Senior and Junior Computational Biology Fellowships – Immunology Lab

Job application

A junior/senior computational biologist fellowships are available in the Immunology Lab, led by Prof. Sergio Abrignani (https://ingm.org/en/albrignani_lab_eng/). The successful candidates will work in a multi-disciplinary team focused on the characterization of human T cell immune response in different type of tumors.

The project

The project is aimed at unravelling the identity and function of intra-tumoural T lymphocytes in primary and metastatic cancers. The objective is to elucidate the biological features, molecular mechanisms and regulation of tumour-infiltrating T lymphocytes, exploiting the single-cell and bulk RNA-seq analyses coupled with T cell repertoire. In house-produced data will be integrated with publicly available datasets, leveraging on state-of-the-art integrative analysis tools and Machine Learning techniques. The ultimate goal is finding new therapeutic targets to reactivate dysfunctional immunity and improve the clinical outcomes.

The environment

INGM is an interdisciplinary advanced research center with strong connections to clinical needs. Through a diversified research network of public and private collaborations, INGM develops research projects aimed at identifying new biomarkers and therapeutic targets that could improve the prevention and the treatment of infectious, autoimmune or neoplastic diseases. The successful candidates will be integrated in an interdisciplinary group of wet lab scientists and computational biologists dealing with challenging scientific questions in immunology. Furthermore, she/he will be fully included and supported by the highly collaborative members of the Bioinformatics Unit, a vibrant community of about twenty bioinformaticians with different background and expertise that work in close collaboration for the resolution of the daily computational challenges. The Bioinformatics Unit covers the broad necessities of many different types of omics technologies (short- long- read sequencing both bulk and single cell level -10X and ICell8 technologies, ChiP-seq, 3C-based technologies and WGS/WES), share resources and is strongly committed to the development of novel computational methods.

The candidate

We are looking for highly motivated and enthusiastic candidates, willing to challenge an innovative project by adopting a pro-active attitude and an interdisciplinary approach. He/she will deal with large scale analysis of -omics datasets generated by cutting- edge technologies (e.g. sc-RNA-seq, TCR-seq, ATAC-seq, CITE-seq). The new member will be part of the INGM Bioinformatics Unit and she/he also involved in developing new computational tools in close collaboration with its members.

The candidate should also have good communication and organization skills, and a collaborative attitude both within the Immunology group and with all the other members of the Bioinformatic Unit. She/He will also be asked to use tools for reproducible research (e.g. Jupyter notebooks and internal GitLab). Moreover, the candidate will be exposed to international scientific community in the form of internal seminars and conference participations.

Required qualifications for Junior position:

- Master degree in Bioinformatics, Computational Biology or in a related field
- Computational background with knowledge in bioinformatics, computational biology or genomics
- Experience in NGS data analysis. Prior experience in single-cell sequencing analysis is favourable.
- Desired skills include proficiency in R or Python

- Knowledge in immunology will be considered a plus
- Good proficiency of English speaking and writing skills

<u>Required qualifications for Senior position</u>:
- PhD in Bioinformatics, Computational Biology or in a related field OR +3 years of hands-on experience in Bioinformatics and transcriptome data analysis
- Experience in handling and analysis large NGS datasets, in particular single-cell sequencing analysis
- Experience in designing new methods and approaches for the integration of multi-omics data
- Knowledge in immunology will be considered a plus
- Ability to work and think independently and prone to team building and problem-solving
- Experience in supervise the work of the collaborators and/or students
- Good proficiency of English speaking and writing skills

Number of positions offered: 2
Duration and salary will be commensurate with experience.

How to apply
Qualified and interested candidates are invited to apply by sending a detailed CV, a cover letter describing her/his research background/interests and motivation to join the lab, and the contact information of two referees to Prof. Beatrice Bodega (bodega@ingm.org). Applications will be considered until the position is filled.