
<td>Rita Mingot de Almeida Mendes de Almeida</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Robert M. Martin</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Sandra Martins</td>
<td>PhD</td>
<td>Post-doctoral Investigator, Assistant Professor</td>
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<tr>
<td>Sérgio Alexandre Fernandes de Almeida</td>
<td>PhD</td>
<td>Principal Investigator, Assistant Professor (left June)</td>
</tr>
<tr>
<td>Sérgio Manuel Pires Marinho</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Silvia Filipa Camoeira Gonçalves de Carvalho</td>
<td>Master</td>
<td>Technician (left May)</td>
</tr>
<tr>
<td>Teresa Carvalho</td>
<td>PhD</td>
<td>Investigator, Assistant Professor</td>
</tr>
<tr>
<td>Tomás Pires de Carvalho Gomes</td>
<td>Graduate</td>
<td>MSc Student (started May)</td>
</tr>
</tbody>
</table>

**Keywords / Research Areas**

Cell and Molecular Biology, RNA biology, Non coding RNA, RNA in disease, Cancer, Aging.

**Major scientific achievements**

How human cells control more than 100,000 alternative splicing decisions remains incompletely understood. To decipher how transcription and splicing occur in real time in the nucleus of living human cells, we combined genomic integration of a single reporter gene, intron labelling with the MS2 technique and spinning disk confocal microscopy. The results show that splicing of
beta-globin transcripts is accomplished in 20-30 s. We further show that replacing the weak polypyrimidine tract in mouse IgM pre-mRNA by a U-rich Py decreases the intron lifetime, thus providing direct evidence that splice site strength influences splicing kinetics. We also found that RNA polymerase II transcribes at elongation rates ranging between 3 and 6 kb per minute, and that transcription is rate limiting for splicing. These results have important implications for mechanistic understanding of co-transcriptional splicing regulation in the live-cell context. (Martin, Rino, Carvalho et al. Cell Rep, 2013).

Recent Most Relevant Publications


Ongoing Research Projects


2011/2014 Oncobiologia: novas ferramentas educativas para as futuras gerações de investigadores clínicos Coordinator: Joana Desterro. Agency: FCT. Amount: €99.000,00


Other Projects


Publications in peer review Journals


**Invited lectures and seminars**


Carmo-Fonseca, M. Imaging pre-mRNA splicing in living cells Talk presented at the Titisee Conference on RNA transport, Titisee, Germany, March 6-10, 2013.


Carmo-Fonseca, M. Driving RNA Polymerase II through chromatin on the many roads to splicing regulation. Talk presented at the National Cancer Institute’s Symposium on Chromosome Biology: Epigenetics in Development, Bethesda, MD, USA, April 4-5, 2013.

Carmo-Fonseca, M. Nuclear checkpoints. Talk presented at the 38th FEBS Congress, Saint Petersburg, Russia, July 6-11, 2013.


Communications in International Conferences


Carmo-Fonseca, M. Imaging splicing in real time with single-molecule sensitivity. Talk presented at the ICGEB Symposium on “RNA alternative splicing”, Trieste, Italy, November 18-20, 2013. (Oral communication)


Martin, R. Real-time kinetics of human pre-mRNA splicing. Poster presented at the EMBO Young Scientists Forum, Lisbon, Portugal, July 15-16 2013. (Poster presentation)

Martin, R. Real-time kinetics of human pre-mRNA splicing. Poster presented at The 5th EMBO Meeting 2013, Amsterdam, Netherlands, September 21-24, 2013. (Poster presentation)

Martin, R. Live cell visualization of pre-mRNA splicing with single molecule sensitivity. Poster presented at Single Cell Genomics Conference, Weizmann Institute of Science, Rehovot/Tel Aviv, Israel, October 1-3, 2013. (Poster presentation)

Communications in National Conferences


Organisation of Conferences


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 a project entitled “Real-time imaging of splicing in living cells”.

Collaboration with Dr. Asifa Akhtar at the Max Planck Institute of Immunobiology and Epigenetics, Freiburg, Germany on a project to explore the alternative splicing events during sex determination in the model organism Drosophila melanogaster.

Within the framework of the scientific cooperation project FCT/CAPES 4.4.1.00, the laboratory hosted Junya Singulani, Ph.D. student, and Fernanda Gullo, Ph.D. student, from UNESP, Araraquara, Brazil, for a scientific training period of 4 months.

Host lab for the following international fellows: Sreerama Chaitanya Sridhara (Indian PhD student) and Robert Martin (German post-doc).

Prizes, honours and awards

M. Carmo-Fonseca was awarded the Prémio D. Antónia Ferreira.

Astra-Zeneca Innovate Competition prize awarded to Inês Figueiredo, with the project “Chronic Myeloid Leukemia Gene Therapy Targeting the BCR/ABL Fusion Gene. Peptide-mediated gene delivery: siRNA and editing tools”, supervised by Dr. Miguel Castanho and Dr. Francisco J. Enguita.

Robert Martin, Poster prize award, 2nd place at EMBO Young Scientists Forum, Lisbon 2013.

Advanced teaching


Enguita FJ. The dark (and funniest) side of the genome. Doctoral Programme in Experimental Biology and Medicine, CNC, Coimbra, January 8, 2013.

Enguita FJ. miRNAs and aging. Master Programme in Cellular and Molecular Biology, Faculdade de Ciências e Tecnologia, Universidade de Coimbra, Coimbra, April 22, 2013.
Enguita, F.J. Advanced tools for miRNA functional analysis. Master Programme in Cellular and Molecular Biology, Faculdade de Ciências e Tecnologia, Universidade de Coimbra, Coimbra, 22 April 2013


**Science and society**


**Msc theses completed**

There are many biological processes that depend on the interaction between peptides/proteins and membrane lipids, such as viral fusion, translocation across epithelial or innate immune defense. Some of these may be inspiring to develop new innovative therapeutic tools. The goal of the Physical Biochemistry Unit 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, antimicrobial, and anticancer agents. We are interested not only in drug targets and drug discovery itself, but also in the molecular-level mechanism of action of drugs that are known for their therapeutic efficacy and safety.

Head of Unit

Miguel Castanho, PhD, Full Professor, Faculdade de Medicina da Universidade de Lisboa.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Ana Salomé Rocha do Nascimento Veiga</td>
<td>PhD</td>
<td>Investigator</td>
</tr>
<tr>
<td>Antónia Rosa Trindade Pinto</td>
<td>Master</td>
<td>Technician</td>
</tr>
<tr>
<td>Diana Maria Diez Gaspar</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Isa Domingues Serrano</td>
<td>PhD</td>
<td>Post-doctoral Investigator (left June)</td>
</tr>
<tr>
<td>João Miguel Calado da Silva Freire</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Luís Rafael Pereira do Carmo Flores</td>
<td>Graduate</td>
<td>MSc Student, (started March)</td>
</tr>
<tr>
<td>Rodrigo Lucarini</td>
<td>Undergraduate</td>
<td>PhD Student (left February)</td>
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<td>Sandra Cristina Nunes Trigo Pinto</td>
<td>PhD</td>
<td>Technician (started September)</td>
</tr>
<tr>
<td>Sônia Adelaide Queirós de Sá Santos Rocha</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Tiago Nascimento Figueira</td>
<td>Master</td>
<td>MSc Student</td>
</tr>
<tr>
<td>Vera Luisa Santos Neves</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
</tbody>
</table>
Keywords / Research Areas

Drug discovery, Peptide, Antimicrobials, HIV, Dengue, Blood-brain barrier

Major scientific achievements

The main recent achievements were:

- Demonstration that T20, T1249 and sifuvirtide are anti-HIV molecules that make interactions with lipids as part of their mechanism of action;
- Amidated Kyotorphin and ibuprofen-amidated Kyotorphin exhibit powerful analgesic properties without the severe side effect of opioids;
- Kyotorphin was found in the cerebro spinal fluid (CSF) of humans and its level is decreased in Alzheimers’ patients. kyotorphin may be the molecular link between pain and neurodegeneration. Moreover, Kyotorphin is a candidate biomarker for pain. In a parallel study it was demonstrated that Alzheimers’ patients underreport the pain they feel, which leads to undertreatment;
- Discovering that viral proteins are sources of peptide-based drug delivery system;
- Elucidation of the role of electrostatics in Blood-brain Barrier translocation of small molecules.

Recent Most Relevant Publications


Ribeiro, MMB ; Melo, MN ; Serrano, ID ; Santos, NC ; Castanho, MARB (2011) Drug-lipid interaction evaluation: why a 19th century solution? Trends in Pharm Sciences DOI:10.1016/j.tips.2010.06.007, 31 (Journal IF: 10.927, Citations: 18)

Ongoing Research Projects


2011/2014 The role of hepatic lipid membranes and lipid droplets in Dengue virus encapsidation. A gateway to new therapies. Coordinator: Miguel Castanho. Agency: FCT. Amount: €130000,00 Total amount: €130.000,00


Other Projects


Publications in peer review Journals


Hollmann A, Matos PM, Augusto MT, Castanho MARB and Santos NC. (2013) Conjugation of cholesterol to HIV-1 fusion inhibitor C34 increase peptide membrane interactions potentiating


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**Invited lectures and seminars**


HG Franquelim, NC Santos, MARB Castanho, P Schwille. AFM: May the Force be with you! Ludwig-Maximilian University, Munich, Germany, May 17, 2013.

M. Castanho. The Physical Chemistry of Dengue virus entry into cells reviseted. XXIII Encontro Nacional SPQ (Sociedade Portuguesa de Química), Aveiro, Portugal, June 2013.


M. Castanho (Keynote speaker). Rethinking Dengue virus entry into cells. 14th Conference IUBMB, Marrakech, Morocco, November 16-20, 2013.


M. Castanho. Beating the blood-brain barrier: (S)low (but effective) throughput screening in the quest for a new analgesic drug. IBB-CMBE invited seminar, University of Algarve, Faro, Portugal, April 2013

Communications in International Conferences

JM Freire, AS Veiga, NC Santos, D Andreu, AT Da Poian and MARB Castanho. Viral Capsid proteins as potent scaffolds for nucleic acid delivery vectors: Cell Penetrating Peptides and Supercharged Proteins. 4th Protein and Peptide Science Groups Early Stage Researcher Meeting, Durham, UK, November 11th, 2013. (Oral communication)


JM Freire, AS Veiga, NC Santos, D Andreu, AT Da Poian and MARB Castanho. Nucleic acid delivery vectors derived from viral proteins: Cell Penetrating Peptides vs. Supercharged Proteins. (Semi-finalist on Young Investigator Poster Award). 23rd American Peptide Symposium & 6th International Peptide Symposium, Big Island of Hawai’i, USA, June 22-27th, 2013. (Poster presentation)


AF Faustino, GM Guerra, A Hollmann, MARB Castanho, F Almeida, AT Da Poian, NC Santos, IC Martins, Dengue virus capsid protein inhibitor peptide pep14-23: towards a novel drug target, 30th Anniversary Symposium of the Boehringer Ingelheim Fonds, Mainz, Germany, March 16, 2013. (Poster presentation)

AF Faustino, GM Guerra, A Hollmann, MARB Castanho, F Almeida, AT Da Poian, NC Santos, IC Martins, Dengue virus capsid protein inhibitor peptide, pep14-23, becomes alpha-helical upon binding to negatively-charged lipids, Biophysical Society Meeting Membrane Protein Folding, Seoul, South Korea, May 19-22, 2013. (Poster presentation)

A Hollmann, PM Matos, MT Augusto, MARB Castanho, NC Santos, Conjugation of cholesterol to HIV-1 fusion inhibitor C34 increases peptide-membrane interactions potentiating its action, 23rd American Peptide Symposium, Waikoloa (Hawaii), USA. June 22-27, 2013. Abstract published on 2013 Biopolymers (Pept. Sci.), 100, 299. (Poster presentation)


AF Faustino, FA Carvalho, IC Martins, MARB Castanho, R Mohana-Borges, FCL Almeida, AT da Poian, NC Santos, Dengue virus capsid protein interacts specifically with very low-density lipoproteins, Modern Biophysical Methods for Protein Ligand Interactions – EMBO (European Molecular Biology Organization) Practical Course, Oulu, Finland, October 21-25, 2013. (Poster presentation)

JM Freire, AS Veiga, I Rego de Figueiredo, BG de la Torre, NC Santos, D Andreu, AT Da Poian and MARB Castanho. Design and mechanism of dengue virus capsid-cell penetrating peptides for nucleic acid delivery. 9th European Biophysics Congress (EBSA), Lisbon, Portugal, July 13-17th, 2013. (Poster presentation)


Abstract published on 2013 Eur. Biophys. J., 42, S64. (Poster presentation)


Communications in National Conferences

I Rego de Figueiredo, JM Freire, F Enguita and MARB Castanho. Peptide-Mediated siRNA Delivery. Chronic Myeloid Leukemia Therapy Targeting the BCR/ABL Fusion Gene. 1st reSEARCH Coimbra in Health Sciences, Coimbra, Portugal, April 19-21, 2013. (Oral communication)


JM Freire, AS Veiga, I Rego de Figueiredo, BG de la Torre, NC Santos, D Andreu, A T. Da Poian and MARB Castanho. Design and mechanism of dengue virus capsid-cell penetrating peptides for nucleic acid delivery. Molecular Biology in Portugal and EMBL, Lisbon, Portugal, July 18th, 2013. (Poster presentation)


MT Augusto, A Hollmann, MARB Castanho, M Porotto, A Pessi, NC Santos. Improvement of the HIV fusion inhibitor C34 efficacy by membrane anchoring and enhanced exposure. iMed Conference 5.0 – Innovating Medicine, Lisbon, Portugal, October 11-13, 2013. (Poster presentation)

V Artilheiro, AF Faustino, FCL Almeida, MARB Castanho, AT Da Poian, NC Santos, IC Martins, Understanding the mode of action of pep14-23, a novel Flavivirus drug candidate, 7th YES (Young European Scientist) Meeting, Oporto, Portugal, November 14-16, 2013. (Poster presentation)

V Artilheiro, AF Faustino, GM Guerra, FCL Almeida, MARB Castanho, AT Da Poian, NC Santos, IC Martins, Structure-function study of the dengue virus capsid protein and its the new designed inhibitor peptide, pep14-23, iMed Conference 5.0 – Innovating Medicine, Lisbon, Portugal, October 11-13, 2013. (Poster presentation)

M. Castanho. O que podemos aprender de Bioquímica com o vírus da Dengue. VI ENEBIOQ (Encontro Nacional de Estudantes de Bioquímica), Aveiro, Portugal, March 2013 (Oral communication)
Organisation of Conferences


Miguel Castanho, Chairman of the Beating the Blood-Brain and other Blood Barriers Workshop, IMM, Lisbon, Portugal, February 6-8, 2013.

Isa Serrano, Member of organizing committee of Beating the Blood-Brain and other Blood Barriers Workshop, IMM, Lisbon, Portugal, February 6-8, 2013.

Salomé Veiga, Member of organizing committee of Beating the Blood-Brain and other Blood Barriers Workshop, IMM, Lisbon, Portugal, February 6-8, 2013.

Sónia Sá Santos, Member of organizing committee of Beating the Blood-Brain and other Blood Barriers Workshop, IMM, Lisbon, Portugal, February 6-8, 2013.

Sónia Sá Santos, Chair in Oral Presentations Session II of VII PhD Students Meeting IMM/CAML, Portugal, Lisbon, Portugal, December 4-6, 2013.

M. Castanho, session chair: Biomedical applications of new microscopy techniques, Encontro de Engenharia Biomédica 2013, Lisbon, Portugal, November 6, 2013.

Internationalisation

Our team was recently involved in three projects involving international consortia, from which many collaborative research papers have been published (see reference list).

International collaborations with joint published papers in the last five years:

- David Geffen School of Medicine, UCLA, USA, Prof Benhur Lee;
- Federal University Rio de Janeiro, Brazil, Prof Andrea T. Da Poian;
- National Cancers Institute, Frederick, USA, Prof Jöel Schneider;
- University of Queensland, Australia, Prof David Craik;
- University of Girona, Spain, Prof. Eduard Bardají;
- University Hospital of Santiago de Compostela, Spain, Prof José Cocho;
- University Miguel Henandez, Elche, Spain, Prof José Villalain;
- University Pompeu Fabra, Barcelona, Spain, Prof David Andreu.

Prizes, honours and awards

Inês Rego de Figueiredo was awarded the 2013 iMed5.0 Fundação AstraZeneca Innovate Competition with the project: Chronic Myeloid Leukemia Gene Therapy Targeting the BCR/ABL Fusion Gene. Peptide-mediated gene delivery: siRNA and editing tools. 16th Gulbenkian/GAPIC

**Advanced teaching**

M. Castanho, Invited Chair of the one-week post-graduate course on Medical Biochemistry of the Federal University of Rio de Janeiro, "Peptide drugs discovery and development", Rio de Janeiro, Brazil, August 2013

M. Castanho, Chairman of the Beating the Blood-Brain and other Blood Barriers Workshop, IMM, Lisbon, Portugal, February 6-8, 2013.


M. Castanho. Host of Prof Anthony Watts (Oxford University, UK) for the seminar "Resolving nanoscale details of drugs and ligands at their binding sites of membrane-embedded, functionally competent targets", Oxford, UK, September 22, 2013.

**Science and society**


"Miguel Botas Castanho fala sobre o vírus da dengue em Santarém". Newspaper article published on O Mirante, March 7, 2013.

**Msc theses completed**

**Susana Constantino Lab**

**Major Interests / Objectives**

The Angiogenesis Group studies molecular and cellular mechanisms that regulate the angiogenic process. Our aim is to interfere with vasculature formation, preventing diseases related with excessive vessel growth or proposing innovative approaches for revascularization in ischemic tissues.

We are particular interested in:

a) Addressing a clinically relevant issue of radiotherapy and investigating the effects of low doses of ionizing radiation on the vasculature that surrounds the tumour area and their contribution to metastasis formation.

b) Evaluating the potential use of low doses of ionizing radiation as a novel approach to improve blood flow in vascular occlusive disease.

**Head of Unit**

Susana Constantino Rosa Santos, PhD.

**Research Team**

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Degree/Type</th>
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<tbody>
<tr>
<td>Adriana de Fátima Dias Lisboa Correia</td>
<td>Graduate</td>
<td>MSc Student</td>
</tr>
<tr>
<td>Ana Rita Duarte Simões Pereira</td>
<td>Graduate</td>
<td>MSc Student (started October)</td>
</tr>
<tr>
<td>Augusto Manuel Almeida Ministro</td>
<td>Graduate</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Carolina Isabel Garcia Cardina</td>
<td>Graduate</td>
<td>MSc Student (started September)</td>
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<tr>
<td>Filipa Gil Marques</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Paula Alexandra Gomes de Oliveira</td>
<td>Master</td>
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<tr>
<td>Raquel João Santos Ferreira Nunes</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Tiago Filipe Ribeiro Ruas Maçarico</td>
<td>Graduate</td>
<td>MSc Student (started September)</td>
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</table>

**Keywords / Research Areas**

Angiogenesis, Ionizing radiation, Ischemia, Vasculature.
Major scientific achievements

1) Establishment of a clinical protocol to collect and analyse human irradiated and unirradiated samples from rectal cancer patients aiming the validation of the enhancement of angiogenesis by low doses of IR during radiotherapy;
2) In the setting of experimentally induced hindlimb ischemia, low doses of ionizing radiation could stimulate angiogenesis and collateral development and thereby improve blood perfusion in the ischemic limb. The outcome of these in vivo experiments performed in a mice model suggests that low doses of IR may have clinical use in the treatment of lower limb vascular insufficiency;
3) Transthyretin proteins regulate angiogenesis by conferring different molecular identities to endothelial cells. This work has critical implications in the prevention of early hepatic artery thrombosis in familial amyloidotic polyneuropathy patients after liver transplantation.

Recent Most Relevant Publications


Ongoing Research Projects


Invited lectures and seminars


S. Constantino. Transthyretin proteins regulate angiogenesis by conferring different molecular identities to endothelial cells. Liver Transplant Center, Hospital Curry Cabral, Lisbon, Portugal. September 17, 2013.

Communications in International Conferences


Communications in National Conferences


Vascular Diseases. Lisbon, Portugal. December 13-14, 2013. (Oral communication)

Internationalisation

Collaborative Research:
- Curzio Ruegg, Department of Medicine, Faculty of Sciences, Fribourg, Switzerland. Research Project: Molecular mechanisms and relevance of angiogenesis induced by low-dose ionizing radiation.
- Marc Mareel, Ghent University Hospital, Ghent, Belgium. Research Project: Low doses of ionizing radiation promote tumor growth and metastasis by enhancing angiogenesis.
- Jeffery W. Kelly, Department of Molecular and Experimental Medicine, The Scripps Research Institute, La Jolla, California, USA. Research Project: The differential effect of WT and V30M Transthyretin in the hepatic microenvironment and vasculature response.

Collaborative Publication:

Advanced teaching


**Major Interests / Objectives**

We direct our research to address at the pre-clinical level the mechanistic effects that explain our major clinical questions. Focusing in metastasis, we aim to understand if metastases genetically and phenotypically recapitulate the primary tumors, and how are reflected the tumor-target organ/host interactions. Our major interests are: (I) to identify prognostic and/or predictive markers, and new therapeutic targets in bone metastases; (II) to identify a molecular signature of colorectal cancer metastization, and to determine if chemotherapy-induced cell senescence may be related with relapse; (III) to understand how tumors modulate the sensitivity to antineoplastic agents; and (IV) to identify new therapeutic strategies by studying the role of tumor-associated ECM in cancer progression.

**Head of Unit**

Luis António Marques da Costa, MD, PhD - Director of the Oncology Department, HSM-CHLN; Assistant Professor, FMUL.

**Research Team**

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<tr>
<th>Name</th>
<th>Degree</th>
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<tbody>
<tr>
<td>Afonso Camilo Rodrigues Fernandes</td>
<td>PhD</td>
<td>Consultant</td>
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<tr>
<td>Arlindo Júlio Rebelo da Silva Ferreira</td>
<td>Master</td>
<td>Investigator, MD (started October)</td>
</tr>
<tr>
<td>Carolina Coimbra Brandão Alves</td>
<td>Master</td>
<td>Investigator (left July)</td>
</tr>
<tr>
<td>Diana Domingos de Matos</td>
<td>Graduate</td>
<td>MSc Student (started September)</td>
</tr>
<tr>
<td>Inês Maria Duarte Vaz Luis</td>
<td>Graduate</td>
<td>Investigator, Teaching Assistant</td>
</tr>
<tr>
<td>Irina Margarida Pereira Machado Alho Duarte</td>
<td>PhD</td>
<td>Technician</td>
</tr>
<tr>
<td>Isabel Cristina Ferreira Fernandes Borges da Costa</td>
<td>Master</td>
<td>Investigator, Clinical Specialist, Assistant Professor</td>
</tr>
<tr>
<td>Joana Maria Tato Ribeiro Costa</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Margarida Caracol Castanho Lopes Matias Ghesquiere</td>
<td>Graduate</td>
<td>Investigator, Clinical Specialist</td>
</tr>
<tr>
<td>Maria José Palma Bettencourt</td>
<td>Undergraduate</td>
<td>Undergraduate (left August)</td>
</tr>
</tbody>
</table>
Keywords / Research Areas

Metastasis, bone “vicious cycle, tumor microenvironment, extracellular matrix, tumor heterogeneity, tumoral pathway-targeted therapies.

Major scientific achievements

In 2013 we highlight our participation in the Global Cancer Genomics Consortium. In the scope of GCGC we hosted the The 3rd Global Cancer Genomics Consortium Symposium, at IMM. Our cooperative research originated two publications in 2013, and revealed an essential modifying role of the physiologic level of MTA1 in supporting pulmonary metastasis of breast cancer, and illustrated for the first time the power of RNA-sequencing in revealing the variation landscape of breast transcriptome, exemplifying the analytical strategies to search regulatory interactions among cancer relevant molecules.

We continued to dissect the importance of RANKL-RANK pathway in bone metastases and found that the use of the IAP antagonist AT-406 in the context of bone metastatic disease needs to be carefully monitored for the induction of increased bone resorption, but its combination with anti-RANKL directed therapies could have a beneficial effect, especially in RANK-positive tumors.

Recent Most Relevant Publications


**Ongoing Research Projects**


2013 GCGC Meeting Coordinator: Luís Costa. Agency: FCT-FACC. Amount: €3,000,00

Other Projects

2011/2013 MTDH Activation by 8q22 Genomic Gain and MTDH Overexpression in Advanced Colorectal Cancer – Correlation with Poor Prognosis and Chemoresistance. Coordinator: Sandra Casimiro. No funding

2012/2013 In vitro analysis of the effect of the IAPs inhibitor AT-406 in bone metastases. Coordinator: Sandra Casimiro. No funding

2012/2014 In vitro evaluation of the anti-tumoral and anti-osteoclastogenic effect of combined therapy with zoledronic acid and saracatinib in breast cancer. Coordinator: Sandra Casimiro. No funding

2012/2014 Activation of mTOR pathway in breast cancer: analysis of primary and metastasis tumor samples. Coordinator: Luís Costa. No funding

2013/2014 Clinical significance of the AKT/mTOR pathway activation in KRAS-wt metastatic colorectal cancer response to EGFR-targeted therapy. Coordinator: Luís Costa. No funding

Publications in peer review Journals


**Invited lectures and seminars**

Luís Costa, Management of Bone Metastases. St. Vicent’s Univeristy Hospital, Dublin, Ireland, March 7, 2013.


Luis Costa, Difficulties in Pharmacogenomics Clinical Studies in Cancer. 3rd ESPT Pharmacogenomics Advanced Training Course, Lisbon, Portugal, September 25, 2013.


Communications in International Conferences


Sandra Casimiro, Biobanking in Oncology: Experience from IMM-HSM, The 3rd Global Cancer Genomics Consortium Symposium. Lisbon, Portugal, September 18-20th, 2013 (Oral communication)


Irina Alho, Constança Coelho, Manuel Bicho, Luis Costa. The role of low molecular weight protein tyrosine phosphatase isoforms in tumor progression in bone. The 3rd Global Cancer Genomics Consortium Symposium. Lisbon, Portugal, September 18-20th, 2013 (Poster presentation)


Communications in National Conferences


Organisation of Conferences


Isabel Fernandes organized the Oncology Series. Soft Tissue Sarcomas, Lisbon, Portugal, March 21, 2013.

Internationalisation

During 2013 we continue to participate in the Global Cancer Genomics Consortium whose partners are: George Washington University; Tata Memorial Centre and Rajiv Gandhi Center of Biotechnology; Oxford University; Institute of Molecular Medicine; Graduate School of Medicine Kyoto University.

GCGC aligns a multidisciplinary team to address specific shared global cancer research challenges through the application of high-throughput technologies using human cancer specimens from its network. GCGC aims to facilitate student and faculty academic exchanges and research collaborations in the areas of breast and other cancers through the application of
high-through-put genomic, proteomic, structural and bioinformatic technologies to human cancer specimens. This collaboration leads to the publication of two papers in 2013. In the scope of GCGC in 2013 we organized the The 3rd Global Cancer Genomics Consortium Symposium, that took place at IMM in September.

**Advanced teaching**

In 2013, L. Costa (Director) and S. Casimiro, I. Luis, and I. Fernandes (Invited Professors), participated in the development, accreditation and implementation of the first edition of the Master of Science Course in Oncobiology of the FML. This educational program is targeted for bachelors, researchers, medical doctors, and other professionals in health or related areas, who want to gain an in-depth understanding of the biology and clinical behavior. The course will provide participants with a multidisciplinary view of oncology, focusing on the molecular and cellular mechanisms working in cancer, and their impact for patient care – both for diagnosis and therapeutics.

In 2013, L. Costa (Chairman) and S. Casimiro, I. Luis, J. Ribeiro, I. Fernandes, M. Semedo (Invited Professors), participated in the organization and lecturing of Oncobiology, a mandatory course for the 3rd year Medical students from FML. The main goal of this course is to highlight the clinical impact of understanding molecular and cellular mechanisms operating in cancer, and to learn on cancer diagnosis, prognosis and therapeutics, always connecting with the biological viewpoints.

**PhD theses completed**

Major Interests / Objectives

Our unit focuses on basic, translational, and clinical research on the central, peripheral, and autonomic nervous systems. We address multiple disorders that span these various levels of the nervous system: amyotrophic lateral sclerosis (ALS), familial amyloid neuropathy (FAP), disorders of autonomic regulation, Tourette syndrome, and neuropsychiatric disorders. We use a variety of methodologies, including brain imaging, neurophysiological techniques including transcranial magnetic stimulation, clinical cardio-respiratory evaluation, animal models, histochemistry, molecular biomarkers and computational modeling. We aim to explore the physiology and pathophysiology, but ultimately we are committed to improve the lives of patients.

Head of Unit

Mamede de Carvalho, MD, PhD. Institute of Physiology, Instituto de Medicina Molecular, Faculdade de Medicina da Universidade de Lisboa. Department of Neurosciences, Centro Hospitalar Lisboa-Norte.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree/Guide</th>
<th>Position</th>
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<tbody>
<tr>
<td>Alberto Albino Granado Escalda</td>
<td>MD PhD</td>
<td>Investigator, Assistant Professor</td>
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<tr>
<td>Ana Rita Mendes Londral Gamboa</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Anabela Leuschner Fernandes Cardoso</td>
<td>MD, PhD</td>
<td>Principal Investigator, Consultant, Associate Professor</td>
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<tr>
<td>Pinto Noronha Sanches</td>
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<tr>
<td>Andreia da Silva Borges Carapinha</td>
<td>Graduate</td>
<td>Technician</td>
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<tr>
<td>André Díaz Campos</td>
<td>Graduate MD</td>
<td>Investigator</td>
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<td>Ângela Raquel Amaro Leal</td>
<td>Graduate</td>
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<td>Ângelo Rodrigo Neto Dias</td>
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<tr>
<td>Anna Caroline Marques dos Anjos Braga</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Bruno Miguel Gil Rosa</td>
<td>Graduate</td>
<td>PhD Student (left September)</td>
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<tr>
<td>Cristiano Torres Tavares dos Santos</td>
<td>Master</td>
<td>Investigator</td>
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<tr>
<td>Diana Lina Jerónimo da Cunha Reis</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<td>Fernando Manuel Pinto Ferreira Domingos</td>
<td>MD/PhD</td>
<td>Investigator, Assistant Professor</td>
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<td>Gabriela Barbu Postolache</td>
<td>PhD</td>
<td>Investigator, Assistant Professor</td>
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<tr>
<td>Inês Antunes de Santa Ana</td>
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<tr>
<td>Isabel Casanova</td>
<td>Graduate</td>
<td>MSc Student</td>
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<tr>
<td>Isabel Conceição</td>
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<td>Investigator</td>
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<tr>
<td>Isabel Maria Teixeira Máxima Graça</td>
<td>Undergraduate</td>
<td>Administrative</td>
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<td>João Nuno Marques Parracho Guerra da Costa</td>
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<td>Investigator, Assistant Professor</td>
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<td>José Pedro Almeida</td>
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<td>José Castro</td>
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<tr>
<td>Leonel Almeida Luis</td>
<td>MD</td>
<td>PhD Student</td>
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<tr>
<td>Maria do Amparo Barros</td>
<td>Graduate</td>
<td>Technician</td>
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<tr>
<td>Maria Isabel de Sousa Rocha</td>
<td>PhD</td>
<td>Principal Investigator</td>
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<tr>
<td>Mariana Santos Bento</td>
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<td>Investigator</td>
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<td>Mario Joao Martins Oliveira</td>
<td>MD/PhD</td>
<td>Investigator, Assistant Professor</td>
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<tr>
<td>Marisa Brum</td>
<td>MD</td>
<td>MSc Student</td>
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<tr>
<td>Michael Swash</td>
<td>MD/PhD</td>
<td>Investigator, Invited Full Professor</td>
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<td>Nataniel João Gonçalves Cleto Rosa</td>
<td>Master</td>
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<tr>
<td>Nuno Miguel Prata Gomes</td>
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<td>Pedro Jorge Filipe Pereira</td>
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<td>Pedro Miguel Tojais Rodrigues Alves</td>
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<td>PhD student</td>
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<tr>
<td>Raquel de Sá da Silva Laires Rua</td>
<td>Graduate</td>
<td>Technician</td>
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<tr>
<td>Rita Alexandra Figueira Belo</td>
<td>Graduate</td>
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<tr>
<td>Sofia Batalha Reis de Almeida Santos</td>
<td>Graduate</td>
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<tr>
<td>Sofia Xavier</td>
<td>Graduate</td>
<td>MSc Student</td>
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<tr>
<td>Susana Cristina Da Costa Pinto</td>
<td>MD/PhD</td>
<td>Investigator, Assistant Professor</td>
</tr>
<tr>
<td>Tiago Maia</td>
<td>PhD</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Victor César Ferreira de Moura Gonçalves</td>
<td>MD/PhD</td>
<td>Investigator, Assistant Professor</td>
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</table>

**Keywords / Research Areas**

Amyotrophic lateral sclerosis (ALS), Autonomic Nervous System, Neurophysiology, Neuroimaging computational models, Tourette syndrome.
**Major scientific achievements**

Autonomic nervous system (ANS): we have detailed the mechanisms of paroxystic atrial fibrillation and its interplay with ANS dysfunction; novel methods for investigating heart rate variability were developed; the role of sweat tests, laser evoked potentials and sympathetic skin response to detect early changes in familial amyloid polyneuropathy were described.

Neurophysiology: fasciculation potentials were set as a very early marker of motor neuron dysfunction in ALS.

Neuroimaging computational models: Unknown alterations of frontosatriatal circuits and amygdalar activation in psychopathology, including in Tourette’s syndrome and in attention-deficit/hyperactivity disorder (ADHD) were reported.

Amyotrophic lateral sclerosis (ALS): the impact of non-invasive ventilation and exercise on survival and disease progression was studied, in addition advanced telemetry methods were implemented to control home-ventilation; the influence of ventilation-exercise on VEGF expression were explored.

**Recent Most Relevant Publications**


Ongoing Research Projects

2010/2013 On the role of VIP receptors in hippocampal dependent cognitionan dsynaptic plasticity: evaluation of the therapeutic potential of VPAC1 receptor antagonists to ameliorate the cognitive deficits in TLE'. Coordinator: Diana Lina Jerónimo da Cunha Reis. Agency: FCT. Amount: €120.000,00

2012/2015 Early Markers in Familial Amyloid Polyneuropathy. Coordinator: Isabel Conceição and Mamede de Carvalho. Coordinator: Mamede de Carvalho. Agency: FCT. Amount: €60.000,00


2010/2013 Construção de um Pacemaker Diafragmático a ser testado em rato com vista a ser aplicado no ser humano com insuficiência respiratória. Coordinator: Isabel Rocha Amount: €147.456,00

2012/2015 Sampling and Biomarker Optimization and Harmonization in ALS and other Motor Neuron Diseases (SOPHIA). Coordinator: Mamede Carvalho. Amount: €60.000,00


2010/2013 Genetic modification of the paraventricular nucleus of the hypothalamus (PVN) and rostroventrolateral medula (RVLM) cells to control hypertension chronically (PTDC/SAU-OSM/109081/2008). Coordinator: Diana Cunha Reis. Coordinator Institution: IMM/FMUL. Coordinator PI: Isabel Rocha.


2012/2014 Early disease markers in early symptomatic carriers of TTR V30M mutation. Coordinator: Mamede de Carvalho. Agency: Laboratórios Pfizer. Amount: €40.000,00


2010/2013 Genetic modification of the paraventricular nucleus of the hypothalamus (PVN) and rostroventrolateral medula (RVLM) cells to control hypertension chronically. Coordinator: Maria Isabel Rocha. Agency: FCT. Amount: €126.034,00

2010/2013 Construction of a Diaphragmatic Pacing system to be tested on rat with future development for human with insufficient respiration. Coordinator: Maria Isabel Rocha. Agency: FCT. Amount: €147.456,00

2011/2013 Autoregulation in acute stroke. Coordinator: Maria Isabel Rocha. Invited institution: Faculdade de Medicina da Universidade do Porto. Agency: FCT. Amount: €54.982,00 Total amount: €140.000,00

2010/2013 On the role of VIP receptors in hippocampal dependent cognition and synaptic plasticity: evaluation of the therapeutic potential of VPAC1 receptor antagonists to ameliorate the cognitive deficits in TLE. Coordinator: Diana Reis. Agency: FCT. Amount: €120.000,00


**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: Isabel Conceição.


**Publications in peer review Journals**


**Other publications International**

Oliveira MM, Fernandes M, Primo J, Reis H, Nicola P. Remote monitoring versus conventional follow-up for implantable cardiac devices: Rationale and design of the PORTLink (PORTuguese Research on Telemonitoring with CareLink) trial. *Rev Port Cardiol*. (Journal IF: 0.599)


de Carvalho M, Pinto S (2013) Patologia neuromuscular e distúrbios do sono. in Paiva T, Andersen ML, Tufik S. *O Sono e a Medicina do Sono*. Ed Manole 486-498.(Book Chapter)


**Invited lectures and seminars**

**Tiago Maia**
- Reinforcement Learning in Avoidance, Habits, and Tics, Institut d’Investigacions Biomediques August Pi i Sunyer, University of Barcelona, Spain, December 19, 2013;
- The Role of Norepinephrine in Inhibitory Control and Attention-Deficit/Hyperactivity Disorder, Inaugural Alumnus Colloquium, Department of Psychology, Carnegie Mellon University, Pittsburgh, PA, USA, October 28, 2013;
- Norepinephrine and ADHD: Neurocomputation, Brain, and Behavior, Computational Psychiatry 2013, Miami, FL, USA, October 23, 2013;
- Noradrenergic Disturbances and Attention-Deficit/Hyperactivity Disorder, Symposium on Computational Psychopharmacology, British Association for Psychopharmacology Summer Meeting, Harrogate, UK, July 30, 2013;
- Reinforcement Learning in Avoidance, Habits, and Tics, Fundação Champalimaud, Lisboa, Portugal, May 21, 2013;
- Integrated Neuroimaging and Neurocomputational Approaches to Cognition and Psychiatric Disorders, Instituto de Biofísica e Engenharia Biomédica, Lisboa, Portugal, April 26, 2013;
- Reinforcement Learning in Avoidance, Habits, and Tics, Guest Lecture Series, Bernstein Computational Neuroscience Center (BCCN) Berlin, Germany, April 16, 2013;
- The Role of Dopamine in Avoidance Learning, 11th International Basal Ganglia Society Meeting, Eilat, Israel, March 5, 2013.

**Leonel Luís**
• vHIT as a Diagnostic Tool, International Masterclass, American Balance Society, Scottsdale, EUA (international guest), March 6-7, 2013;
• Central or Peripheral Vertigo? New Insights from Video Head Impulse Test, 10th Annual Middle East Update in Otolaryngology Conference, Dubai. April 21-23, 2013;
• BPPV Diagnosis and Treatment – Current concepts, 10th Annual Middle East Update in Otolaryngology Conference, Dubai, April 21-23, 2013;
• Meniere’s disease: A controversial diagnosis of exclusion, 10th Annual Middle East Update in Otolaryngology Conference, Dubai, April 21-23, 2013;
• Benign Positional Vertigo, 10th Annual Middle East Update in Otolaryngology Conference, Dubai, April 21-23, 2013;
• Vestibular Evaluation Update, 10th Annual Middle East Update in Otolaryngology Conference, Dubai, April 21-23, 2013;
• Diagnostic Approach to Vertigo and Dizziness in Children, 10th Annual Middle East Update in Otolaryngology Conference, Dubai, April 21-23, 2013;
• Electrophisiology course (vHIT, VNG and VEMP module), University of Barcelona, Barcelona, Spain May, 2013;
• Video Head Impulse Test, Masterclass, Iberia Otoneurology Congress, Madrid, Spain, May, 2013;
• Video Head Impulse Test, Instruction course, Portuguese National ENT Congress, Porto, Portugal, May 15, 2013;
• Vertigo and Dizziness Course, Guanzhou, China., May, 2013;
• vHIT in Spinocerebellar Ataxias, European Neurology Society meeting, Barcelona, Spain, June 8-9, 2013;
• Acute Vestibular Syndrome, Masterclass, National ENT conference, Romenia. June 28, 2013;
• Diagnóstico Clínico del Balance y Vértigo y su Rehabilitación, Curso de actualización, Santiago, Chile. September 2-4, 2013;
• vHIT, American Academy of Otolaryngology-Head and Neck surgery., Canada, Vancouver, September 29 - October 2, 2013;
• Video Head Impulse test como instrumento de exploración vestibular, Congresso nacional SEORL, Madrid, Spain, October 26-28, 2013;
• Topodiagnostico en Sindrome vestibular agudo, Congresso nacional SEORL, Madrid, Spain, October 26-28, 2013.

