Master Thesis Position
Arnold Lab, University of Zurich

Universität Zürich[UZH]

Duration: 6-12 months (start: flexible, as soon as possible)
Supervisor: Glenn De Lange (3rd year MD-PhD student)
Research Topic: Eosinophil heterogeneity in colorectal cancer progression

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Eosinophils develop in the bone marrow and, after entering circulation, migrate into tissues such as the lungs and gastrointestinal tract, where they contribute to homeostasis – and pathology. In colorectal cancer (CRC), work from our lab and others has shown that eosinophil infiltration is associated with favorable prognosis; however, the underlying mechanisms remain poorly understood. Given that eosinophil-depleting drugs are currently being administered to patients, understanding the pathophysiology is essential to assess their potential long-term consequences. To address this, we employ complex in vivo models, including orthotopic CRC organoid injections and genetically modified colorectal polyp-forming mice, both of which can be subjected to diverse treatments to study eosinophil function in tumor initiation and progression. In parallel, we use organoid cultures to dissect the cellular and molecular cues that shape eosinophil adaptation.

Aims:
- Identify tumor- and stroma-derived signals that drive eosinophil specialization using organoid co-culture systems (flow cytometry, qPCR, NGS)
- Investigate the effect of eosinophil activity on organoid growth and phenotypical characteristics (flow cytometry, imaging, NGS)

We offer:
- An exciting research project with space to bring in your own ideas and creativity
- Hands-on training in cutting-edge experimental methods and multi-omics technologies (spatial transcriptomics, scRNAseq, spectral flow cytometry, …)
- Integration in a young, international, and collaborative team environment
- Weekly group meetings, journal clubs, and scientific seminars
- A unique opportunity to gain a translational perspective by working at the interface of mouse models, organoids, and human colorectal cancer biology

Requirements:
- Enthusiasm, highly motivated and curious
- Willing to work with mouse tissue samples and human blood samples
- Experience with mouse work and flow cytometry is a plus

Applications:
Please send your CV and a brief statement of research interest to delange@immunology.uzh.ch