**Title: Unlocking the Mystery of Memory T Cells with Single Cell RNA Sequencing**

Synopsis:

The ability of the immune system to remember about past infections is carried specific immune cells memory T cells. Forming memory T cells is a vital defense mechanism against diseases. The principle of vaccination involves inducing the body to create memory T cells by teaching it to recognize specific pathogens.

These memory T cells can respond to a re-occurrence of the same infection. Although memory T cells are well studied, the process of their formation remains unclear. In addition, they form a very diverse group of cells that respond differently to different classes of infections. For example, a viral infection elicits a different immune response than an infection caused by a worm or fungus. We aim to comprehend how this diversity of memory T cells is achieved.
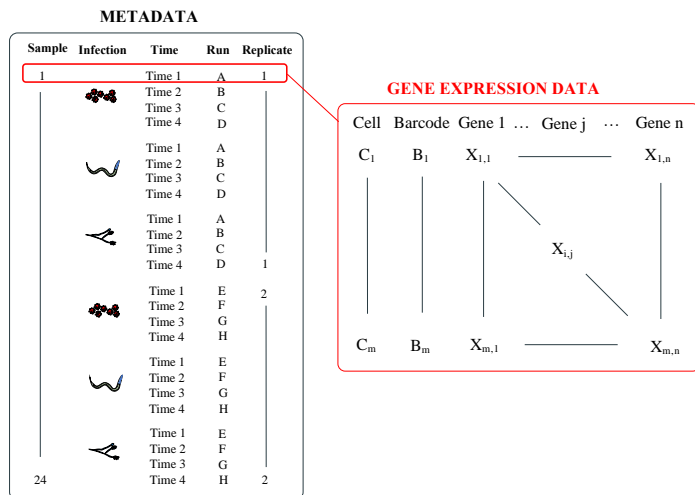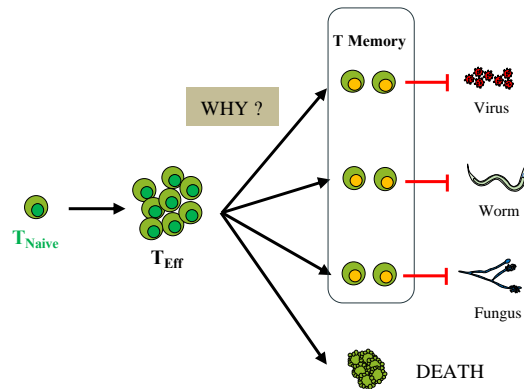
Datasets:

Single T cells harvested from spleen after flu, worm or fungus infection. 4 timepoints with 2 replicates are expected. We will have the following dataset generated using single cell RNA sequencing: Gene expression data, TCR sequencing, Hashtag, Metadata.

Student profile:
We welcome all students who possess the necessary background and a keen interest to apply. If you are a student of computational biology, data science, statistics, or engineering, with a desire to learn about immunology, we encourage you to apply. Conversely, if you are an immunologist have fun for data science, we would be delighted to host you. Let's embark on this exciting journey together!

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