Mariana Santos
• Abordagem do doente diabético com disautonomia – Introdução e diagnóstico, III Jornadas de Diabetes do Hospital de Santarém, Portugal, May 10, de 2013.

Isabel Conceição
• Diagnosis of polyneuropathies and related symptoms, ARIA II SYMPOSIUM: advances and research in TTR - improving diagnosis, improving outcomes -, Barcelona, Spain, February 1-2, 2013;
• Early diagnosis of TTR-FAP, ARIA III SYMPOSIUM: advances and research in TTR –, 2013 Berlin, Germany, February 3-4, 2013;
• HRQoL. Health related quality of life in patients in the transthyretin amyloidosis outcomes survey (THAOS), THAOS Investigator Meeting Prague. Check Republic, April 20-21, 2013;
• FAP - Neurological manifestations and evaluations. European Advanced Postgraduate Course on Transthyretin Associated Amyloidosis- Porto, Portugal;
• Early Markers of the Disease. The Ideal Moment to Treat, Neurological Markers. ISFAP 2013, Rio de Janeiro, Brasil, November 10-14, de 2013,
• Abordagem do doente neuromuscular em idade adulta: Polineuropatias, Curso de Doenças Neuromusculares – Aveiro, Portugal, 2013;
• FAP - Neurological manifestations and evaluations, European Advanced Postgraduate Course on Transthyretin Associated Amyloidosis – 13-17 May 2013. Porto. Portugal;
• Early Markers of the Disease. The Ideal Moment to Treat, Neurological Markers- ISFAP 2013, November 10 -14, 2013, Rio de Janeiro. Brazil;

Susana Pinto

• Avaliação funcional respiratória na doença do neurónio motor – parâmetros a monitorizar, Reunião de Primavera da SPEDNM, Monte Real, April, 2013

Gabriela Postalache

• (palestra) Pedro Silva Girão; Gabriela Postolache. Registo de Saúde Electrónico em Portugal, 1st Workshop RSE FISIO, Lisboa, ISCTE-IUL, Portugal;
• (apresentação de trabalho na sessão poster) Sónia Barcia, Lia Jacobsohn, Claudia Maia Moura, Raul Oliveira, Gabriela Postolache. Revolução Digital em Fisioterapia, Conferencia Hospital Cuf Saúde Mobile Health, Centro de Congressos de Estoril, Portugal, January , 2013;

Mamede de Carvalho

• Electrophysiological Monitoring of the Disease Courses in ALS, 57th Annual Congress of the German Society for Clinical Neurophysiology and Functional Imaging (DGKN) – Leipzig, 3-5 March, 2013;
• Doença do Neurónio Motor: esclerose lateral amiotrófica e amiotrofia muscular espinhal, Fórum de Neurologia – Coimbra, Portugal, 3 May, 2013;
• Electrophysiological Study ofPeripheral Neuropathy, 5TH Asian and Oceanian Congress of Clinical Neurophysiology –Bali, August, 2013;
• Fasciculation Potentials: benign observation versus a marker of ALS. Monitoring Disease Progression, 5TH Asian and Oceanian Congress of Clinical Neurophysiology – Bali, August, 2013;
- Polineuropatias Desmielinizantes Crónicas Autoimunes, V Congresso de Neuromusculares – Aveiro, Portugal, September 2013;
- Complicações Neurológicas na Gravidez: doenças neuromusculares, Congresso de Neurologia. Lisbon, Portugal, October, 2013

Isabel Rocha
- Autonomic Activity in Heart Failure, Sorin HF Board - Amsterdam.2013

Communications in International Conferences

Pinto S, Swash M, de Carvalho M. Surgical interventions aggravate progression of Amyotrophic Lateral Sclerosis. 11th annual congress of the European network for the cure of ALS (ENCALS), Birmingham, UK, June 2013 (Poster presentation)

Jorge S. de Carvalho M, Batista J, Gomes A, Carilho R, Pinto S, Pinto A, Costa J. Protein Glycosylation in Amyotrophic Lateral Sclerosis. 11th annual congress of the European network for the cure of ALS (ENCALS), Birmingham, UK, June 2013 (Poster presentation)

Luis L. Anticompensatory quick eye movements after head impulses: a peripheral vestibular sign in spontaneous nystagmu. 9th Meeting of the British Society of Neuro-otology, London, UK (Oral communication), 11 October 2013

Amaro-Leal A, Rocha I, Cunha-Reis D. Preventing epileptogenesis, cognitive decline and sudden death in a rat model of TLE: training in novelty exploration tasks. VII PhD Students Meeting CAML, Lisbon, Portugal, December 5-6, 2013. (Poster presentation)


Cunha-Reis D. Contribution of endogenous VIP VPAC1 receptor activation during hypoxia and interictal-like activity induced in vitro by 0-Mg2+to subsequent changes in LTP expression in the rat hippocampus. Communication PCB102 to the XXXVII International Congress of Physiological Sciences – IUPS 2013, Birmingham, UK, July 21-26, 2013. (Oral communication)

Isabel Conceição, Ana Franco, João Ferreira, Vanda Freitas, Carla Bentes. Central nervous system manifestations in long survival FAP TTR V30M patients. ISFAP 2013, Rio de Janeiro, Brazil, November 10–14, 2013. (Oral communication)

Andrés Diaz, José Castro, Isabel Conceição. Detection of early abnormalities in Familial Amyloidotic Polynervopathy by quantitative sensory testing. ISFAP 2013, Rio de Janeiro, Brazil, November 10–14, 2013. (Oral communication)
Isabel Conceição, Pedro Pereira, José Castro. Transthyretin familial amyloid polyneuropathy – disease progression over 12 months on Tafamidis: the Lisbon center experience. ISFAP 2013, Rio de Janeiro, Brazil, November 10–14, 2013. (Oral communication)

Jose Alvir, Isabel Conceicao, Mat Maurer, Michelle Stewart. TTR Phenotypes Using Patient Reported Symptoms: A Latent Class Analysis. THAOS Investigator Meeting, Prague, Czech Republic, April 20-21, 2013 (Oral communication).


Campos AD, Conceição I, Castro J, de Carvalho M. Uso del Test de Cuantificacion Sensitiva para el Estudio de la Neuropatia de Fibra Pequena de Origem Genetic. XI Congresso Colombiano de Neurologia, Cartagena, Colombia, August 2013. (Poster presentation)

Campos AD, Casanova I, Brum M, de Carvalho M. Resultados del Estudio de Excitabilidad Axonal en una Poblacion Control por la Tecnica de Threshold Tracking. XI Congresso Colombiano de Neurologia. Cartagena, Colombia, August 2013. (Poster presentation)

de Carvalho M, Swash M. Origin of Fasciculations in ALS and Benign Fasciculation Syndrome. 24th INTERNATIONAL SYMPOSIUM on ALS/MND. Milan, Italy, December 2013. (Poster presentation)


Luis L, Costa J, Munoz E, Lehnen N, de Carvalho M, Valls-Sole J. Rapid Eye-Movements Triggered During Head Impulses Differentiate Peripheral and Central Patients with Spontaneous Nystagmus. 23rd Meeting of the European Neurological Society. Barcelona, Spain, June 2013. (Oral communication)

Communications in National Conferences

Pedro Pereira, José Castro, Isabel Conceição. FAPS: uma nova escala para a Polineuropatia Amilóide Familiar? Sociedade Portuguesa Estudo das Doenças Neuromusculares, 12 September 2013 (Oral communication)

Marisa Brum; Andrés Diaz; José Castro; Ana Rita Silvestre; Teresinha Evangelista; Isabel Conceição. Sociedade Portuguesa Estudo das Doenças Neuromusculares, 12 September 2013 (Oral communication)

Castro J, Costa J, Pinto S, de Carvalho M. Avaliação da progressão de doentes com ELA através de uma técnica de estimativa do número de unidade motoras – MUNIX. Congresso da SPDNM Aveiro, Portugal, 2013 (Oral communication);

Pinto S, Swash M, de Carvalho M. Cirurgia na Esclerose lateral Amiotrófica – o risco de progressão clínica. Congresso de Neurologia 2013, Repercussões Neurológicas das Doenças Sistêmicas. Lisbon, Portugal, 2013 (Oral communication)

Víctor Gonçalves. Cavernous Malformation Of The Optical Nerve As Cause Of Migraine: Operative Removal And Result. International Microneurosurgical Meeting, Faculdade de Medicina -Hospital de S. João, Oporto, Portugal, April 2013. (Oral communication)


Castro J, Costa J, Pinto S, de Carvalho M. Avaliação da progressão de doentes com ELA através
de uma técnica de estimativa do número de unidade motoras – MUNIX. Congresso da SPDNM Aveiro, Portugal, 2013. (Oral communication)

Pinto S, Swash M, de Carvalho M. Cirurgia na Esclerose lateral Amiotrófica – o risco de progressão clínica. Congresso de Neurologia 2013, Repercussões Neurológicas das Doenças Sistémicas. Lisbon, Portugal, November, 6-9, 2013. (Oral communication)

Oliveira M, Carvalho M, Laranjo S, Rocha I, ARRITMIAS, Cascais, Portugal, February 2013. (Oral communication)

Viana, P; Castro-Caldas, A; Moldovan, O; de Carvalho, M; Geraldes, R. Miotonia Congénita Autossómica Recessiva: dificuldade diagnósticas e terapêuticas. V CONGRESSO de NEUROMUSCULARES. Aveiro, Portugal, October 2013. (Oral communication)


Pereira, P; de Carvalho, M. Adalimumab: um novo mundo de complicações para a patologia neuromuscular V Congresso de Neuromusculares. Aveiro, Portugal, October 2013. (Poster presentation)

Ohana, B; Cordeiro, C; de Carvalho, M. Experiência com o uso de imunoglobulina-subcutânea nas neuropatias motoras desmielinizantes. V Congresso de Neuromusculares. Aveiro, Portugal, October 2013. (Poster presentation).

de Carvalho, M; Swash, M. Estudo sobre as Alterações Electromiográficas Precoces na Esclerose Lateral Amiotrófica. Congresso de Neurologia 2013. Lisbon, Portugal, November 2013. (Oral communication)

Luis, L; de Carvalho, M. Vestibular-ocular reflex dynamics with head-impulses discriminates hereditary cerebellar ataxias. Congresso de Neurologia 2013. Lisbon, Portugal, November 2013. (Oral communication)

Organisation of Conferences

Member of the Steering Committee of ARIA II SYMPOSIUM: advances and research in TTR amyloidosis. Barcelona, Spain, February 1-2, 2013. (Dr. Isabel Conceição)

Member of the Scientific Board Committee of International Symposium on Familial Amyloid Polyneuropathy. ISFAP 2013, Rio de Janeiro, Brazil, November 10–14, 2013. (Dr. Isabel Conceição)

President and Member of the Scientific Board Committee V Congresso Nacional de Doenças Neuromusculares, Aveiro, Portugal, October 25-27, 2013. (Dr. Isabel Conceição)

Member of International Programmm Committee of NEURORECHNIX 2013 (International Congress
on Neurotechnology, Electronics and Informatics). Vilamoura, Portugal, September 2013. (Mamede de Carvalho)

Member of International Advisory Committee do 5th Asian and Oceanian Congress of Clinical Neurophysiology. Bali, Indonesia, August 2013. (Mamede de Carvalho)

Co-chairman Session “Amyotrophie Lateralsklerose – aktueller Stand und Funktionsdiagnostik”, do Deutsche Gesellschaft fur Klinische Neurophysiologie und Funktionelle Bildgebung (DGKN) Leipzig, Germani, 2013. (Mamede de Carvalho)

Chairman da Sessão “Temas Neuromusculares” do Fórum de Neurologia 2013, Coimbra, Portugal, 2013. (Mamede de Carvalho)

Chairman do “Curso de Neurofisiologia Clínica” promovido pela Sociedade Portuguesa de Neurologia, Coimbra, Portugal, 2013. (Mamede de Carvalho)

Co-chairman Session “Nerve Conduction Study and EMG Workshop” do 5th Asian and Oceanian Congress of Clinical Neurophysiology, Bali, Indonesia, 2013. (Mamede de Carvalho)

Chairman da Sessão “Doenças Neuromusculares Autoimunes” do V Congresso de Neuromusculares, Aveiro, Portugal, 2013. (Mamede de Carvalho)

Co-chairman Session “Disease Progression” no 24th International Symposium on ALS/MND, Milan, Italy, 2013. (Mamede de Carvalho)

**Prizes, honours and awards**

“Rising Star”, Association for Psychological Science, 2013 (Tiago Maia)

2º prémio apresentações livres Congresso da Sociedade Portuguesa de Otoneurologia (Leonel Luís)

**Industry contract research**

Fx1A-303 - Open-Label Safety and Efficacy Evaluation of Fx-1006A in Patients with Transthyretin Amyloidosis. (Pfizer/FoldRx Pharmaceuticals, Inc.)- - (Dr. Isabel Conceição - Principal Investigator. Clinical Trial)

Transthyretin-associated amyloidoses outcomes survey (THAOS) A Global, Multi-Center, Longitudinal, Observational Survey of Patients with Documented Transthyretin (TTR) Mutations or Wild-Type TTR Amyloidosis (Pfizer/FoldRx Pharmaceuticals, Inc.) – (Dr. Isabel Conceição Scientific Board Member)

A Phase 2, Open-Label, Multi-Dose, Dose Escalation Trial to Evaluate the Safety, Tolerability, Pharmacokinetics, and Pharmacodynamics of Intravenous Infusions of ALN-TTR02 in Patients
with TTR Amyloidosis (Alnylam Pharmaceuticals) - (Dr. Isabel Conceição -Principal Investigator-Clinical Trial)

A Phase 2/3 Randomized, Double-Blind, Placebo-Controlled Study to Assess the Efficacy and Safety of ISIS 420915 in Patients with Familial Amyloid Polyneuropathy. (ISIS Pharmaceuticals, Inc.) - (Dr. Isabel Conceição - Principal Investigator-Clinical Trial)

Science and society

Member-at-Large da International Federation of Clinical Neurophysiology and Liaison-Member of IFCN to the European Chapter (Mamede de Carvalho)

President International Clinical Neurophysiology Society (Mamede de Carvalho)

PhD theses completed


Msc theses completed

Sérgio Dias Lab

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 cancer (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 Unit
Sérgio Jerónimo Rodrigues Dias, PhD, Associate Professor, Faculdade de Medicina da Universidade de Lisboa.

Research Team

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<thead>
<tr>
<th>Name</th>
<th>Level</th>
<th>Position</th>
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<tr>
<td>Ana Cláudia Dourado Clemente</td>
<td>Graduate</td>
<td>MSc Student (started July)</td>
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<tr>
<td>Ana Luísa Ferro Espadanal Torres Magalhães</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Ana Maria Matias de Barros</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Ana Raquel Machado Duarte</td>
<td>Graduate</td>
<td>MSc Student (left September)</td>
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<tr>
<td>Andreia Cristina Martins Silva</td>
<td>Graduate</td>
<td>MSc Student (left September)</td>
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<tr>
<td>Celina Maria dos Reis Parreira</td>
<td>Graduate</td>
<td>MSc Student (left September)</td>
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<tr>
<td>Germana Andreia Taipa Leandro Domingues</td>
<td>Master</td>
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<tr>
<td>Inês Mendes Matias</td>
<td>Graduate</td>
<td>Technician</td>
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<tr>
<td>Inês Sofia Alvarez Martins</td>
<td>Graduate</td>
<td>PhD Student</td>
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<tr>
<td>Joana Cabrita Afonso</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Sandrina Nóbrega Pereira</td>
<td>PhD</td>
<td>Post-doctoral Investigator (started August)</td>
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</tbody>
</table>
Keywords / Research Areas
Angiogenesis, Tumor spread, Metabolism.

Major scientific achievements

2013 was our first Year at IMM. As major achievements, we would like to highlight the "Laço" Award for Breast Cancer Research (the first Grant to be awarded by Laço) and the publication of the following papers:

  This paper exploited the role of microRNAs in the regulation of bone marrow endothelial cell properties.
  This paper identified a population of bone marrow derived cells (CD11b+jagged2+) that induces EMT in colorectal cancer, starting the metastatic process.

The Team also started fruitful collaborations with several Units at IMM.

Recent Most Relevant Publications


Ongoing Research Projects


Publications in peer review Journals


Invited lectures and seminars

Sérgio Dias. "Metabolic selection of metastatic potential". Oncogenomics to Cancer Care International Conference. IMM, September 2013.

Communications in International Conferences


Ana de Barros, Inês Matias, Haakan Norell, Bruno Silva-Santos and Sérgio Dias. "LDL-cholesterol affects human Vg9Vd2 T cell activation and tumor cell killing" EMBO Young Scientists´ Forum. Instituto de Medicina Molecular, Lisbon, Portugal 15-16 July 2013.


Prizes, honours and awards

Laço Award for Breast Cancer Research.

Advanced teaching

Master Course in Development and Cancer: Master in Oncobiology. Instituto de Medicina Molecular – Faculdade de Medicina da Universidade de Lisboa, 2013.

Module on Hematology: MSc Course on Biological Sciences. Universidade do Algarve, May 2013.

Lecture on Angiogenesis and Metastasis. CNC PhD Program. Universidade de Coimbra, February 2013.


Science and society

Sergio Dias is Evaluator of National Grants and Fellowships for the Portuguese Foundation for Science and Technology (FCT) and has also served as evaluator of grants and fellowships for the European Commission.

PhD theses completed

Msc theses completed


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 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 Unit

Joaquim Ferreira, MD/PhD, Clinical Specialist, HSM, Associate Professor, Faculdade de Medicina da Universidade de Lisboa.

Research Team

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<tr>
<th>Name</th>
<th>Status</th>
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<tr>
<td>Ana Cláudia Marques Salgueiro</td>
<td>Graduate MSc Student</td>
<td>(started September)</td>
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<td>Ana Margarida Faisca do Carmo Pires de Noronha</td>
<td>Graduate Administrative</td>
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<td>Ana Marta Teixeira Anes</td>
<td>Master Investigator</td>
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<td>Ana Patrícia Silva Pita Lobo</td>
<td>Graduate Investigator</td>
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<td>Ana Rita Simões Cardoso</td>
<td>Graduate MSc Student</td>
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<td>Ana Teresa Martins Sousa Santos</td>
<td>Graduate Manager</td>
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<td>Anabela Ferreira Valadas</td>
<td>Investigator, MD</td>
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<td>André Filipe da Silva Lopes Cardoso</td>
<td>Graduate MSc Student</td>
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<td>Catarina Afonso Godinho</td>
<td>PhD Investigator, Assistant Professor</td>
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<td>Claudio Virgilio Antunes David</td>
<td>Graduate Investigator, MD</td>
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<td>Cristina Sampaio</td>
<td>MD/PhD Investigator</td>
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<td>Daisy Andreína Vieira De Abreu</td>
<td>Graduate Investigator</td>
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<td>Daniel Gomes Caldeira</td>
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<td>Ema Roque</td>
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<td>Isabel Boaventura</td>
<td>Graduate Investigator</td>
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<td>Joao Costa</td>
<td>MD/PhD Investigator, Assistant Professor</td>
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<td>João Franco</td>
<td>Investigator</td>
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<td>Josefa Domingos</td>
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<td>Leonor Correia Guedes</td>
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<td>Márcio Correia Barra</td>
<td>Graduate MSc Student (started September)</td>
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<td>Margarida Borges</td>
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<td>Margherita Fabbri</td>
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<td>Maria Dulce dos Santos Neutel</td>
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<td>Maria Finisterra</td>
<td>Graduate Administrative</td>
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<td>Mário Miguel Coelho da Silva Rosa</td>
<td>MD/PhD Investigator, MD, Associate Professor</td>
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<td>Miguel Coelho</td>
<td>Graduate Investigator</td>
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<td>Nádia Espada</td>
<td>Graduate Investigator</td>
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<td>Nilza Karina Cabral Gonçalves</td>
<td>Graduate Investigator (started October)</td>
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<td>Ricardo Miguel Ribeiro Marques Cunha Fernandes</td>
<td>Graduate Investigator, MD</td>
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<td>Rita Cardoso</td>
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<td>Sofia Cristina Pereira Coutinho Reimao</td>
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<td>Tiago Mestre</td>
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<td>Tiago Rodrigues Teodoro</td>
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<td>Tiago Soares</td>
<td>Graduate Investigator</td>
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<td>Vanda Filipa Viseu Cândido Freitas Castro</td>
<td>Graduate Investigator</td>
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</table>
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). In these first months the research team was enlarged mainly with new MSc and PhD students.

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.

To Lab also supported the process for the creation of The Clinical Research Centre of the Lisbon Medical Academic Centre (CIC-CAML). A Biostatistics and Methodological Sub-Unit was developed. Funding for the next 3 years was guaranteed with the success in three international research grants.

Recent Most Relevant Publications


Other Projects


Publications in peer review Journals


**Other publications National**


Ferreira JJ, Rosa MM, Coelho MH. Doenças do Movimento, In *Neurologia fundamental, Princípios, diagnóstico e Tratamento*, capítulo IX, 2ª edição, Lidel, 2013, pg 159-188.


**Invited lectures and seminars**

Ferreira JJ, Progression of PD from premotor to late stages, Design, Conduct and Interpretation of Clinical trials in Movement Disorders, Toulouse, France, 29-31 October, 2013.


Ferreira JJ, Strengthening capacities for clinical trial, Orphan Drug Rare disease seminar, Marselha, October 17-18, 2013.


Ferreira JJ, Current definitions and diagnostic criteria: reasons for redefining the disorder, 3rd World Parkinson Congress, Montreal, Canadá, October 1-4, 2013

Ferreira J, Um enfoque baseado em evidências para o tratamento da Doença de Huntington, 2013 World Congress in Huntington’s disease, Rio de Janeiro, Brasil, September 15-18, 2013.


Ferreira JJ, Parkinson’s disease and related disorders, 5th Regional Teaching Course in Sub-Saharan Africa, Dakar, Senegal, July 11-13, 2013.


FERREIRA JJ, What if it’s not Huntington’s disease? 17th International Congress of Parkinson’s Disease and Movement Disorders, Sydney, Australia, June 16-20, 2013


Ferreira JJ, Investigaçao clínica no internato médico, Sessao de Boas vindas aos novos internos, Centro hospitalar Lisboa Norte, Lisbon, Portugal, June 5, 2013.

Ferreira JJ, Late-stage Parkinson disease. How is changing the landscape of PD’s later stage? Beyond advanced phase of PD. Update focusing on dementia and gait/balance problems in the late stage of PD, Open issues in Parkinson’s Disease: questions and answers, Cuglieri, May 30-31, 2013.


Mestre T, Brain and Behavior, a clinical neuroscience course for first-year medical students, University of Toronto. March 2013.

Mestre T, Movement disorders full-day course, American Academy of Neurology Annual Meeting, San Diego, USA, March 2013.


Communications in International Conferences

Ana Almeida, Liliana Lopes, Maria Loureiro, Carlos Cotrim, Inês Cruz, Bruno Stuart, Daniel Caldeira, Hélder Pereira. Echocardiographic assessment of right ventricular contractile reserve in patients with pulmonary hypertension. 5th World Symposium on Pulmonary Hypertension, Nice, France, 2013. (Poster presentation)


Domingos, J., Godinho, C., Ferreira, JJ. Which treatments are in the pipeline for the management of falls in Parkinson disease? 3rd World Parkinson Congress, Montréal, Canada, October 1st to 4th, 2013 (Poster presentation)

Mestre T, Shah PS, Marras C, Lang AE. The lessebo effect in Parkinson’s disease. Movement Disorders, 2013, 28(Suppl. 1), S170-171 (Poster presentation)

Mestre T, Teodoro T, Graf J, Reginold W, Sale J, Zurowski M, Miyasaki J, Ferreira JJ, Marras C. Reluctance to start medication in Parkinson’s disease from the patient perspective: Results from an international observational study. Movement Disorders, 2013, 28(Suppl. 1), S427-428. (Poster presentation)

Pondal M, Marras C, Walsh R, Mestre T, Lang AE. Challenges in establishing reliability of transcranial sonography (TCS) of the substantia nigra (SN) in parkinsonism. Movement Disorders, 2013, 28(Suppl. 1), S51-S52 (Poster presentation)


Daniel Caldeira, Cristina Martins, Helder Pereira, Joaquim J Ferreira, João Costa. Caffeine does not increase the risk of atrial fibrillation: a systematic review and meta-analysis of observational studies, ESC Congress 2013, Amsterdam, Netherlands, 2013. (Oral communication)

Domingos, J., Graziano, M., Jones, D., Ramaswamy, B. Making the most of expert practice - The Association of Physiotherapists in Parkinson’s Disease Europe Case Study Project” 3rd World Parkinson Congress, Montréal, Canada, October 1st to 4th, 2013 (Poster presentation)

Domingos, J., Cardoso, R., Ferreira, JJ. Josefa Domingos, Rita & Joaquim J Ferreira. What if you had it all in one setting? An Innovative Parkinson Intensive Multi-Program Rehabilitation Approach (PIMPRA)” 3rd World Parkinson Congress, Montréal, Canada, October 1st to 4th, 2013. (Poster presentation)
Neutel D, Karachi C, Welter ML, et al. Worldwide Record of REM Sleep Time In a Patient with Pedonculopontine Nucleus Area (PPNa) stimulation. World Congress of Neurology – Vienna, Austria, 21st - 26th September 2013 (Poster presentation)

Neutel D, Karachi C, Welter ML, et al. Worldwide Record of REM Sleep Time In a Patient with Pedonculopontine Nucleus Area (PPNa) stimulation. 17th International Congress of Parkinson’s Disease and Movement Disorders, Sidney, Australia, 16Th- 20Th June 2013 (Poster presentation)


Communications in National Conferences

Ferreira JJ, O que os cuidadores e familiares devem saber sobre a Doença de Parkinson, Conversas no Campus sobre saúde, Torres Vedras, Portugal, December 15. (Oral communication)

Guedes LC, Projecto BIOBANCO IMM – Doença de Parkinson, Conversas no Campus sobre saúde, Torres Vedras, Portugal, December 15. (Oral communication)

Domingos, J. Exercício físico na Doença de Parkinson. 1st Ciclo de Conferências “Conversas no Campus”– Conversas sobre Doença de Parkinson para familiares e cuidadores, Torres Vedras,
Portugal December 14th, 2013 (Oral Presentation).

Ferreira JJ, Especialidades médicas – Uma escolha para o futuro, XXIII Encontro Nacional de Estudantes de Medicina, Peniche, 23-25 November, 2013. (Oral communication)

Domingos, J. Actividade Física e doença de Parkinson, Conferência “3."Idade: Um Novo Olhar, um Novo Caminho”, Torres vedras, Portugal, October 7th-11th, 2013 (Oral Presentation)

Rosa MM, Multi-system atrophy, V Teaching Course in Movement Disorders of the Neurological Clinical Research Unit, Instituto de Medicina Molecular, Lisbon, June 29, 2013. (Oral communication)

Rosa MM, Wilson’s Disease, V Teaching Course in Movement Disorders of the Neurological Clinical Research Unit, Instituto de Medicina Molecular, Lisbon, June 29, 2013. (Oral communication)

Guedes LC, Huntington Disease, V Teaching Course in Movement Disorders of the Neurological Clinical Research Unit, Instituto de Medicina Molecular, Lisbon, June 29, 2013. (Oral communication)

Valadas A, Psycogenic Movement Disorders, V Teaching Course in Movement Disorders of the Neurological Clinical Research Unit, Instituto de Medicina Molecular, Lisbon, June 29, 2013. (Oral communication)


Daniel Caldeira, Rita Calif, Cristina Martins, Ingrid do Rosário; Carina Machado, Pedro Galvão Santos, João Brito, Ricardo Esteves, Ernesto Pereira, Manuel Almeida, Miguel Mendes, Hélder Pereira. Quantificação e impacto da revascularização coronária incompleta após intervenção percutânea em octagenários, XXXIV Congresso Português de Cardiologia, 2013. (Poster presentation)

Daniel Caldeira, Inês Cruz, Bruno Stuart, Cristina Martins, Hédier Pereira, em nome dos Investigadores do Registo Nacional dos Síntrme Coronários Agudos Síntrme coronário agudo indolor e fibrilhação auricular, Arritmias 2013, Portugal. (Poster presentation)

Ferreira JJ, Early Parkinson's Disease vs Essential Tremor, V Teaching Course in Movement Disorders of the Neurological Clinical Research Unit, Instituto de Medicina Molecular, Lisbon, June 29, 2013 (Oral communication)

Ferreira JJ, Restless Legs Syndrome, V Teaching Course in Movement Disorders of the Neurological Clinical Research Unit, Instituto de Medicina Molecular, Lisbon, June 29, 2013 (Oral communication)
Joaquim Ferreira Lab | 175

Ferreira JJ, Tourette’s Syndrome, V Teaching Course in Movement Disorders of the Neurological Clinical Research Unit, Instituto de Medicina Molecular, Lisbon, June 29, 2013 (Oral communication)

Ferreira JJ, Doença de Parkinson – Viver com Parkinson, III Jornadas: Viver com Parkinson, Biblioteca do Hospital Dr. Nélio Mendonça, 10-11 Maio 2013 (Oral communication)


Ferreira S, Reimão S, Nunes R, Simulation study comparing algorithms for estimation of T2* relaxation maps, 5th Workshop on Biomedical Engineering, Lisbon, April 20, 2013. (Poster presentation)


Organisation of Conferences

Domingos, J. Co-organized 1st Ciclo de Conferências “Conversas no Campus”- Conversas sobre Doença de Parkinson para familiares e cuidadores, December 14th, 2013, Torres Vedras,
Ferreira JJ, Director do IV Curso Botulinum Toxin Training Course, Instituto de Medicina Molecular, Lisboa, Lisbon, Portugal, October 19th 2013.

Ferreira JJ, Director do Curso Revisões sistemáticas como Projecto de Investigação Clínica, Faculdade de Medicina de Lisboa, Lisbon, Portugal, September 11-12, 2013.

Ferreira JJ, Membro da Comissão organizadora da MDS/ParkinsonNet Allied Health Professionals Summer School, Nijmegen (NL), July 4-6 2013.

Ferreira JJ, Director do V Teaching Course in Movement Disorders, Instituto de Medicina Molecular, Lisbon, Portugal, June 29, 2013.


Caldeira D, Member of the Organizing committee the X Course of Echocardiography of Hospital Garcia de Orta, Almada, Portugal, May 2013.


Internationalisation

Chair of The Education Committee, International Parkinson’s Disease and Movement Disorders Society.

Elected-President MDS-ES, International Parkinson’s Disease and Movement Disorders Society.

Representative of the Portuguese Neurology Society at the European Board of Neurological of European Union of Medical Specialists (UEMS/EBN).

Co-Chair of the Clinical Working Partie, COST Action BM1101 European network for the study of dystonia syndromes.

Lead facilitator of The Neuroprotectice Therapy Working Group, European Huntington Disease Network.

Member of the Executive Committee, European Huntington Disease Network.
Prizes, honours and awards

Honor mention to Sofia Reimão for the Oral Comunicacion - Locus coeruleus and substantia nigra neuromelanin magnetic resonance imaging in patients with early Parkinson's disease, Congresso Ibérico de Neuroradiologia, Lisbon, 2013.

Advanced teaching

Reimão S, Masters Degree Program in Biomedical Engineering, IBEB – Faculdade de Ciências da Universidade de Lisboa, co-orientation of three projects.

Ferreira JJ, Introdução à metodologia da investigação clínica, Certificado Nível 1, Sub-investigador médico e staff não médico, Clinical Investigator Certification, Universidade de Aveiro.

Ferreira JJ, Training Programme in Pharmaceutical Medicine, Director of the module Systematic review and meta-analysis: Clinical Data Management and Analysis, Universidade de Aveiro, 2013-2014.

Anes, AM, Pharmacovigilance and ADR spontaneous reporting, Faculdade Medicina de Lisboa, Lisbon, December 18, 2013.

Anes, AM, Pharmacovigilance and ADR spontaneous reporting, USF Marginal, S. João do Estoril, November 21, 2013.

Anes, AM, Pharmacovigilance and ADR spontaneous reporting, USF Linda-a-Velha, Carnaxide, November 14, 2013.


Anes, AM, Pharmacovigilance and ADR spontaneous reporting, ACES Arrábida - Centro de Saúde S. Sebastião, Setúbal, October 25, 2013.

Anes, AM, Pharmacovigilance and ADR spontaneous reporting - practical session, Intensive
Course in Pharmacovigilance, Faculdade de Medicina de Lisboa, Lisbon, October 24, 2013.

Anes, AM, Pharmacovigilance and ADR spontaneous reporting, Intensive Course in Pharmacovigilance, Faculdade de Medicina de Lisboa, Lisbon, October 22, 2013.

Ferreira JJ, Overview on botulinum toxin: clinical uses, formulations, injection techniques and identification of best muscle targets, 4th IMM Teaching Course on Botulinum Toxin of the Clinical Pharmacology Unit, Lisbon, Portugal, October 19, 2013.

Ferreira JJ, Hands on: preparation of botulinum toxin, 4th IMM Teaching Course on Botulinum Toxin of the Clinical Pharmacology Unit, Lisbon, Portugal, October 19, 2013.

Ferreira JJ, Preparation of botulinum toxin (flash presentation), 4th IMM Teaching Course on Botulinum Toxin of the Clinical Pharmacology Unit, Lisbon, Portugal, October 19, 2013.

Ferreira JJ, Hands on: writer’s cramp, 4th IMM Teaching Course on Botulinum Toxin of the Clinical Pharmacology Unit, Lisbon, Portugal, October 19, 2013.

Anes, AM, Pharmacovigilance and ADR spontaneous reporting, UCSP Lumiar, Lisbon, October 17, 2013.

Ferreira JJ, Update on the non-Huntington disease choreas, Uncommon causes of Movement disorders, Rome, Italy, October 11-12, 2013.

Anes, AM, Safety and Adverse Event Reporting in Clinical Trials, 1st Course in Good Clinical Practice, Faculdade de Medicina de Lisboa, Lisbon, May 23, 2013.

Ferreira JJ, Estrutura de um centro de investigação clínica, I Curso Pós-graduado de actualização em Boas Práticas Clínicas, Faculdade de Medicina de Lisboa, 22-23 de Maio de 2013.

Ferreira JJ, Responsabilidades do investigador, I Curso Pós-graduado de actualização em Boas Práticas Clínicas, Faculdade de Medicina de Lisboa, 22-23 de Maio de 2013.

Ferreira JJ, Introdução e princípios de Boas Práticas Clínicas, I Curso Pós-graduado de actualização em Boas Práticas Clínicas, Faculdade de Medicina de Lisboa, 22-23 de Maio de 2013.


Rosa MM, Mecanismos e reacções adversas medicamentosas e factores de risco, Curso intensivo de Farmacovigilância, Faculdade de Medicina de Lisboa, May 13-16, 2013.


Rosa MM, Métodos de monitorização de segurança de medicamentos, Curso intensivo de Farmacovigilância, Faculdade de Medicina de Lisboa, May 13-16, 2013.


Ferreira JJ, Video Diagnosis of Movement Disorders, 4th Aims Meeting, University of Lisbon, Faculty of Medicine, March 15-17, 2013

Ferreira JJ, Clinical aspects of Parkinson’s disease, Neurobiology and Disease, The Doctoral Programme in Health Sciences, Faculty of Medicine, University of Coimbra, February 26, 2013

Ferreira JJ, Module Clinical Trials, Introduction to clinical research: a practical course, Clinical Research course of the Lisbon Academic Medical Center PhD Program, Faculty of Medicine, University of Lisbon, 2013.

Ferreira JJ, Clinical Trials in Portugal, Training Program in Pharmaceutical Medicine, Clinical Development, Infarmed, Lisbon, January 10-12, 2013.

Anes, AM, Pharmacovigilance and ADR spontaneous reporting, Hospital CUF Descobertas, Lisbon, January 30, 2013.


Science and society

Interview to Daniel Caldeira (October 2013) in Visão: “Café não faz mal ao coração”.


Domingos, J. Co-organized 1st Ciclo de Conferências “Conversas no Campus”- Conversas sobre Doença de Parkinson para familiares e cuidadores, December 14th, 2013, Torres Vedras, Portugal.

Ferreira JJ, O que os cuidadores e familiares devem saber sobre a Doença de Parkinson, Conversas no Campus sobre saúde, Torres Vedras, December 15, 2013.

Guedes LC, Projecto BIOBANCO IMM – Doença de Parkinson, Conversas no Campus sobre saúde, Torres Vedras, December 15, 2013.

Domingos, J. Exercício físico na Doença de Parkinson. 1st Ciclo de Conferências “Conversas no
Campus”- Conversas sobre Doença de Parkinson para familiares e cuidadores, Torres Vedras, Portugal Decembre 14th, 2013 (Oral Presentation).

Major Interests / Objectives

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. Main advantage of the lab: strong collaboration among the experienced Principal Investigators, and the development of multiple collaborations, both at IMM and at other national and international major research centers and networks, in the areas of basic neurosciences, clinical genetics, advanced statistical methods, biological engineering, and neuroimaging. We share common facilities and know-how that have allowed the conduction of many clinical trials as well as the assessment of the clinical impact of different interventions in a multinational effort to get new treatments for these prevalent and disabling brain disorders.

Head of Unit

José Manuel Morão Cabral Ferro, MD, PhD, Faculdade de Medicina da Universidade de Lisboa, Hospital de Santa Maria.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Role</th>
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<tbody>
<tr>
<td>Alcina Fraga Luz</td>
<td>No degree</td>
<td>Investigator</td>
</tr>
<tr>
<td>Alexandre Valério de Mendonça</td>
<td>PhD</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Ana Catarina Gaspar Fonseca</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Ana Isabel Figueira Verdelho</td>
<td>MD/PhD</td>
<td>Investigator</td>
</tr>
<tr>
<td>Bruno André e Silva Miranda</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Carolina Pires Maruta</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Catarina Carapeto da Silva Chester</td>
<td>Graduate</td>
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<td>Dina Lúcia Gomes da Silva</td>
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<tr>
<td>Elisabete Mendes Lopes</td>
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<tr>
<td>Fátima Soares</td>
<td>No degree</td>
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<tr>
<td>Frederico Simões do Couto</td>
<td>No degree</td>
<td>Investigator</td>
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<tr>
<td>Helena Sofia Garrido Bárrrios</td>
<td>Master</td>
<td>Investigator, MD</td>
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<tr>
<td>Isabel Pavão Martins</td>
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<td>José Manuel Borges Fonseca</td>
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<td>Lara Isabel Pires Melo Caeiro</td>
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<tr>
<td>Luisa Farrajota</td>
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<td>Madalena Cristina Rocha Martins</td>
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<td>Mafalda Alexandra Ramos de Matos</td>
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<td>Maria Gabriela Mariano Leal</td>
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<td>Maria Luisa Albuquerque</td>
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<td>Investigator</td>
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<td>Maria Luisa Mendonça Correia Pires</td>
<td>Undergraduate</td>
<td>Administrative</td>
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<tr>
<td>Maria Manuela Gil Guerreiro</td>
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<tr>
<td>Marisa Marina Fatuda Costa</td>
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<td>Mauricio de Jesus Dias Martins</td>
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<td>Patrícia Canhão</td>
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<td>Paulo Maciel Mendes Batista</td>
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<td>Raquel Santos Gil Gouveia</td>
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<td>Ruth Isabel de Gusmão Fernandes Geraldes Ramos Dias</td>
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<tr>
<td>Sofia Madureira</td>
<td>Master</td>
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<tr>
<td>Teresa Pinho e Melo</td>
<td>No degree</td>
<td>Investigator</td>
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<tr>
<td>Vanda Filipa Viseu Cândido De Freitas</td>
<td>Master</td>
<td>MSc Student</td>
</tr>
<tr>
<td>Vitor Oliveira</td>
<td>No degree</td>
<td>Investigator</td>
</tr>
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</table>

**Keywords / Research Areas**

Stroke, Alzheimer’s disease, Cognitive decline, Complex diseases, Genetics, Clinical trials.
Major scientific achievements

The researchers of José Ferro Lab made in 2013 significant scientific contributions expressed in full papers published in international peer-reviewed journals. Important results were obtained regarding treatment of cerebral venous thrombosis, age-related white matter changes, namely on the relationship between cerebral small vessel disease and brain atrophy, cognitive decline and depression in the elderly. Advances were made on the study of cognitive aging in primary care, the understanding of subjective memory complaints, evaluation of quality of life and determination of the prognosis of elderly people with cognitive complaints.

