

TITLE:

The Spatial Landscape of Progression and Immunoediting in Primary Melanoma at Single-Cell Resolution

ABSTRACT:

Cutaneous melanoma is a highly immunogenic malignancy that is surgically curable at early stages but life-threatening when metastatic. Here we integrate high-plex imaging, 3D high-resolution microscopy, and spatially resolved microregion transcriptomics to study immune evasion and immunoediting in primary melanoma. We find that recurrent cellular neighborhoods involving tumor, immune, and stromal cells change significantly along a progression axis involving precursor states, melanoma in situ, and invasive tumor. Hallmarks of immunosuppression are already detectable in precursor regions. When tumors become locally invasive, a consolidated and spatially restricted suppressive environment forms along the tumor-stromal boundary. This environment is established by cytokine gradients that promote expression of MHC-II and IDO1, and by PD1-PDL1-mediated cell contacts involving macrophages, dendritic cells, and T cells. A few millimeters away, cytotoxic T cells synapse with melanoma cells in fields of tumor regression. Thus, invasion and immunoediting can coexist within a few millimeters of each other in a single specimen.

SUGGESTED READING:

[The Spatial Landscape of Progression and Immunoediting in Primary Melanoma at Single-Cell Resolution](#)

Zoom URL: <https://stanford.zoom.us/j/95499501659?pwd=TIFQTIBRM1JSeGxXWXFFeIFIQIBCZz09&from=addon>
Password: 406712