CCR – Impromptu Series

Monday, September 25th 2023, 13:00

Chris McGinnis

Institute for Cancer Immunotherapy Scholar,
Postdoctoral fellow at Cancer Research Institute,
Stanford University

Interrogating immunomodulation for anti-metastatic immunotherapy

Systemic tumor-mediated immune remodeling is necessary for metastatic progression. As a result, treating metastatic disease by reversing or reorienting immune dysregulation in the metastatic niche represents an appealing yet unexplored strategy. However, our understanding of metastasis hallmarks such as changes in immune gene expression state, cell type proportions, and cell-cell communication in distant organ sites over time remains incomplete. To address this unmet need, we used sample-multiplexed single-cell RNA-sequencing (scRNA-seq) to build a temporally-resolved 'cell atlas' of lung immune cells isolated from the polyomavirus middle T antigen (PyMT) mouse model of metastatic breast cancer. Computational analyses of these data revealed previously-unobserved signatures of pro-metastatic immune remodeling including (1) IGF1 signaling between neutrophils and tissue-resident macrophages which may regulate early metastatic niche formation, and (2) a pan-myeloid TLR-NFκB inflammation gene expression program that is specifically enriched in the pre-metastatic niche. These results provide new insights into the basic biological mechanisms of pro-metastatic immune reprogramming and represent candidate pathways for anti-metastatic immunotherapy development.

Venue: Lecture Hall B1, Borschkegasse 4a
Time: Monday, September 25th, 2023 at 13:00
Host: Juliane Winkler

CENTER FOR CANCER RESEARCH
MEDICAL UNIVERSITY OF VIENNA