New data were published using traditional genetic approaches, like linkage and association, as well as new approaches, namely genome-wide association studies, exome sequencing and microRNA expression profiling, to identify susceptibility genes in neurological disorders. Novel genetic risk factors for ischaemic stroke and its subtypes were identified and new mutations

Recent Most Relevant Publications


Publications in peer review Journals


Gil-Gouveia R. Treatment Orthostatic Headache without intracranial hipotension A case report. *Cephalalgia* 2013; 33, 948-950. (Journal IF: 3.485, Citations: 0)


2013; 35, 269-278. (Journal IF: 2.116, Citations: 0)


Other publications International


Other publications National


Invited lectures and seminars


Ferro JM. How far have we come? How far do we need to go? How can NOACS change stroke epidemics? II Thrombosis Forum Portugal 2013. Oporto, Portugal, November 2, 2013.


Communications in International Conferences

Aguiar de Sousa D, Ferro JM, Canhão P, Barinagarrementeria F, Bousser M-G, Stam J on behalf of the International Study on Cerebral Vein and Dural Sinus Thrombosis investigators. No association between severe thrombophilia and cerebral venous thrombosis severity. 23rd Meeting of the European Neurological Society. Barcelona, Spain, June 8-11, 2013. (Oral presentation)
Aguiar de Sousa D, Geraldes R, Almeida A, Canhão P. Carney complex in a young patient with ischemic stroke. XXI World Congress of Neurology, Vienna, Austria, September 21-26, 2013. (Poster presentation)


Carrasco G, Rybarczyk Y, Cardoso T, Martins IP. A Serious Game For Multimodal Training Of Physician Novices. ICERI 2013 Conference. Seville, Spain, November 18-20, 2013. (Poster presentation)


Ferreira J, Franco A, Agostinho S, Santos C, Teodoro T, Coelho M, Albuquerque L. Vernet syndrome as a presentation of varicella-zoster virus infection. XXI World Congress of Neurology, Vienna, Austria, September 21-26, 2013. (Poster presentation)


Franco AC, Ferreira J, Antunes AP, Peralta AR, Coelho M, Albuquerque L. Hail Mary prayer – an ictal manifestation of non-convulsive status epilepticus. XXI World Congress of Neurology, Vienna, Austria, September 21-26, 2013. (Poster presentation)


Communications in National Conferences


Carioca F, Canhão P. Biomarcadores sanguíneos e a recorrência de acidentes vasculares cerebrais em doentes com acidentes isquêmicos transitórios: revisão sistemática da literatura. 7º Congresso Português do AVC. Oporto, January 31-February 2, 2013. (Poster presentation)


Ferreira J, Franco A, Teodoro T, Santos C, Coelho M, Albuquerque L. Síndrome de Vernet pelo VEB na ausência de mononucleose infecciosa. Fórum de Neurologia, Coimbra, May 9-11, 2013. (Poster presentation)

Fonseca AC, Brito AC, Melo TP, Geraldes R, Canhão P, Ferro JM. NT-proBNP como biomarcador para detecção de fibrilação auricular paroxística em doentes com AVC criptogênico. 7º Congresso Português do AVC. Oporto, January 31-February 2, 2013. (Oral presentation)

Fonseca AC, Geraldes R, Mas JL, Ferro JM. Investigação etiológica de AVC jovem em duas unidades de acidente vascular cerebral europeias. 7º Congresso Português do AVC. Oporto, January 31-February 2, 2013. (Oral presentation)


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Gil-Gouveia R, Oliveira AG, Martins IP. Uma curta bateria para avaliar a disfunção cognitiva na enxaqueca. Reunião de Primavera da Sociedade Portuguesa de Cefaleias. Lisbon, April 19-20, 2013. (Oral presentation)


Organisation of Conferences


Canhão P. organized the 7º Congresso Português do AVC. Oporto, January 31-February 2, 2013.

Prizes, honours and awards


Menção Honrosa Comunicação Oral to Ana Catarina Fonseca. 7º Congresso do AVC, Oporto, Portugal, in 2013.

2º Prémio Cartaz to Filipa Carioca and Patrícia Canhão. 7º Congresso do AVC, Oporto, Portugal, in 2013.

Industry contract research

2009/2013 - Ensaio multicêntrico internacional AVAGLIO. Promotor Hoffman-LaRoche – A randomized, double blind, placebo controlled, multicenter Phase III trial of bevacizumab, temozolomide and radiotherapy, followed by bevacizumab and temozolomide versus placebo, temozolomide and radiotherapy followed by placebo and temozolomide in patients with newly diagnosed glioblastoma – Luisa Albuquerque, Conceição Lourenço e Mónica Semedo – Serviço de Oncologia, HSM.

2013/ - Ensaio multicêntrico internacional TAMIGA - A double-blind, placebo-controlled, randomised, Phase IIIb trial evaluating the efficacy and safety of standard of care (SOC)+/- continuous bevacizumab treatment following progression of disease (PD) in patients with glioblastoma (GBM) after first (1st)-line treatment with radiotherapy, temozolomide and bevacizumab – Albuquerque, L., Sousa, D., Macedo, D., Abreu, C.- Serviço de Oncologia, HSM.


2013/ - Multicenter, randomized, double-blind, placebo-controlled, parallel-group two year study to evaluate the effect of subcutaneous RO4909832 on cognition and function in prodromal Alzheimer´s disease Alexandre de Mendonça, Manuela Guerreiro, Ana Verdelho, Frederico Couto, Vanda Freitas e Carolina Maruta (Roche).

Advanced teaching


Caeiro L. Diagnostic traps in post stroke dementia, depression, apathy etc. European Master in Stroke Medicine, Krems, Austria, October 24, 2013.

Caeiro L. How to evaluate cognition in the follow-up of stroke patients? European Master in Stroke Medicine, Krems, Austria, October 24, 2013.


Ferro JM. Anxiety and disorders of emotional control. European Master in Stroke Medicine, Krems, Austria, October 23, 2013.


Ferro JM. Delirium and related disorders. European Master in Stroke Medicine, Krems, Austria, October 23, 2013.

Ferro JM. Executive deficits. European Master in Stroke Medicine, Krems, Austria, October 23, 2013.

Ferro JM. Mood disorders. European Master in Stroke Medicine, Krems, Austria, October 23, 2013.


Ferro JM. Visual agnosias. European Master in Stroke Medicine, Krems, Austria, October 23, 2013.


Martins P. “Neglect”. European Master in Stroke Medicine, Krems, Austria, October 23, 2013.


Martins IP. “Memory disorders”. European Master in Stroke Medicine, Krems, Austria, October 23, 2013.


Martins IP. “Reading and Writing Disorders”. European Master in Stroke Medicine, Krems, Austria, October 23, 2013.


Science and society


Canhão P. Organização das comemorações do dia Nacional do Doente com AVC, March 31, 2013.

PhD theses completed


Msc theses completed


LUÍSA FIGUEIREDO LAB

Major Interests / Objectives

*Trypanosoma brucei* is a unicellular parasite that, in humans, causes a fatal disease called African sleeping sickness. While in the bloodstream, the parasite evades its host immune system through antigenic variation; specifically, it periodically switches from one dense, uniform coat of variant surface glycoprotein (VSG) to an antigenically distinct one. Although the *T. brucei* genome contains hundreds of VSG genes, all but one are transcriptionally silenced. Such transcriptional changes do not involve alterations in the DNA sequence but are inherited nevertheless, which indicates that VSG transcription is under epigenetic control. Our goal is to identify and characterize the factors involved in the epigenetic control of VSG gene expression.

Head of Unit

Luisa Miranda Figueiredo, PhD.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree Level</th>
<th>Position</th>
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<tbody>
<tr>
<td>Ana Catarina Dias Pena</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Ana Filipa de Almeida Rijo Ferreira</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Ana Margarida Roque Sanches Vaz</td>
<td>Master</td>
<td>MSc Student</td>
</tr>
<tr>
<td>Carla Andrea Sequeira Bejarano</td>
<td>Undergraduate</td>
<td>Undergraduate (started August)</td>
</tr>
<tr>
<td>Daniel Pinto de Oliveira Goñçalves Neves</td>
<td>Graduate</td>
<td>MSc Student</td>
</tr>
<tr>
<td>Diogo Maia e Silva</td>
<td>Undergraduate</td>
<td>Undergraduate (started April)</td>
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<tr>
<td>Fabien Marc Guegan</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Francisco Maria dos Santos e Silva Branco</td>
<td>Master</td>
<td>PhD Student</td>
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<td>Helena Isabel Gomes Pires Manso</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Idálio de Jesus Contreiras Viegas</td>
<td>Graduate</td>
<td>MSc Student (started July)</td>
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<tr>
<td>Leonor Duarte Pinho</td>
<td>Master</td>
<td>Lab manager (started July)</td>
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<tr>
<td>Mafalda Ramos de Melo Pimentel</td>
<td>Master</td>
<td>MSc Student</td>
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<tr>
<td>Sandra Isabel Goñçalves Trindade</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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Keywords / Research Areas

Antigenic variation, chromatin, gene expression, parasitology, infection, chromatin.

Major scientific achievements

Co-organizer of EMBO Young Scientists’ Forum. IMM, Lisboa, Portugal.
Session chairman at Kinetoplastid Molecular Cell Biology meeting, Woods Hole, MA, USA.
AXA post-doctoral fellowship awarded to Fabien Guegan, a fellow in my group.

Recent Most Relevant Publications


Ongoing Research Projects


Other publications International


Invited lectures and seminars


Communications in International Conferences

Pena A, Figueiredo LM. Histone H1 regulates a specific set of genes and is important for virulence in Trypanosoma brucei. 30th Annual Swiss Trypanosomatid Meeting. Leysin, Swiss. January, 2013 (Oral communication)


Figueiredo LM. Chromatin dynamics and VSG gene regulation in African trypanosomes. EMBO Young Scientists’ Forum. IMM, Lisbon, Portugal. July 2013 (Oral communication)

Aresta-Branco F, Pimentel M, Figueiredo LM. Open chromatin of the VSG Expression Site is maintained independently of transcription in *Trypanosoma brucei*. EMBO Young Scientists' Forum, Instituto de Medicina Molecular, Lisbon, Portugal, July, 2013 (Poster presentation)

Guegan F, Kedra DA, Notredame C, Figueiredo LM. Long non-coding RNA in *Trypanosoma brucei* parasites. EMBO Young Scientists' Forum, Instituto de Medicina Molecular, Lisbon, Portugal, July, 2013 (Poster presentation)

Trindade S, Carvalho T, Ferreira AF, Itoe MA, Figueiredo LM. Tissue tropism of *Trypanosoma brucei*: causes and consequences. EMBO Young Scientists' Forum, Instituto de Medicina Molecular, Lisbon, Portugal, July, 2013 (Poster presentation)

Ferreira AF, Carvalho T, Trindade S; Takahashi JS, Figueiredo LM. A mouse model to study circadian rhythm changes during an infection by *Trypanosoma brucei*. EMBO Young Scientists' Forum, Instituto de Medicina Molecular, Lisbon, Portugal, July, 2013 (Poster presentation)

Vaz MS, Mendes AM, Figueiredo LM, Prudêncio M. Trypanosomes inhibit Plasmodium liver stage. EMBO Young Scientists' Forum, Instituto de Medicina Molecular, Lisbon, Portugal, July, 2013 (Poster presentation)

Pena AC, Pimentel M, Manso H, Ferreira AF, Neves D, Aresta-Branco F, Guegan F, Coelho LP, Figueiredo LM. Histone H1 controls the expression of a specific set of genes and it is important for virulence of African trypanosomes. EMBO Young Scientists' Forum, Instituto de Medicina Molecular, Lisbon, Portugal, July, 2013 (Poster presentation)

Ferreira AF, Carvalho T, Trindade S; Takahashi JS, Figueiredo LM. A mouse model to study circadian rhythm changes during an infection by *Trypanosoma brucei*. European Biological Rhythms Society, Ludwig-Maximilians-University, Munich, Germany, August, 2013 (Poster presentation)

Ferreira AF, Carvalho T, Trindade S; Takahashi JS, Figueiredo LM. A mouse model to study circadian rhythm changes during an infection by *Trypanosoma brucei*. HHMI Science meeting 2013. Janelia Farm Research Campus, Ashburn, Virginia, United States of America, September, 2013 (Poster presentation)

Manso H, Neves D, Pimentel M, Pena AC, Figueiredo LM. Histone H1 depletion controls trans-splicing in *Trypanosoma brucei*. EMBO Practical Course Analysis of High-Throughput Sequencing Data. European Bioinformatics Institute, Cambridge, United Kingdom, October, 2013 (Poster presentation)

Aresta-Branco F and Figueiredo LM. Formaldehyde-assisted isolation of regulatory elements (FAIRE): where is “open chromatin”? EMBO Young Investigator PhD Course 2013. EMBL campus. Heidelberg, Germany, December, 2013 (Poster presentation)
Communications in National Conferences


Ferreira AF, Takahashi JS, Figueiredo LM. Trypanosoma brucei interferes with the mouse circadian rhythm. IMM PhD Meeting 2013. Instituto de Medicina Molecular, Lisbon, Portugal, December, 2013 (Oral communication)

Pena AC, Pimentel M, Manso H, Neves D, Aresta-Branco F, Ferreira AF, Guegan F, Coelho LP, Figueiredo LM. Histone H1 regulates a small set of genes but is important for virulence of African trypanosomes. IMM PhD Meeting 2013. Instituto de Medicina Molecular, Lisbon, Portugal, December, 2013 (Oral communication)

Ferreira AF, Takahashi JS, Figueiredo LM. Trypanosoma brucei accelerates mouse circadian rhythm. GABBA PhD program. Universidade do Porto, Oporto, Portugal, December, 2013. (Oral communication)

Organisation of Conferences

Every week a renown scientist gives a lecture to a broad audience of around 100 people. Most speakers work abroad and about one third comes from a national research institute. Topics are diverse, from clinical research to basic biology. As the founder and organizer, I have established the rules of whom to invite, the logistics of the invitations, how to best host the speakers and so on. Going to the Monday Lectures has become a natural weekly routine for many researchers of IMM.

Co-organizer of the EMBO Young Scientists’ forum, Lisbon, July, 2013.
The EMBO Young Scientists’ Forum aimed to bring together young European researchers in order to motivate and inspire students to pursue their career and education in life sciences. The meeting provided the opportunity to European and Portuguese Ph.D. students, post-docs and junior investigators to interact with Europe’s most promising young scientists, members of the EMBO Young Investigator Programme. Younger scientists (students and post-docs) had the possibility to present their work as short talks and as posters. Poster sessions and a social event provided friendly environment for informal discussions of the policies and practices for doing world-class science.

Internationalisation

Our research group acts internationally at several levels. First, by presenting our work and acting as chairman in international meetings (EMBO Young Scientists’ Forum - Lisboa and Kinetoplastid Molecular Cell Biology Meeting - USA); second by establishing and maintaining collaborations (Gerald Spaeth, Institut Pasteur, France; Cedric Notredame, Center for Genomic Regulation,
Spain; Nicolai Siegel, University of Wuerzburg, Germany); third by acting as reviewer for several international journals including Nucleic Acids Research, Journal of Cell Science and Eukaryotic Cell; finally by hosting a summer undergraduate from an EMBO-sponsored partnership with Cabo Verde.

**Prizes, honours and awards**

AXA post-doctoral fellowship awarded to Fabien Guegan, a fellow in my group. The mission of AXA Research Fund is to boost scientific progress and discoveries that contribute to understand and better prepare against environmental, life and socio-economic risks. The 30 grantees were assessed by well-recognized referees and an independent scientific board composed of world class experts with robust and transparent selection processes. Fabien Guegan, a fellow in my group, was the only AXA-awardee in a Portuguese research institute.

**Advanced teaching**


Figueiredo LM. 2 hour lecture for students of Masters in Biomedical Sciences, IHMT, Lisbon, Portugal. “What can the post-genomic era teach us about chromatin structure and gene regulation?” February 2013

Figueiredo LM. 3 hour lecture for students of Masters in Evolution and Development Biology, FCUL, Lisbon, Portugal. “Mouse model to study circadian rhythm and understand how trypanosomes cause sleeping sickness” November 2013

**Science and society**

Figueiredo LM. Casos que nos inspiram: investigadores de sucesso em Portugal. Instituto de Higiene e Medicina Tropical, Universidade Nova de Lisboa. Lisbon, Portugal, January 2013.

**Msc theses completed**

JOÃO EURICO FONSECA LAB

Major Interests / Objectives

The João Eurico Fonseca Lab results from a partnership between the IMM/FML and the Rheumatology Department of the Santa Maria Hospital. It is devoted to the translational study of the early burden of inflammatory rheumatic diseases on bone and vessel, seeking prognostic markers, predictors of treatment response and new treatment targets. We have created a network of biologists, biomedical engineers and physicians, sharing a common mission, goals and values, which allow the ongoing pattern of a highly interactive work that is leading the translational research in the field of Rheumatology in Portugal. The long-term objective of the Lab is to achieve recognition as an European League Against Rheumatism Centre of Excellence in Rheumatology.

Head of Unit

João Eurico Fonseca, MD/PhD/ Professor FMUL.

Research Team

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<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Title</th>
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<tr>
<td>Ana Catarina Coimbra do Vale</td>
<td>No degree</td>
<td>PhD Student</td>
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<tr>
<td>Ana Filipa Mourão</td>
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<td>Ana Filipa Rodrigues Lopes</td>
<td>Master</td>
<td>Lab manager</td>
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<tr>
<td>Ana Henrique Baptista Daniel</td>
<td>Graduate</td>
<td>MSc Student (started September)</td>
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<tr>
<td>Ana Maria Ferreira Rodrigues</td>
<td>Graduate</td>
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<td>Ana Rita Cascão Rodrigues</td>
<td>PhD</td>
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<tr>
<td>Ana Rita Fernandes Vieira</td>
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<td>António José Nicolau Marques Fernandes</td>
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<td>Bruno Miguel Costa Vidal</td>
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<tr>
<td>Cláudia Cristina Valente Quaresma</td>
<td>Graduate</td>
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<tr>
<td>Diana de Almeida Carmona Fernandes</td>
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<tr>
<td>Elsa Cristina Vieira de Sousa</td>
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<td>Filipe Carlos Pereira dos Reis Cortes Figueiredo</td>
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<tr>
<td>Helena Cristina de Matos Canhão</td>
<td>MD/PhD</td>
<td>Principal Investigator</td>
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<tr>
<td>Inês Pedro Perpétuo</td>
<td>Master</td>
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<td>Joana Ribeiro Caetano Lopes</td>
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<td>Joaquim Miguel Polido Pereira</td>
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<tr>
<td>Luísa Sofia Campos Magalhães Garcia</td>
<td>Graduate</td>
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<td>Marco Aurélio Carmelino Cardoso Sarmento</td>
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<tr>
<td>Maria Helena Regalo da Fonseca</td>
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<td>Maria João Gonçalves</td>
<td>Master</td>
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<tr>
<td>Maria José Parreira dos Santos</td>
<td>MD/PhD</td>
<td>Investigator, Associate Professor</td>
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<td>Mónica Cristina Medina Lopes</td>
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<td>Rita Alexandra Pedra Aguiar de Moura</td>
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<td>Rita Maria Mendes Raposeiro</td>
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<td>Saba Abdulghani Oliveira da Silva</td>
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<td>Tânia da Cunha Branco dos Santos</td>
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<td>Vanessa Sofia de Oliveira Artilheiro</td>
<td>Undergraduate</td>
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<td>Vasco Madeira Crispim Romão</td>
<td>Master</td>
<td>Investigator</td>
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**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;
Major scientific achievements

1- Describe the gene expression pattern involved in bone fragility induced by rheumatoid arthritis;
2- Preclinical development of an arthritis treatment intervention with novel compounds inhibiting IL1 and TNF;
3- B cell gene expression in early arthritis;
4- Anti ribosomal P antibodies as potential diagnostic markers for Lupus;
5- Development of published protocols for mechanical and structural assessment of bone;
6- New genetic risk factors for rheumatoid arthritis and spondylarthritides;
7- Coordination of the Portuguese national registries of the Portuguese Society of Rheumatology and coordination of the Portuguese Rheumatology Biobank, a part of the IMM biobank;
8- Participation in multinational clinical trials as national coordinators allowing refractory patients to have access to the state of art in biotechnological therapies;
9- International collaborations have been set and strengthened, allowing the development of networking, collaborative projects and publications.

Recent Most Relevant Publications


**Ongoing Research Projects**


2012/2015 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: PRIV-NAC. Amount: €85.000,00


2012/2014 Differences in osteoclastic activity between rheumatoid arthritis and ankylosing spondylitis. Coordinator: João Eurico Fonseca. Agency: MSD. Amount: €30.000.00


2011/2013 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. Amount: €100.000,00


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. Amount: €15.000,00


2012/2014 Golimumab as first line DMARD therapy in MTX naive psoriatic arthritis - a 24 weeks

Other Projects


Publications in peer review Journals


on the microstructure. *Journal of Biomedical Science and Engineering* **6**, 175-184. (Journal IF: 0.27, Citations: 0)


**Other publications International**

Other publications National


Invited lectures and seminars

Canhão U. Mitochondrial genetics on RA susceptibility, Sociedade Portuguesa de Reumatologia, Lisbon, Portugal, April 23, 2013

Canhão H. Speaker in session Update Registos; Fonseca JE. Chairman in lecture Jak Pathways - Clinical Implications; Sousa E. Speaker in session “What's New ACR 2012”; Santos MJ. Chairman in lecture Rastreio e Monitorização da Tuberculose. Pfizer Summit Inflamação, Vilamoura, Portugal, February 2-3, 2013


Fonseca JE. Chairman in round table Arthritis and bone: two faces of the same coin; Fonseca JE. Bone and Cartilage interaction?; Perpétuo IP. Differences in osteoclastic activity between rheumatoid arthritis and ankylosing spondylitis; Caetano-Lopes J. Effects of inflammation on bone biological structural and mechanical behavior. 11th Medinterna International Meeting, Porto, Portugal, February 6-9, 2013.

Vieira-Sousa E. Terapêutica com "Biológicos" em Diversas Especialidades. 5a Jornadas de Dermatologia e Dermocosmética em Medicina Familiar, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, Mar 8-9, 2013

Sarmento M. Chairmain in lecture Módulo 1: Fracturas da extremidade proximal do úmero. AO Trauma Shoulder Course, Lisbon, Portugal, March 7-9, 2013

Cascão R. Inflamasoma: Doenças Auto-Inflamatórias e Artrites Micrósinais; Santos MJ. B-cell depletion in autoimmunity. A Look Across Registries; Simpósio - Satélite Roche; Santos MJ and Fonseca C. Screening do VHB no Contexto das Terapêuticas Imunossupressoras; Sousa Vieira S. O que Devemos Mudar no Registo Clínico das Espondilartrites; Canhão H and Oliveira M. Artrite Reumatóide - Onde Estamos e Até Onde Podemos Ir, Simpósio - Satélite AbbVie; Fonseca JE. Novos DMARDs Orais na Era das Terapêuticas Biotecnológicas, Simpósio - Satélite Pfizer; Fonseca JE. Chairman in lecture Inflamação - Mecanismos Intracelulares e Extracelulares; Fonseca JE. Chairman in round table Lacunas no Diagnóstico, Referenciação e Tratamento dos
Doentes com Artrite Reumatóide em Portugal. Simpósio - Satélite MSD, Hot Topics In Rheumatology. 3º Simpósio SPR Inflamação e Dor, Espinho, Portugal, May 2-4, 2013


Canhão H. Chair of the Local Organising Committee ECTS 2013; Canhão H. Welcome to Lisbon from the Chair of the Local Organising Committee; Abdulghani S. 2010 ECTS / SERVIER FELLOWSHIP, Previous Grant Winner Presentation; Caetano-Lopes J. Chair in session Bone quality and fracture repair - animal models; Fonseca JE. Chairman in Workshop 1: Fat and bone; Rodrigues AM. Chair in session Osteoporosis pathophysiology and genetics; Perpétuo IP. Chair in session Oral Posters 2: Pre-clinical Perpétuo IP. Invited speaker - New Investigator workshop 3 - How to get started as a post-doc?; Perpétuo IP. Chair in session Workshop 4 - Pre-clinical - Osteclast activity and heamatopoiesis; Rodrigues AM. Chair in session Treatment of osteoporosis; Fonseca JE. Chairman in session Meet the Professor Sessions- Arthritis, inflammation and bone: from bench to bedside; Abdulghani S. Chair in session Meet the Professor Sessions State-of-the-Art techniques in Bone research. ECTS Lisbon, Portugal, May 18-21, 2013.

Fonseca JE. Chairman in lecture AIJ sistémica: outros conceitos; Santos MJ. Chairman in lecture Casos Clínicos; Canhão H. Chairman in lecture Casos Clínicos; Ramos F. Chairman in Lombalgias: do funcional ao estrutural; Mourão AF. Chairman in lecture Discussão de Posters. 5ª Reunião de Casos Clínicos da Secção de Reumatologia Pediátrica da SPP, Centro de Investigação Médica da Universidade do Porto, Porto, Portugal, June 7, 2013.

Fonseca JE. Artrite Reumatoide e espondilite anquilosante. 1ª Reunião de Medicamentos Biológicos, Leiria, Portugal, June 28-29,2013.


Canhão H. Osteoarthritis biomarker analysis to enable patient stratification and disease modifying experimental medicine clinical trials. IMI Consultation Workshop Brussels, Belgium, July 8, 2013.


Fonseca JE. O biobanco como fulcro no desenvolvimento da investigação médica na pediatria. 14º Congresso Nacional de Pediatria, Porto, Portugal, October 3-5, 2013


Sousa E. Qual o papel dos anti-TNF na Espondilartrite axial não radiográfica; Fonseca JE. Prevenir a reativação da Hepatite B em doentes medicados com anti-TNF: está na altura de rever as guidelines?; Santos MJ. Doença Cardiovascular e Malignidade nos doentes tratados com anti-TNF – ponto da situação. VI Forum das Espondilartrites, Batalha, Portugal, November 8-9, 2013.


Communications in International Conferences

Moura RA, De la Torre I, Leandro MJ, Cambridge G. Effect of Rituximab on B Cell Subpopulations Expressing the 9G Idiotype in Patients with Rheumatoid Arthritis. 33nd European Workshop for Rheumatology Research in Czech Republic, Prague, February 28-March 2, 2013 (Poster Presentation)


Perpétuo IP, Marques R, Ponte C, Canhão H, Fonseca JE. Rankl Expression is Lower on T and B Lymphocytes and Rankl+ Cells Tend to Accumulate in Circulation of Rheumatoid Arthritis Patients Treated with TNF Blockers. 33nd European Workshop for Rheumatology Research in Czech Republic, Prague, February 28-March 2, 2013 (Poster Presentation)


Canhao H, Gouveia N, REgo T, Rodrigues AM, Branco J. BMA assessment standard curves for wrist and ankle in both sexes – data from EpiReumaPt. ECTS Lisbon, Portugal, May 18-21, 2013


Communications in National Conferences


Sarmento M. Chair Exercício prático 1 - Osteossíntese com placa philosAO Trauma Shoulder Course, Lisbon, Portugal, March 7-9, 2013 (Oral communication)


Artilheiro V. Estudo da via de sinalização Wnt e relação com mineralização óssea, propriedades mecânicas e risco de fractura em osteoporose. Fórum das Bolsas Universidade de Lisboa / Fundação Amadeu Dias (UL/FAD), Lisbon, Portugal, October 9, 2013 (Oral communication)


Ponte C, Campanilho-Marques R, Morais F, Resende C, Pereira da Silva JA Systemic sclerosis: demographic clinical features and treatment in 9 patients. 3º Simpósio SPR Inflamação e Dor, Espinho, Portugal, May 2-4, 2013 (Poster presentation)


Ponte C, Morais F, Campanilho-Marques R, Resende C, Pereira da Silva JA. High-resolution computed tomographic findings in patients with systemic sclerosis and their clinical correlations. 3º Simpósio SPR Inflamação e Dor, Espinho, Portugal, May 2-4, 2013 (Poster presentation)


Romão VC, Conceição I, Pereira da Silva JA, Fonseca JE. Miosite e mononeuropatia secundária a infecção viral por Coxsackie. XXI Jornadas Internacionais do Instituto Português de Reumatologia, Lisbon, Portugal, November 28-29, 2013 (Poster Presentation)


Campanilho-Marcues R, Ramos F, Mourão AF, Martins F, Canhão H, Fonseca JE, Pereira da Silva JA. Disease activity in a Juvenile idiopathic arthritis population after 5 years follow-up. 3º Simpósio SPR Inflamação e Dor, Espinho, Portugal, May 2-4, 2013 (Poster presentation)


Gouveia N, Canhão H, Ramiro S, Mourão AF, Silva I, Machado P, Laires P, Branco JC. Comparação da frequência das patologias reumáticas auto-reportadas com as confirmadas pelo reumatologista – resultados do EpiReumaPt após 1 ano no terreno. 3º Simpósio SPR Inflamação e Dor, Espinho, Portugal, May 2-4, 2013 (Poster presentation)


Furtado C, Fernandes S, Marques R, Macieira C, Pereira da Silva JA. Vasculites: experiencia de um ano de consulta. 3º Simpósio SPR Inflamação e Dor, Espinho, Portugal, May 2-4, 2013 (Poster presentation)

Furtado C, Fernandes S, Gomes L, Navalho M, Capela S, Pereira da Silva JA. Brucelose osteoarticulor por transmissão sexual. 3º Simpósio SPR Inflamação e Dor, Espinho, Portugal, May 2-4, 2013 (Poster presentation)


Madruga Dias J, Balogh E, Harty L, Mullan R, Costa MM, Veale DJ. The role of arthroscopy in rheumatology: review of the training experience in an Irish centre. 3º Simpósio SPR Inflamação e Dor, Espinho, Portugal, May 2-4, 2013 (Poster presentation)

Gouveia N, Canhão H, Ramiro S, Mourão AF, Silva I, Machado P, Laires P, Branco JC. Estado de
saúde e capacidade funcional em diversas doenças reumáticas – resultados de uma sub-amostra do EpiReumaPt. 3º Simpósio SPR Inflamação e Dor, Espinho, Portugal, May 2-4, 2013 (Poster presentation)

Laires PA, Canhão H, Gouveia N, Branco J. Health Resource Consumption Associated with Rheumatic Diseases in Portugal? Preliminary Results from the Portuguese Epidemiology Study on Rheumatic Diseases (EpiReumaPt) 13th Portuguese Conference on Health Economics, Braga, Portugal, Octobre 10-12, 2013 (Poster presentation)

Perpétuo IP , Campanilho-Marques R, Caetano-Lopes J, Fonseca JE, Canhão H, Osteoclast in ankylosing spondylitis: The role of systemic inflammation. ECTS PhD course, Hamburg, German, September 15-18, 2013 (Poster presentation)

Organisation of Conferences

Fonseca JE was a member of the International advisory board, 33nd European Workshop for Rheumatology Research in Czech Republic, Prague, February 28-March 2, 2013

Fonseca JE, Canhão H, Caetano-Lopes J and Perpétuo IP were members of the ECTS Lisbon, Portugal, May 18-21, 2013.

Internationalisation

2012-2013 CERRERA and TOCERRA collaboration. Coordinator: Helena Canhão. Funding Roche, €5.000€

2011-2013 Comparative patient outcome measures study in Dutch and Portuguese rheumatoid arthritis patients – data from Meteor Project. Coordinator: Helena Canhão. Funding Meteor, €25.000€

Prizes, honours and awards


2013 ASPIRE EU Inflammation Pfizer Research Awards. Inhibition of bone and cartilage degradation in rat induced arthritis treated with tofacitinib.

**Industry contract research**

RRU projects are supported by unrestricted research grants from industry. We will start also a clinical trial funded by Industry.

**Advanced teaching**

Romão VC. Artrite Psoriática de difícil controlo – de anti-TNF em anti-TNF. Rheumatology in Practice, Monte Real, Portugal, November 16th 2013 (Oral Presentation, Clinical Case and Literature Review)

Caetano Lopes J supervisor of the laboratory module of the medical degree from University of Algarve (A. Correia and J. Fernandes), Algarve, Portugal, 2013.


Canhão H. Moderadora na Mesa. Uma visão actual sobre a a artrite Reumatoide; Mourão AF. Moderadora na Mesa. Doenças reumáticas infantis e juvenis; Gonçalves MJ. “Uma Visão Actual sobre a Artrite Reumatóide”; Romão VC, Ramos F, Mourão AF. Nem todas as dores na criança são dores de crescimento…quanto mais precoce o diagnóstico, melhor o prognóstico. 6º Curso de Reumatologia Prática em Cuidados Primários, Lisbon, Portugal, September 18-19, 2013.

Perpétuo IP, Campanilho-Marques R, Caetano-Lopes J, Fonseca JE, Canhão H; Osteoclasts in ankylosing spondylitis: the role of systemic inflammation; ECTS PhD training course, Hamburg, Germany September 15-18, 2013 (Poster Presentation)

**Science and society**

RRU has participated in "Ciência Viva" in July and August, receiving a total of 4 students.
RRU received students from Escola Secundária de São Brás do Alportel in a visit to IMM.

Helena Canhão participated, in October 2013, in TV programs, Saúde em Jogo - Bola TV and Especial Saúde - RTP1 to talk about Osteoporosis.

João Eurico Fonseca participated, in October 2013, in TV program, to talk about two points: "O que é um biobanco" and "Tratamento com biológicos".

**Msc theses completed**


Sara Marques Batista (2013) Relação entre adipocinas, composição corporal e actividade inflamatória em mulheres com Lupus eriematoso sistémico. Faculdade de Medicina da Universidade de Lisboa Supervisor: Maria José Santos.
**EDGAR GOMES LAB**

**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 required 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 Unit**

Edgar Rodrigues Almeida Gomes, PhD.

**Research Team**

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<tr>
<td>Telma Cristina Lourenço Carrilho</td>
<td>Master</td>
<td>Technician (started September)</td>
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<tr>
<td>Tiago Maria de Carvalho da Costa Amado</td>
<td>Master</td>
<td>Technician (started September)</td>
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**Keywords / Research Areas**

Cell Biology, Cytoskeleton, Cell Migration, Skeletal Muscle.

**Major scientific achievements**

Last year we established that the position of the nucleus in skeletal muscle cells is important for muscle physiology. This year we focused our efforts in understanding why nuclear positioning is important for cell migration. We developed new systems and engineer novel reagents able to address this question.

Furthermore, we were awarded with the following grants:

- ERC Consolidator Grant 2013 - "Positioning the nucleus for cell migration and muscle fiber function".
- EMBO Installation Grant 2014 - "Positioning the cell nucleus".
- Investigador FCT to Edgar Gomes.
Recent Most Relevant Publications


Publications in peer review Journals


Invited lectures and seminars


Communications in International Conferences


Organisation of Conferences


Internationalisation

Our research projects involve multiple collaborations with teams in Europe, United States, Canada and Australia. We are involved in the organisation of international meetings and workshops and most of our funding is provided by non-Portuguese funding agencies.

PhD theses completed

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 Unit

Luis Graca, MD/PhD – Associate professor at FMUL.

Research Team

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<tr>
<th>Name</th>
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<tr>
<td>Alexandre Varela Santos Costa</td>
<td>Graduate</td>
<td>Lab manager</td>
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<td>Ana Água-Doce</td>
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<td>Ana Raquel Maceiras Oliveira</td>
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<td>Joana Catarina Mendão Azeitão da Silva</td>
<td>Master</td>
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<tr>
<td>JORGE IVAN RAMIREZ SEPULVEDA</td>
<td>Master</td>
<td>Investigator (left June)</td>
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<tr>
<td>Marta Isabel de Carvalho Ferreira Gomes</td>
<td>Graduate</td>
<td>MSc Student (left November)</td>
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<tr>
<td>Marta Ribeiro Lopes Caridade</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Marta Sofia Ferreira Monteiro Coelho Antunes</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Raquel Filipa Reis de Freitas</td>
<td>Master</td>
<td>Technician (started August)</td>
</tr>
<tr>
<td>Ruy Miguel Sousa Soeiro de Figueiredo Ribeiro</td>
<td>PhD</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Silvia Cristina de Paiva e Almeida</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Vanessa Alexandra Gonçalves de Oliveira Martins</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
</tbody>
</table>
Keywords / Research Areas

Immune tolerance, Regulatory T cells, Natural Killer T cells (NKT), Transplantation, Autoimmunity, Allergy.

Major scientific achievements

Our data on the induction of Foxp3 expression by peripheral iNKT cells challenges the idea that iNKT cells exit the thymus as functionally committed effectors. We found that iNKT cells respond to environmental cues acquiring different types of effector responses, namely IL-17 production. (J. Immunol 2013)

Our studies on tolerance induction with non-depleting anti-CD4 monoclonal antibodies led us to find evidence that an adjuvant may be necessary to allow efficient antigen presentation for tolerance induction to factor VIII in hemophilic mice. Surprisingly, tolerance, in this situation, appears to be Foxp3-independent (Blood 2013). Instead, we found that the molecular mechanism for tolerance induction that is Foxp3-independent relies on IL-10.

Recent Most Relevant Publications


Ongoing Research Projects


Other Projects


Publications in peer review Journals


Monteiro M, Graca L. (2013) Letter to the Editor: Induced IL-17-producing invariant Natural Killer T cells require activation in presence of TGF-?, *J Immunol* 190, 5910. (Journal IF: 5.742, Citations: 0)


**Invited lectures and seminars**

Graca L, Regulatory T cells. 2nd European Midwinter Workshop on Immunology, Angerer Alm, Austria, January 28-30, 2013.


Graca L, Control of immune-mediated inflammatory diseases by regulatory T cell subsets. Departmental seminar, University of Macau, Macau, China, July 29, 2013.


**Communications in International Conferences**


Oliveira RM, Agua-Doce A, Faro J, Graca L, Regulation of germinal centre response and antibody production by Foxp3+ follicular regulatory T cells. 6th Aegean Conference on Autoimmunity: Mechanisms and Novel Treatments, Corfu, Greece, October 2–7, 2013 (Oral communication)
Almeida SCP, Ferreira-Gomes M, Graca L, Distinctive phenotypical features of liver and spleen iNKTs. 7th International Symposium on CD1 and NKT cells, Tours, France, September 13–17, 2013 (Poster presentation)

Monteiro M, Graca L, Cross-talk between NKT cells and basophils in protease-induced allergic Th2 responses. The 7th International Symposium on CD1/NKT Cells, Tours, France, September 13–17, 2013 (Poster presentation)

Monteiro M, Graca L, Cross-talk between NKT cells and basophils in the context of allergen-induced Th2 responses. EMBO Young Scientists' Forum, Lisbon, Portugal. July 15-16, 2013 (Poster presentation)

**Communications in National Conferences**

Maceiras AR, Agua-Doce A, Faro J, Graca L, Regulation of germinal center reaction by Foxp3+ follicular regulatory T cells. IMM/CAML PhD Students Meeting, Lisbon, Portugal, December 5-6, 2013. (Poster Presentation)

**Internationalisation**

Collaborative research with Dr. José Faro (University of Vigo, Spain) – co-supervision of PhD student – Ana Raquel Maceiras.

Collaborative research with Dr. Ruy M. Ribeiro (Los Alamos National Laboratory, NM, USA) – co-supervision of PhD student – Marta Caridade.

Collaborative research with Dr. Kalet Leon (CIM, Havana, Cuba). Exchange of materials and joint experiments involving one PhD student (Tania Carmenate) that spent three months in our laboratory.

**Prizes, honours and awards**

Monteiro M, SPI Travel Award to attend the 7th International Symposium on CD1/NKT Cells, Tours, France.

**Advanced teaching**

Luís Graça, Member of the board of LisbonBioMed PhD Program at IMM. 2013-present

Luís Graça and Marta Monteiro, GABBA PhD Program. Seminar "Regulatory T cells" within the module on Immunology, IBMC, Porto, Portugal, June 6, 2013.
Luis Graça, CEDOC PhD Program. Workshop "Regulatory T cells" integrated in the module on Inflammation, CEDOC, Lisbon, March 26, 2013.

Science and society

Collaboration with artist Herwig Turk in the work “The conversation that never took place”, developed during the artist’s residency at IMM, and presented at Pavilhão do Conhecimento – Ciência Viva, Lisbon, Portugal, November 24–December 15, 2013.

Collaboration with artist Marta de Menezes / Cultivamos Cultura (as scientific consultant) for the exhibition about art and science “Sul-Sol” that was exhibited in Odemira (18/10 – 24/11/2013) and will be on tour in Spain and France during 2014.


