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Novel mediators of anti-tumor immunity: dissecting intratumoral immune responses at the single-cell level

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**Novel mediators of anti-tumor immunity:
dissecting intratumoral immune responses at the single-cell level**

Natasja L. de Vries

- I. $\gamma\delta$ T cells, in particular V δ 1 cells, are still an unappreciated cell type of the innate and adaptive immune system. (This thesis)
- II. The integration of flow cytometry, mass cytometry, and single-cell RNA-sequencing provides additional dimensions to distinguish ILC subsets from conventional NK cells, which has been problematic. (This thesis)
- III. Harnessing $\gamma\delta$ T cells and ILCs has the potential to lead to a cheaper, faster, and more universal form of cancer immunotherapy than $\alpha\beta$ T cells. (This thesis)
- IV. A patient's immune repertoire in peripheral blood does not mirror anti-tumor immune responses occurring in the tumor microenvironment, which should be an important consideration for the use of systemic immunity as a biomarker of therapeutic outcome. (This thesis)
- V. The major unresolved issue in $\gamma\delta$ T cell biology is the specificity of ligand recognition by the $\gamma\delta$ T cell receptor. (Bruno Silva-Santos *et al.*, Eur J Immunol, 2012)
- VI. The bulk of the immune action is in tissues, not in blood. (Adapted from: Donna Farber, Nature, 2021)
- VII. Cancer is a moving target, and whatever interactions operate at one stage of tumor progression are likely to change during the next one, so that multiple solutions need to be worked out for individual tumors. (Robert Weinberg *et al.*, Cell, 2014)
- VIII. Multi-omics technologies must go hand in hand with laboratory research such as functional studies to connect findings to their biological relevance.
- IX. Transforming PhD research into a team project involving multiple PhD students will improve the efficiency, quality, and impact of scientific research as well as the training of PhD students.
- X. When the number of women in today's scientific leadership roles will better reflect the general male-female ratio in science, the knowledge, creativity, and chances for innovation will increase.
- XI. Spending more time in the unpredictable wilderness will increase the ability to cope with changes throughout life.
- XII. You can only cross the ocean if you have the courage to lose sight of the shore. (Adapted from André Gide, 1869-1951) *Although you may have the knowledge, you need courage to strike out new paths, take risks, and explore new ideas.*