A048 · Single-cell transcriptomic profiling of IL-4/IL-13 receptor expression across pancreatic tumorigenesis

Presenter: Stergiani Telliou — Massachusetts General Hospital/ Harvard Medical School

Authors: Stergiani Telliou

Session: Day 1 · Thu Oct 1, 2026 · 2:15–4:15 PM

Interleukin-4 (IL-4) and IL-13 are the central type 2 cytokines that drive T helper 2 (Th2) immune responses and allergic inflammation. Although their roles in immune regulation are well established, their contribution to pancreatic ductal adenocarcinoma (PDAC) development remains poorly understood. As responsiveness to IL-4 and IL-13 depends on the expression of their receptor components, defining their distribution during pancreatic tumorigenesis may provide insight into the potential involvement of type 2 cytokine signaling in disease initiation and progression. Here, we utilized publicly available single-cell RNA sequencing datasets from human and mouse pancreas to profile the expression of IL4R, IL13RA1, and IL2RG across healthy and disease-associated epithelial cell populations. Receptor expression was evaluated in human acinar and ductal epithelial cells across normal pancreas, tumor-adjacent tissue, and PDAC, as well as in a mouse model of acinar-derived pancreatic cancer. Our analyses indicate that IL4R and IL13RA1 are detectable in human pancreatic ductal and acinar epithelial cells under baseline conditions and appear to be expressed in ductal and duct-like epithelial cells from both adjacent and PDAC tissues. In the mouse model, Il4r and Il13ra1 expression appears to emerge following oncogenic Kras activation. Together, these findings suggest dynamic regulation of IL-4/IL-13 receptor expression during pancreatic tumorigenesis and provide a transcriptomic framework for future studies investigating the functional role of type 2 cytokine signaling in PDAC.