PhD theses completed


Msc theses completed

Major Interests / Objectives

A central question in developmental biology is how cells decide which differentiation paths they follow to generate tissues and organs during embryonic development. Our aim is to elucidate the gene regulatory networks that control cell-fate decision processes in the embryo, using 2 experimental models:

- embryonic stem cells to study the mechanisms underlying their pluripotent state;
- neural retina to investigate how progenitors acquire their multipotent character and generate the variety of neurons that compose the mature retina.

The main goal is to understand the mechanisms governing the decision processes that stem/progenitor cells employ to exit the plur/multipotent state and differentiate along various paths, thereby generating correctly patterned tissues and organs.

Head of Unit

Domingos Manuel Pinto Henrique, PhD.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Status</th>
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<tbody>
<tr>
<td>Aida Isabel Santos da Costa</td>
<td>Graduate</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Alexandra Isabel Freitas Rosa</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Ana Leonor Heitor Lopes</td>
<td>Graduate</td>
<td>Trainee (left February)</td>
</tr>
<tr>
<td>Ana Marisa Mendes Gonçalves Vinhais Guedes</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Ana Rita Ponce Alvares de Águeda Pedrosa</td>
<td>Master</td>
<td>PhD Student (started September)</td>
</tr>
<tr>
<td>Ana Sofia Temudo Duarte António</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Anna Pezzarossa</td>
<td>PhD</td>
<td>Post-doctoral Investigator, (started September)</td>
</tr>
<tr>
<td>Catarina Esteves Lopes Ramos</td>
<td>PhD</td>
<td>Post-doctoral Investigator (left March)</td>
</tr>
<tr>
<td>Cláudia Sofia Cardoso Gaspar</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Dusan Djokovic</td>
<td>MD/PhD</td>
<td>Post-doctoral Investigator, MD (started October)</td>
</tr>
</tbody>
</table>
Keywords / Research Areas

Stem cells, Notch signalling, Pluripotency, Neurogenesis, Gene regulatory networks, Systems biology.

Major scientific achievements

Our work focused on how cell fate decisions are controlled at the single-cell level, revealing how cell-cell communication functions to coordinate the proper assembly of tissues and organs. In the developing nervous system, our research allowed us to unravel how neuronal differentiation is controlled by the timing of Notch activity. We have also investigated how the pluripotent state is regulated in embryonic stem (ES) cells. By monitoring the activity of the pluripotency gene Nanog, combined with mathematical modelling, our work uncovered the existence of significant stochastic gene expression noise in individual ES cells, which we propose allow these cells to explore the pluripotent decision space. This research shall contribute to design more rational strategies to direct the in vitro and in vivo production of specific cell types, required to develop cell-replacement therapies in humans, aimed at regenerating damaged tissues and organs.

Recent Most Relevant Publications


Rocha, S.F, Lopes, S.S., Gossler, A. and Henrique, D. (2009) Dll1 and Dll4 function sequentially in...


**Ongoing Research Projects**


**Publications in peer review Journals**


**Invited lectures and seminars**

Domingos Henrique, "From ES cells to Neurons", Invited lecture at 2nd Joint Meeting SPDB/SEBD Meeting, Lisbon, Portugal, October 24-26, 2013.
Communications in International Conferences

Elsa Abranches, Ana Guedes, Anna Pezzarossa, Domingos Henrique, "The role of Nanog in pluripotency network regulating Embryonic Stem Cells". 2013 IMB Conference: Chromatin Dynamics & Stem Cells, Mainz, Germany, October 17-20, 2013 (Poster presentation)

Cláudia Gaspar, Alexandra I. Rosa, Sara Ferreira, Catarina Ramos & Domingos Henrique, "Understanding cell fate decisions in the embryonic retina". 2nd Joint Meeting SPDB/SEBD Meeting, Lisbon, Portugal, October 24-26, 2013 (Poster presentation)

Aida Costa, S. Juniat, J. Gale, N. Daudet and D. Henrique, "From Embryonic Stem Cells to Sensory Hair Cells: A Cell Reprogramming Approach". 2nd Joint Meeting SPDB/SEBD Meeting, Lisbon, Portugal, October 24-26, 2013 (Oral communication)

Pedro Barbacena, Catarina Ramos, Joana Neves & Domingos Henrique "Unravelling the regulation of Dll4 expression and its function during embryonic neurogenesis". 2nd Joint Meeting SPDB/SEBD Meeting, Lisbon, Portugal, October 24-26, 2013 (Poster presentation)

Ana Guedes, Elsa Abranches, Domingos Henrique, "Analysis of the dynamic properties of the pluripotency network in Embryonic Stem Cells". 2nd Joint Meeting SPDB/SEBD Meeting, Lisbon, Portugal, October 24-26, 2013 (Poster presentation)

Sanja Ivkovic & Domingos Henrique, "EGF and Notch signaling are required for the proper organization of postnatal retina". 2nd Joint Meeting SPDB/SEBD Meeting, Lisbon, Portugal, October 24-26, 2013 (Poster presentation)

Williamne K. A. Silva, Domingos Henrique & Elsa Abranches, "Identification of different pluripotent states in cultures of Embryonic Stem Cells, using combinations of cell surface antibodies". 2nd Joint Meeting SPDB/SEBD Meeting, Lisbon, Portugal, October 24-26, 2013 (Poster presentation)

Organisation of Conferences

Organisation of 3rd StEmbryo Meeting, international meeting on Stem Cells & Embryos, IMM, Lisbon, Portugal, May 19-20, 2013. Participants: 20.

Prizes, honours and awards

Aida Costa - Best Presentation at 2nd Joint Meeting SPDB/SEBD Meeting, Lisbon, Portugal, October 24-26, 2013.

Sofia Duarte - Best Poster am IMM PhD Meeting 2013, IMM, Lisbon, Portugal, 2013.
**Advanced teaching**


Domingos Henrique - Lecturer at International Neuroscience Doctoral Programme (INDP), Fundação Champalimaud, Lisbon, Portugal, 2013.

Domingos Henrique - Lecturer and Organizer of Course on Developmental Biology, GABBA PhD, Universidade do Porto, Porto, Portugal, 2013.

**Science and society**


**Msc theses completed**


**Major Interests / Objectives**

The main research focus of our laboratory is the study of immune reconstitution after hematopoietic stem cell transplantation (HSCT) in humans and the development of strategies that modulate immune responses and tolerance post-transplant. Donor immunity emerging post-transplant plays a pivotal role in the protection against pathogens, such as *Aspergillus*, CMV and EBV, as well as in the development of graft-versus-host disease (GVHD) and graft-versus-leukemia effect. Our laboratory aims to identify immunological risk factors and the mechanisms by which these complications emerge post-transplant. We are particularly interested in developing strategies that may be translated into the clinical setting, such as the use of pathogen-specific T cells, donor regulatory T cells for GVHD and disease-specific T cells, with the aim of improving patient survival. We also maintain research lines investigating the pathogenesis of hematologic malignancies.

**Head of Unit**

João Mascarenhas Forjaz de Lacerda, MD/PhD, Associate Professor, Faculdade de Medicina da Universidade de Lisboa, Clinical Specialist, Hospital de Santa Maria

**Research Team**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>António Maria Moura Tavares de Sampaio Soares</td>
<td>Graduate</td>
<td>MScStudent (started June)</td>
</tr>
<tr>
<td>António Maria Santa Marta de Soure</td>
<td>Master</td>
<td>PhD Student (started October)</td>
</tr>
<tr>
<td>Inês Raquel Antunes Ferreira</td>
<td>Master</td>
<td>Technician</td>
</tr>
<tr>
<td>Maria Godinho A.V. Duarte Soares</td>
<td>PhD</td>
<td>Principal Investigator (started December)</td>
</tr>
<tr>
<td>Rita Isabel Silva de Azevedo</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Telma Raquel Martins da Palma</td>
<td>PhD</td>
<td>Post-doctoral Investigator (started September)</td>
</tr>
</tbody>
</table>

**Keywords / Research Areas**

Immune reconstitution after hematopoietic stem cell transplantation (HSCT), Homeostasis of regulatory T cells in patients submitted to HSCT, Cytomegalovirus-specific immunity after HSCT,
Development of cellular adoptive immunotherapies under GMP conditions, Genetic susceptibility to invasive fungal and viral infections, Gene expression and signaling pathways of hematologic malignancies.

**Major scientific achievements**

Our Lab, 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 invasive infections after hematopoietic stem cell transplantation (HSCT). We are also developing strategies to modulate immune tolerance after HSCT, such as the treatment of chronic graft versus host disease, by examining regulatory T cell homeostasis in this setting.

Our lab is currently funded by a Collaborative Research Grant of the Harvard Medical School Portugal Program.

**Recent Most Relevant Publications**


Ongoing Research Projects

2013/2016 Indução de Tolerância Imunológica após Transplante Alogénico de Células Estaminais Hematopoíéticas em Humanos, FCT. Coordinator: João Forjaz de Lacerda. Amount: €293,513,00 Total amount: €563,495.00.

2012/2014 Impact of cellular therapy with CMV-specific CD4+ and CD8+ T cells following unrelated hematopoietic stem cell transplantation, Terry Fox Foundation. Coordinator: João Forjaz de Lacerda. Amount: €15,000.00

Other Projects


2012/2013 Impact of cellular therapy with CMV-specific CD4+ and CD8+ T cells following unrelated hematopoietic stem cell transplantation. Terry Fox Grant; Lacerda (PI); 01/01/2012 - 31/12/2013. Coordinator: João Lacerda.

2009/2013 Clinical implications of activation of PI3K/Akt signaling pathway in primary adult acute lymphoblastic leukemia FCT: PIC/IC/83023/2007; Lacerda (PI); 01/03/2009 - 29/02/2013. Coordinator: João Lacerda.

Publications in peer review journals

Lacerda JF, Oliveira CM (2013). Diagnosis and treatment of invasive fungal infections focus on liposomal amphotericin B. Clin Drug Investig. 33Suppl, S5-14. (Journal IF: 1.9)

Invited lectures and seminars


Lacerda JF. Immunology of hematopoietic stem cell transplantation. Instituto Superior Técnico, Lisboa, Lisbon, Portugal, November 18, 2013.


Communications in International Conferences


Communications in National Conferences


Internationalisation

Our Lab collaborates with Dr Cristina Cunha and Dr Agostinho Carvalho from Professor Luigina Romani’s group from University of Perugia, in multi-institutional studies evaluating genetic susceptibility for hematological malignancies and invasive infections by studying patient-donor pairs submitted to allogeneic hematopoietic stem cell transplantation.

Furthermore, the Collaborative Research Grant of the Harvard Medical School Portugal Program established a strong collaboration with Professor Jerome Ritz, at Dana-Farber Cancer Institute (DFCI) and Harvard Medical School (HMS), USA.

We have established further collaborations with Prof 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.
Major Interests / Objectives

Ageing, stress and neurodegenerative diseases are among the conditions that contribute to the accelerated loss of cognitive function. Our Lab’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 are now working on the hypothesis that brain adenosine A2A receptors drive age-related synaptic dysfunction.

Major research lines:
- Molecular switches from aging towards neurodegeneration in the hippocampus;
- Therapeutic actions of caffeine and caffeine analogs against memory deficits;
- Epigenetics and glucocorticoid actions in aging;
- Cognitive dysfunction in Alzheimer’s mouse models;
- Molecular mechanisms of early cognitive deficits in Parkinson’s disease.

Head of Unit

Luísa Maria Vaqueiro Lopes, PhD.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diana Gabriela Ribeiro Ferreira</td>
<td>Master</td>
<td>PhD Student (started June)</td>
</tr>
<tr>
<td>Joana Fernandes Esteves Soares Coelho</td>
<td>PhD</td>
<td>Post-doctoral Investigator (started June)</td>
</tr>
<tr>
<td>Rui Artur Paiva Loureiro Gomes</td>
<td>PhD</td>
<td>Investigator, Assistant Professor (started June)</td>
</tr>
<tr>
<td>Sara Alexandra Fernandes Carvalho</td>
<td>Graduate</td>
<td>MSc Student (started June)</td>
</tr>
<tr>
<td>Vânia Luisa Neves Batalha</td>
<td>Master</td>
<td>PhD Student (started June)</td>
</tr>
</tbody>
</table>

Keywords / Research Areas

Aging, cognition, hippocampus, neurodegeneration, Alzheimer's Disease, Stress.

Major scientific achievements

Using animal models, we found that one common feature in stress and aging is the disruption of the hypothalamic-pituitary- axis (HPA) which in turn compromises hippocampal circuitry. We
have established a link between adenosine A2A receptors (A2AR) upsurge and cognitive deficits. We described for the first time that the therapeutic administration of A2AR blockers reverts hippocampal-related impairments, including HPA imbalance.

Papers published in 2013:


Recent Most Relevant Publications


Ongoing Research Projects

Amount: €6.400,00

**Other Projects**


2013/2015 “Adenosine A2A receptors and alpha-synuclein: Novel targets for Parkinson’s disease” This project addresses the in vitro role of A2ARs to aSyn aggregation and toxicity using cellular models of aSyn aggregation. Coordinators: Tiago Outeiro/Luisa Lopes. Agency: Fritz Thyssen Foundation. Amount: €110.000,00


**Publications in peer review Journals**


**Invited lectures and seminars**

Lopes LV. Clues to the ‘early-aging’ of the hippocampus. 2nd Annual MIND Symposium Molecular Mechanisms of Neurodegeneration, Harvard Medical School, Boston, United States of America, June, 2013.

Lopes LV. Caffeine and adenosine receptor controlling stress activated pathway. 24th Biennial Meeting of the International-Society-for-Neurochemistry, Cancun, Mexico, April, 2013.

**Communications in International Conferences**


Batalha VL, Valadas JS, Baqi Y, Radjaini H, Müller CE, Sebastião AM and Lopes LV. Adenosine A2AR as the trigger to age-like modifications on adenosine neuromodulation of hippocampal synaptic transmission. International Society of Neurochemistry, Cancun, Mexico, April 2013. (Poster presentation)

Batalha VL, Valadas JS, Ferreira DG, Coelho JE, Muller CE, Outeiro TF, Blum D, Lopes LV. Caffeine and adenosine receptor controlling stress activated pathways: a window for depression. International Society of Neurochemistry, Cancun, Mexico, April 2013. (Oral communication)


Vaz AR, Ferreira A, Barbosa M, Cunha C, Marçal AM, Gomes R., Brites D. Role of inflammatory modulators in ALS models. Champalimaud Neuroscience Symposium CNPS 2013. Abstract n. 31 (Poster presentation)

Communications in National Conferences


Internationalisation

Academia/Networking: Our group benefits extensively from collaborations. They provide mentoring, critical mass but also share knowledge and technical skills. We have bilateral collaborations running with exchange and tutoring of students from France, Germany and US. These are the basis for the applications Luísa Lopes as submitted this year (as PI) to international funding agencies, such as ANR, Fritz Thyssen Foundation, Harvard Medical School-Portugal and EMBO. LL is PhD supervisor in the EU Erasmus/Mundus “Ageing Brain” network and frequently chairs symposia and delivers lectures internationally (FENS, SFN, Purines, ICAD). From June 2013, Luisa Lopes hosts he annual NeuroSeS symposium, which gathers foreign speakers in the Neuroscience field at IMM and fosters scientific exchange. The research results are disseminated to the national and international scientific community via meetings and symposia (ICAD, AD/PD, FENS, SFN). Moreover, they will be exchanged during regular seminars and annual congresses organized by LABEX DISTALZ, North Dementia Pole (DN2M), FUI-funded Medialz consortium as well as to IMM and the “PurineDrugs” consortium (FP7- ITN).

Prizes, honours and awards


ISN travel award for the joint ISN-ASN meeting to Vânia Batalha, Cancun, Mexico, ISN, April 2013.

Industry contract research

Nestlé Research Center, Lausanne, Switzerland (Nestec/IMM/474/2011) PI: Luísa Lopes “Brain-gut interaction – neurotrophic actions”

Advanced teaching

Luísa Lopes
- Since 2013 - Faculty member of the Lisbon Biomed PhD program (IMM) under the topic Neurosciences (Lecturer and supervisor)
- Since 2012 - PhD supervisor within the NEU4EU - European PhD education and training network ‘Ageing Brain’ (Coordinator: Univ. Groningen) (Lecturer)
- Since 2011 – Faculty member in the Doctoral Course “Clinical Neurosciences and Neuropsychiatry” - Faculdade de Medicina do Porto, Portugal, Module: Stress and Cognition. (Lecturer)
- Since 2008 – Co-coordinator and lecturer of the Neurochemistry course (Medical Biochemistry Master degree) at Faculdade de Ciências, Universidade de Lisboa (Modules: “Neurotransmitters”; “Neurotransmitter receptors”; “Cell signaling”; “Receptor radioligand binding”; “Neurogenesis and stem cell therapy.”
Rui Gomes
- Coordinator and lecturer of the Molecular Biology and Genetics course (Doctoral Program in Biology, Faculdade de Ciências, Universidade de Lisboa, Lisbon, Portugal).
- Coordinator and lecturer of the Cell Cycle Regulation course (Master degree in Molecular Biology and Genetics, Faculdade de Ciências, Universidade de Lisboa, Lisbon, Portugal).

**Msc theses completed**


MUSA MHLANGA LAB

Major Interests / Objectives

In biology several important processes occur at spatial dimensions currently beyond the reaches of light microscopy. Our lab focuses on biological questions at this scale as they are related to gene expression. We study RNA transcription, metabolism and transport, as well as the development and innovation of technology to study these problems. Dynamic multi-molecular complexes in the eukaryotic cell nucleus remain well outside the resolution of light microscopy. Intrinsic to RNA transcription are modifications to nuclear architecture and the repositioning of chromosomal loci, and the interplay of ribonucleic proteins. These events remain opaque at the single molecule level, and are intensively researched by our research group.

Head of Unit

Musa Mazibonela Kasiyedwa Mhlanga, PhD, Associate Professor, CSIR- South Africa.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree/Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ana Catarina Fidalgo Barata</td>
<td>Undergraduate Investigator</td>
</tr>
<tr>
<td>JAGDISH PARIHAR</td>
<td>Master Technician</td>
</tr>
<tr>
<td>Joana Rita Gonçalves da Cruz</td>
<td>Graduate MSc Student (left September)</td>
</tr>
<tr>
<td>Luis Pedro Coelho</td>
<td>PhD Post-doctoral Investigator</td>
</tr>
<tr>
<td>Ricardo José dos Santos Duarte Vieira Henriques</td>
<td>No degree Investigator (left May)</td>
</tr>
<tr>
<td>Sílvia Almeida dos Santos Rosa</td>
<td>Master Investigator</td>
</tr>
</tbody>
</table>

Keywords / Research Areas

RNA biology, Super-resolution, Nuclear Architecture, Gene Expression, Host-Pathogen, Transcription.

Major scientific achievements

We published a few important papers this year. We were also a new EPO patent awarded and filed a number of other patents. We participated in a number of international conferences.

Publications:
Statin Therapy Reduces the Mycobacterium tuberculosis Burden in Human Macrophages and in
Mice by Enhancing Autophagy and Phagosome Maturation, *Journal of Infectious Diseases.*
Chromosomal Contact Permits Transcription between Coregulated Genes, *Cell.*

**Patents:**

**Major Conference Participation:**
Hong Kong University & Institut Pasteur Hong Kong - Molecular & Cell Biology Course - Speaker and organizer of practical.
EMBO conference : Nuclear Structure & Dynamics – Speaker.

EMBO Practical Course: Imaging Infection & Immunity - Speaker & Organizer.

### Recent Most Relevant Publications


### Ongoing Research Projects


### Invited lectures and seminars

Musa Mhlanga, Collaborative meeting between RIKEN & South African Partners. RIKEN - Yokohama, Japan. December 2013 (Oral communication)

Musa Mhlanga, E-Research Conference - Using IT infrastructures in scientific Research. UCT-
Cape Town, South Africa. October 2013. (Oral communication)

Musa Mhlanga, Cheap Diagnostics for the Developing world. Wellcome Trust, New Delhi, India. February 2013. (Oral communication)

**Communications in International Conferences**

Musa Mhlanga. Super resolution microscopy: PALM/STORM. Hong Kong University & Institut Pasteur Hong Kong - Molecular & Cell Biology Course. Hong Kong, HK. April 14-26, 2013.


**Organisation of Conferences**


**Advanced teaching**


Musa Mhlanga, speaker and organiser of practical course, Molecular & Cell Biology Course. Hong Kong University & Institut Pasteur Hong Kong. Hong Kong, HK. April 14-26, 2013.

**Msc theses completed**

Luís Moita Lab

Major Interests / Objectives

The general unifying goal of our research unit is to use unbiased functional genomic and genetic tools to identify and characterize human and mouse genes and signalling pathways that regulate central processes of an immune response, their targets and role in an in vivo immune response.

Head of Unit

Luís Filipe Ferreira Moita, MD/PhD - Assistant Professor at FMUL

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Duration of Employment</th>
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</thead>
<tbody>
<tr>
<td>Ana Roxo Leão Neves Costa</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Ângelo António Ferreira Chaves do Rosário Chora</td>
<td>PhD</td>
<td>Post-doctoral Investigator (left October)</td>
</tr>
<tr>
<td>Catarina Susana Ferreira Moita</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Dora Cristina dos Santos Pedroso</td>
<td>PhD</td>
<td>Technician (left in December)</td>
</tr>
<tr>
<td>João António Augusto Ferreira</td>
<td>MD, PhD</td>
<td>Principal Investigator (left in December)</td>
</tr>
<tr>
<td>Maria Helena Teixeira Raquel Gonçalves</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Nadja Pejanovic</td>
<td>PhD</td>
<td>Post-doctoral Investigator (left in July)</td>
</tr>
<tr>
<td>Pedro Martins Didelet Pereira</td>
<td>Master</td>
<td>PhD Student (left in December)</td>
</tr>
<tr>
<td>Raquel Ferreira Rodrigues</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Richard Staats</td>
<td>MD</td>
<td>PhD student</td>
</tr>
<tr>
<td>Susana de Castro Luís Lopes Moreira</td>
<td>MD</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Tiago Rodrigues Velho</td>
<td>Undergraduate</td>
<td>MSc Student</td>
</tr>
</tbody>
</table>
Keywords / Research Areas

Innate Immunity, Dendritic Cells, Inflammation, Sepsis, RNAi.

Major scientific achievements


2013 Pfizer Award for Basic Research. “Anthracyclines induce DNA damage response-mediated protection against severe sepsis”. Nuno Figueiredo, Angelo Chora, Helena Raquel and Luis Ferreira Moita.

Recent Most Relevant Publications


Ongoing Research Projects


2013/2014 UAB Center for AIDS Research. Coordinator: Luís Filipe Ferreira Moita. Agency: The Board of Trustees of the University of Alabama. Amount: €10000,00

Publications in peer review Journals


Ana Neves-Costa, Luis F. Moita. TET1 is a negative transcriptional regulator of IL-1b in the THP-1 cell line *Molecular Immunology*, 54(3-4), 264-70. (Journal IF: 2.645; Citations: 3)


Invited lectures and seminars

"The Anthracycline Epirubicin Triggers an ATM-Dependent Protective Response to the CLP Mouse Model of Sepsis". Host: Nir Hacohen. Harvard Medical School, Boston, USA, June 4th, 2013.

"The Anthracycline Epirubicin Triggers an ATM-Dependent Protective Response to the CLP Mouse Model of Sepsis". Host: Gerd Döring. University of Tuebingen, Tuebingen, Germany, April 25th, 2013.


Basic Biomedical Research: from MD to PhD. CNIAC II. Covilhã, Portugal, September 21st, 2013.


Communications in International Conferences

"The expression of the Per2 clock gene is up-regulated in non-treated OSAS patients and normalises its mRNA levels upon positive pressure treatment". SEPAR, Barcelona, Spain, June 14-17th, 2013. (Oral presentation)

"The expression of the Per2 clock gene is up-regulated in non-treated OSAS patients and normalises its mRNA levels upon positive pressure treatment". World Congress in Sleep Medicine. Valencia, Spain. September 28th – October 2nd, 2013. (Oral presentation)

Internationalisation

The Innate Immunity and Inflammation Unit has multiple longstanding collaborations with international laboratories from which have emerged several high level publications. The most important are with: (1) Sebastian Amigorena (Institute Curie, Paris, France); (2) Caetano Reis e Sousa (Cancer Research UK London Research Institute, London, UK); (3) Nir Hacohen (Harvard Medical School / Broad Institute of Harvard and MIT, Boston, USA).
Prizes, honours and awards

2013 Pfizer Award for Basic Research. “Anthracyclines induce DNA damage response-mediated protection against severe sepsis” to Nuno Figueiredo, Angelo Chora, Helena Raquel and Luis Ferreira Moita.

Portuguese Pulmonology Society/SEPAR/Vitoria FAES PHARMA 2013 “The expression of the Per2 clock gene is up-regulated in non-treated OSAS patients and normalizes its mRNA levels upon positive pressure treatment” to S. Moreira, J. Valença, A. Bugalho de Almeida, L. Moita

Advanced teaching


PhD theses completed

Major Interests / Objectives

Despite renewed eradication efforts from the international community, malaria still exerts an enormous disease burden, with nearly half the planet’s population at risk of infection. Our overall goal has always been to understand how the disease-causing Plasmodium parasites establish and survive in their host as a way to design efficient and rational strategies to combat malaria.

Head of Unit

Maria Manuel Mota, PhD, Harvard School of Public Health.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Position/Title</th>
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<tr>
<td>Afonso Miguel Nunes Ferreira</td>
<td>Graduate</td>
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<td>Ana Filipa Pintéus da Cruz</td>
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<tr>
<td>Ana Margarida Aires Alves Vigário</td>
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<td>Investigator, Assistant Professor</td>
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<td>Ana Margarida Ferreira Góis</td>
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<td>Fernanda Garcia Guedes Baptista</td>
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<td>Ghislain Guillaume Nicolas Cabal</td>
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<td>Marco Andre Manso Domingues</td>
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<td>Margarida Maria Teles Grilo Ruivo</td>
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<td>Maria Inês Sousa de Albuquerque</td>
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<td>Maurice Ayamba Itoe</td>
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<td>Patrícia Irene da Silva Inácio</td>
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<td>Peter Liehl</td>
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<td>Sofia Pinto Guia Marques</td>
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<tr>
<td>Vanessa Alexandra Zuzarte Luís</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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</tbody>
</table>
Keywords / Research Areas

Host-Plasmodium interactions, Nutrient sensing, Innate immune response against Plasmodium infection, Host metabolism and Plasmodium infection, Effects of dietary habits on malaria, Cell biology of Plasmodium liver stages.

Major scientific achievements

During 2013 the Mota Laboratory has:

- Shown that torins, developed as ATP-competitive mTOR kinase inhibitors, are fast-acting and highly potent antiplasmodial compounds (PNAS 110:E2838);
- Revealed, in collaboration with R. Moreira and F. Lopes (FFUL, PT), a number of new anti-malarial compounds (J Med Chem. 56, 7679; Eur J Med Chem. 69, 872);
- Established, in collaboration with S. Bhatia (MIT, USA), the liver stages for both human malaria parasites P. falciparum and P. vivax in a microscale human liver platform (Cell Host Microbe 14, 104);
- Discovered that the host uses a sensor mechanism (until now only known to detect certain type of viruses) to detect Plasmodium parasites during liver stages of infection, ending the long disseminated dogma that this stage progressed invisible to the host defences (Nat Med. 20, 47).

The PI of the team, Maria M. Mota, has received the “Prémio Pessoa”, a highly prestigious Award given yearly to a Portuguese personality of Arts, Literature or Science.

Recent Most Relevant Publications


**Ongoing Research Projects**


2010/2013 New drugs for treating and eradicating malaria. Coordinator: Maria Manuel Mota. Agency: FCT. Amount: €300.000,00

2010/2013 The influence of bile acids on malaria liver infection. Coordinator: Miguel Prudêncio. Agency: FCT. Amount: €171.482,00

2012/2014 Utilization of host cell resources by the malaria parasite in the liver. Coordinator: Miguel Prudêncio. Agency: FCT. Amount: €154.755,00


**Publications in peer review Journals**


Invited lectures and seminars


Maria Mota, XXIII Brazilian Conference on Parasitology, Florianopolis, Brazil, October 22-26, 2013.

Maria Mota, Conference “Intracellular Niches of Pathogens”, Frankfurt, Germany, September 29-30, 2013.

Maria Mota, 8th European Congress on Tropical Medicine and International Health, Copenhagen, Denmark, September 10-13, 2013.

Maria Mota, Gordon Research Conference on Malaria, Lucca - Italy, August 4-9, 2013.

Maria Mota, Biozentrum (invited seminar), Basel, Switzerland, June 17, 2013.


Maria Mota, Rockefeller University (invited seminar), New York, USA, March 18, 2013.


Communications in International Conferences

Vanessa Zuzarte-Luís. miRNA fingerprinting of individuals with an ongoing P. falciparum liver infection. 6th MIM Pan-African Malaria Conference Durban, South Africa, October 6-11, 2013. (Oral communication)

Kirsten Hanson. “Torins are potent antimalarials that block the trafficking and replenishment of Plasmodium parasitophorous vacuole membrane proteins” Gordon Research Seminar - Malaria, Lucca, Italy, August 4-9, 2013. (Oral communication)


Hanson KK, Ressurreição AS, Buchholz K, Prudência M, Herman-Ornelas JD, Rebelo M, Beatty WL, Wirth DF, Hänscheid T, Moreira R, Marti M, Mota MM. “Torins are potent antimalarials that block the trafficking and replenishment of Plasmodium parasitophorous vacuole membrane proteins” Research Advances in Malaria: Malaria transmission from the mosquito midgut to the mammalian liver. Johns Hopkins School of Public Health, Baltimore, USA, April 24-25, 2013. (Poster presentation)


Vanessa Zuzarte-Luís, Peter Liehl, Kirsten Hanson, Céline Carré, Maria M. Mota “Dietary Lipids abrogate Plasmodium liver infection via IL-1R signaling”, Keystone Symposia Conference – Metabolic Control of Inflammation and Immunity, Breckenridge, Colorado, USA, January 21-26, 2013. (Poster presentation).

Internationalisation

The Maria Mota Laboratory of IMM is part of EVIMalaR (European Virtual Institute of Malaria Research), a European Network of Excellence funded by the European Commission. This network includes Laboratories across Europe that work on many aspects of Malaria research: from mosquito stages to the mammalian host, from disease pathogenesis to transmission, from drug development to vaccine discovery. The laboratory participated with 3 researchers in the first EVIMalaR Annual Meeting (also known as “BioMalPar” - Biology and Pathology of the Malaria Parasite meeting) that took place in Heidelberg last May.

The Maria Mota Laboratory has attracted funding from International agencies, including the European Research Council, the Bill & Melinda Gates Foundation, and the Howard Hughes Medical Institute. The researchers in the Laboratory often present their research at International Meetings, and also make experimental work at the Laboratories of collaborators in foreign Institutions such as EMBL or Leiden University.

Among the many collaborators of the Laboratory across the World are:

- Sangeeta N. Bhatia (MIT, Cambridge, USA);
- Shahid Kahn, Chris Janse (Leiden University, Holand);
- Friedrich Frischknetcht (Hygiene Institut Heidelberg, Germany);
- Kate Fitzgerald, Doug Golenbock (UMass, USA);
- Fidel Zavala (JHSPH, Baltimore, USA);
- Mathias Mann (MPI, Martinsried, Germany);
- Júlio Sampaio, Andrej Schevshenko (MPI, Dresden, Germany);
- Oliver Billker (Sanger Institute, Cambridge, UK);
- Arthur Scherf (Institut Pasteur, Paris France);
- Manuel Linas (Princeton University, New Jersey, USA);
- Jon Clardy (HMS, Boston, USA);
- Mathias Marti (HMS, Boston, USA);
- Robert Sauerwein (Nijmegen University, Holland);
- Ana Rodriguez (NYU, USA);
- Manuela Santos (University of Montreal, Canada).

**Prizes, honours and awards**

"Prémio Pessoa" awarded to Maria Mota, December 2013.

**Patents/prototypes**


**PhD theses completed**

Sofia Oliveira Lab

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 Unit

Ana Sofia Simões Domingues de Almeida Oliveira, PhD.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree/Status</th>
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<tbody>
<tr>
<td>Catarina Beatriz Silva Ferreira</td>
<td>Graduate MSc Student (started September)</td>
</tr>
<tr>
<td>Inês Girão Meireles de Sousa</td>
<td>PhD Post-doctoral Investigator</td>
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<tr>
<td>Joana Gonçalves de Gouveia Maia Xavier</td>
<td>Master PhD Student (started June) (left July)</td>
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<td>Madalena Cristina Rocha Martins</td>
<td>PhD Post-doctoral Investigator (started June)</td>
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<td>Maria João Matos Rocha</td>
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<td>Patrícia Alexandra Silva Santos</td>
<td>Graduate MSc Student (started August)</td>
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<tr>
<td>Patricia Carla Simões Abrantes</td>
<td>PhD Post-doctoral Investigator (started June)</td>
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<tr>
<td>Vânia Patrícia Ferreira Francisco</td>
<td>Master Technician (started June)</td>
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</table>

Keywords / Research Areas

Genetics, Genomics, Complex diseases.
**Major scientific achievements**

In 2013, we published several papers describing for the first time:

1. The association of the neuroregulin signaling pathway with Behçet’s disease (BD);
2. The FUT2 gene as a putative link between genes and environment in BD susceptibility.

These novel findings were achieved through the convergence of several genome-wide approaches (e.g. microarray expression profiling, GWAS-genomewide association studies) and open new avenues for research into BD etiopathogenesis.

Furthermore, we were awarded the Prémio Robalo Cordeiro SPP/GSK 2013 from the Sociedade Portuguesa de Pneumologia in recognition of our pioneering work in the field of the genetic susceptibility to primary spontaneous pneumothorax (PSP). We expect to publish in 2014 the results of the GWAS we conducted in Portuguese PSP patients and controls.

Two post-doctoral fellows of the lab contributed significantly to establish the IMM Post-Doc Association and organized several activities during its first year of existence.

**Recent Most Relevant Publications**


**Ongoing Research Projects**


2013/2014 “NEDAI (Study Group for Auto-Immune Diseases)” Coordinator: Ana Sofia Simões Domingues de Almeida Oliveira. Agency: NEDAI. Amount: €10.000,00


**Other Projects**


2013/2015 Prémio Robalo Cordeiro SPP/GSK 2013. Coordinator: Feijó S. Amount: €5.000,00

**Publications in peer review Journals**


Invited lectures and seminars


Communications in International Conferences


Communications in National Conferences


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.

Prizes, honours and awards

Prémio Robalo Cordeiro SPP/GSK 2013 from the Sociedade Portuguesa de Pneumologia.

Advanced teaching


Oliveira SA. Lecturer in the Farmacogenética Clínica course of Mestrado Integrado em Medicina, Faculdade de Medicina da Universidade de Lisboa, February 22, 2013.
Martins M. Lecturer in the Master/PhD in Neurosciences, Faculdade de Medicina da Universidade de Lisboa, April 3, 2013.

Oliveira SA. Lecturer in the Mestrado de Neurociências, Faculdade de Medicina da Universidade de Lisboa, April 24, 2013.

**Science and society**


**PhD theses completed**

TIAGO OUTEIRO LAB

Major Interests / Objectives

The Tiago Outeiro’s Lab started in June 2007, with the goal of understanding the molecular basis of disorders intimately associated with protein misfolding and aggregation, mostly those which affect the brain, such as Parkinson’s, Huntington’s, or Alzheimer’s disease. Because the molecular pathways involved in protein homeostasis are highly conserved, we employ a wide variety of model organisms, from the simple but powerful budding yeast to mammalian cell culture and mice. Our ultimate goal is to develop novel therapeutic approaches for these and other related disorders. We are working closely together with clinicians in order to accelerate drug discovery efforts, translating basic research into clinical applications that will improve the lives of patients.

Head of Unit

Tiago Outeiro, PhD.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Level</th>
<th>Position</th>
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<tr>
<td>Ana Dulce Correia</td>
<td>PhD</td>
<td></td>
<td>Principal Investigator</td>
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<tr>
<td>David Miguel de Jesus Pedras</td>
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<td>MSc Student (started September)</td>
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<tr>
<td>Diana Leonor Constantino Macedo</td>
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<td>PhD Student</td>
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</table>

**Keywords / Research Areas**

Protein misfolding and aggregation, Yeast models of neurodegenerative disease, Neurodegeneration and Neuroinflammation, Genetic screens, In vivo imaging, Translational research.

**Major scientific achievements**

A major hurdle in the study of posttranslational modifications in alpha-synuclein, a central player in Parkinson’s disease, is its purification from relevant biological materials. We developed a simple and effective method (Journal of Neurochemistry, 2013) that enabled us to conduct a series of studies demonstrating the contribution of different PTMs to its aggregation and toxicity.
In collaboration with colleagues in the UK, we determined the crystal structure of KMO, an important molecule in the context of several neurodegenerative disorders (Nature, 2013). In another study, we provided evidence, for the first time, that sirtuin 2 modulates the inflammatory responses of microglia, the resident immune cells in the brain (The EMBO Journal, 2013).

In 2013, Tiago Outeiro was awarded the Silver Medal of Merit from the Portuguese Ministry of Health for our contributions in the field of neurodegenerative disorders, a clear sign of recognition for our work.

Recent Most Relevant Publications


Ongoing Research Projects


2012/2014 The role and regulation of alpha-synuclein phosphorylation in both pathological and


2012/2013 European Huntington’s Disease Network PJ328 Coordinator: Tiago Outeiro. Agency: PRIV-UE. Amount: € 44.350,00


**Other Projects**


**Publications in peer review Journals**


**Other publications International**


**Invited lectures and seminars**


Tenreiro S. “Yeast as a model to study the molecular mechanisms of Parkinson’s disease” Seminários em Biotecnologia do mestrado de Biotecnologia Aplicada, Escola Superior de Turismo e Tecnologia do Mar, Instituto Politécnico de Leiria, Leiria, Portugal, April 18, 2013.


Communications in International Conferences


Teresa F. Pais. The NAD-dependent deacetylase sirtuin 2 is a suppressor of microglial activation and brain inflammation. 11th World Congress on Inflammation. Natal, Brazil. September 21-25, 2013. (Oral communication)


Patrícia Guerreiro “Leucine-Rich Repeat Kinase 2 (LRRK2): A central player in Parkinson’s disease”; 10 th Meeting of German Neuroscience Society; Goettingen; Germany. March 13-17, 2013 (Oral communication)

Patricia Guerreiro, Yue Huang, Ellen Gerhardt, Eva Rodrigues, Glenda M. Halliday, and Tiago F. Outeiro; “LRRK2 interacts with -synuclein and tau and is present in Lewy bodies in Parkinson’s disease”; AD/PD; Florence; Italy. March 6-10, 2013 (Poster Presentation)

Tiago Outeiro, Diana Lázaro, Eva Rdrigues, Patricia Guerreiro, Ellen Gerhardt; “Systematic comparison of the effects of alpha-synuclein mutations on oligomerization and aggregation”; AD/PD; Florence; Italy. March 6-10, 2013 (Poster Presentation)
C. Jardim, P. Pinto, D. Macedo, D. Stewart, G.J. McDougall, R.B. Ferreira, C.N. Santos, Disclosing the mechanisms behind the protective effect of A. unedo fruit metabolites against oxidative injury in yeast. 4th Management Committee & Working Groups Meeting of COST Action FA1005. Izmir, Turkey - Swiss Hotel & Ege University. October 8-10, 2013 (Poster Presentation)


Communications in National Conferences

Branco-Santos J, Herrera F, Outeiro TF, The role of N-terminal phosphorylation on mutant huntingtin oligomerization, aggregation and toxicity. EMBO Young Scientist Forum, Instituto de Medicina Molecular – Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal. July 2013.


Gonçalves S, Elucidating the effect of modulators of alpha-synuclein aggregation in vesicular trafficking, XIII Reunião da Sociedade Portuguesa de Neurociências, Luso, Portugal. May 30-31 and June 1, 2013 (Oral communication and Poster presentation)


Diana Macedo, Sandra Tenreiro, Ricardo B. Ferreira, Tiago F. Outeiro and Cláudia N. Santos, Mechanistic insights into polyphenol-mediated protection against alpha-synuclein toxicity, IV
ITQB PhD Student's Meeting, Oeiras, Portugal. October 24-25, 2013. (Poster Presentation)

**Internationalisation**

Teresa Faria Pais, Visiting Professor, August to November, CAPES, Brazil.

