

PhD position in Computational RNA Biology

We are looking for a talented PhD student in the Marsico's lab, ICB Helmholtz Zentrum München to work on an exciting project at the interface between immunology, RNA biology and statistical modeling/computational biology, co-supervised by Prof. Vigo Heissmeyer, Immunology LMU Munich.

The aim of this project is to decipher a post-transcriptional gene regulatory network of RNA-binding proteins (RBPs) in immune cells, which is required to prevent autoimmunity. More recent preclinical data also indicate that genetic inactivation of individual factors of the system in tumor-specific T cells enhances the efficacy of immune cell therapies against cancer. Experimentally, we will address the interaction of the RBPs with the T cell transcriptome at near-nucleotide resolution with the CLIP-seq techniques. The student will develop innovative computational methods to analyze and integrate different kinds of high-throughput genomic data (e.g. CLIP-seq, RNA-seq, ATAC-seq), identify the target sets of the proteins of interest, as well as their recognition motif. More in detail, she/he will significantly extend methods previously developed in the Marsico lab based on both unsupervised and supervised machine learning models, such as PureCLIP (Krakau et al., Genome Biol 2018) and pysster (Budach et al. Bioinformatics 2018), to model post-transcriptional gene regulation. Both C++ and python programming languages will be used for it.

Ultimately, we will assess how these proteins regulate target mRNAs in redundant, cooperative or antagonistic manners and define in global gene expression analysis how the system shapes activation and differentiation of T lymphocytes also at the single cell level.

Remuneration and social benefits are based on the collective wage agreement for public-sector employees at federal level (TV EntgO Bund). The position is (initially) limited to until 31.12.2022, but under certain circumstances an extension can be arranged.

Prerequisite to apply is a master in Computer Science, Mathematics, Bioinformatics, (Bio)-statistics, Physics or equivalent.

To promote diversity, we welcome applications from talented people regardless of cultural background, nationality, ethnicity, gender and sexual identity, physical abilities, religion and age. Qualified applicants with physical disabilities will be given preference.

We are looking forward to your receiving your full application file (cover letter, CV and certificates, as well as the contact details of two referees).

For further questions and to apply, please email Annalisa Marsico:

annalisa.marsico@helmholtz-muenchen.de

[Helmholtz Zentrum München](#)

Deutsches Forschungszentrum für Gesundheit und Umwelt (GmbH)

Institute of Computational Biology

Ingolstädter Landstraße 1

85764 Neuherberg (near Munich)