**Prizes, honours and awards**

Silver Merit Award from the Ministry of Health to Tiago Outeiro, 2013.

FCT Investigator 2013, Fundação para a Ciência e a Tecnologia (IF/00094/2013), Portugal, to Federico Herrera.

**Advanced teaching**

Herrera F. Cell-to-cell traffic in neurodegenerative disorders (December 2013). M.Sc. and PhD Neuroscience Program, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal.


Vicente Miranda H. (collaboration in CAML Advanced Course organized by Francisco Enguita, PhD) “Advanced Course on protein expression and purification: tips and tricks”, Instituto de Medicina Molecular, Faculdade de Medicina da Universidade de Lisboa.

**Science and society**

Herrera F. Founding committee member of the Postdoctoral Association at the Instituto de Medicina Molecular - Faculdade de Medicina da Universidade de Lisboa.


**PhD theses completed**

Msc theses completed


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 hitherto obscure aspects of the biology of Plasmodium infection, unveiling novel host-parasite interactions, and developing new drug- and vaccine-based anti-malarial strategies.

Research Areas
• Nutrient and ion transport and homeostasis during Plasmodium development inside hepatic cells;
• Novel host-Plasmodium molecular interactions;
• Bile acid metabolism and nuclear receptor-mediated signaling mechanisms in the context of Plasmodium liver infection;
• Novel compounds against Plasmodium liver stages;
• Malaria vaccines;
• The reciprocal influence of Plasmodium and Trypanosoma co-infections.

Head of Unit
Miguel Prudêncio, PhD.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Position</th>
<th>Start Date</th>
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<tbody>
<tr>
<td>Ana Margarida Roque Sanches Vaz</td>
<td>Master</td>
<td>MSc Student (started July)</td>
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<tr>
<td>António Manuel Barbeiro Mendes</td>
<td>PhD</td>
<td>Post-doctoral Investigator (started July)</td>
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<td>Cláudia B. Rodrigues Sá e Cunha Mesquita Gabriel</td>
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<tr>
<td>Patrícia dos Santos Meireles</td>
<td>Master</td>
<td>PhD Student</td>
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</tbody>
</table>
Keywords / Research Areas
Malaria, Parasitology, Vaccines, Host-pathogen interactions, Liver-stage Plasmodium infection.

Major scientific achievements
Since July 2013, when it was created, the Prudêncio Lab has:
- Published 5 collaborative papers in peer-reviewed, international journals;
- Been awarded a Phase II Grand Challenges Explorations award by the Bill & Melinda Gates Foundation;
- Filed one PCT international application (Genetically modified rodent Plasmodium parasites as platforms for a whole-organism malaria vaccine);
- Won the health track and the grand prize of the “BES inovação 2013” award;
- Won a honorary mention in the “Building Global Innovators 2013” contest;
- Participated in several International and National conferences and meetings;
- Organised a symposium on pre-erythrocytic malaria vaccines at the 6th MIM conference on malaria (South Africa);
- Had numerous media appearances in relation to its scientific activities.

In this period the lab has also expanded from its original 6 to the present 8 researchers, and established or furthered collaborations with several National and International research groups.

Recent Most Relevant Publications


Ongoing Research Projects


2012/2014 “Utilization of host cell resources by the malaria parasite in the liver”. Coordinator: Miguel Prudêncio. Agency: FCT. Amount: €154,755,00


Invited lectures and seminars

Miguel Prudêncio, "Biomolecular Methods for Malaria Research", Semester at Sea, August 16, 2013, Instituto de Medicina Molecular, Lisbon, Portugal.


Communications in International Conferences


Meeting, , Rio de Janeiro, Brazil, October 27-30, 2013. (Poster presentation)


Organisation of Conferences


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 Illionois 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 - Universitity 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 an International organization (the Bill & Melinda Gates Foundation) with whom it maintains close interactions.
Prizes, honours and awards

“BES Inovação Award 2013”. Winner of Health Track and Winner of Grand Prize.

“Building Global Innovators Contest 2013”. Honorary Mention Health Track.

Patents/prototypes

Authors: Miguel Prudêncio, Maria Mota, António Mendes.

Advanced teaching

PhD Courses - GABBA PhD programme, Universidade do Porto, May 2013.

Master’s Courses:
Master’s in clinical biochemistry, Universidade Nova de Lisboa, May 2013.
Master’s in Evolutionary and development biology, Universidade de Lisboa, December 2013.

Science and society


Msc theses completed

MÁRIO RAMIREZ LAB

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. Investigations 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 population simulation, 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 Unit

Mário Nuno Ramos d’Almeida Ramirez, PhD.

Research Team

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<th>Name</th>
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<td>Adriana Domingos Policarpo</td>
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<td>Andreia das Neves Horácio</td>
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<tr>
<td>Thomas Hanscheid</td>
<td>MD, PhD</td>
<td>Principal Investigator</td>
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</table>
Keywords / Research Areas

Population biology and epidemiology, Interactions of malaria and other infectious diseases, Bioinformatics, Molecular epidemiology, Diagnostic tools, Antibiotic resistance.

Major scientific achievements

Characterization of differences in virulence potential of S. pyogenes clones and changes in their major virulence factors.
Identification of an unusual secretion mechanism of the lysins of pneumococcal phages.
Development of MLST for S. canis and characterization of its zoonotic origin.
Documentation of continuing changes in S. pneumoniae causing invasive infections with vaccination and its consequences for future potential vaccines.
Laying the foundations for the development of a typing and a NGS process ontology, with the aim of linking existing sequence based typing databases and novel NGS data.
Development of a novel flow cytometry assay for antimalarial drug sensitivity testing, using detection of haemozoin without any further reagents.
Development of a novel and easy haemozoin inhibition assay to screen for haemozoin inhibiting antimalarial drugs.
Interactions of haemozoin with a rodent model of tuberculosis and effects of hemozoin on phagocytosis and killing of Salmonella typhimurium.

Recent Most Relevant Publications


**Ongoing Research Projects**


2010/2013 Characterization and genotyping of portuguese strains of Francisella tularensis, Coordinator: Thomas Hanscheid. Agency: FCT. Amount: €8,100.00

2013/2014 IFDO Research Coordinator: Thomas Hanscheid. Agency: Steris Corporation. Amount: €12,980.00

**Publications in peer review Journals**


Friães A., Lopes J.P., Melo-Cristino J., M. Ramirez, the Portuguese Group for the Study of


Other publications International


Invited lectures and seminars


Communications in International Conferences


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Congress on Pediatric Infectious Diseases (WSPID), Cape Town, South Africa, November 19-22, 2013. (Poster presentation)

Mickael Silva, Cátia Vaz, Alexandre Francisco, Mário Ramirez, Francisco M Couto, João André Carriço. NGSOno - Keeping track of the NGS pipeline process using an ontology approach and its application on molecular epidemiology. 10th International Meeting on Microbial Epidemiological Markers (IMMEM-10), Paris, France, October 2-5, 2013. (Oral presentation)

Eduardo N. Taboada, Peter Kruczkiewicz, Steven K. Mutschall, Benjamin Hetman, Catherine D. Carrillo, Gary Van Domselaar, and João A. Carriço Avoiding YATM: a generalized framework for assessing analytical approaches for WGS data using an in silico typing approach 10th International Meeting on Microbial Epidemiological Markers (IMMEM-10), Paris, France, October 2-5, 2013. (Poster presentation)

Andreia Sofia Teixeira, Alexandre Francisco, Pedro Monteiro, Rui Oliveira, Mário Ramirez, João André Carriço NetPopSim – a population simulator for microbial allelic profiles for simulating spread and evolution within social networks. 10th International Meeting on Microbial Epidemiological Markers (IMMEM-10), Paris, France. October 2-5, 2013. (Poster presentation)

Alexandre Francisco, Andreia Sofia Teixeira, Pedro Monteiro, Mário Ramirez, João A. Carriço. Not seeing the forest for the trees: Novel metrics for the use of Minimum Spanning Trees in Molecular Epidemiology Studies. 10th International Meeting on Microbial Epidemiological Markers (IMMEM-10), Paris, France, October 2-5, 2013. (Poster presentation)


Communications in National Conferences


Internationalisation

- Veterinary Faculty, Freie Universität Berlin, Berlin, Germany and University of Camerino, Matelica, Italy on streptococci infecting animals;
- Dr. Juan Hermoso at CSIC, Madrid, Spain with the aim of crystallizing and characterizing competence related proteins;
- 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. Vincent Thomas, Toulouse, France;
- Creation of a working group on malaria cytometry – Howard Shapiro (USA), Brian Grimberg (USA), Grace Chojnowski (Australia);
• 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;
• Use of haemozoin to investigate immune response and as possible vaccine adjuvant – Cevayir Coban, Institute for Immunology, Osaka University, Japan;
• Diagnosis of tuberculosis using fluorescent microscopy. Study in collaboration with, Alberts Schweitzer Hospital, Lambaréné, Gabon and Congolese Foundation for Medical Research, Brazzaville, Congo;
• Non-invasive detection of Met-hemoglobin levels to investigate the role of heme-oxigenase in malarious African children in Gabon in collaboration with peter Kremsner, head Tropical diseases Unit, Tuebingen University, Germany.

**Prizes, honours and awards**

Maria Rebelo. 2013: Scholarship to attend the 7th European & Developing Countries Clinical Trials Partnership (EDCTP) Forum in Dakar, Senegal.

**Industry contract research**

Thomas Hanscheid. The use of growing Hemozoin-Like Crystals (HCL) to screen compounds for antimalarial activity. STERIS Company, Ohio. USA.

**Advanced teaching**


J. Carriço. Participation on the second cycle course of Computational Biology for Master and PhD programmes of Instituto Superior Técnico, Universidade Técnica de Lisboa in collaboration with the , Faculdade de Medicina da Universidade de Lisboa. Responsible for a module on Molecular Phylogenetics.

**PhD theses completed**

Msc theses completed


CARLOTA SALDANHA LAB

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 distinct chemoattractants, like 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 and the validation of inflammatory biomarkers in vascular diseases. We expect to translate our findings towards a better understanding and management of inflammatory pathologies (ex: sepsis and cardiovascular diseases).

Head of Unit

Maria Carlota Saldanha Lopes, PhD Agregação, Faculdade de Medicina da Universidade de Lisboa.

Research Team

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<tr>
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<th>Position / Status</th>
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<tbody>
<tr>
<td>Ana Rosa Miranda dos Santos Silva Herdade</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Angelo Calado</td>
<td>PhD</td>
<td>Principal Investigator</td>
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<tr>
<td>Catarina Cabrita Ramos</td>
<td>Master</td>
<td>Investigator (started July) (left December)</td>
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<tr>
<td>Ekaterina Sergueevna Potapova</td>
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<td>Henrique Rosário</td>
<td>MD, PhD</td>
<td>Investigator (left December)</td>
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<td>Mariana Mota Castro Dias</td>
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<tr>
<td>Sara Louro Moleirinho</td>
<td>Master</td>
<td>Investigator (left December)</td>
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</tbody>
</table>
Keywords / Research Areas

Inflammation, Microcirculation, Neutrophil, Erythrocyte, Hemorheology.

Major scientific achievements

Inflammation requires the interplay of distinct mediators, like erythrocytes and neutrophils as well as acetylcholine (ACh), fibrinogen, chemokines and hemodynamic forces. Importantly, it is associated with hemorheological abnormalities and a dysfunctional endothelium. In erythrocytes, we have demonstrated that soluble fibrinogen is able to target the membrane CD47 in an age-dependent way. We have also shown that the erythrocyte nitric oxide (NO) efflux increases under conditions simulating hyperfibrinogenemia in dependence of the induction of band 3 protein phosphorylation but remains unchanged in the presence of ACh. Moreover, erythrocyte NO efflux was shown to be negatively associated with carotid intima-media thickness in systemic lupus erythematosus and rheumatoid arthritis patients presenting a reduced whole blood viscosity and erythrocyte deformability and an increased erythrocyte aggregation tendency. We have also reported that soluble fibrinogen is able to increase neutrophil free radical production and to bind the neutrophil membrane independently of the integrin Mac-1. In fibrinogen-deficient mice, we have further documented compromised leukocyte recruitment in comparison to control animals, that showed a role for fibrinogen in this process.

We have further used the zebrafish model to study the function of the CXC chemokine, CXCL8, in inflammation. Both zebrafish homologs, cxcl8-l1 and cxcl8-l2, were shown to be up-regulated upon wounding. By combining their expression knockdown with the in vivo tracking of neutrophils, we have shown that both chemokines are crucial for neutrophil recruitment and inflammation resolution. Cxcl8-l2 was further shown to signal at least through the zebrafish CXC chemokine receptor 2 (Cxcr2) for inducing neutrophil recruitment. By analyzing neutrophil migration in vivo via the use of the tracking software, PhagoSight, we observed that in the absence of these chemokines, the speed of the neutrophils migrating to the wound was significantly increased in comparison to control ones, although the directionality of the movement was not affected. These results suggest that in the zebrafish, a neutrophil sub-population may be recruited to inflamed areas in Cxcl8-independent mode. The development of numerical simulations based on hemodynamic and hemorheological parameters obtained in vivo from animal models allowed us to discriminate the existence of regions with distinct shear stress properties on the surface of leukocytes approaching the endothelium. We have also shown that the hydrodynamic behaviour of a cluster of recruited leukocytes establishes a strong motive for additional leukocyte recruitment. In this situation, we have further observed an increased endothelial shear stress. Finally, we have disclosed a new association between CD3+ T lymphocytes, oxidized low-density lipoprotein, and C-reactive protein in patients with acute
myocardial infarction (AMI), by using a multi-biomarker approach, thus confirming the specificity of the immune response in AMI towards myocardial inflammation and remodelling.

**Recent Most Relevant Publications**


**Ongoing Research Projects**


2013/2016 Mathematical and computational modeling of human physiology. Coordinator: Maria Carlota Saldanha Lopes. Agency: FCT. Amount: €12.100,00 Total Amount: €238.000,00

**Other Projects**


2011/2013 Functional characterization of the neutrophil in alcoholic and non-alcoholic steatohepatiti. Coordinator: Ângelo Calado. Amount: €5.000,00
Publications in peer review Journals


Other publications International


Other publications National


Invited lectures and seminars


Communications in International Conferences


Communications in National Conferences

Carlota Saldanha Erythrocyte Promotes Nitric Oxide Bioavailability 6th Workshop Beathing the blood –brain and other blood barriers, Lisbon, Portugal, February 6-8, 2013 (Poster presentation)

Organisation of Conferences

Carlota Saldanha. Organization of the “Biochemistry Module” of the 8th Post-Graduate Course in Sports Medicine, Sports Medical Center, Lisbon, Portugal, January 18, 2013


Internationalisation

De Oliveira, S. PhD fellowship SFRH/BD/62674/2009, FCT. PhD work entitled “In vivo imaging of Inflammation in Zebrafish: the role of chemokine system in the neutrophil and macrophage migration”. Performed under the co-supervision of Dr. Ângelo Calado and Dr. Victor Mulero (Univ. Murcia, Spain) in the two laboratories.

Carlota Saldanha is currently member of the Strategy Committee of the European Society of Microcirculation; member of the International Advisory Board of European Society of Hemorheology and Microcirculation (ESCHM); member of the Editorial Board of the “Clinical Hemorheology and Microcirculation”; President of the Portuguese Society of Hemorheology and Microcirculation. She is nominated the President of the 18th European Conference on Clinical Hemorheology and Microcirculation to be held in 2016 at Lisbon.

Prizes, honours and awards

Patrícia Napoleão - “Hemorrreologia, Hemostase e Inflamação na Patologia Vascular – Da investigação à prática clínica”, Lisbon, Portugal, Award of SPHM-SPACV/Biosaúde.


Government/Organisation contract research

Carlota Saldanha Counsel Member of the Quality Assurance of the University of Lisbon from 2007 until June 2013.

Advanced teaching

Carlota Saldanha organized and lectured the “Biochemistry Module” of the 8th Post-Graduate Course in Sports Medicine, Sports Medical Center, Lisbon, January 18, 2013


PhD theses completed


Msc theses completed


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 (mainly HIV-1 and dengue virus) that involve biomembranes – the entrance of the virus or its content into the target cell and the assembly of new virions. Study of the binding of fibrinogen to the erythrocyte membrane and its relevance as cardiovascular risk factor. Pre-clinical evaluation of the membrane activity and mechanism of action of antimicrobial peptides (AMP) and cell-penetrating peptides (CPP). On the Nanomedicine area, work on the development of innovative protein-ligand interactions biosensor systems, with improved selectivity and sensitivity (nanoparticles and amyloid-based biosensors).

Head of Unit

Nuno C. Santos, PhD, Agregação - Associate Professor, Faculdade de Medicina da Universidade de Lisboa.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Graduated/Study Level</th>
<th>Position/Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ana de Souto Martins</td>
<td>Graduate</td>
<td>MSc Student (started September)</td>
</tr>
<tr>
<td>Ana Filipa Guedes</td>
<td>Master</td>
<td>PhD Student (started April)</td>
</tr>
<tr>
<td>Ana Isabel Figueiredo Martins</td>
<td>Master</td>
<td>Investigator (left May)</td>
</tr>
<tr>
<td>André Faustino</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Axel Hollmann</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Filomena Carvalho</td>
<td>PhD</td>
<td>Investigator, Assistant Professor</td>
</tr>
<tr>
<td>Gabriela Guerra</td>
<td>Master</td>
<td>Investigator</td>
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<tr>
<td>Ivo C. Martins</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Marcelo T. Augusto</td>
<td>Master</td>
<td>Investigator (started November)</td>
</tr>
<tr>
<td>Marco M. Domingues</td>
<td>PhD</td>
<td>PhD Student (left November)</td>
</tr>
<tr>
<td>Margarida Rodrigues</td>
<td>Graduate</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Maria Inês Malho</td>
<td>Graduate</td>
<td>MSc Student (started February)</td>
</tr>
</tbody>
</table>
Patrícia M. Silva  Graduate  MSc Student
Pedro M. Matos  Graduate  PhD Student (left November)
Saulo Vieira  Master  PhD Student from Universidade Federal do Rio de Janeiro (started March; left September)
Sônia Gonçalves Abreu  PhD  Investigator
Susana dos Reis Gregório  Graduate  MSc Student (started September)
Virgínia Amaral  Master  PhD Student from Universidade Federal do Rio de Janeiro (started October)

Keywords / Research Areas
Membranes, Nanomedicine, HIV, Dengue Virus, Peptide-based therapies (CPPs, AMPs, pep14-23), Atomic Force Microscopy (AFM), Fibrinogen.

Major scientific achievements
- Understanding dengue virus (DENV) replication mechanisms is required to identify new therapeutic targets. Using AFM-based force spectroscopy, DLS, NMR and computational studies, we showed that DENV capsid (C) protein binds specifically to very low-density lipoproteins (VLDL). DENV C-VLDL interaction is K+-dependent and is inhibited by a new drug lead that we recently developed. ApoE may be the DENV C ligand on VLDL. Thus, lipoviroparticles formation may potentially be targeted for DENV life cycle inhibition.
- Singlet oxygen produced by the new broad-spectrum antiviral LJ001 and related compounds, as well as by dUY11, induces changes on the viral membrane resulting in the inhibition of the fusion pore necessary for cell infection by HIV and other enveloped viruses.
- The enhanced interaction of C34 cholesterol-conjugates with membranes 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.

Recent Most Relevant Publications


Carvalho FA, Carneiro FA, Martins IC, Assunção-Miranda I, Faustino AF, Pereira RM, Bozza PT, Castanho MARB, Mohana-Borges R, Da Poian AT, Santos NC (2012) Dengue virus capsid protein binding to hepatic lipid droplets (LD) is potassium ion dependent and is mediated by LD surface proteins. J. Virol. 86, 2096-2108 (Journal IF: 5.076, Citations: 9)

**Ongoing Research Projects**


2011/2014 LIPIDENGUE: The role of hepatic lipid membranes and lipid droplets in Dengue virus encapsidation. A gateway to new therapies. Coordinator: Miguel Castanho. Agency: FCT. Amount: €130.000,00


**Other Projects**


**Publications in peer review Journals**


**Invited lectures and seminars**

NC Santos, Índices Bibliométricos em Biomedicina, Serviço de Pediatria, Hospital de Santa Maria, Lisbon, Portugal, January 17, 2013.


HG Franquelim, NC Santos, MARB Castanho, P Schwille, AFM: May the Force be with you!, Ludwig-Maximilian University, Munich, Germany, May 17, 2013.


NC Santos, Microscopia de força atômica e espectroscopia de força. Aplicações biológicas e biomédicas, Instituto de Biofísica Carlos Chagas Filho, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil, August 22, 2013.


NC Santos, Biomedical applications of AFM-based force spectroscopy: from cardiovascular risk to dengue virus replication, Departamento de Bioengenharia do Instituto Superior Técnico, Lisboa, Portugal, November 11, 2013.
NC Santos, Force spectroscopy, Innovation in Microscopy Course (Congresso da Sociedade Portuguesa de Microscopia), Monte da Caparica, Portugal, December 11, 2013.

Communications in International Conferences


PM Matos, M Marin, B Ahn, W Lam, NC Santos, GB Melikyan, Single virus imaging reveals dependence on endosome-specific lipid for vesicular stomatitis virus fusion, 5th EMBO (European Molecular Biology Organization) Meeting, Amsterdam, Holland. September 21-24, 2013 (Oral communication)

M Rodrigues, BG de la Torre, D Andreu, NC Santos, Kinetic uptake profiles of cell penetrating peptides in lymphocytes and monocytes, Cell Penetrating Peptides – Joint FEBS (Federation of European Biochemical Societies) / Biochemical Society Lecture Course, London, UK, October 7-10, 2013. (Oral communication)


AF Faustino, GM Guerra, A Hollmann, MARB Castanho, F Almeida, AT Da Poian, NC Santos, IC Martins, Dengue virus capsid protein inhibitor peptide pep14-23: towards a novel drug target, 30th Anniversary Symposium of the Boehringer Ingelheim Fonds, Mainz, Germany, March 16, 2013. (Poster presentation)

AF Faustino, GM Guerra, A Hollmann, MARB Castanho, F Almeida, AT Da Poian, NC Santos, IC Martins, Dengue virus capsid protein inhibitor peptide, pep14-23, becomes alpha-helical upon binding to negatively-charged lipids, Biophysical Society Meeting Membrane Protein Folding, Seoul, South Korea, May 19-22, 2013. (Poster presentation)
PM Matos, M Marin, B Ahn, W Lam, NC Santos, GB Melikyan, Imaging fusion of single vesicular stomatitis virus with supported lipid bilayers reveals dependence on anionic lipids, FEBS (Federation of European Biochemical Societies) – EMBO (European Molecular Biology Organization) Advanced Lecture Course Biomembranes: Molecular Architecture, Dynamics and Function, Cargèse (Corsica), France, June 10-20, 2013. (Poster presentation)


AF Faustino, FA Carvalho, IC Martins, MARB Castanho, R Mohana-Borges, FCL Almeida, AT da Poian, NC Santos, Dengue virus capsid protein interacts specifically with very low-density lipoproteins, Modern Biophysical Methods for Protein Ligand Interactions – EMBO (European Molecular Biology Organization) Practical Course, Oulu, Finland, October 21-25, 2013 (Poster presentation)

V Artilheiro, AF Faustino, FCL Almeida, MARB Castanho, AT Da Poian, NC Santos, IC Martins, Understanding the mode of action of pep14-23, a novel Flavivirus drug candidate, 7th YES (Young European Scientist) Meeting, Porto, Portugal. November 14-16, 2013 (Poster presentation)
Communications in National Conferences

MT Augusto, A Hollmann, MARB Castanho, M Porotto, A Pessi, NC Santos, Improvement of the HIV fusion inhibitor C34 efficacy by membrane anchoring and enhanced exposure, iMed Conference 5.0 – Innovating Medicine, Lisbon, Portugal, October 11-13, 2013 (Poster presentation)

IF Malho, L Sargento, AF Guedes, FA Carvalho, NC Santos, Molecular characterization of the fibrinogen-erythrocyte interaction and its influence on cardiovascular pathologies, iMed Conference 5.0 – Innovating Medicine, Lisbon, Portugal, October 11-13, 2013 (Poster presentation)

V Artilheiro, AF Faustino, GM Guerra, FCL Almeida, MARB Castanho, AT Da Poian, NC Santos, IC Martins, Structure-function study of the dengue virus capsid protein and its de novo designed inhibitor peptide, pep14-23, iMed Conference 5.0 – Innovating Medicine, Lisbon, Portugal, October 11-13, 2013 (Poster presentation)

GM Guerra, S Gonçalves, NC Santos, IC Martins, Development of amyloid-based biomaterials for nanotechnology, RECPAD 2013 – 2nd Portuguese Pattern Recognition Conference, Lisbon, Portugal, November 1, 2013 (Poster presentation)

P Silva, S Gonçalves, L Medeiros, E Kurntenbach, NC Santos, Antifungal defensin Psd1 increases membrane roughness and cell stiffness and promotes apoptosis in Candida albicans, RECPAD 2013 – 2nd Portuguese Pattern Recognition Conference, Lisbon, Portugal, November 1, 2013 (Poster presentation)

FA Carvalho, A Tavares, M Teodoro, G Miltenberger-Miltenyi, NC Santos, AFM based-force spectroscopy as a functional diagnostic nanotool for hematological diseases, RECPAD 2013 – 2nd Portuguese Pattern Recognition Conference, Lisbon, Portugal, November 1, 2013 (Poster presentation)

Organisation of Conferences

Nuno C. Santos, Member of the scientific committee of the VIII Iberoamerican Congress of Biophysics, Valparaíso, Chile. October 1-4, 2013.


Internationalisation

Collaborative publications and/or funded projects with groups from the Federal University of Rio de Janeiro (Brazil), Pompeu Fabra University (Barcelona, Spain), Federal University of Ceará (Fortaleza, Brazil), University of Leeds (UK), University of Girona (Spain), Emory University (Atlanta, USA), Catholic University of Brasilia (Brazil), Oswaldo Cruz Foundation (Rio de Janeiro, Brazil), Agency for Science, Technology and Research (Singapore), University of Santiago del Estero (Argentina), University of Quilmes (Argentina), University of California at Los Angeles (USA), Mount Sinai Medical Center (New York, USA), University, Cornell University (New York, USA) and PeptiPharma (Rome, Italy).

Nuno C. Santos coordinates a Marie Curie International Research Staff Exchange Scheme (IRSES) Project, funded by the European Commission through the 7th Framework Program.

Nuno C. Santos received and supervised two PhD students (Saulo Vieira and Virginia Amaral) from the Federal University of Rio de Janeiro (Brazil).

Prizes, honours and awards

André Faustino won the Biophysical Society Best Poster Award at the 9th EBSA Conference, to support the participation at the 58th Biophysical Society Annual Meeting of 2014, Lisbon, Portugal, July 13-17, 2013.


Pedro Matos won the Runner-Up prize, Team Chemo and Bioengineering from Merck Serono Innovation Cup 2013, Seeheim-Jugenheim, Germany, August 25-30, 2013.

André Faustino won the Biophysical Society International Travel Award to further support the participation at the 58th Biophysical Society Annual Meeting of 2014.

Advanced teaching


Nuno C. Santos. Lecture on Lipids and Biological Membranes classes in the framework of the doctoral program, Instituto de Tecnologia Química e Biológica (ITQB), Oeiras, Portugal, January 2013.


Nuno C. Santos. Lecture on Characterization of Colloidal Systems by Light Dispersion Techniques
and Force Spectroscopy in the Master of Biotechnology program, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa. Lisbon, Portugal, April 2013.

Nuno C. Santos. Lecture on AFM-based Force Spectroscopy: Biological and Biomedical Applications in the Master of Structural Biology program, Instituto Superior Técnico, Technical University of Lisbon. Lisbon, Portugal, April 2013.

Nuno C. Santos. Lecture on Antimicrobial Peptides in the post-graduation program of Biological Sciences (Biophysics, Biochemistry and Microbiology), Federal University of Rio de Janeiro. Rio de Janeiro, Brazil, August 2013.

Sónia Gonçalves. Lecture on Fluorescence Spectroscopy Methodologies in the post-graduation program of Biological Sciences (Biophysics, Biochemistry and Microbiology), Federal University of Rio de Janeiro. Rio de Janeiro, Brazil, August 2013.


Nuno C. Santos. Lecture on Atomic Force Microscopy classes in the Master of Biochemistry for Health program, Instituto de Tecnologia Química e Biológica (ITQB) Oeiras, Portugal, November 2013.

**Science and society**

The research work of Nuno Santos Lab was featured on mass media news on Expresso (May 4, 2013, pp.20-21), TSF (“Mundo Novo”, May 24, 2013), Público (May 26, 2013, p.2), RTP 2 (“Sociedade Civil”, June 11, 2013) and TSF (October 30, 2013).

With the aim of promoting the interest in science among young students, the Nuno Santos Lab organized visits for undergraduate students via presentations and “speed-dating” style contact with the different components the Unit’s Research work.

André Faustino participated in an outreach activity with children from Santa Casa da Misericórdia de Mafra (Portugal) to celebrate the “Dia Nacional da Cultura Científica”, on November 25, 2013.

Ivo C. Martins hosted at the Nuno Santos Lab high school students in the framework of the “Ciência Viva” program.

**PhD theses completed**

Msc theses completed


LEONOR SAÚDE LAB

Major Interests / Objectives

We would like to understand the cellular and molecular mechanisms that control the left-right asymmetric placement of internal organs and the bilateral symmetric formation of musculoskeletal elements in vertebrates. In addition we are interested in make the bridge between the fundamental developmental processes that we have been studying with the mechanisms that have to be activated during regeneration upon severe injury.

Head of Unit

Maria Leonor Tavares Saúde, PhD – Auxiliary professor, FMUL

Research Team

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<thead>
<tr>
<th>Name</th>
<th>Degree</th>
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<tbody>
<tr>
<td>Ana Catarina Esteves Ribeiro</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Ana Margarida da Silva Figueira</td>
<td>Graduate MSc Student</td>
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<tr>
<td>Ana Margarida Pereira Cristovão Pinto</td>
<td>Graduate Technician</td>
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<tr>
<td>Benedict Paul Both</td>
<td>Graduate MSc Student (started February)</td>
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<tr>
<td>João Duarte Tavares da Silva Pereira</td>
<td>Graduate Post-doctoral Investigator</td>
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<tr>
<td>José Guilherme Pereira de Almeida Santos</td>
<td>Graduate MSc Student</td>
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<tr>
<td>Raquel Valente Mendes</td>
<td>Graduate PhD Student</td>
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<td>Rita Alexandra Rodrigues Pinto</td>
<td>Master  PhD Student</td>
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<td>Rita Joana Soares Serrano</td>
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<tr>
<td>Rita Leonor Alvares Cabral de Figueiredo Fior Sousa Soares</td>
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<tr>
<td>Sara Maria Ferreira Fernandes</td>
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</tr>
<tr>
<td>Susana Alexandra Rodrigues Pascoal</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
</tbody>
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Keywords / Research Areas

Left-right asymmetry, Somite formation, Tissue/organ regeneration.

Major scientific achievements

We published 1 paper:

And managed to get 1 manuscript revised in *Developmental Cell*:
Mendes R.V., Martins G.G. and Saúde L. N-cadherin locks left-right asymmetry by ending the leftward movement of Hensen’s node cells.

Raquel V. Mendes, a PhD student in the unit was awarded The Best Poster Award at the 2nd Meeting of the Portuguese Society of Developmental Biology (SPBD) and Benedict Both, a medical student working in our unit was awarded The Best GAPIC project.

Leonor Saúde was the co-organizer of the the 2nd Meeting of the Portuguese Society of Developmental Biology (SPBD) jointly with the Spanish Society for Developmental Biology (SEBD) in association with the Portuguese Society for Stem Cells and Cell Therapies (SPCE-TC).

Recent Most Relevant Publications


Ongoing Research Projects

2010/2013 Uncover the importance of cilia as signaling structures during regeneration. Coordinator: Maria Leonor Tavares Saúde. Agency: FCT. Amount: €170.000,00

2010/2013 Searching for RNA regulators that control the segmentation clock. Coordinator: Maria Leonor Tavares Saúde. Agency: FCT. Amount: €188.743,00

2012/2015 Uncover the molecular mechanism downstream of Dmrt2a/Terra that coordinates symmetry versus asymmetry along the left-right axis. Coordinator: Maria Leonor Tavares Saúde. Agency: FCT. Amount: €109.755,00


Publications in peer review Journals


Invited lectures and seminars

N-cadherin locks left-right asymmetry by ending the leftward movement of Hensen’s node cells. Centro Andaluz de Biología del Desarrollo, Seville, Spain, 2013.

An amputation resets positional information to a proximal identity in the regenerating zebrafish caudal fin. Interdisciplinary Approaches in Fish Skeletal Biology, Tavira, Portugal, 2013.

Cell movement choreographies that shape the vertebrate body plan. 3º Encontro de Biologia Molecular. Escola Superior de Saúde Egas Moniz, Monte da Caparica, Portugal, 2013.

Communications in International Conferences

Fernandes S.F., Fior R., Gama-Carvalho M. and Saúde L. Quaking A - a post-transcriptional regulator of early patterning in zebrafish. 2nd Meeting of the Portuguese Society for Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013. (Poster presentation)
Pinto R.A., Almeida-Santos J. and Saúde L. Uncover the molecular mechanism downstream of Dmrt2a/Terra, a transcription factor that coordinates symmetry versus asymmetry along the left-right axis. 2nd Meeting of the Portuguese Society for Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013. (Poster presentation)

Mendes, R.V., Martins, G.G. and Saúde, L. N-cadherin locks left-right asymmetry by ending the leftward movement of Hensen’s node cells. 2nd Meeting of the Portuguese Society for Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013. (Poster presentation)

Figueira, A.M. and Saúde, L. The role of Mesogenin1 in the dynamics of movement and differentiation of mesoderm progenitor cells. 2nd Meeting of the Portuguese Society for Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013. (Poster presentation)

Ribeiro, A. and Saúde, L. Uncovering cellular mechanisms of spinal cord regeneration in zebrafish. 2nd Meeting of the Portuguese Society for Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013. (Poster presentation)


Pinto R.A., Almeida-Santos J. and Saúde L. Uncover the molecular mechanism downstream of Dmrt2a/Terra, a transcription factor that coordinates symmetry versus asymmetry along the left-right axis. EMBO Young Scientists’ Forum, Lisbon, Portugal, July 15-16, 2013. (Poster presentation)

Mendes, R.V., Martins, G.G. and Saúde, L. N-cadherin locks left-right asymmetry by ending the leftward movement of Hensen’s node cells. EMBO Young Scientists’ Forum, Lisbon, Portugal, July 15-16, 2013. (Poster presentation)


Mendes, R.V., Martins, G.G. and Saúde, L. N-cadherin locks left-right asymmetry by ending the leftward movement of Hensen’s node cells. Making and breaking the left-right axis: laterality in development and disease. International Society of Developmental Biologists Congress, Cancun, Mexico, June 16-20, 2013. (Poster presentation)
Azevedo A.S., Sousa S., Jacinto A. and Saúde L. An amputation resets positional information to a proximal identity in the regenerating zebrafish caudal fin. 5th Strategic Conference of Zebrafish Investigators, Pacific Grove, USA, January 19-23, 2013. (Poster presentation)

Communications in National Conferences

Fernandes S.F., Fior R., Gama-Carvalho M. and Saúde L. Quaking A - a post-transcriptional regulator of early patterning in zebrafish. VII IMM/CAML PhD Students meeting, Lisbon, Portugal, December 5-6, 2013. (Poster presentation)

Pinto R.A., Almeida-Santos J. and Saúde L. Uncover the molecular mechanism downstream of Dmrt2a/Terra, a transcription factor that coordinates symmetry versus asymmetry along the left-right axis. VII IMM/CAML PhD Students meeting, Lisbon, Portugal, December 5-6, 2013. (Poster presentation)

Pascoal, S., Esteves de Lima, J., Serrano R. and Saúde L. Hh signaling and cilia are getting divorced during regeneration: gossip or fact. 1st Postdoctoral Symposium, 10th anniversary of IMM, Lisbon, Portugal, October 17, 2013. (Oral communication)

Organisation of Conferences

Saúde, L., The 2nd Meeting of the Portuguese Society of Developmental Biology (SPBD) jointly with the Spanish Society for Developmental Biology (SEBD) in association with the Portuguese Society for Stem Cells and Cell Therapies (SPCE-TC), Lisbon, Portugal, October 24-26, 2013.

Internationalisation


Prizes, honours and awards

Benedict Both was awarded The Best GAPIC Project

Raquel Mendes was awarded The Best Poster Award at The 2nd Meeting of the Portuguese Society of Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013
Advanced teaching


Saúde, L. lectured “Left-right asymmetry”, GAABA PhD Program. IMM, Lisbon, Portugal, March 26, 2013.


Pereira, J. lectured “Células estaminais e iPS-aplicações e trapeutica”, Master Course of Instituto Politécnico de Setúbal, Setúbal, Portugal, January 8, 2013.

Msc theses completed


Major Interests / Objectives

A challenge in Neurosciences is to correct abnormal synaptic function, a commonality of most brain diseases. Interfering with endogenous processes that adjust synaptic function to the circuit needs has been proposed as a promising strategy to correct synaptic dysfunction. We aim to elucidate how the neuronal and glial components of the tripartite synapse are fine-tuned under normal and dysfunctional situations, and how it affects neuronal excitability. Tuning of neurogenesis, neuronal maturation and degeneration is also under Unit interests. We focus on endogenous modulators, namely on adenosine, endocannabinoids, neurotrophins and glycine. As disease models we have been focusing on Alzheimer’s and Parkinson’s disease, developmental epilepsy and amyotrophic lateral sclerosis.

Head of Unit

Ana M Sebastião, PhD, Full Professor, Faculdade de Medicina da Universidade de Lisboa,

Research Team

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<tr>
<th>Name</th>
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<tr>
<td>Ana Filipa Ferreira da Cunha Ribeiro</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Ana Sofia Cristovão Ferreira</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Ana Sofia Temudo Duarte António</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>André Jerónimo Santos</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>António Artur da Paz Ferreira Pinto Duarte</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Armando Dulcídio da Silva Cruz</td>
<td>Master</td>
<td>PhD Student (started April)</td>
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<td>Bruno Miguel Ferreira Teixeira da Silva</td>
<td>PhD</td>
<td>Post-doctoral Investigator (started May)</td>
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<tr>
<td>Catarina Reis Orcinha</td>
<td>Master</td>
<td>Technician</td>
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<tr>
<td>Cátia Alexandra Pêgas Palminha</td>
<td>Graduate</td>
<td>MSc Student (started September)</td>
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<tr>
<td>Clara Cunha Matos Patrício</td>
<td>Graduate</td>
<td>MSc Student (left August)</td>
</tr>
<tr>
<td>Cláudia Alexandra dos Santos Valente de Castro</td>
<td>PhD</td>
<td>Investigator</td>
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<td>Daniela Cristina Melo Magalhães</td>
<td>Graduate</td>
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<td>Diana Gabriela Ribeiro Ferreira</td>
<td>Master</td>
<td>PhD Student (left May)</td>
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<td>Diogo Miguel Rombo</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Fabio Marques Simoes de Souza</td>
<td>PhD</td>
<td>Principal Investigator</td>
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<tr>
<td>Filipa Fiel do Carmo Glórias Ferreira</td>
<td>Master</td>
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<td>Filipe Jorge Nascimento Xavier Fernandes</td>
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<td>Francisco Melo Albuquerque Saraiva Mouro</td>
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<tr>
<td>Gabriela Antunes</td>
<td>MD/PhD</td>
<td>Post-doctoral Investigator (started August)</td>
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<td>Gonçalo Luis Monteiro Ramos</td>
<td>Graduate</td>
<td>MSc Student (left September)</td>
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<td>Haíssa de Castro Abrantes</td>
<td>Graduate</td>
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<td>Joana Fernandes Esteves Soares Coelho</td>
<td>PhD</td>
<td>Post-doctoral Investigator (left May)</td>
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<td>João Miguel Guerreiro Covita</td>
<td>Graduate</td>
<td>MSc Student</td>
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<td>Joaquim Alexandre Ribeiro</td>
<td>MD/PhD</td>
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<tr>
<td>Luísa Maria Vaqueiro Lopes</td>
<td>PhD</td>
<td>Principal Investigator (left May)</td>
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<tr>
<td>Maria Alexandra Pereira Botelho</td>
<td>Undergraduate</td>
<td>Administrative</td>
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<td>Maria José Diógenes</td>
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<td>Noémia Marisa Félix Pereira</td>
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<td>Raquel Alice da Silva Baptista Dias</td>
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<tr>
<td>Rita Cruz Coelho de Mira Ramalho</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Rita Isabel Pedro Aroeira</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Rui Artur Paiva Loureiro Gomes</td>
<td>PhD</td>
<td>Investigator, Assistant Professor (left</td>
</tr>
</tbody>
</table>
Keywords / Research Areas


Major scientific achievements

1. Neuronal plasticity:
a) Adenosine affords endogenous regulation of ischemia-induced plasticity (Dias et al Neuropharmac) and may contribute to adjust the threshold for plasticity according to prior experience (Dias et al TINS)
b) A2ARs control the influence of BDNF TrkB receptors upon LTD (Rodrigues et al). A2A/TrkB interactions require lipid rafts (Assaife-Lopes et al 2013), which are perturbed in ageing (Sebastião et al 2013).

2. Astrocytes:
a) GlyT2 are expressed in astrocytes (Aroeira et al 2013).
b) Adenosine acts via a heterocomplex of adenosine receptors in astrocytes to control GABA transport (Cristóvão-Ferreira et al 2013)

3. Neurodegenerative diseases:
a) In ALS there are subtle dysfunctions on neuromuscular transmission that start well before appearance of overt motor symptoms (Rocha et al 2013).

4. Cannabinoids:
a) CB1Rs induce neuronal differentiation (Xapelli et al 2013) and interact with caffeine to control neuronal signaling and behavior (Sousa et al 2013)

Recent Most Relevant Publications


**Ongoing Research Projects**


**Publications in peer review Journals**


Cells Dev 22, 1693-708. (Journal IF: 4.670)


Other publications International


Invited lectures and seminars

Lab members presented the following lectures or seminars as part of the Master and PhD Programmes in Neurosciences:

Claudia Valente – Imaging molecules by immunofluorescence (Claudia Valente), Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, October, 2013.


Diogo Rombo - Synapse-specific modulation at the hippocampus, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, October, 2013.


Maria José Diógenes - Neurotrophic factors: key molecules for neuronal survival and plasticity, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, November, 2013.

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.

Rita Aroeira - Glycine receptors and glycinergetic synapses during synapse maturation, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, October.

Sandra Vaz - Calcium signalling in astrocytes: relevance for excitability control, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal, October, 2013.


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 2013.

Lab Members presented Lectures, under invitation at Post-graduate programmes at other Schools:

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, 2013.


Dias RB - Curso Livre de Ciência, Tecnologia e Cidadania da Universidade Técnica de Lisboa, Lisbon, Portugal, 2013.

Lab members presented the following ‘Neuroscience Seminars’ at IMM:

Sofia Cristóvão-Ferreira “Role of GABA transporters on absence epilepsy seizures - project planning”.


João Covita, “The effect of BDNF on synaptic and extrasynaptic NMDA currents upon aging”, (project planning) IMM, Lisbon, Portugal, 2013.

Noémia Pereira, “Glycinergic transmission as a potential therapeutic target for epilepsy” (project planning) IMM, Lisbon, Portugal, 2013.

Sofia Duarte, Synaptic dysfunction in early epileptic encephalopathies, IMM, Lisbon, Portugal, 2013.

Sara Xapelli, “Hemopressin as a regulator of oligodendrogenesis in subventricular zone stem/progenitor cell cultures”, IMM, Lisbon, Portugal, 2013.


Sandra Vaz, BDNF-mediated enhanced LTP is modulated by astrocytes” IMM, Lisbon, Portugal, 2013.


André Santos, “Amyloid- β peptide dysregulates TrkB receptors and BDNF function by a calpain-dependent mechanism” IMM, Lisbon, Portugal, 2013.

João Covita, “BDNF signaling upon aging: effect on NMDA receptor and glutamate transporter function” IMM, Lisbon, Portugal, 2013.

Rita Ramalho, “Deciphering the mechanisms underlying the lost of BDNF neuroprotection in Alzheimer’s disease”, IMM, Lisbon, Portugal, 2013.


Filipa Ferreira “Unravelling the role of BDNF on endocannabinoids-modulation of neurogenesis” IMM, Lisbon, Portugal, 2013.

Armado Cruz, “The cross-talk mechanism between adenosine A1 and cannabinoid CB1 receptors in the hippocampal synaptic plasticity”, IMM, Lisbon, Portugal, 2013 (project planning)

Daniela Magalhães, “Glycinergic transmission molecular markers in vitro epilepsy model”, IMM, Lisbon, Portugal, 2013 (project planning)

Communications in International Conferences


Aroeira RI, Sebastião AM and Valente CA (2013) “Glycine uptake in brain nerve terminals is decreased by BDNF through a reduction in GlyT2 membrane insertion”, Molecular Biology in Portugal and EMBL (and EMBL Alumni), Lisbon, Portugal, July 18, 2013 (Poster presentation)

Colino-Oliveira, M., Dias, R.B., Ribeiro, A.J., Sebastião, A.M., Dual effects of BDNF on spontaneous GABAergic transmission in the adult rat hippocampus, ISN-ASN meeting, Cancun, México, April 20-24, 2013 (Poster presentation)

Cortes-Saladelafont E, S Duarte, M Molero, M Casado, C Sierra, MO Callaghan-Gordo, X Sanmarti-Vilaplana, C Fons, V Gonzalez-Alvarez, B Perez-Duenas, P Poo, F Ramos, R Artuch, A Garcia-Cazorla. CSF vitamin B6 levels and response to pyridoxal 5-phosphate in diverse epileptic encephalopathies, 12th International Congress of Inborn Errors of Metabolism, Barcelona, Spain, September 3rd-6th, 2013 (Poster presentation)

Ferreira F, Ribeiro FF, Sebastião AM, Xapelli S. BDNF modulates type 1 cannabinoid receptor (CB1R)-stimulation of neurogenesis in murine dentate gyrus stem/progenitor cell cultures - 5th Conference on Advances in molecular mechanisms underlying neurological disorders, Bath, UK, June 23-26, 2013 (Poster presentation)

and BDNF function by a calpain-dependent mechanism, Molecular Biology in Portugal and EMBL (and EMBL Alumni), Lisbon, Portugal, 2013 (Poster presentation)

Ribeiro FF, Rui Silva, Adelaide Fernandes, Dora Brites, Joaquim A. Ribeiro, Ana M. Sebastião, Adenosine A2A receptor: the mechanism behind axonal elongation in primary cortical cultures, 24th Biennial ISN Meeting, Cancun, Mexico, April 20th – 24th, 2013. (Poster presentation)

Ribeiro FF, Telma Santos, Mónica Sousa, Ana M. Sebastião, Adenosine A2A receptor activation promotes microtubule dynamics, EMBO Young Scientists’ Forum, Lisbon, Portugal, July 15-16th, 2013. (Poster presentation)

Vaz SH, Joaquim P. Jacob, Joaquim A. Ribeiro, and Ana M. Sebastião, P2Y1 receptor inhibits GABA transport through a calcium signalling-dependent mechanism in rat cortical astrocytes, 5th Conference on Advances in Molecular Mechanisms Underlying Neurological Disorders, Bath, UK, June 23-26, 2013 (Poster presentation)

Xapelli S, Agasse F, Ribeiro FF, Bernardino L, Schitine CS, Heimann A, Ferro ES, De Melo Reis RA, Sebastião AM, Malva JO. Induction of oligodendrogenesis by hemopressin in subventricular zone neural stem cell cultures - ISN/ FENS School 2013, Kolymbari, Crete (Greece), September 24-28, 2013. (Poster presentation)

Xapelli S, Agasse F, Ribeiro FF, Bernardino L, Schitine CS, Heimann A, Ferro ES, De Melo Reis RA, Sebastião AM, Malva JO. Hemopressin as a regulator of oligodendrogenesis in neural stem cell cultures from the subventricular zone — EMBO Young Scientists’ Forum, Lisbon, Portugal, July 15-16, 2013. (Poster presentation)

Communications in National Conferences


Colino-Oliveira, M., Diogenes, M.J., Detlev, B., Sebastião, A.M., Synaptic modulation by adenosine on an age-dependent epilepsy model. VII IMM/CAML PhD Meeting, Lisbon, Portugal, December 6, 2013 (Oral Presentation)

Duarte ST, Claudia Gaspar, Angels Garcia-Cazorla Estudo Molecular das alterações sinápticas na Síndrome de Ohtahara. 25º Encontro Nacional de Epileptologia, Porto, Portugal, March 8-9, 2013 (Oral presentation)

Duarte ST. Update on ataxias and SPG. Reunião da Sociedade Portuguesa de Doenças do Movimento Vimeiro, Portugal March 22-24, 2013 (Oral presentation – invited)
Fernandes I, Fernandes D, Pereira N, Sebastião AM and Valente CA (2013). Expression changes in GABAAR receptor subunits in a model of epileptiform activity in organotypic hippocampal slice cultures. 8th YES Meeting, Porto, Portugal, September 19-22, 2013 (Oral presentation)


Ribeiro FF, Filipa Ferreira, Ana M. Sebastião, Sara Xapelli, Exploring the modulatory role of adenosine A2A receptor upon brain-derived neurotrophic factor (BDNF)-induced neurogenesis. 43rd Annual Meeting of the Portuguese Pharmacological Society, Porto, Portugal, February 6-8, 2013. (Oral presentation)

Ribeiro FF, Rui Silva, Dora Brites, Joaquim A. Ribeiro, Ana M. Sebastião, Are axonal elongation and dendritic branching induced by adenosine A2A receptor activation dependent on the endogenous BDNF?. 43rd Annual Meeting of the Portuguese Pharmacological Society, Porto, Portugal, February 6-8, 2013 (Oral presentation)

Rombo DM, Kathryn Newton, Karri Lamsa, Ana M. Sebastião, Adenosine A2A receptors mediate hippocampal network disinhibition specifically through parvalbumin expressing interneurons. XIII Reunião da Sociedade Portuguesa de Neurociências, Luso, Portugal, May 30-31 and June 1, 2013 (Oral Presentation)

Rombo DM, Kathryn Newton, Karri Lamsa, Ana M. Sebastião, Disinhibitory action of A2A receptors through parvalbumin inhibitory synapses. XLIII Reunião Anual da Sociedade Portuguesa de Farmacologia, XXXI Reunião de Farmacologia Clínica e XII Reunião de Toxicologia, Instituto de Ciência Biomédicas Abel Salazar, Universidade do Porto, Porto, Portugal, February 6-8, 2013 (Oral Presentation)

Vaz SH BDNF-mediated enhancement of LTP is modulated by astrocytes. Pizza Seminars, Instituto de Medicina Molecular, Lisbon, Portugal, April 2, 2013 (Oral presentation)

Xapelli S, Agasse F, Ribeiro FF, Bernardino L, Schitine CS, Heimann A., Ferro ES, De Melo Reis RA, Sebastião AM, Malva JO Hemopressin stimulates oligodendrogenesis in neural stem cell cultures from the subventricular zone. XIII Annual meeting of The Portuguese Society for Neuroscience, Luso, Portugal, May 30, 31 and June 1, 2013 (Oral presentation)


Mendes-Pedro D, Duarte-Samartinho M, Mendes-Pedro D, Ribeiro FF, Ferreira FF, Sebastião AM, Xapelli S. Modulatory role of Adenosine A2A receptors on brain-derived neurotrophic factor (BDNF)-induced neurogenesis in murine dentate gyrus stem/progenitor cell cultures. XIII Annual meeting of The Portuguese Society for Neuroscience, Luso, Portugal, May 30-31 and June 1, 2013 (Poster presentation)
Mouro F, Raquel Baptista Dias, Diogo Miguel Rombo, Ana Maria Sebastião. Modulation of NMDA receptor activity through A2A receptors in the hippocampus. Sociedade Portuguesa das Neurociências, Luso, Coimbra, Portugal, May 2013 (Poster presentation)

Ribeiro FF, Telma Santos, Mónica Sousa, Ana M. Sebastião, Adenosine A2A receptor activation promotes microtubule dynamics. XIII Meeting of the Portuguese Neuroscience Society, Lisbon, Portugal, May 30, 31 and June 1, 2013 (Poster presentation)

Other communications
Ribeiro FF, Mónica Sousa, Ana M. Sebastião, Adenosine A2A receptors and the elongation of the axon, Nerve Regeneration Group Lab Meeting, IBMC, Porto, Portugal, April 30, 31, 2013 (Oral presentation)


Ribeiro FF, Ana M. Sebastião, The adenosine A2A receptor and microtubule dynamics during axon elongation. VII IMM PhD Students Meeting, Lisbon, Portugal, December 6, 2013 (Oral presentation)

Rombo DM, Kathryn Newton, Karri Lamsa, Ana M. Sebastião, Hippocampal network disinhibition of parvalbumin expressing interneurons by adenosine A2A receptors. VII IMM PhD Students Meeting, Lisbon, Portugal, December 5-6, 2013 (Oral presentation)
Duarte ST, Angels Garcia-Cazorla, Domingos Henrique, Ana Sebastião. Neuronal changes in neurodevelopmental disorders with epilepsy and autism. VII IMM PhD Students Meeting, Lisbon, Portugal, December 5-6, 2013 (Oral presentation)

Mouro F, Raquel Baptista Dias, Diogo Miguel Rombo, Ana Maria Sebastião. Adenosine A2A receptor activation facilitates synaptic NMDA receptor activity in the hippocampus. VII IMM PhD Students Meeting, Lisbon, Portugal, December 5-6, 2013 (Oral presentation)

Duarte ST, Angels García-Cazorla, Joaquim Sampaio Cabral, Domingos Henrique, Ana Sebastião From clinical to synaptic phenotype in neurodevelopmental disorders with epilepsy and autism. Champalimaud Neuroscience Program Retreat, Beja, Portugal, June 18-20, 2013 (Poster presentation)

**Organisation of Conferences**


Internationalisation

Ana Sebastião Lab | 333

Angeles García Cazorla (Barcelona, Spain), a neuropediatrician who collaborates with our group within the exploratory project funded by FCT on adenosine receptors as putative new pharmacological targets for Rett syndrome treatment.

Christopher Parsons (Frankfurt, Germany) within the project on Neurophysiological mechanisms of aging: novel view of old concepts, funded by the Bial Foundation.

Detlev Boison (Portland, USA) on the Functional characterization of BDNF and adenosine signalling at the hippocampus of mice with altered expression of astrocytic adenosine kinase (one paper has been already published).

Eero Castren (Helsinki) and David Blum (Lille), on Neurotrophin signalling dysfunction in Alzheimer disease models. (one paper was already published.

Jeremy Henley (Bristol)- Modulation of AMPA receptor trafficking (one paper already published).

Jérôme Baufreton (CNRS, Bordeaux) on GABA transport and GABAergic tonic inhibition in the Globullus Pallidus: dysfunction characterization in an animal model of Parkinson’s Disease.

Karri Lamsa (Oxford) on the Influence of adenosine receptors on selected hippocampal synapses and upon the neuroregulatory action of endocannabinoids in the hippocampus (two manuscripts under preparation).

Rafael Franco, Carmen Lluis (Barcelona) and Francisco Conti (Ancona, Italy) on A1/A2A receptor heterodimers in astrocytes to control GABA transport (one paper was already published).

Segi Ferré (Baltimore, USA) on galanine/dopamine interactions in the hippocampus and on A2A/GDNF interaction in the striatum (two papers already published).

Vicenzo Crunelli (Cardiff) on the influence of adenosine and BDNF upon GAT activity and tonic GABAergic currents in an animal model of absence epilepsy.

Prizes, honours and awards


Jerónimo Santos A – Best oral presentation, VII PhD Students Meeting CAML, Lisbon, Portugal, December 5-6, 2013.

Duarte ST - Best Poster presentation. VII PhD Students Meeting CAML, Lisbon, Portugal,
December 5-6, 2013.

Advanced teaching

Ribeiro FF, Mónica Sousa, Ana M. Sebastião, Adenosine A2A receptors and the elongation of the axon, Nerve Regeneration Group Lab Meeting, IBMC, Porto, Portugal, April 30, 31, 2013 (Oral presentation).

AM Sebastião – Member of the Scientific Board of the Ms/PhD in Neurosciences, Faculdade de Medicina da Universidade de Lisboa and of the Ms/PhD Programme in Cognitive Sciences, Universidade de Lisboa, Lisbon, Portugal, 2013.

Sebastião AM – 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, Lisbon, Portugal, 2013.

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, Lisbon, Portugal, 2013.

Sebastião AM – Coordinator of the Modules on ‘Molecular and Cellular Biology’, ‘Neuronal Circuits’ and ‘Neurodegeneration and Regeneration’ of the Ms/PhD in Neurosciences, Faculdade de Medicina da Universidade de Lisboa Ribeiro JA - Coordinator of Module on Neuroethics, Ms/PhD in Neurosciences.

Advanced training and Post-graduate Supervision of non-Lab members

Dias RB - Supervision of Maria do Carmo Pinto Basto in her final thesis entitled “O córebro e a reabilitação neuropsicológica” devoloped as part of Curso Livre de Ciência, Tecnologia e Cidadania, Universidade Técnica de Lisboa, Lisbon, Portugal, 2013.

Dias RB - Advanced training of the GAPIC student Afonso José Félix de Oliveira, as co-supervisor with Professor Ana Maria Sebastião, Lisbon, Portugal, 2013.

Ana M Sebastião, Maria José Diógenes, Claudia Valente, Sara Xapelli, Sandra Vaz and Sofia Cristovão Ferreira: Advanced training of the following GAPIC students: Carla Filipa Guerreiro, Carla Nunes Ferreira, Denise Fernandes, Diogo Filipe Andrade Guimarães, Diogo Mendes Pedro, Gabriel da Fonseca Matos, Inês Cristina Fernandes, Marta Samartinho, Raquel Lopes Brás, Sara Parreira, Sofia Lérias, Tiago Rodrigues.

Lab Members invited the following speakers to give lectures at IMM, attended by Master and PhD Students:


Jeremy Henley (Bristol) - ‘Plasticity, death and SUMOylation, IMM, Lisbon, Portugal, 2013.

Paula Pousinha (Valbonne France) Role of APP C-terminal fragment, AICD, in hippocampal function”, IMM, Lisbon, Portugal, 2013.


Patrícia Coelho de Velasco (Rio de Janeiro) Impact of omega-3 fatty acids nutritional restriction on the development of the rodent visual system, IMM, Lisbon, Portugal, 2013.

Science and society

Members of the Lab were involved in the activities regarding the Brain Awareness Week (BAW) - 2013, which included lectures and hands-on activities with the goal of increasing public awareness of the progress and benefits of brain research. These activities were a collaboration between IMM and “Ciência Viva - Pavilhão do Conhecimento” included in “Clube C60+”, “O Cérebro e a Memória” and “Deste-me um nome de rua – O Cérebro”.

Mouro F - Iniciativa Braço Direito – Semana Global do Empreendedorismo 2013, Novembro. Iniciativa suportada pela empresa Junior Achievement Portugal

Aroeira R was invited to participate in the television program “Sociedade Civil”, under the topic “Segredos do Cérebro”.

Colino-Oliveira M - session about the brain at Colégio Pedro Arrupe to students from the 10th grade.

Diogenes MJ - Session at Escola Casa Santa Ana, primary school (7 years old students) under the topic “Vamos olhar para o cérebro”.

Sandra H Vaz talk at St. Julian Secondary School on the brain, as part of the brain awareness week.

Sebastião AM – talk on Drugs and the Brain to students at the Secondary School ‘Escola Secundária Sebastião e Silva.

Simoes de Souza, FM and Mouro F gave a speech about the brain in the highschool Dom Manuel Martins, Setubal, Portugal, as part of the brain awareness week organized by the Portuguese Society for Neurosciences.

Valente C- two sessions untitled “Nós e o cérebro” to children of the 4th year of Colégio Manuel Bernardes.
Xapelli S. Talk during the Brain Awareness Week to students of “Colégio Laranja e Meia” (Lisboa).

Xapelli S. Talk during the Brain Awareness Week to students of “Escola Secundária de Carcavelos”, Cascais.

**Msc theses completed**


António Caetano (2013) Unraveling the effect of different Abeta species upon hippocampal synaptic plasticity and the neuroprotective role of BDNF. Universidade de Lisboa. Supervisor: Maria José Diógenses.
**BRUNO SILVA-SANTOS LAB**

**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 Unit**

Bruno Silva Santos, PhD, Associate Professor, Faculdade de Medicina da Universidade de Lisboa.

**Research Team**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Status</th>
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<tbody>
<tr>
<td>Ana de Oliveira Rodrigues Amorim</td>
<td>Graduate</td>
<td>MSc Student (started August)</td>
</tr>
<tr>
<td>Ana Maria de Amarante Pamplona Dias dos Santos</td>
<td>PhD</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Anita Raquel Quintal Gomes</td>
<td>PhD</td>
<td>Investigator</td>
</tr>
<tr>
<td>Artur Manuel Rodrigues Nixon Martins</td>
<td>Graduate</td>
<td>MSc Student</td>
</tr>
<tr>
<td>Daniel Vargas Correia</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Eva Sofia Alves Rolo</td>
<td>Master</td>
<td>Investigator (left May)</td>
</tr>
<tr>
<td>Francisco Landeck Moreira Franco Caiado</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Haakan Rolf Norell</td>
<td>PhD</td>
<td>Principal Investigator</td>
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<tr>
<td>Ingrid Cecilia Brok</td>
<td>Graduate</td>
<td>MSc Student (left February)</td>
</tr>
<tr>
<td>Joana Luísa de Barros Martins</td>
<td>Graduate</td>
<td>MSc Student (started August)</td>
</tr>
<tr>
<td>Julie Cecile Caroline Ribot</td>
<td>PhD</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Karine Serre</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
</tbody>
</table>
María Margarida Sousa Gonçalves Rei | Graduate | PhD Student
---|---|---
Michael Hamm | Graduate | MSc Student (started April) (left July)
Miguel Muñoz Ruiz | Master | PhD Student (started September)
Natacha Maria Gonçalves Silva Sousa | Master | Lab manager
Nina Alexandra Schmolka | Master | PhD Student
Rita Maria de Almeida Neres | PhD | Post-doctoral Investigator
Sérgio Tiago de Freitas Ribeiro | Master | PhD Student
Sofia Mensurado Santos | Graduate | Investigator (started July)
Telma Sofia Martins Lança | Graduate | PhD Student (left February)
Tomás Laia McGuire | Graduate | MSc Student

**Keywords / Research Areas**

T cell development/ differentiation, T cell activation, Tumour immunology, Leukaemia clonal evolution, Immunopathogenesis of Severe Malaria.

**Major scientific achievements**

Published 10 papers in peer-reviewed international journals, including in Nature Immunology (IF 26.2) and Journal of Experimental Medicine (IF 13.2).

Were awarded 2 Exploratory Project Grants from Fundação para a Ciência e Tecnologia (PIs: Haakan Norell e Julie C. Ribot).

Had a total of 21 communications in international conferences, of which four as invited speaker, including in the most prestigious International Congress of Immunology (B. Silva-Santos). Telma Lança successfully defended her PhD thesis with distinction and honours.

**Recent Most Relevant Publications**


Ongoing Research Projects


Publications in peer review Journals


Invited lectures and seminars

Serre K., Schmolka N., Ribot J., Gomes A. and Silva-Santos B. Regulation of IL-17 and IFN-g expression in gd T cells. "16e Colloque Cytokines et Chimiokines du Croisic (CCCC16), Croisic, France, May 27-29, 2013 (Invited Oral Presentation)

Caiado F. Quantitative analysis of clonal evolution in relapsing Acute Myeloid Leukemia. Clinical research seminar at IPO-Lisboa. Lisbon, Portugal, June 26, 2013 (Oral Presentation)

Caiado F. Driving relapse of Acute Myeloid Leukemia: preprogrammed populations versus stochastic events. Lecture in the research seminar series at IPO-Lisboa. Lisbon, Portugal, December 18 2013 (Oral Presentation)

B. Silva-Santos. Molecular determinants of tumor cell recognition by gd T lymphocytes. Instituto de Tecnologia Química e Biológica, Oeiras, Portugal, January 17, 2013.

B. Silva-Santos. Molecular mechanisms of differentiation of effector and regulatory T cells. Department of Immunology, University of Toronto, Canada, January 24, 2013.


B. Silva-Santos. Differentiation and activation of anti-tumor human gd T cells. University of Bilbao, Bilbao, Spain, June 18, 2013.

B. Silva-Santos. Imunoterapia do Melanoma. 1º Congresso Nacional de Melanoma, Lisbon, Portugal, June 29, 2013.
B. Silva-Santos. Molecular mechanisms of differentiation of gd T lymphocytes. 15th International Congress of Immunology, Milan, Italy, August 22-27, 2013.


Communications in International Conferences

Ribot J.C., Coquet J.M., Middendorp S., van der Horst G., Xiao Y., Neves J.F., Pennington D.J., Jacobs H.B., Borst J. and Silva-Santos B. Epithelial and dendritic cells in the thymic medulla promote CD4+Foxp3+ regulatory T cell development via the CD27/CD70 pathway. 2nd World Immunology Online Conference (Target Meeting). March 27-29, 2013 (Oral Presentation)

Ribot J.C., Ribeiro T.R, Correia D.V, Sousa A.E, and Silva-Santos B. Human gd thymocytes are functionally immature and differentiate into cytotoxic type 1 effector T cells upon IL-2/IL-15 signaling. EMBO Young Scientists’s Forum. Lisbon, Portugal, July 27-29, 2013 (Poster Presentation)

Ribot J.C. Molecular determinants of thymocytes differentiation. SPI Workshop Thymus @ Porto II. Porto, Portugal, December 19, 2013 (Oral Presentation)


Schmolka N., Gomes A.Q., and Silva-Santos B. MicroRNA-146a controls proliferation and differentiation of pro-inflammatory gd T lymphocytes. 8th Microsymposium on Small RNAs, Vienna, Austria, May 27-29 2013 (Poster presentation)

Schmolka N., Gomes A.Q., and Silva-Santos B. MicroRNA-146a controls proliferation and differentiation of pro-inflammatory gd T lymphocytes. EMBO young scientists´ forum, Lisbon, Portugal, July 15-16, 2013 (Poster presentation)

Rei M., Lança T., Thompson R., Balkwill F., Kulbe H., Silva-Santos B. and Pennington D.J. Major contribution of gd T cells to IL-17A production and ovarian cancer cell growth in vivo. EMBO Young Investigator’s Forum. Lisbon, Portugal, July 15-16 2013 (Poster presentation)
Rei M., Lança T., Thompson R., Balkwill F., Kulbe H., Silva-Santos B. and Pennington D.J. Major contribution of gd T cells to IL-17A production and ovarian cancer cell growth in vivo. 15th International Congress of Immunology. Milan, Italy, August 22-27, 2013 (Oral presentation)


Schmolka N, Gomes A.Q., and Silva-Santos B. MicroRNA-146a controls proliferation and differentiation of pro-inflammatory gamma-delta T lymphocytes. EMBO/EMBL Symposium: The Non-Coding Genome. Heidelberg, Germany, October 9-13, 2013 (Poster presentation)


Schmolka N., Serre K., Grosso A.R., Rei M., Pennington D.J., Gomes A.Q., and Silva-Santos B. Thymic differentiation and peripheral plasticity of IL-17-producing gd T-cells. VII World Immune Regulation Meeting, Davos, Switzerland, March 13-16, 2013 (Poster presentation)

Communications in National Conferences

Schmolka N, Gomes A.Q., and Silva-Santos B. MicroRNAs regulate interleukin-17 and interferon-g expression during T cell development and differentiation. XXXIX Annual Meeting of the Portuguese Society of Immunology (SPI), Coimbra, Portugal, November 13-15, 2013. (Oral Presentation)

Neres R.*, Ribot J.C.*, Rolo E., Zuzarte-Luis V., Mota M.M., Silva-Santos B. and Pamplona A. Hepatic gd T cells producing IL-17A and IFN-γ are critical for the development of experimental cerebral malaria upon Plasmodium sporozoite infection. XXXIX Annual Meeting of the Portuguese Society of Immunology (SPI), Coimbra, Portugal, November 25-27, 2013. (*equal contribution) (Oral presentation)

Serre K., Schmolka N., Grosso A., Rei M., Pennington D., Gomes A. and Silva-Santos B. In vivo molecular signatures of stable versus plastic gamma delta T cell subsets. XXXIX Annual Meeting of the Portuguese Society of Immunology (SPI), Coimbra, Portugal, November 13-15, 2013. (Oral presentation)
Organisation of Conferences

B. Silva-Santos co-organized the Cancer immunotherapy workshop, Encontros de Primavera em Oncologia, Hotel Évora, Évora, Portugal, April 18, 2013.

B. Silva-Santos co-organized the Young Investigator Forum of the European Molecular Biology Organization (EMBO) Young Investigator Programme, Instituto de Medicina Molecular, Lisbon, Portugal, July 15-17, 2013.

Internationalisation

Collaborative work with Drs. Daniel J. Pennington (Blizard Institute, Queen Mary College, London, UK), Adrian Hayday (Cancer Research UK, London, UK), Ton Schumacher and Jannie Borst (The Netherlands Cancer Institute, Amsterdam, The Netherlands), Domenico Mavilio (Istituto Clinico Humanitas, Milan, Italy) and Carmen Penido, Instituto Oswaldo Cruz, Rio de Janeiro, Brazil.

Prizes, honours and awards


SPI travel Award to Karine Serre and Margarida Rei.

Advanced teaching


B. Silva-Santos. Differentiation and function of gd T cells. GABBA PhD Program course, Instituto de Biologia Molecular e Celular, Universidade do Porto, Porto, Portugal, February 8, 2013.


B. Silva-Santos. T lymphocytes for cancer immunotherapy. 1st Research Meeting, Universidade de Coimbra, Coimbra, Portugal, April 21, 2013.

B. Silva-Santos co-organized and lectured in the course “Oncoimmunology”, MSc Program of Centro Académico de Medicina de Lisboa, Lisbon, Portugal, May 21-24, 2013.

B. Silva-Santos organized and lectured in the course “Challenges in Immunology”, PhD Program of Centro Académico de Medicina de Lisboa, Lisbon, Portugal, June 3-5, 2013.


Science and society

B. Silva-Santos participated in a documentary for “Maratona da Saúde”, Rádio e Televisão de Portugal, November 11, 2013.

PhD theses completed

Telma Lança (2013) gd T cell responses to tumours: recruitment, recognition and functions. Faculdade de Medicina da Universidade de Lisboa Supervisor: B. Silva-Santos
Major Interests / Objectives

We utilize murid herpesvirus 4, which causes persistent infection in laboratory mice. We have identified two viral proteins critical for the virus life cycle. M2 that functions as an adaptor protein that assembles a signalosome with cellular proteins involved in the activation and differentiation of B-cells. The other, mLANA, secures viral episome persistence by tethering the viral genomes to mitotic chromosomes to segregate viral DNA to daughter nuclei. mLANA also regulates transcription and cell growth through E3 ubiquitin-ligase activity. The objective is that our work will enable future strategies to disrupt LANA function and control disease associated with persistent infection by herpes viruses.

Head of Unit

João Pedro Monteiro e Louro Machado de Simas, PhD.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Role</th>
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<tbody>
<tr>
<td>Cristina Sofia Godinho da Silva</td>
<td>No degree</td>
<td>Investigator</td>
</tr>
<tr>
<td>Diana Marisa Pinto Freire Fontinha</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Inês Marques Basto</td>
<td>Graduate</td>
<td>MSc Student (started July)</td>
</tr>
<tr>
<td>Lénia Marisa Pereira Rodrigues</td>
<td>PhD</td>
<td>Post-doctoral Investigator (left June)</td>
</tr>
<tr>
<td>Marta Bebiano Alenquer</td>
<td>Graduate</td>
<td>PhD Student (left March)</td>
</tr>
<tr>
<td>Marta Pires de Miranda</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Sofia Isabel Arriaga Mimoso Cerqueira</td>
<td>Master</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Sofia Pinto Guia Marques</td>
<td>PhD</td>
<td>Post-doctoral Investigator (left February)</td>
</tr>
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</table>

Keywords / Research Areas

herpes virus, B lymphocytes, E3 ubiquitin ligase, SH2 and SH3, B cell signalosome, MuHV-4.
Major scientific achievements

During 2013 with our collaborators Maria Arménia Carrondo and Colin McVey at ITQB and Ken Kaye at Harvard Medical School, we have resolved 3D structure of the DNA binding domain of LANA, which includes the SOCS box E3 ligase motif. In addition we have defined that in addition to NF-κB, LANA also targets the cellular oncogene MYC for polyubiquitination. In contrast to NF-κB, where polyubiquitination mediated by LANA is degradative, MYC polyubiquitination is heterotypic and increases the stability of MYC. It turns out that MYC is essential for virus induced lymphoproliferation, offering a new target for blocking LANA, hence virus-induced lymphoproliferative disease.

Recent Most Relevant Publications


Ongoing Research Projects


Publications in peer review Journals


Major Interests / Objectives

Our work is focused 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 our research effort is centered on HIV/AIDS immunopathogenesis, mainly through the study of HIV-2 infection, a naturally attenuated form of HIV disease.

We prioritize the “bedside to the bench” approach and, given the transversal nature of Clinical Immunology, bring together physician/clinical researchers, from different medical areas, and basic researchers.

Head of Unit

Ana Espada de Sousa, Md, PhD Agregação, Associate Professor, Faculdade de Medicina da Universidade de Lisboa.

Research Team

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<thead>
<tr>
<th>Name</th>
<th>Degree</th>
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<tr>
<td>Adriana Silva de Albuquerque</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Alcinda Melo</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Ana Berta da Fonseca Vieira Álvaraes e Sousa Ferrand de Almeida</td>
<td>MD/PhD</td>
<td>Investigator, Clinical Specialist, Assistant Professor</td>
</tr>
<tr>
<td>Ana Isabel Gouveia Costa da Fonseca Lopes</td>
<td>MD/PhD</td>
<td>Investigator, Clinical Specialist, Assistant Professor</td>
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<tr>
<td>Ana Luisa Caetano</td>
<td>Graduate</td>
<td>Technician</td>
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<tr>
<td>Ana Margarida Fernandes Pereira de Matos</td>
<td>Graduate</td>
<td>Lab Manager</td>
</tr>
<tr>
<td>Ana Rita Correia Pires</td>
<td>Graduate</td>
<td>Lab Manager, Investigator</td>
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<tr>
<td>Andreia de Jesus Amaral Gomes Barbosa Fonseca</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Daniela Filipa Alves Ferreira</td>
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<tr>
<td>Helena Nunes Cabaço</td>
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<td>Inês Filipa dos Santos Martins</td>
<td>Master</td>
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<td>Name</td>
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<tr>
<td>Iris Maria Ferreira Caramalho</td>
<td>PhD</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Isabel Cristina e Castro de Menezes Esteves</td>
<td>Graduate</td>
<td>Investigator, MD, Clinical Specialist, Teaching Assistant</td>
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<tr>
<td>Jorge Andrade</td>
<td>PhD</td>
<td>Post-doctoral Investigator (started February)</td>
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<td>José Gonçalo Duque Pereira Monteiro Marques</td>
<td>Graduate</td>
<td>Investigator, MD, Clinical Specialist, Teaching Assistant</td>
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<tr>
<td>Maria Catarina Mota da Silva</td>
<td>Graduate</td>
<td>PhD Student, MD</td>
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<tr>
<td>Maria da Conceição Galvão Barata Pinto Pereira dos Santos</td>
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<td>Investigator</td>
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<tr>
<td>Paula Cristina Frade dos Santos Matoso</td>
<td>Master</td>
<td>Lab Manager, Investigator</td>
</tr>
<tr>
<td>Rita Maria Vitorino Tendeiro Pereira Rêgo</td>
<td>PhD</td>
<td>Post-doctoral Investigator (left September)</td>
</tr>
<tr>
<td>Rui Manuel Martins Victorino</td>
<td>MD/PhD</td>
<td>Principal Investigator, Full Professor, Clinical Service Director</td>
</tr>
<tr>
<td>Russell Bourne Foxall</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Sara Branco Pereira da Silva</td>
<td>Graduate</td>
<td>Investigator, MD, Clinical Specialist</td>
</tr>
<tr>
<td>Susana Clara Barão Lopes da Silva dos Anjos</td>
<td>Master</td>
<td>PhD Student, MD, Clinical Specialist, Teaching Assistant</td>
</tr>
<tr>
<td>Susana Mendes Fernandes</td>
<td>Graduate</td>
<td>PhD Student, MD, Teaching Assistant</td>
</tr>
</tbody>
</table>

**Keywords / Research Areas**

Human T cell Homeostasis, Immune Regulation, HIV/AIDS Immunopathogenesis, HIV-2 Infection, Primary Immunodeficiencies, Immunological Reconstitution.

**Major scientific achievements**

Our investigation of HIV/AIDS immunopathogenesis is focused on HIV-2 infection, which features a much slower course than HIV-1, often being asymptomatic for over 20 years without therapy. We showed preserved telomere length within naive and memory CD4 subsets, despite increased CD4 T-cell turnover. We also found a heightened state of monocyte and dendritic cell activation throughout HIV-2 infection with overexpression of the inhibitory molecule PD-L1,
which may act by limiting inflammation, given the role of these cells as main orchestrators of immune responses. These data challenge current paradigms in HIV/AIDS and open new perspectives regarding potential strategies to modulate inflammatory states. Our research related to the Primary Immunodeficiency Centre (a partnership with University Hospital de Santa Maria), was strengthened by the organization of 1st International Primary Immunodeficiency Congress/International Patient Organization for Primary Immunodeficiencies.

Recent Most Relevant Publications


Ongoing Research Projects

2013/2015 Bee Venom as a tool to expand the human regulatory T-cell compartment. Coordinator: Rui Manuel Martins Victorino. Agency: FCT. Amount: €145.000,00


Publications in peer review Journals


Brás-Rosário Luis, Matsuda Alex, Pinheiro Ana Isabel, Gardner Rui, Lopes Telma, Amaral Andreia, Gama-Carvalho, Margarida (2013) Expression Profile of microRNAs Regulating Proliferation and Differentiation in Mouse Adult Cardiac Stem Cells. PLoS one 8(5),e63041. (Journal IF: 3.730, Citations: 0)


Other publications International


Other publications National

Dias JG; Silva SL; Luz S; Silva SP; Santos AS; Pedro E; Pereira Santos MC; Barbosa MP. (2013). Estudo comparativo de métodos de rastreio de atopia em doentes com rinite (ImmunoCAP ® Rapid versusPhadiatop ® e testes cutâneos em picada). *Rev Port Imunoalergol* 21, (1): 41– 47.


Invited lectures and seminars


**Communications in International Conferences**

Ana Célia Costa, Fátima Duarte, Elisa Pedro, Alcinda Melo, Manuel Pereira-Barbosa, Conceição Pereira Santos. Efficacy and safety of Sublingual Specific Immunotherapy with Pru p 3 in a Portuguese population - Clinical and Immunological evaluation during 12 months, WAO Symposium of Immunotherapy and Biologics, Chicago, USA. December 2013 (Poster presentation)  


SP Silva, SL. Silva, M. Laiges, E. Pedro, M. Barbosa. Adult primary immunodeficiencies clinic – 8 years experience, International Primary Immunodeficiencies Congress 2013, Estoril, Portugal, November 2013. (Poster presentation)


Catarina Ferreira, Ana Russo, Paula Ravasco, Sara Azevedo, Maria Camilo, Ana Isabel Lopes. Inflammatory bowel disease in Pediatrics: The impact on nutritional status and intake, 35th European Society for Clinical Nutrition (ESPEN) Congress, Leipzig, Germany, September 2013. (J Clin Nutr suppl.) (Poster presentation)

M Almeida, T Rodrigues, A Palha, M Oleastro, Al Lopes Helicobacter infection in pediatric digestive endoscopy: prevalence trend and clinical profile, XXVth International Workshop of the European Helicobacter Study Group, Madrid, Spain, September 2013 (Helicobacter suppl.). (Poster presentation)


Batalha S, Oom P, Torres J, Cravo M, Oliveira H, Lopes Al. Diagnosis of inflammatory bowel disease: not always an easy task, ESPGHAN Summer School on Nutrition, Prague, Czech Republic, July 2013. (JPGN suppl.) (Oral communication)


Andreia J Amaral, Jorge Andrade, Ana Margarida Matos, Russell B Foxall, Paula Matoso, Mariana Santa-Marta, Rita Tendeiro, Ana Serra-Caetano, Rui S Soares, João Gonçalves, Ana E Sousa, Margarida Gama-Carvalho. miR-34c-5p is a novel regulator of naive T-cell activation that impacts
HIV replication. RNA 2013 - The 18th Annual Meeting of the RNA Society, Davos, Switzerland, June 2013. (Oral communication)


anemia in Pediatric Crohn’s Disease: preliminary evaluation of parenteral iron therapy, 8th Congress of European Crohn’s and Colitis Organization (ECCO) - Inflammatory Bowel Diseases, Vienna, Austria, February, 2013 (Journal of Crohn’s and Colitis suppl.) (Poster presentation)

Communications in National Conferences

Helena Nunes-Cabaço, Paula Matoso, Russell B. Foxall, Rita Tendeiro, Ana R. Pires, Rui S. Soares, Ana I. Pinheiro, Ana E. Sousa; Infection of the human thymus by HIV-2, Thymus@Porto II, Instituto de Ciências Biomédicas Abel Salazar (ICBAS), Porto, 19th December 2013. (Poster presentation)

Caramalho, I., V. Nunes-Silva, A.R. Pires, A.I. Pinto, C. Mota and A. E. Sousa, IL-2 and IL-15 impact on Regulatory T cell commitment and are expressed within discrete non-overlapping niches in the human thymus, XXXIX Meeting of the Portuguese Society of Immunology, Coimbra, November 13-15, 2013. (Oral presentation)


Mota, C., V. Nunes-Silva, A. E. Sousa, R. M. M. Victorino and I. Caramalho. Delta like-1 enhances the in vitro conversion of human memory CD4 cells into FOXP3-expressing Regulatory T Cells, XXXIX Meeting of the Portuguese Society of Immunology, Coimbra, November 13-15, 2013. (Poster presentation)


Ana Célia Costa, Fátima Duarte, Elisa Pedro, Alcinda Melo, Manuel Pereira Barbosa, M. Conceição Pereira Santos. Eficácia e tolerância de imunoterapia específica sublingual com Pru
3 em doentes com alergia grave ao pêssego-evolução clínica e imunológica ao longo de 12 meses, XXXIV Reunião Anual da Sociedade Portuguesa de Alergologia e Imunologia Clínica, Vale de Lobo, October 11-13, 2013. (Poster presentation)

Pedro Silva, Leticia Pestana, Ana Célia Costa, M. Conceição Pereira Santos, Manuel Pereira Barbosa. Sensibilização A LTP (Pru p 3) e profilina(Pru p 4) em 1052 doentes referenciados a um Serviço de Imunoalergologia em Lisboa, XXXIV Reunião Anual da Sociedade Portuguesa de Alergologia e Imunologia Clínica, Vale de Lobo, October 11-13, 2013. (Poster presentation)


Joana Extreia, Andreia Abrantes, Sara Azevedo, Ana Isabel Lopes. Casuística de Doença de Crohn numa Unidade de Gastrenterologia Pediátrica dum Hospital Tercário, Congresso Nacional de Pediatría, Porto, October 2013. (Oral communication)


Lígia Paulos, Sara Azevedo, Paula Mourato, Helena Loreto, Ana Isabel Lopes. Doença inflamatória em idade pediátrica: série retrospectiva de um centro terciário, Reunião Anual da Sociedade de Gastrenterologia e Nutrição Pediátrica, Semana Digestiva, Vilamoura, June 2013. (Oral communication)

Organisation of Conferences


Susana Lopes da Silva. Co-organisation of the 1st International Primary Immunodeficiency Congress (IPIC) from the IPOPI (International Patient Organization for Primary Immunodeficiencies), Estoril, November 6-8, 2013.

Internationalisation

Established international collaborations in the area of HIV/AIDS and/or Primary Immunodeficiency with:

- Alain Fischer, Hôpital Necker-Enfants malades, Paris, France
- Claudio Pignata, “Federico II” University, Naples, Italy
- Jeffrey Platt, University of Michigan, Ann Arbor, USA
- Lennart Hammarstrom, Karolinska Institute, Stockholm, Sweden
- Louise Markert, Duke University Medical Center, Durham, USA
- Marilia Cascalho, University of Michigan, Ann Arbor, USA
Prizes, honours and awards


Industry contract research

Ana E. Sousa, Principal Investigator/Coordinator of the Project entitled: Modulation of HIV replication and latency in human CD4 T cells by regulatory small RNAs. Merck Investigators Study Program, funded by the Merck Sharp & Dome Corporation, 2011-2013, 142,000€. Merck & Co., Inc.

Ana E. Sousa, Principal Investigator/Coordinator of the Project entitled: Reservatórios e Replicação Viral nas Células T CD4 de Memória-Central e Foliculares na Infecção HIV-2. 2013-2015, €14,500, funded by Gilead Sciences.

Susana Lopes da Silva; Principal Investigator/Coordinator of the Project entitled: Infecções crônicas 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.
José G. Marques and Susana Lopes da Silva, Members of “Comissão Técnica de Vacinação da Direcção-Geral de Saúde” (Portaria nº 243/2013, de 22 de Abril)

Members of the Directive Board of the Sociedade de Ciências Médicas de Lisboa. Ana E. Sousa (left in May 2013) and Rui MM Victorino (since May 2013).

Rui MM Victorino, Member of the Scientific Council for Health and Life Science from FCT (Portuguese Foundation for Science and Technology) (left in 2013).

Rui MM Victorino, Chairman, and Ana E Sousa, Member, of the Scientific Council of the PhD Program from the Lisbon Academic Medical Center.

Maria Conceição Pereira-Santos, José G. Marques: Members of the Coordinator Board of the Portuguese Group for Primary Immunodeficiencies (GPIP).

Rui MM Victorino, Member of the Scientific Council of the Fundação Pulido Valente.

Rui MM Victorino, Member of the Jury for the Annual Prices in clinical research from the University of Hospital Santa Maria.

Rui MM Victorino, Member of the Clinical Research Committee from University Hospital Santa Maria.

Rui MM Victorino, Chairman, and Ana E Sousa, Member, of the Scientific Council of the Faculdade de Medicina da Universidade de Lisboa.

**Advanced teaching**

Ana E Sousa, Maria Conceição Pereira-Santos, Rui MM Victorino, Susana L. Silva, Susana M Fernandes, and Ana Serra-Caetano: Clinical Immunology teaching in the core curriculum for Medical Students, Area: Medicine 2, 5th year, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal.

Ana E Sousa, Rui MM Victorino: full-responsibility in the organization of the Clinical Immunology optional courses for Medical Students, 4th and 5th year, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal.

Adriana Albuquerque, Susana Lopes Silva. 2013. Contribution in the teaching of the Discipline of Clinical Immunology of the 4th and 5th year of the Degree in Medicine, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal.

Isabel Esteves. Advanced Formation Institute of Lisbon Medical Faculty and Pediatrics Department of Santa Maria Hospital. “Specialization in Pediatrics: innovation and technology” - Postgraduate course. Santa Maria Hospital, 10 sections, one weekend/month, Lisbon, Portugal. January-June and September-December, 2013.

Ana E Sousa: Collaboration in the teaching of Immunology in the core curriculum for Medical Students, 2nd year, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal.

Isabel Esteves. Infectious Diseases in Childhood: new epidemics. XI Meeting of Pediatrics Department of Algarve Hospital Center, Faro, Portugal, December 5, 2013.

Isabel Esteves. Meningococcal disease: past and future of prevention. XI Meeting of Pediatrics Department of Algarve Hospital Center, Faro, Portugal, December 5, 2013.


Isabel Esteves. Pediatrics Department of Algarve Hospital Center and PID Centre of the Lisbon Medical Academic Centre. “Primary Immunodeficiencies” – satellite course of XI Meeting of Pediatrics Department of Algarve Hospital Center, Faro, Portugal, December 4, 2013.

Isabel Esteves. How to manage the child with probable primary immunodeficiency, “Primary Immunodeficiencies” – satellite course of XI Meeting of Pediatrics Department of Algarve Hospital Center, Faro, Portugal, December 4, 2013.


Isabel Esteves. Invasive Fungal Infections in Pediatrics, 34º Edition of Infectious Diseases Conferences, Hospital Santa Maria, Lisbon, Portugal, November 22, 2013.

Isabel Esteves. BCGitis 15º Meeting of the Pediatrics Department of Cascais Hospital, Cascais Cultural Centre, Cascais, Portugal, November 8, 2013.


Ana Isabel Lopes. Doença Inflamatória em Idade Pediátrica, ABBVIE Medical Department, Lisbon, Portugal, June 2013.


Ana Isabel Lopes. Doença Hepática Autoimune em Idade Pediátrica, 2º Curso ABC de Hepatologia, Unidade de Hepatologia, Hospital Pediátrico de Coimbra, Nazaré, Portugal, May 2013.

Paula Matoso. A user’s perspective - Biosafety training for use of the IMM BSL3 Facility, IMM, Lisbon, Portugal, March 2013.


Marques JG. Curso de diferenciação em pediatria, módulo de Infecciology, Departamento de Pediatria do HSM/CHLN, Lisbon, Portugal, March 1, 8, 15, 22, 2013.

Isabel Esteves. Severe Combined Immunodeficiencies. Pediatric Infectious Diseases Section of the postgraduate course “Specialization in Pediatrics: innovation and technology”, Hospital de Santa Maria, Lisbon, Portugal, March 22, 2013.


Isabel Esteves. Adjuvant Therapies of viral infections, Pediatric Infectious Diseases Section of the postgraduate course “Specialization in Pediatrics: innovation and technology”, Hospital de Santa Maria, Lisbon, Portugal, March 15, 2013.

Iris Caramalho. Lectured at the Oncobiology Module of the Doctoral Programme in Experimental Biology and Biomedicine, Coimbra, Portugal, February 2013.

Ana E. Sousa. HIV pathogenesis, GABBA PhD Program, Porto, Portugal, February 8, 2013.

Science and society

Susana Lopes da Silva, Medical Advisor for Associação Portuguesa de Doentes com Imunodeficiências Primárias

Ana E Sousa, Participation in the TSF radio program “Alerta SIDA” to increase HIV/AIDS awareness.

Msc theses completed

Ana Margarida Fernandes Pereira de Matos (2013) Characterization of differentially expressed microRNAs in HIV-1 and HIV-2 infection in Human CD4-T cells: A role for miR-34c-5p in T-cell activation and response to HIV infection MSc thesis in Emerging Infectious Diseases. Faculdade de Medicina da Universidade de Lisboa. Supervisors: Margarida Gama Carvalho (BioFig/FCUL) and Ana Espada de Sousa, (IMM/FMUL).
**HENRIQUE VEIGA-FERNANDES LAB**

**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 Unit**

José Henrique Veiga Fernandes, DVM, PhD

**Research Team**

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Position</th>
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<tr>
<td>Afonso Rocha Martins de Almeida</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
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<tr>
<td>Ana Teresa Veríssimo Alves Bento</td>
<td>Graduate</td>
<td>MSc Student (started February)</td>
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<tr>
<td>Bethania García Cassani</td>
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<td>Carlos Diogo Labão Alpiarça Sousa de Almeida</td>
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<td>Fátima Sofia dos Santos Cardoso</td>
<td>Graduate</td>
<td>Investigator (started November)</td>
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<td>Hélder Manuel Piedade Ribeiro</td>
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<td>Technician</td>
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<tr>
<td>Manuela Cristina Fernandes Ferreira</td>
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<td>Rita Gomes Domingues</td>
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<td>Sales Ibiza</td>
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<tr>
<td>Silvia Moura Arroz Nobre Madeira</td>
<td>Master</td>
<td>PhD Student</td>
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</tbody>
</table>
**Keywords / Research Areas**

Lymphoid organogenesis, Haematopoiesis, Innate Lymphoid Cells, Lymphocyte function.

**Major scientific achievements**

**Publications**:


Baptista AP *et al.* Colonic patch and colonic SILT development are independent and differentially regulated events, Mucosal Immunol, 2013 May, 6 (3), 511-21.

**Prize**:

Innovator Award of the Kenneth Rainin Foundation (KRF) from Kenneth Rainin Foundation, USA, Aug 2013.

**Patents**:

The use of ret agonist molecules are critical to haematopoetic stem cell expansion protocols and transplantation therapy and a ret agonist. Submitted to WIPO as nr. 47679-13 (not published).

Inventors: Henrique Veiga-Fernandes, Diogo Fonseca-Pereira, Silvia Madeira

**Organisation of international conference**:

Young Scientist Forum EMBO. Lisbon, Portugal, 15-16 July 2013

**Recent Most Relevant Publications**


Veiga-Fernandes, H. and Rocha, B. (2004). High expression of active CDK6 in the cytoplasm of

**Ongoing Research Projects**

2008/2013 “Role of the proto-oncogene Ret in lymphocyte function” Coordinator: José Henrique Veiga Fernandes, Agency: FP7. Amount: €1.901.400,00

2010/2013 “Role of the Tyrosine kinase RET in foetal and adult haemopoiesis” Coordinator: José Henrique Veiga Fernandes, Agency: FCT. Amount: €182.000,00

2010/2013 “Role of haemopoietic cell subsets during lymphoid organogenesis” Coordinator: José Henrique Veiga Fernandes, Agency: FCT. Amount: €197.802,00

2012/2013 “Enteric Microbiota and Innate Lymphoid Cells” Coordinator: José Henrique Veiga Fernandes, Agency: PRIV-UE. Amount: €10.000,00


2008/2013 “Role of neurotrophic factors in the immune system” Coordinator: José Henrique Veiga Fernandes. Agency: EMBO. Amount: €250.000,00

2013/2016 “Controlo da função das células inatas linfóides e da homeostasia intestinal por fatores neurotróficos”. Coordinator: José Henrique Veiga Fernandes, Agency: FCT. Amount: €250.000,00


**Publications in peer review Journals**


Invited lectures and seminars


Veiga-Fernandes, H. Prebirth world and the regulation of immune fitness. 3rd international lymphoid tissue meeting, Rotterdam, Netherlands, September 15-17, 2013.


Communications in International Conferences


Communications in National Conferences


Prizes, honours and awards

Innovator Award of the Kenneth Rainin Foundation (KRF) from Kenneth Rainin Foundation, USA, August 2013.

Patents/prototypes

The use of RET agonist molecules are critical do haematopoetic stemm cell expansion protocols and transplantations therapy and a RET agonist kit. Submitted to WIPO as nr. 47679-13 (not published). Inventors: Henrique Veiga-Fernandes, Diogo Fonseca-Pereira, Silvia Madeira

Advanced teaching

Diogo Pereira: Participation in Hematopoiesis, Keystone Symposia, 55, Steamboat Springs, Colorado, USA.

Bethania Cassani, Rita Domingues and Silvia Madeira: Participation in VII PhD Students Meeting 5-6 December 2013 Lisbon Academic Medical Centre, Lisbon, Portugal.


Bethania Cassani: Participation in Stromal Immunology Group/ British Society for Immunology meeting 6-7 November 2013, Moller Centre, Cambridge, UK.

Bethania Cassani: Participation in Stroma ITN Mid-Term Review Meeting 6 November 2013, Moller Centre, Cambridge, UK.

Bethania Cassani: Participation in 2nd Stroma ITN Meeting 5 November 2013, Moller Centre, Cambridge, UK

Science and society

3rd Stroma Training Course, Bethania Cassani, Kantosspital St Gallen, Switzerland. 25 February-1 March 2013.

2nd Stroma Training Course, Bethania Cassani, University of York, UK. 4-8 February 2013.

Organisation of international conference: Young Scientist Forum EMBO. Lisbon. 15-16 July 2013


**PhD theses completed**

Diogo da Fonseca Pereira (2013) “Role of the neurotrophic factor receptor RET in haematopoiesis”. Faculdade de Medicina da Universidade de Lisboa. Supervisor: José Henrique Veiga - Fernandes

**Msc theses completed**

Major interests / Objectives

The ability of Koch’s bacilli (Mtb) to create tuberculosis or a latent infection relay, in part, on the powerful mechanisms it has evolved to parasitize host macrophages and dendritic cells. Our major aim for the current period was to better understand the molecular mechanisms by which 1) Mtb controls the acquisition of cathepsins and their inhibitors cystatins within phagosomes, an important phenomenon for antigen presentation or bacteria intracellular killing; 2) trafficking host factors are involved in Mtb internalization by macrophages, phagosome maturation and exosome secretion; 3) micro RNAs controls actin dynamics during early steps of Mtb phagocytosis and finally 4) micro RNAs controls distinct phases of Mtb infection within macrophages.

Head of Unit

Elsa Anes, (PharmD. PhD), Associate Professor with Habilitation, FFUL.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>David Pires</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Joana Bugalhão</td>
<td>MsC student</td>
</tr>
<tr>
<td>Joana Marques</td>
<td>MsC student</td>
</tr>
<tr>
<td>João Pombo</td>
<td>MsC student</td>
</tr>
<tr>
<td>Nuno Baltazar Carmo</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Paulo Bettencourt</td>
<td>Post-Doc Investigator</td>
</tr>
<tr>
<td>Pedro Timóteo</td>
<td>MsC student</td>
</tr>
<tr>
<td>Vera Fernandes</td>
<td>MsC student</td>
</tr>
</tbody>
</table>

Keywords/Research Areas

Innate immunity, Intracellular trafficking, Host-pathogen interactions, Tuberculosis.
Major scientific achievements

1) We found that Mtb activates the over-expression of miRNA 142-3p during macrophage phagocytosis. We showed that miR142-3p is involved in controlling actin dynamics during infection (Bettencourt et al., Front Cell Infect Microbiol, 2013, PhD thesis). Indeed the group found a microRNA over-expressed early during Mtb infection involved on the control of cathepsin S (Pires et al., in prep) while others are controlling pro-inflammatory events.

2) By using RNA silencing we deciphered the role of cathepsins S, B and L during M. tuberculosis infection of macrophages and dendritic cells (DCs) (Pires et al., in prep) relatively to pathogen intracellular survival or antigen presentation. Indeed an overall map of the gene expression of all cathepsins and their natural inhibitors cystatins during Mtb infection was clarified during the year in resting vs activated macrophages or in immature vs mature DCs.

3) In collaboration with Maria José Umbelino (iMed.ULisboa), we evaluated the antimycobacterial effect of extracts from medicinal plants from Mozambique and their effect in vitro and ex vivo (Luo, Pires et al., J Ethnopharmacol, 2013).

4) Indeed chemical compounds prodrugs derived with activity against PZA resistance mycobacteria strains and species were characterized (World patent 2013/WO2013084214; Pires et al., in prep).

5) We assessed the role of efflux pumps inhibitors and in combination with nanoparticles delivery systems containing antibiotics on the killing of intracellular Mtb (Machado, Pires et al., Microbiotec2013, manuscript in prep).

6) The group organized the “VI-Science-shop: TUBERCULOSE: development of new strategies to treat TB” FFUL, May, 21; Elsa Anes was part of the Scientific Committee of Microbiotec2013; David Pires was awarded with the prize Immunotools 2013; We organized the Course Cellular Microbiology as part of the Master/PhD program at FFUL.

Recent Most Relevant Publications


### Ongoing Research Projects


### Publications in peer review Journals


### Other publications International

**Patents**

Proceedings


Conferences and seminars


Invited Lectures and Seminars

Elsa Anes. Innate immunity mechanisms for bacterial infections. Módulo Microbiologia e Saúde do mestrado de Microbiologia Aplicada UL. 2013


Elsa Anes. Immunity to tuberculosis. Imunologia, Integrated master in Pharmaceutical Sciences FFUL. 2013
Communications in National Conferences


Pires D., Carmo, N., Marques J., Pombo J., Timóteo P., Bettencourt P., and Anes E. Cut or be Cut: Cathepsins and their Inhibitors During Mycobacterial Infection of Macrophages and Dendritic Cells. pg103 5th iMed.UL Postgraduate Students Meeting, Lisbon, Portugal. July 18th, 2013. (poster presentation)


Organisation of Conferences


Internationalization

Collaborative Research:
- Gareth Griffiths (Oslo University, Norway);
- Olivier Neyrolles (CNRS, Toulouse, Fr);
- Maximiliano Gutierrez (Helmoholtz Centre for Infection Research, Braunschweig, Ger);
- Michael Niederweis (Univ. Alabama at Birmingham, USA).

Prizes, honours and awards

ImmunoTools IT-Box-139 Award 2013 (http://www.immunotools.de/html/award/DavidPires.pdf)

Patents/prototypes

Advanced teaching

Elsa Anes organized the Course Cellular Microbiology as part of the Master/PhD program on Biopharmaceutical Sciences at Faculdade de Farmácia da Universidade de Lisboa, Lisbon, Portugal.

Elsa Anes. Innate immunity mechanisms for bacterial infections. Módulo Microbiologia e Saúde do Mestrado de Microbiologia Aplicada UL. 2013


Msc theses completed

Vera Alexandra Canária Fernandes (2013) O papel de porinas e de bombas de efluixo de micobactérias na imunidade inata e resistência aos antibióticos. Tese de Mestrado Integrado em Ciências Farmacêuticas, Faculdade de Farmácia da UL. Supervisor: Elsa Anes


Major interests / Objectives

Molecular virology has contributed greatly to the understanding of cellular responses to infection. Lentiviruses are valuable tools in applied biotechnology and gene therapy. We previously identified cellular proteins involved in the multistep processes of HIV-1 replication. We manipulated the transcription of genes that control HIV-1 to answer questions related to viral latency and antiviral restriction. We also developed small antibody scaffolds that inhibit HIV-1 infection and helped the specific targeting of lentiviral vectors. We now aim to explore reactivation of HIV-1 latency and expression of restriction cellular factors to control and eradicate the virus. The use of validated pharmaceutical compound libraries will help us in this endeavour of modulating viral expression and cellular antiviral defences. Alternative strategies that combine antibody engineering, genetic delivery systems and synthetic biology are being developed to eliminate cells containing viral genomes. Given the uniqueness and innovative strategies to approach these problems of HIV we believe to be well positioned at the international scientific level to contribute with original and groundbreaking research.

Head of Unit

João Gonçalves, PhD – Associate Professor, FFUL.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mariana Santa-Marta, PhD</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Paula Brito, PhD</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>Cátia Cantante</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Ana Catarina Cunha Santos</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Ana Catarina G. Santos</td>
<td>PhD Student (left June 2013)</td>
</tr>
<tr>
<td>Luis Ferreira</td>
<td>PhD Student</td>
</tr>
<tr>
<td>Pedro Perdigão</td>
<td>PhD Student</td>
</tr>
</tbody>
</table>
Keywords/Research Areas

Antibody, HIV, drug screening, therapy.

Major scientific achievements

The Lab has a consolidated track record in several aspects of molecular microbiology and pathogenesis with strong emphasis in biotechnology. We foster the molecular understanding of microbial pathogenesis and the identification of essential steps in the infectious process that can constitute novel targets for therapeutic intervention. We aimed to manipulate the transcription of genes that control HIV-1 to answer questions related to viral latency and antiviral restriction. We also developed small antibody scaffolds that inhibit HIV-1 infection and helped the specific targeting of lentiviral vectors. The use of validated pharmaceutical compound libraries will helps us in this endeavor of modulating viral expression and cellular antiviral defenses. Alternative strategies that combine antibody engineering, genetic delivery systems and synthetic biology are being developed to eliminate cells containing viral genomes.

Recent Most Relevant Publications


Ongoing Research Projects

2012/2014 Albumin-binding peptides to increase pharmacokinetics of therapeutic proteins. Coordinator: João Gonçalves. Amount: €125,000.00

Communications in International Conferences

Albumin-binding domains Zag and ProtH improve pharmacokinetics and affect biodistribution of an anti-TNF VHH. Cátia Cantante, Sara Lourenço, João Leandro, Maurício Morais, Soraia Oliveira, Lurdes Gano, Carlos Fontes, Paula Leandro, João Correia, Frederico Silva, João Gonçalves. PEGS 2013 (Poster presentation)


Patents/prototypes


FACILITIES AND SUPPORT

Alongside research, IMM has a core of resource units, which complement and maintain the high quality scientific environment. Among these are the Management, the Information Systems, Communication, Funding Programs Office, Quality and safety in Laboratory, Advanced Training. In addition to these transversal units, and in the spirit of shared resources, IMM offers recently equipped state-of-the-art Facilities: Flow Cytometry, Bioimaging, Animal and Fish Facilities, as well as a Biosafety level 3 Laboratory, a Histology Service and a Biobank. All Resource Units have dedicated staff that provides support to IMM community and to develop initiatives that promote research.

Communication Unit Liliana de Almeida
Education & Advanced Training Alexandra Manaia
Funding Programs Office Filipa Nunes
Information Systems Unit José Braga
Management Unit Margarida Pinto Gago
Quality and Safety in Laboratory Alexandra Maralhas
Animal Facility Joana Marques
Bioimaging José Rino
Biosafety Level Laboratory 3 Miguel Prudêncio
Flow Cytometry Maria Soares
Histology Service Sandra Casimiro
IMM Biobank João Eurico Fonseca
Zebrafish Facility Leonor Saúde
Major Objectives

The Communication Unit 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 unit 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 Unit

Liliana de Almeida, Master.

Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Role</th>
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</thead>
<tbody>
<tr>
<td>Ana Cristina Borges Marques do Carmo</td>
<td>Master</td>
<td>Director (left July)</td>
</tr>
<tr>
<td>Andreia Sofia Moita Machado</td>
<td>Graduate</td>
<td>Administrative</td>
</tr>
<tr>
<td>Maria Margarida Ferreira Trindade</td>
<td>PhD</td>
<td>Manager (left January)</td>
</tr>
<tr>
<td>Silvana Daniela Fonseca Paules</td>
<td>Graduate</td>
<td>Administrative (started August)</td>
</tr>
</tbody>
</table>

Keywords

Corporate and Institutional Communication, Science Communication, Public Affairs.

Major achievements

Produced materials to promote the corporate image of IMM (report, folders videos) and reinforced IMM presence in the social networks and national and international press. A new website is being developed and should be online in 2014. By the celebration of IMM’s 10th anniversary it organized two major events (one that aimed to foster the collaboration with decision makers and scientific partners and another that was
focused on the IMM community) and produced merchandising materials to celebrate and disseminate the information. It communicated several national and international events (e.g.: PEPBRAIN, 3rd GCGC, EMBO Young Scientists Forum 2013, Health Cluster Portugal conference, 1st Post Doc Day etc.) and was responsible for a wide range of media relations to communicate several awards, grants and the publication of relevant papers of the IMM researchers. It also organized official meetings with foreign delegations and national and international students.

Communications in International Conferences


Science and society

The Communication Unit participated in a series of institutional processes such as the production of annual reports (activity report IMM, Biobanco-IMM CAML), preparation of institutional texts and profiles, the support to the preparation of official visits of foreign delegations (e.g.: Brazil, Libya).

We have also concluded a series of monitoring processes: IMM presence in the media, consultation of IMM website and social networks, IMM programme of school visits/educational activities.

School visits to IMM from all levels of schooling, most particularly secondary school, engaged in school visits to IMM, co-organized by the communication unit with the presence of international students (Semester at Sea program) that also visited IMM.

The Communication Unit gave support to media visits to IMM with an increased regular presence of IMM and IMM researchers in reference general and specialized media, at both national and international level.

There were 24 Press releases disseminated through the media (national and international) and a improvement of the internal communication.

In 2013 we’ve increased IMM image in the Social Media, namely on Facebook a social media that grew about 45% (+1069 fans) and reached a total of 8903 people in the end of December.
Major 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 UEF Webpages 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 postgraduate training.

Head of Unit

Maria Alexandra Gama Mendonça Simões Manaia, PhD.

Team

| Sónia Silva Arroz | Graduate | Administrative (started June) |

Keywords

Education, Advanced-Training, PhD-Program, Postdoctoral-Program, Career Development, Advanced Courses.

Major achievements

Transversal Managerial Achievements
i) Help desk: Standardized email messages and info packages for regular requests: FCT grant applications, renewals, spontaneous applications, general queries etc
ii) Scientific events centralized management. Initiating and maintaining communication with guests; coordinating travel and accommodation bookings; providing travel plan and scientific program; booking rooms and audiovisual support; booking meals; assessing participants
Specific Achievements
i) Support CAML-related applications to FCT Fellowships-2013 Call: BDs (including for medical interns) & BDPs.
ii) 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.

Ongoing Research Projects


FUNDING PROGRAMS OFFICE

Major Objectives

Initially created in 2008 the Funding Programs Office was restructured in February 2013. It facilitates and streamlines every step of the pre-award process, including grant preparation, submission, and contract negotiation, in compliance with institutional, government and sponsor policies and regulations. In addition, the Office acts as liaison with academia, enterprises and research organizations for the development of scientific collaborations. Our specific goals include: i) promote a service of funding opportunities tailor-made for IMM researchers; ii) promote academic/entrepreneurial scientific collaborations underpinning the establishment of national/international applications; iii) promote partnerships with companies and explore relevant financial opportunities; iv) assist obtaining funding for entrepreneurial projects.

Head of Unit

Ana Filipa Duarte Nunes Almeida, PhD.

Team

<table>
<thead>
<tr>
<th>Joana Costa</th>
<th>PhD</th>
<th>Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rudolfo Pais Mendes Ferreira Francisco</td>
<td>Graduate</td>
<td>Administrative (started May)</td>
</tr>
</tbody>
</table>

Keywords

Research funding, Funding opportunities dissemination, Scientific and entrepreneurial collaborations, Networking, Funding agencies.

Major achievements

- We tested and implemented an online platform for matching funding opportunities to individual profiles of IMM researchers (ProQuest Pivot). Using this tool, we managed to bi-weekly disseminate a newsletter - Funding Opportunities Announcement - and to increase the time-to-deadline to 5 months for the funding opportunities disseminated via Pivot;
- An important step to improve the quality of the services our Office provides and the success of IMM researchers’ grant applications was the establishment of rules for requests to grant application support;
- We established contacts to build a specialized network of consultants/grant-writers;
• We established partnerships with companies (Wise Consulting, Roche) to explore financial opportunities to IMM research projects;
• We managed to establish a better communication/articulation with the Management Unit;
• We organized an “Entrepreneurial Workshop” and several institutional visits, including Pfizer Internacional and Peter Andersen (EFPIA).

Ongoing Research Projects


Organisation of Conferences


Prizes, honours and awards

Filipa Nunes, selected to attend the Course: Entrepreneurs in Clinical Academia, INSEAD, Fontainebleau, France, September 23–27, 2013 (one of only 21 candidates accepted, all expenses covered).
 INFORMATION SYSTEMS UNIT

Major Objectives

The primary goal of the Information Systems Unit (USI) is to help researchers reach their maximum productivity by using adequate Information Technology resources and following best practices. By accompanying the latest technological trends we also aim at providing researchers and managers at IMM with tools for enhancing data analysis and processing, communication and decision taking. To achieve this USI operates in several areas:

1. Planning, implementation and maintenance of the IT infrastructure to protect and secure research data. This involves constant monitoring of backups, storage and connectivity;
2. Designing and integrating Information Systems;
3. Maintenance of IMM website (with the Communication and Training Unit);
4. Documentation and Information Workflow;
5. IT Support.

Head of Unit

José Joaquim Carvalho da Costa Braga, PhD

Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel Alexandre Felício da Silva</td>
<td>Graduate</td>
<td>PhD Student (left April)</td>
</tr>
<tr>
<td>Daniel José Vihena Guerreiro</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Emanuela Simões</td>
<td>Master</td>
<td>Technician</td>
</tr>
<tr>
<td>Nuno Andrade da Cruz Henriques</td>
<td>Master</td>
<td>Technician (started September)</td>
</tr>
<tr>
<td>Pedro Miguel Bernardino Eleuterio</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Tito Lívio Santos Silva</td>
<td>PhD</td>
<td>Consultant (left April)</td>
</tr>
</tbody>
</table>

Keywords

Data protection, Information integration, Web Services, IT support.
Major achievements

In 2013, due to the ever increasing reliance upon Information technologies, support tickets averaged 250 per month. During this year USI deployed several new services. An FTP server was configured to facilitate dissemination and sharing of large amounts of data between IMM and other research institutions. Significant savings were achieved by configuring a cost-effective storage that will increase the space available for data. To increase efficiency in lab processes of all units, USI also developed web applications for online purchases, for requisitions of the Histology Unit and for generating the annual IMM activity reports. USI also planned and designed the hardware and software infrastructure that is necessary to reach a fully integrated Information System, offering better tools for IMM researchers and managers in the near future during 2014.
MANAGEMENT UNIT

Major Objectives

The Management Unit is responsible for the overall IMM legal, human resources, administrative and financial issues. The main areas are:

- Accounts – general accounting and preparation of IMM statutory accounts and tax returns; cost accounting per project/activity; submission of statistical information to Bank of Portugal, Intrastat and Tax Office-SAFT;
- Budget management - overall budget control, for Institutional Funding and Research Projects, including Facilities, Support Units and Management;
- Projects management - contractual, administrative and financial issues, from start to termination; contacts with donors and funding institutions; all administrative support to researchers (projects adjustments, transfer of funds, fellowships and HR contracts, preparation of scientific reports, etc);
- Human resources - new appointments/contracts, registrations, organization of individual files, salary preparation and other procedures, including statistical information;
- Legal – support to researchers, namely on intellectual property and consortium agreements; all types of contracts (funding, HR, suppliers, scientific collaborations, MTA, etc); support to staff and fiscal matters;
- Scientific protocols management – current support and updating;
- Quality Management System;
- General Administrative support – to all units and researchers.

The Management Unit 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 Unit

Margarida Pinto Gago, Degree in Management, ISEG-UTL.

Team

Legal

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ana Isabel Fernandes Braz Panão</td>
<td>No degree</td>
<td>Lawyer (started June)</td>
</tr>
<tr>
<td>André Rebelo da Silva Fialho</td>
<td>Graduate</td>
<td>Lawyer</td>
</tr>
</tbody>
</table>
# 2013 IMM Activity Report

## Human Resources

<table>
<thead>
<tr>
<th>Name</th>
<th>Level</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cláudia Aurora Mira Soeiro</td>
<td>Graduate</td>
<td>Administrative</td>
</tr>
</tbody>
</table>

## Accounts

<table>
<thead>
<tr>
<th>Name</th>
<th>Level</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annie Cibele Guerreiro Semião</td>
<td>Graduate</td>
<td>Accountant (started September)</td>
</tr>
<tr>
<td>Diogo Miguel de Sousa Henriques</td>
<td>Graduate</td>
<td>Accountant, (left June)</td>
</tr>
<tr>
<td>Eduarda Maria Seabra Rosmaninho</td>
<td>Master</td>
<td>Accountant (started July)</td>
</tr>
<tr>
<td>Joana Filipe Reis</td>
<td>Graduate</td>
<td>Accountant (left October)</td>
</tr>
<tr>
<td>Nuno Manuel Barradas da Fonseca</td>
<td>Graduate</td>
<td>Accountant (started November)</td>
</tr>
<tr>
<td>Sandra Paula da Silva Duarte</td>
<td>Graduate</td>
<td>Accountants manager</td>
</tr>
<tr>
<td>Tânia Cristina Torres Pereira Ascensão</td>
<td>Graduate</td>
<td>Administrative</td>
</tr>
<tr>
<td>Vera Cristina Felício Conceição Rego</td>
<td>Undergraduate</td>
<td>Administrative</td>
</tr>
</tbody>
</table>

## Project Management

<table>
<thead>
<tr>
<th>Name</th>
<th>Level</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andreia Sofia Gonçalves Almeida Vaz Veiga</td>
<td>Graduate</td>
<td>Project manager</td>
</tr>
<tr>
<td>Daniela Filipa Ferreira Madeira</td>
<td>Graduate</td>
<td>Administrative</td>
</tr>
<tr>
<td>Isabel Pequenino Roque</td>
<td>Graduate</td>
<td>Administrative</td>
</tr>
<tr>
<td>Kendrik Graça do Sacramento</td>
<td>Graduate</td>
<td>Project officer (started March) (left July)</td>
</tr>
<tr>
<td>Maria José Flores Marques Antunes</td>
<td>Graduate</td>
<td>Administrative</td>
</tr>
<tr>
<td>Mónica Aurora Malheiro Vieira</td>
<td>Graduate</td>
<td>Administrative</td>
</tr>
<tr>
<td>Mónica Raquel Carvalho Paquete</td>
<td>Graduate</td>
<td>Administrative (started September)</td>
</tr>
</tbody>
</table>
Support

<table>
<thead>
<tr>
<th>Patricia McCarthy da Cunha</th>
<th>Board Secretary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susana Isabel dos Santos Pedroso</td>
<td>Undergraduate</td>
</tr>
</tbody>
</table>

Quality Management System

| Alexandre Manuel Raposo de Jesus | Master | Quality Manager |

Keywords

Continuous improvement and challenges; Human Resources; Accounts and budget control; Project Management; Funding strategy; Legal and Tax; Quality Management System.

Major achievements

Effective response to a continually increasing number of scientific collaboration protocols and HR contracts, namely, related to Research Projects. This work is performed both, by Dr. André Fialho, as legal support for IMM and HR - Cláudia Soeiro; Accounts Manager - Sandra Duarte - and Project Manager, Andreia Vaz. The team work is one of keys to improve and achieve the highest level of performance.

Quality Management System – the first internal audit was carried out in 2011 but due to major changes in the management system, the process was re-launched in 2013 and is now in the final stage – with the second certification audit scheduled for next April. This process would not have been possible without the collaboration and hard work of the Lab Management Team. Alexandre, as Quality Manager, has been doing an excellent job.

Organization and participation in periodic meetings with IMM Board and the other support units, mostly to find the best ways to cope with the current government funding restrictions and to continue with the high level of support to science.
QUALITY AND SAFETY IN LABORATORY

Major Objectives

The Quality and Safety in laboratory (QSL) is divided in three main areas, each one dedicated to improve the quality of research of IMM and comply with National and International guidelines and best practices. The Lab Management works as an advisor and authority regarding safety with products and equipments. Training and development of standard operating procedures is the key to achieve high standards of safety and effectiveness in the use of equipment and infrastructures. It is also responsible for the design of (re) new laboratory infrastructures. The Purchasing Office is responsible for the Internal Storehouse and External Orders, centralizing all acquisitions. It also provides updated information on prices, ongoing promotions and new products. The Washing Room provides researchers cleaned and sterilized material, according to each specific requirement.

Head of Unit

Alexandra Maralhas, Graduate

Team

Lab Management

<table>
<thead>
<tr>
<th>Name</th>
<th>Level</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexandre Manuel Raposo de Jesus</td>
<td>Master</td>
<td>Technician</td>
</tr>
<tr>
<td>André Paiva Antunes</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Cátia Vanessa Sanches Mesquita</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Rita Isabel Ganchas Soares Alves</td>
<td>Master</td>
<td>Technician (left April)</td>
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Washing Room

<table>
<thead>
<tr>
<th>Name</th>
<th>Level</th>
<th>Position</th>
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<tbody>
<tr>
<td>Ana Cristina dos Santos Anunciação Silva</td>
<td>Undergraduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Carlos Filipe Ferreira Curado</td>
<td>Undergraduate</td>
<td>Technician (left January)</td>
</tr>
<tr>
<td>Edna Neias F. Gomes</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Susana Maria Andrade</td>
<td>Undergraduate</td>
<td>Technician</td>
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</table>
Purchasing Office

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<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Ana Patrícia de Freitas Roque</td>
<td>Graduate Technician (left January)</td>
</tr>
<tr>
<td>Ana Rita Fonseca Vicente</td>
<td>Graduate Administrative</td>
</tr>
<tr>
<td>Sandra Isabel Francisco Lopes</td>
<td>Graduate Administrative</td>
</tr>
<tr>
<td>Vânia Isabel Estevens Polido Marques Paula</td>
<td>Graduate Administrative</td>
</tr>
</tbody>
</table>

Keywords

Infrastructure and equipments maintenance, Health and Safety in Work, Laboratory Design, Purchasing Management, Laboratory Management, budgeting; cost controlling, technical consultant; integrated management systems.

Major achievements

In 2013 we have changed to Quality and Safety in Laboratory. The online Purchase System implemented last year, was in 2013 expanded to all IMM acquisitions, streamlining the work required to purchase and also allowing a better control by Structural Units concerning purchases of general and IT equipment’s.

The Unit was actively involved in several re-modelings of laboratory spaces and research support structures, such as histology room, tritium room, a new -80°C common room, new laboratory spaces for existing research units - Sérgio Almeida; Luís Costa; Miguel Prudência and Maria Mota Labs and the reorganization of the IMM Biobank lab and for new research units – Gonçalo Bernardes; Edgar Gomes and Nuno Morais Labs.

The equipments management was improved with the ongoing inventory of all IMM equipments, essential for an excellent level of support to over 300 equipments with maintenance contracts.

Advanced Teaching

Maralhas, A. lectured a theoretical session for the BLS3 course “Biosafety training for use of the IMM BSL3 Facility”, Instituto de Medicina Molecular, Lisboa, 28February - 01 March, 2013; and 15 April 2013.
ANIMAL FACILITY

Major Objectives

The IMM’s Rodent Facility aims to maintain the highest standards of animal welfare and to promote a responsible use of laboratory animals, hence providing the conditions for state-of-the-art animal-based research. The facility has capacity to host 15000 rodents and comprises one conventional unit and one SPF unit. The SPF unit includes one Production which hosts 70 genetically altered strains and one Experimental area, with four housing rooms and three rooms for experimental work with animals. All husbandry and manipulations are performed according to high standards of biocontainment and bioexclusion, in order to ensure the best possible conditions in terms of health and safety. This unit is highly committed to follow the 3Rs – Replacement, Reduction, Refinement - and provides education and guidance for researchers, according to the Portuguese and international laws/recommendations for good practices and animal welfare.

Head of Unit

Joana Margarida da Silva Marques, PhD.

<table>
<thead>
<tr>
<th>Team</th>
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<tbody>
<tr>
<td>Ana Catarina Jorge Mendes</td>
<td>Undergraduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Ana Rafaela Dinis Coelho</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Carlos Barata da Silva</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Cecília Gonçalves Simão</td>
<td>Undergraduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Felícia Maria Augusto Ramos</td>
<td>Undergraduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Iolanda Safira Sousa Moreira</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Janaina Gonçalves dos Santos de Barcelos</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Maria Dolores Paulos Bonaparte Figueira</td>
<td>Graduate</td>
<td>Veterinarian</td>
</tr>
<tr>
<td>Nuno Manuel Ribeiro Inácio</td>
<td>No degree</td>
<td>Technician</td>
</tr>
<tr>
<td>Olena Pavlovskia Borges de Pinho</td>
<td>Undergraduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Pedro Manuel Nogueira dos Santos</td>
<td>Undergraduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Wilma Eliandra de Lemos Zovo</td>
<td>Undergraduate</td>
<td>Lab Technician</td>
</tr>
</tbody>
</table>
Major scientific achievements

During 2013, the major achievements of the facility were mainly related to the human resources, namely their reorganization hence increasing the efficiency of the services provided as well as in their education, increasing the quality of the services provided. During 2013 we considerably increased the housing capacity of the facility by acquiring new housing equipments. We also added two animal caretakers to the team - Catarina Mendes and Pedro Santos - which allowed us to accommodate new researchers and projects without compromising the quality standard of the services we provide.

The team had the chance to participate in a national congress about alternatives to animal experimentation. Furthermore, the two technicians (Carlos and Iolanda) and one caretaker (Cecília) accompanied the facility director to the FELASA congress. Participation in these events is extremely important as it allows the members of the team to learn about the scientific and technical advances in the field of Laboratory Animal Science. Besides, it allows the team to take part and understand the context of animal experimentation and to establish contacts with people who work in the same field around the world. Later in 2013, one of our animal caretakers – Ana Rafaela Coelho was promoted to animal technician, with the role to manage the transgenic colonies of Henrique Veiga Fernandes Lab.

From 2014 Ana will also play a crucial role on the development and implementation of the cryopreservation services. Another important achievement was the reorganization of process of ethical evaluation of projects. This allowed to greatly improve the efficiency of the process.
BIOIMAGING UNIT

Major Objectives

The BioImaging Unit constitutes the core microscopy facility of the IMM, serving as a support structure to carry out and nurture research done with Light Microscopy inside the institute. We aim at providing IMM scientists and visitors with excellence in scientific know-how and expertise in using advanced light microscopy methods for their research. We assist in project planning, experiment design, provide advice and support on sample preparation, image analysis and processing and in writing research papers with microscopy data. Together with continuous training of new users, we organize regular courses and workshops on basic and advanced microscopy techniques. We research novel microscopy techniques and develop image processing software tools for quantitative microscopy applications.

Head of Unit

José Miguel Rino Henriques, PhD.

Research Team

<table>
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<tr>
<th>Ana Margarida Santos do Nascimento</th>
<th>Master</th>
<th>Technician</th>
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<tr>
<td>António Francisco Pinção Loução Homem Temudo</td>
<td>Master</td>
<td>Technician</td>
</tr>
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</table>

Keywords / Research Areas

Fluorescence Microscopy, Laser Scanning Confocal Microscopy, Image Processing and Analysis, Quantification of protein dynamics and interactions.

Major scientific achievements

Scientific collaboration with 2 IMM research units resulted in 3 publications in which José Rino is co-author:
- Carvalho S et al, Nucleic Acids Res (PMID: 23325844; IF: 8.278)
- Rino J et al, Methods (PMID: 23969316; IF: 3.641)
- Martin R et al, Cell Reports (PMID: 24035393)

In 2013 the BioImaging Unit services were used by 197 users from 39 different research units, 5 of them from outside the IMM. We trained 103 new users in different microscopy systems during the year. We implemented monthly quality control checks of objective performance and
illumination stability on all fluorescence microscopes.

Recent Most Relevant Publications


Publications in peer review Journals


Invited lectures and seminars

Internationalisation

Apr 2013: José Rino participated in the Course “Quantitative Imaging: from cells to molecules” organized by Torsten Wittmann and Jennifer Waters at Cold Spring Harbor Lab, NY

Advanced teaching

José Rino lectured (both theoretical lectures and hands-on practicals) at the "1st Advanced Course on Fluorescence Microscopy and Image Analysis" held on 22-24 November 2013 at the Faculty of Health Sciences at the University of Beira Interior, Covilhã, Portugal. The course was attended by students of master’s, doctoral and post-doctoral researchers, health professionals and teachers.

José Rino lectured at the course "Innovation in Microscopy", organized by the Sociedade Portuguesa de Microscopia; lecture entitled "Introduction to confocal microscopy", Cooperativa de Ensino Superior CRL, Monte da Caparica, Portugal. December 11, 2013.
BIO SAFETY LEVEL 3 LABORATORY

Major Objectives

The IMM 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 containment conditions, including research that involves rodent models. The Facility is available to IMM internal and affiliated researchers, as well as to external researchers from academia, pharma and biotech. All work to be carried out in the BSL3 Lab must follow the established SOPs, as defined in the Facility's Rules and Guidelines Manual. The IMM’s 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.

Head of Unit

Miguel Prudêncio, PhD.

Research Team

<table>
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<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Inês Antunes Cabral Queiroz de Matos</td>
<td>Graduate Technician</td>
</tr>
<tr>
<td>Maria Dolores Paulos Bonaparte Figueira</td>
<td>Graduate Veterinarian</td>
</tr>
</tbody>
</table>

Keywords / Research Areas

Biosafety level 3, HIV, Mycobacterium tuberculosis, ABSL3.

Major scientific achievements

During 2013, the IMM BSL3 facility was used in research projects involving both Mycobacterium tuberculosis and HIV, carried out by IMM as well as external units. Besides, the facility organized and delivered 2 theoretical and practical courses on biosafety intended for future users of the facility. During this year, the IMM BSL3 facility established itself as a key partner of LabPTBioNet, a network of National BSL3 facilities whose main aim is to establish common procedures and foster cooperation between high containment facilities in Portugal. Also in the context of this network, the facility participated in a consortium that applied for European funding within the “Roteiro de Infraestruturas” program of FCT. The facility also participated in one course and one workshop organized by Instituto Nacional de Saúde Dr. Ricardo Jorge, where Dr. Miguel Prudêncio served as a lecturer and a chairman, respectively.
Invited lectures and seminars


Internationalisation

The IMM 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 BSL3 facility, Dr. Miguel Prudêncio has participated in several international biosafety training events.

Advanced teaching


Science and society

FLOW CYTOMETRY UNIT

Major Objectives

The Flow Cytometry Unit (UCF) provides training and support to researchers performing flow cytometry studies. UCF users comprise a very diverse and challenging set of researchers, creating a very stimulating working environment that demands from our staff a constant knowledge of new developments in the field. Training in flow cytometry concepts, experimental controls and instrument operation is achieved through workshops and one-to-one tuition. UCF staff also provides support in experiment planning and data analysis. In addition, our trained staff operates the High Speed Cell Sorters providing a cell purification service. UCF staff further ensures quality control and maintenance procedures on all instruments and the implementation the Quality Management System, according to ISO 900.

Head of Unit

Maria Godinho A.V. Duarte Soares, PhD.

Research Team

<table>
<thead>
<tr>
<th>Ana Isabel da Silva Vieira</th>
<th>Graduate Technician</th>
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<tbody>
<tr>
<td>Sofia Pinto Guia Marques</td>
<td>PhD Lab manager (started February) (left August)</td>
</tr>
</tbody>
</table>

Keywords / Research Areas


Major scientific achievements

In 2013 the Flow Cytometry unit provided direct support to approximately 140 users from 32 research labs of which 6 were external to the IMM and one company. We trained 65 new users and organized a Flow Cytometry Course under the Lisbon AMC Doctoral Program. This course included theoretical and practical modules on the basic concepts of flow cytometry, instrument setup, experimental controls, as well as high speed cell sorting and data analysis using Flowjo. We experienced a 29% increase in analyser usage as compared to 2012. This was partly due to the installation of a High Throughput Sampler (HTS) in one of the analysers in February 2013. This device allows the automated acquisition of samples from 96 and 384 well plates which greatly facilitates the work of researchers.
Recent Most Relevant Publications


Ongoing Research Projects

Coordinator: Ana Espada de Sousa. Agency: FCT. Amount: €159.694,00

Publications in peer review Journals


Invited lectures and seminars

Maria Soares was a moderator on the session on Cell Sorting Applications at the 13th Congress of the Flow Cytometry Iberian Society; Aveiro, Portugal, May 9-11, 2013.
Organisation of Conferences

Maria Soares was a member of the Scientific Committee at the 13th Congress of the Flow Cytometry Iberian Society, Aveiro, Portugal, May 9-11, 2013.

Advanced teaching

Maria Soares organized the Flow Cytometry Nanocourse for the IMM PhD program (June 17-21, 2013). Lecturers: Prof. Artur Paiva from Centro de Histocompatibilidade do Centro, Maria Soares (UCF), Ana Isabel Vieira (UCF IMM), Rui Gardner (UIC, IGC) and Andreia Mendonça (Enzifarma). This course focused on the Basic concepts of flow cytometry, instrument calibration/compensation and controls as well as flow cytometry potential applications and High Speed Cell Sorting. The course included theoretical and practical modules for “hands-on” instrument operation as well as data analysis using FlowJo.

Maria Soares lectured at the Oncobiology MSc Course from Faculdade de Medicina da Universidade de Lisboa. This included a theoretical lecture on Flow Cytometry and practical lab rotations at the Flow Cytometry Unit (July 2-4, 2013)
HISTOLOGY SERVICE

Major Objectives

Implemented in IMM on September 09, the Histology Service is devoted to provide technical and scientific support to all researchers from IMM, or other academical, medical or industry-related research teams, in the areas of histology and histopathology. We aim to continuously enlarge and optimize the services available at our Laboratory. We also provide tutorship in the design and implementation of any procedures not performed in the Service. Currently, the techniques available in the Histology Service include: processing of tissue samples and routine histochemical procedures; processing and visualization of samples for Transmission Electron Microscopy; processing of samples for Laser Capture Microdissection; automated immunohistochemistry.

Head of Unit

Sandra Cristina Cana de Anjo Casimiro, PhD.

Research Team

<table>
<thead>
<tr>
<th>Ana Margarida Biscaia Fernandes dos Santos</th>
<th>Graduate Technician</th>
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<tr>
<td>Andreia Lúcia do Nascimento Pinto</td>
<td>Master Technician (started March)</td>
</tr>
</tbody>
</table>

Keywords / Research Areas

Histology, Histopathology, Tissue processing.

Major scientific achievements

From an average of 24 requisitions per month in 2009, the service received in average 76.7 requisitions/month in 2013, representing an increase of 219.4%. The users (Units) of the Histology Service were 13 in 2009 (all IMMers), and were 40 in 2013 (32 IMM Units/PIs and 8 external users). External users represented 13.8% in terms of total billing in the first semester of 2013.

The Histology Service tried from the beginning to fulfil the needs of the researchers in terms of available services. From beginning we offered the basic histopathology techniques, like tissue processing, embedding (OCT, paraffin), decalcification, sectioning (microtome and cryostat), and staining (H&E and special stains). In 2010 we implemented the protocols for TEM, with visualization at IGC; in 2012 we established a protocol with HPP for the use of a new electron
microscope, and implemented LCM processing, and automated immunohistochemistry; since 2013 we offer veterinary pathology services.

Recent Most Relevant Publications

IMM BIOBANK

Major Objectives

The vision of the Biobanco-IMM, Lisbon Academic Medical Centre, is to position itself as a major member of the European Network of Biobanks within the next 5 years, offering excellent opportunities for translational and clinical research. Our mission is to promote and facilitate biomedical research that will lead to the identification of new diagnostic and prognostic tests, as well as to new therapeutic targets. We have set as our goals to collect a wide variety of high quality human biological samples associated with detailed relevant clinical information and to promote its use for research purposes based on scientific and ethical criteria.

Head of Unit

João Eurico Fonseca, MD/PhD - Professor, FMUL

Research Team

<table>
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<tr>
<th>Name</th>
<th>Degree</th>
<th>Position</th>
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<tbody>
<tr>
<td>Ana Filipa Rodrigues Lopes</td>
<td>Master</td>
<td>Lab manager</td>
</tr>
<tr>
<td>Ana Filipa Soares Garcia</td>
<td>Graduate</td>
<td>Technician (started October)</td>
</tr>
<tr>
<td>Ana Rita Cascão Rodrigues</td>
<td>PhD</td>
<td>Technician</td>
</tr>
<tr>
<td>Ana Sofia Zhao</td>
<td>Master</td>
<td>Technician</td>
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<tr>
<td>Ângela Maria Cerqueira Coelho Afonso</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Joana Ribeiro Caetano Lopes</td>
<td>PhD</td>
<td>Post-doctoral Investigator</td>
</tr>
<tr>
<td>Joaquim Miguel Polido Pereira</td>
<td>No degree</td>
<td>Investigator</td>
</tr>
<tr>
<td>Vanessa Gonçalves Silva</td>
<td>Graduate</td>
<td>MSc Student</td>
</tr>
</tbody>
</table>

Keywords / Research Areas

Biobanks, samples and clinical information.

Major scientific achievements

- Collected 7 thousand donors and 60 thousand samples across 20 collections;
- More than 1500 Samples from the Biobanco-IMM CAML have been requested for research projects and contributed to 8 scientific papers;
• Organization of meetings in all medical departments of the Lisbon Academic Medical Centre, presentations in several other hospitals, meetings with scientific medical societies and patients associations, presentations in national medical congresses and involvement with the media gave positioned Biobanco-IMM, CAML as the reference biobank in Portugal;
• Used of standard operational procedures (SOPs) in daily activity;
• Improved infrastructures (cell culture facilities);
• Launch of the national biobank concept (Biobanco.pt), based on a network of biobanks with a common information system.

Recent Most Relevant Publications


Other Projects

2012/2013 Collection of samples from patients with early arthritis. Coordinator: Rita Cascão. (No Funding)

2013/2014 Collection of samples from young patients with auto-inflammatory diseases. Coordinator: Filipa Ramos. (No Funding)

2013/2014 Collection of samples from patients with Bipolar Disorders. Coordinator: Maria Luisa Figueira. (No Funding)

2013/2014 Collection of samples from transplanted patients. Coordinator: João Lacerda. (No Funding)

2012/2013 Collection of samples from rheumatic diseases patients. Coordinator: Jaime Branco. (No Funding)

2012/2014 Collection of femoral epiphysis, including bone and cartilage, from hip replacement surgery patients. Coordinator: Helena Canhão. (No Funding)

2012/2014 Collection of samples from controls, based on a questionnaire and interviewed by a physician. Coordinator: Biobanco-IMM CAML. (No Funding)

2012/2013 Collection of samples from patients with endocrinology disorders. Coordinator: Sônia do Vale. (No Funding)

2012/2013 Collection of samples from a national epidemiological study on rheumatic diseases. A prospective follow-up is ongoing. Coordinator: Jaime Branco. (No Funding)
2012/2013 Collection of samples from patients with heart failure. Coordinator: Dulce Brito. (No Funding)

2012/2013 Collection of samples from patients with brain metastasis. Coordinator: Cláudia Faria. (No Funding)
2012/2013 Collection of samples from patients with neurological movement disorders, including Parkinson’s disease. Coordinator: Joaquim Ferreira. (No Funding)

2012/2013 Collection of samples from patients with rheumatoid arthritis. Link with detailed clinical data on Reuma.pt. Coordinator: Helena Canhão. (No Funding)

2012/2013 Collection of samples from patients with brain tumors. Coordinator: Claudia Faria. (No Funding)

2012/2013 Collection of samples from patients with Spondyloarthritis. Link with detailed clinical data on Reuma.pt. Coordinator: Elsa Sousa. (No Funding)

2012/2013 Collection of samples from patients with stroke, and controls. Coordinator: Ruth Geraldes, Sofia Oliveira. (No Funding)

2012/2013 Collection of samples from patients with rheumatic diseases. Coordinator: Helena Canhão. (No Funding)

2012/2013 Collection of samples from patients with rheumatic diseases. Coordinator: Elsa Sousa. (No Funding)

2012/2013 Collection of samples from gastrointestinal tract cancer and breast cancers. Coordinator: Luis Costa. (No Funding)

Invited lectures and seminars

Outreach sessions across all Hospital de Santa Maria departments, University of Lisbon Medical School, institutes and IMM Units.


Seminar “The experience of the National DNA Bank Carlos III” by Dr. F Javier Garcia, hosted by Biobanco-IMM CAML. April 16, 2013

Afonso A. “Biobanco-IMM CAML, os primeiros passos”. Associação Portuguesa de Doentes com Immunodeficiências Primárias meeting, Belém, Portugal. May 18, 2013


Communications in International Conferences

Biobanco-IMM: An overview. ESBB congress, Verona, Italy. October 9-11, 2013 (No Funding)

Communications in National Conferences


Internationalisation

We are now participating in several international networks and samples from the Biobanco-IMM CAML have started to be requested for research projects. Up until now, 1520 samples have left the Biobanco-IMM CAML mostly through collaboration with research institutions:
- Institute of Clinical Medicine, Department of Medicine, Biomedicum Helsinki, Helsinki, Finland;
- Neurology Department, Hospital de Santa Maria, Lisbon, Portugal;
- Genomic Oncology department, Parque Tecnológico de Ciencias de la Salud and Unit of Clinical and Laboratory of Hematology and Transfusion, Unidad de Gestión Clínica de Hematología y Hemoterapia, Granada, Spain;
- Laboratório de Biologia Molecular do Hemocontro de Botucatu, Faculdade de Medicina, UNESP, São Paulo, Brazil;
- Labatt Brain Tumour Research Centre, The Hospital for Sick Children, Toronto and RS McLaughlin Professor and Chair of the Department of Surgery, University of Toronto, Canada.

Advanced teaching

Biobanco-IMM CAML has collaborated in a master course on oncobiology (June-July 2013) by contributing with technical skills on molecular biology.
For the period of 2013/2014 Biobanco-IMM CAML has two masters students that will contribute to the development of improved methods for sample quality control.
ZEBRAFISH FACILITY

Major Objectives
Provide a fully functional facility to be used by the IMM research units. Provide technical assistance to facilitate the use of zebrafish in a wide range of experimentation sets.

Head of Unit
Maria Leonor Tavares Saúde, PhD.

Research Team

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<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Position</th>
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<tbody>
<tr>
<td>Aida Gonçalves Lino Barros</td>
<td>No degree</td>
<td>Technician</td>
</tr>
<tr>
<td>Lara Carvalho</td>
<td>Master</td>
<td>Lab manager</td>
</tr>
<tr>
<td>Sara Mulenas Sá de Matos</td>
<td>Master</td>
<td>Technician (started May) (left November)</td>
</tr>
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</table>

Keywords / Research Areas
Embryonic development, Regeneration, Angiogenesis, Neuropathology, Drug screening.

Major scientific achievements
- A major upgrade in our facility was the acquisition of a new room specific for the production of live food for the zebrafish;
- We generated a Casper-Fli-GFP line for the use of the users;
- We set up a cell transplantation technique in embryos;
- We optimised an angiography technique in adults;
- The facility staff followed and gave support to the generation of the first zebrafish mutants using the TALEN technology.

Recent Most Relevant Publications


Publications in peer review Journals


Communications in International Conferences

Sofia de Oliveira, Azucena López-Muñoz, Sergio Candel, Pablo Pelegrín, Ângelo Calado and Victoriano Mulero, ATP and Calcium modulate the inflammatory response via Duox 1 activation and hydrogen peroxide release, Zebrafish Disease Models 6, Murcia, Spain 2013. (oral communication)

Sergio Candel, Sofia de Oliveira, Diana Garcia-Moreno, Raquel Espin, Maria L Cayuela, Sylwia D Tyrkalska, Stephen A Renshaw, José Meseguer, Maria P Sepulcre and Victoriano Mulero,TNFR2 deficiency triggers skin inflammation in the zebrafish via the production of H2O2 and the Activation of the NF-B signaling pathway, Zebrafish Disease Models 6, Murcia, Spain 2013. (Oral communication)


Identification of new therapeutic targets for the treatment of skin inflammatory diseases using the zebrafish, Sergio Candel, Sofia de Oliveira, Diana Garcia-Moreno, Azucena López-Muñoz,
Fernandes S.F., Fior R., Gama-Carvalho M. and Saúde L. Quaking A - a post-transcriptional regulator of early patterning in zebrafish. 2nd Meeting of the Portuguese Society for Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013. (Poster presentation)

Pinto R.A., Almeida-Santos J. and Saúde L. Uncover the molecular mechanism downstream of Dmrt2a/Terra, a transcription factor that coordinates symmetry versus asymmetry along the left-right axis. 2nd Meeting of the Portuguese Society for Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013. (Poster presentation)

Mendes, R.V., Martins, G.G. and Saúde, L. N-cadherin locks left-right asymmetry by ending the leftward movement of Hensen’s node cells. 2nd Meeting of the Portuguese Society for Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013. (Poster presentation)

Figueira, A.M. and Saúde, L. The role of Mesogenin1 in the dynamics of movement and differentiation of mesoderm progenitor cells. 2nd Meeting of the Portuguese Society for Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013. (Poster presentation)

Ribeiro, A. and Saúde, L. Uncovering cellular mechanisms of spinal cord regeneration in zebrafish. 2nd Meeting of the Portuguese Society for Developmental Biology (SPBD), Lisbon, Portugal, October 24-26, 2013. (Poster presentation)


Pinto R.A., Almeida-Santos J. and Saúde L. Uncover the molecular mechanism downstream of Dmrt2a/Terra, a transcription factor that coordinates symmetry versus asymmetry along the left-right axis. EMBO Young Scientists' Forum, Lisbon, Portugal, July 15-16, 2013. (Poster presentation)

Mendes, R.V., Martins, G.G. and Saúde, L. N-cadherin locks left-right asymmetry by ending the leftward movement of Hensen’s node cells. EMBO Young Scientists' Forum, Lisbon, Portugal, July 15-16, 2013. (Poster presentation)


Mendes, R.V., Martins, G.G. and Saúde, L. N-cadherin locks left-right asymmetry by ending the leftward movement of Hensen’s node cells. Making and breaking the left-right axis: laterality in development and disease. International Society of Developmental Biologists Congress, Cancun, Mexico, June 16-20, 2013. (Poster presentation)

Azevedo A.S., Sousa S., Jacinto A. and Saúde L. An amputation resets positional information to a proximal identity in the regenerating zebrafish caudal fin. 5th Strategic Conference of Zebrafish Investigators, Pacific Grove, USA, January 19-23, 2013. (Poster presentation)

Communications in National Conferences

Fernandes S.F., Fior R., Gama-Carvalho M. and Saúde L. Quaking A - a post-transcriptional regulator of early patterning in zebrafish. VII IMM/CAML PhD Students meeting, Lisbon, Portugal, December 5-6, 2013. (Poster presentation)

Pinto R.A., Almeida-Santos J. and Saúde L. Uncover the molecular mechanism downstream of Dmrt2a/Terra, a transcription factor that coordinates symmetry versus asymmetry along the left-right axis. VII IMM/CAML PhD Students meeting, Lisbon, Portugal, December 5-6, 2013. (Poster presentation)

Vaz R, Chapela D, Afonso N, Outeiro TF, Sousa S. Zebrafish as an in vivo model system for the identification of novel therapeutic approaches for Parkinson's disease. VII IMM/CAML PhD Students meeting, Lisbon, Portugal, December 5-6, 2013. (Poster presentation)

Prizes, honours and awards

Benedict Both was awarded The Best GAPIC Project. December 11, 2013.

Advanced teaching

Carvalho L., Lectured the course on Laboratory Animal Science at IMM, Lisbon, 2013
Science and society

Carvalho L, Barros A, Experimental Biochemistry free Course - A guided visit to the fish facility, February 2013.

Carvalho L, Barros A, Candidates`day - A guided visit to the fish facility, April 2013.

Afonso N, Japanese pharmaceutical - A guided visit to the fish facility, June 2013.

Saude L, Visit from the president of FAPESP, October, 2013

Msc theses completed


COMPANIES

GENOMED

Major Interests / Objectives

GenoMed is a spin-off company of IMM created in 2004. The mission of GenoMed is to provide cutting-edge technology transfer services relevant for medical applications. Currently, GenoMed offers over 350 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 of Unit

Teresa Cristina de Almeida Porta Nova, Master.

Research Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Position</th>
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<tbody>
<tr>
<td>Alexandra Manuela Lemos Oliveira</td>
<td>Graduate</td>
<td>MSc Student (started October)</td>
</tr>
<tr>
<td>Ana Aidé Martins Marques Flores</td>
<td>Undergraduate</td>
<td>Administrative</td>
</tr>
<tr>
<td>Ana Carla Almeida da Silva e Sousa</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Ana Margarida Trindade dos Santos Coutinho</td>
<td>PhD</td>
<td>Technician</td>
</tr>
<tr>
<td>André Madeira Janeiro</td>
<td>Graduate</td>
<td>Technician</td>
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<tr>
<td>Catarina Sofia Urbano Silveira</td>
<td>Master</td>
<td>Technician</td>
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<tr>
<td>Fabíola Carina Costa Paulo Faria da Rosa</td>
<td>Undergraduate</td>
<td>Administrative</td>
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<tr>
<td>Gabriel Miltenberger Miltényi</td>
<td>MD/PhD</td>
<td>Principal Investigator</td>
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<tr>
<td>Hélia Filipa Lourenço Guerreiro</td>
<td>Graduate</td>
<td>Technician</td>
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<tr>
<td>Inês Filipa Rodrigues da Silva</td>
<td>Master</td>
<td>Technician</td>
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<tr>
<td>Paula Costa</td>
<td>Graduate</td>
<td>Technician</td>
</tr>
<tr>
<td>Paula Cristina Maximino Mimoso</td>
<td>Graduate</td>
<td>Technician</td>
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</tbody>
</table>
Major scientific achievements

Currently, GenoMed offers over 350 different tests that are used in diagnosis, prognosis and therapeutic follow up.

Recent Most Relevant Publications


Other Projects

2008/present: Study of Ras mutations in tumorous tissue of colorectal cancer. Merck Funding. Coordinators: Gabriel Miltenberger-Miltenyi

2010/---- Phenotype-genotype association studies in medullary cystic kidney disease - searching for new candidate genes. 2009 Investigation grant of the Portuguese Society of Nephrology. Coordinator: Gabriel Miltenberger-Miltenyi. Ammount: € 18.000,00

2012/---- From bed to bench in atypical hemolytic uremic syndrome: genotype - phenotype association studies and screening for novel mutations in Portugal. 2011 Investigation grant of the Portuguese Society of Nephrology. Coordinator: Gabriel Miltenberger-Miltenyi. Ammount: € 18.000,00


2012/2014 Diagnosis and monitoring of Chronic Myeloid Leukemia (CML) patients: Molecular and Cytogenetic analysis. Bristol-Myers Squibb.. Coordinator: Sónia Santos, Sónia Matos. Coordinator PI: José Alves do Carmo.

Publications in peer review Journals

Invited lectures and seminars


Miltenberger-Miltenyi, G. Os avanços da Genética no diagnóstico, tratamento e prevenção de Doenças Genéticas e Hereditárias. Palestra internacional sobre avanços genéticos no diagnóstico, tratamento e prevenção de doenças. 1º Encontro Médico RDOVIVER. Hospital RDOVIVER, Ribeirão Preto, Brazil. October 9, 2013.

Miltenberger-Miltenyi, G. “O efeito Angelina” – Os avanços da Genética no diagnóstico e tratamento do câncer – medicina personalizada. Palestra internacional sobre avanços genéticos no diagnóstico, tratamento e prevenção de doenças. 1º Encontro Médico RDOVIVER, Hospital RDOVIVER, Ribeirão Preto, Brazil. October 9 2013.

Communications in International Conferences


Communications in National Conferences


Factores citogenéticos e moleculares preditivos de resposta em doentes com LMC tratados com Imatinib em primeira linha. A. Ferreira; M. Neves; S. Matos; S. Santos; S. Malveiro; P. Costa; C. Lopes; S. Valle; G. Esteves; B. Polo; J. Raposo; M. Costa; L. Guerra; J. Alves do Carmo. Reunião Anual da Sociedade Portuguesa de Hematologia 2013, Porto, November 14-16, 2013 (Oral Communication)

Impact of additional cytogenetic aberrations and variant Philadelphia translocations at diagnosis in CML patients treated with imatinib as first-line therapy: a Portuguese center series. A. Ferreira; M. Neves; S. Santos; S. Matos; C. Lopes; S. Valle; L. Guerra; J.A. Carmo ESH-iCMLf International Conference on CML – Biology and Therapy, Estoril, Portugal. September 26-29. (Poster presentation)

BCR-ABL mutation analysis in an Portuguese series of chronic myeloid leukemia patients A. Ferreira; S. Santos; S. Matos; C. Lopes; L. Guerra; J.A. Carmo ESH-iCMLf International Conference on CML – Biology and Therapy, Estoril, Portugal. September 26-29, 2013. (Poster presentation)

BCR-ABL(p210) fusion transcript type: is it a prognostic factor? A. Ferreira; S. Matos; S. Santos; S. Malveiro; P. Costa; M. Neves; L. Guerra; J. Alves do Carmo. ESH-iCMLf International Conference on CML – Biology and Therapy, Estoril, Portugal, September 26-29, 2013. (Poster presentation)

Internationalisation

The BIOMARKAPD project is an international multicenter project of the Joint Programme in Neurodegenerative Disease Research initiative (JPND) and including various Working packages (WPs) on the research of Alzheimer’s disease (AD) and Parkinson’s Disease (PD). Genomed is participating in the BIOMARKAPD project in collaboration with the Neuroscience group of IMM (coordinator: Alexandre Mendonça).

The aim of BIOMARKAPD is to standardise the assessment of established and new fluid biomarkers for AD and PD. To this end we will:

- Create and validate detailed standardised operating procedures for sample collection, storage, analytical procedures and clinical use of biomarkers for AD and PD.
- Create an assay qualification algorithm specifying technical characteristics that must be fulfilled to employ the assay in AD and PD biomarker studies and in clinical routine and trials.
- Create a network of harmonised laboratories around Europe and also implement a certification system for laboratories and technicians with yearly hands-on training events and external quality control surveys four times per year.
- Define a workflow for how new biomarkers can be developed from proof-of-concept studies to established biomarkers with reference limits, cut-offs and controlled confounders.
- Build a biobank for validating new biomarker candidates.
- Establish certified reference materials for biomarker measurements.

This is by far the most ambitious AD and PD biomarker standardisation programme to date, covering whole Europe, as well as one Canadian site. The harmonisation of biomarker-related procedures across Europe will facilitate clinical trials and allow for general implementation of the newly proposed diagnostic guidelines for AD and new diagnostic approaches for PD in clinical routine.
Prizes, honours and awards


Advanced teaching


Science and society

Participant: Gabriel Miltenberger-Miltenyi

- EURORDIS Membership Meeting; May 30 – June 1, 2013, Dubrovnik, Croatia.
- European Symposium on Lysosomal Storage Disorders – ESLSD, Brussels, Belgium. June 5-6, 2013
- International Summer School "Rare Disease and orphan drug registries", Rome, Italy. September 16-20, 2013.

Msc theses completed

LYMPHACT S.A.

Major interests / Objectives

Lymphact is a biopharmaceutical start-up focused on developing innovative personalized 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 of Unit

Diogo R. Anjos, MBA – CEO, Lymphact S.A.

Keywords/Research Areas

Cellular Therapies, Immunology, Oncology, Immunotherapies, Start-up, Business Development.

Major achievements

- Initiated Regional Phase of our patent;
- Initiated partnership with Instituto Português de Oncologia;
- Initiated partnership with Instituto Superior Técnico;
- Initiated partnership with Universidade de Évora.

Patents/prototypes

Licensee Patent- PCT IB2012/052545
TCLab – Tecnologias Celulares para Aplicação Médica

Major interests / Objectives

TCLab is a spin-off biotechnology company of IMM, created in 2012 and headquartered in the Department of Veterinary Medicine from the University of Évora. The company assumes research and development of human induced pluripotent stem cells (hiPSCs) as a primordial aim, as well as rendering specialized consulting services. Due to their large differentiation potential, hiPSCs may provide access to cellular models of disease either to study the mechanisms of disease or to test drugs for efficacy and safety. Moreover, because hiPSCs contain the genetic makeup of the individual patients, these cells represent a valuable tool for pharmacogenetics and personalized medicine.

Head of Unit

Filipa Nunes, PharmD, PhD – Chief Scientific Officer

Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Andreia Matos, MSc</td>
<td>Technician</td>
</tr>
<tr>
<td>Laura Felício, MSc</td>
<td>Technician</td>
</tr>
<tr>
<td>Alexandra Maralhas, BSc</td>
<td>Consultant Lab Manager</td>
</tr>
</tbody>
</table>

Keywords/Research Areas

Human induced pluripotent stem cells; disease modelling; primary cultures of human fibroblasts

Major achievements

Consolidation of the QREN project initiated in 2012: development of an optimized protocol for the establishment of fibroblast culture from human skin biopsy and subsequent reprogramming into hiPSCs.

Initiation of a second project funded by QREN dedicated to the exploration of potential markets, and internationalization of the company and its products/services.

Participation in the PhD Programme entitled “Cell Therapies and Regenerative Medicine”, funded by the Fundação para a Ciência e Tecnologia (FCT), coordinated by IST/IBB, and with the participation of IMM, CEDOC and IBET.

Ongoing Research Projects

2012/2014 Núcleo para Investigação e Desenvolvimento de meios de cultura para reprogramação e diferenciação de iPSCs, Sistema de Incentivos à Investigação e Desenvolvimento Tecnológico Núcleos de I&DT – FEDER/QREN/PORAlentejo

2013/2015 Plano Estratégico de Valorização, Crescimento e Internacionalização, Sistema de Incentivos à Qualificação e Internacionalização de PME – FEDER/QREN/PORAlentejo

Invited Lectures and Seminars

Nunes, F. Regenerative Medicine Curricular Unit of the Master Degree in Biomedical Technologies, FMUL, Lisbon, Portugal, May 27, 2013.

Advanced teaching

Nunes, F. lectured a seminar integrated in the Regenerative Medicine Curricular Unit of the Master Degree in Biomedical Technologies, FMUL, Lisbon, Portugal, May 27, 2013.
TECHNOPHAGE, SA

Major Interests / Objectives

TechnoPhage S.A. is a biopharmaceutical company engaged in the R&D of therapeutics and diagnostics in three main programs, managed by different Business Units:

1) TechnoPhage: R&D of novel bacteriophage-based products, for the treatment, diagnosis and prevention of bacterial infections.
2) TechnoAntibodies: R&D of recombinant single domain antibody fragments (sdAbs), for therapeutic and diagnostic of human diseases.
3) TechnoZeb: Innovative approaches to drug discovery by using the zebrafish as an in vivo model system.

The strategy of the company is to use these platforms to identify new therapeutic molecules in various areas. Molecules are taken into in vivo studies to provide data on efficacy and safety. Partnering deals are sought for preclinical or clinical development or both.

Head of Unit

Miguel Ângelo da Costa Garcia, PhD, MBA, TechnoPhage, SA.

Research Team

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<thead>
<tr>
<th>Name</th>
<th>Degree/Qualification</th>
<th>Position</th>
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<tbody>
<tr>
<td>Ana Raquel Martins Barbosa</td>
<td>Master</td>
<td>Investigator</td>
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<tr>
<td>Bruno Miguel Parreiras Gimbra</td>
<td>Graduate</td>
<td>Accountant</td>
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<tr>
<td>Cátia Sofia Simões Família</td>
<td>Graduate</td>
<td>MSc Student (left in December)</td>
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<tr>
<td>Clara Isabel Rodrigues Leandro</td>
<td>Master</td>
<td>Investigator</td>
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<tr>
<td>Daniela Sofia Moreira Proença</td>
<td>Master</td>
<td>PhD Student</td>
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<tr>
<td>Diana Sofia Chapela Duarte Pires</td>
<td>Master</td>
<td>Technician</td>
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<td>Frederico Nuno C. Aires da Silva</td>
<td>PhD</td>
<td>Principal Investigator</td>
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<tr>
<td>Joana Henriques Ministro</td>
<td>Master</td>
<td>Investigator</td>
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<tr>
<td>João João Duarte Alves Mendes</td>
<td>Graduate</td>
<td>PhD Student</td>
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<tr>
<td>João Miguel Sotenho Oliveira</td>
<td>Master</td>
<td>Administrative (started in October)</td>
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<tr>
<td>Mariana Lima de Faria Trigo Pereira</td>
<td>Master</td>
<td>Project manager (started in October)</td>
</tr>
<tr>
<td>Nuno Miguel Duarte Afonso</td>
<td>PhD, MBA</td>
<td>Manager</td>
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<tr>
<td>Patricia Alexandra Norte Ferreira Pinto</td>
<td>No degree</td>
<td>Technician</td>
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<td>Patrícia Cavaco Silva Montez</td>
<td>PhD</td>
<td>Director</td>
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<td>Pedro Manuel Correia Canhão</td>
<td>Graduate</td>
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<td>Rita Leitão Landeiro Vaz</td>
<td>Master</td>
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<td>Sara Cristina Maurício de Sousa</td>
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<td>Sara Ferreira Llorente Grancho Lourenço</td>
<td>Master</td>
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<tr>
<td>Sofia Volker Corte-Real</td>
<td>PhD</td>
<td>Project manager</td>
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<tr>
<td>Soraia Rafaela Santiago de Oliveira</td>
<td>PhD</td>
<td>Investigator (started February)</td>
</tr>
</tbody>
</table>

**Keywords / Research Areas**

R&D of therapeutics for human disease, Bacteriophage Therapeutics, Small domain Antibodies, Zebrafish models for in vivo screening.

**Major scientific achievements**

Mar 2013- Manuscript on animal efficacy for bacteriophage cocktail for the treatment diabetic cutaneous wounds accept


Jun 2013 - TechnoPhage invited to present at APIFARMA.

Oct 2013 - Benefits for the SME - TA101 GOCLIN European funded project for the development of an innovative product for the treatment of rheumatoid arthritis – 1,7M€ total budget


Oct 2013 - TechnoPhage invited to present Rheumatoid Arthritis therapeutics development programme at ANDAR symposium at Gulbenkian Foundation, Lisbon, Portugal.

**Recent Most Relevant Publications**

João J. Mendes, MD1,2; Clara Leandro, MSc1; Sofia Corte-Real, PhD1; Raquel Barbosa, MSc1; Patrícia Cavaco-Silva, PharmD, PhD1,4; José Melo-Cristino, MD, PhD3; Andrzej Górski, MD,

**Invited lectures and seminars**

TechnoPhage invited to present Rheumatoid Arthritis therapeutics development programme at National Association of Rheumatoid Arthritis Patients (ANDAR) symposium “Disclosing the future in RA: the Portuguese contribution” at Gulbenkian Foundation, Lisbon, Portugal, October 2013.


**Prizes, honours and awards**


**Patents/prototypes**


**Msc theses completed**

Pedro Canhão 04/12/2013 Selection of small domain antibodies against b-amyloid peptides University of Lisbon Frederico Aires da Silva João Gonçalves.

Cátia Fâmília 22/11/2013 Avaliação de bacteriófagos com actividade antibacteriana em isolados provenientes de doentes com pneumonia associada ao ventilador Universidade Nova de Lisboa Patrícia Cavaco Silva Monteiz.