

# Precision Immunology

## *Co-Chairs:*

Holden T. Maecker, PhD – *Stanford University Medical Center*

Drew M. Pardoll, MD, PhD – *Johns Hopkins University School of Medicine*

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|-----------------------|--|
| 4:05 p.m. – 4:10 p.m. | <b>Introduction</b><br>Holden T. Maecker, PhD – <i>Stanford University</i>   |
| 4:10 p.m. – 4:35 p.m. | <b>Pre-existing Immunity and Treatment Outcome with Anti-PD1 Therapy in Melanoma</b><br>Paul Tumei, MD – <i>University of California Los Angeles</i>   |
| 4:35 p.m. – 4:55 p.m. | <b>Epitope Signatures and Melanoma Response to CTLA4 Therapy</b><br>Timothy Chan, MD, PhD – <i>Memorial Sloan Kettering Cancer Center</i>  |
| 4:55 p.m. – 5:15 p.m. | <b>PD-1 Blockade in Mismatch Repair Deficient Tumors</b><br>Luis A. Diaz, MD – <i>Johns Hopkins Sidney Kimmel Cancer Center</i>  |
| 5:15 p.m. – 5:30 p.m. | <b>Dissecting the Tumor Micro-Environment in Triple Negative Breast Cancer Identifies a Mutually Exclusive Expression Pattern of the Immune Co-Inhibitory Molecules B7-H4 and PD-L1</b><br>Kurt Schalper, MD, PhD – <i>Yale University</i> |

# What is Precision Immunology?

- Targeting the right therapy to the right group of patients, based upon immune metrics
  - Not one-size-fits-all
  - Not necessarily individualized medicine, but small enough groups to be precise

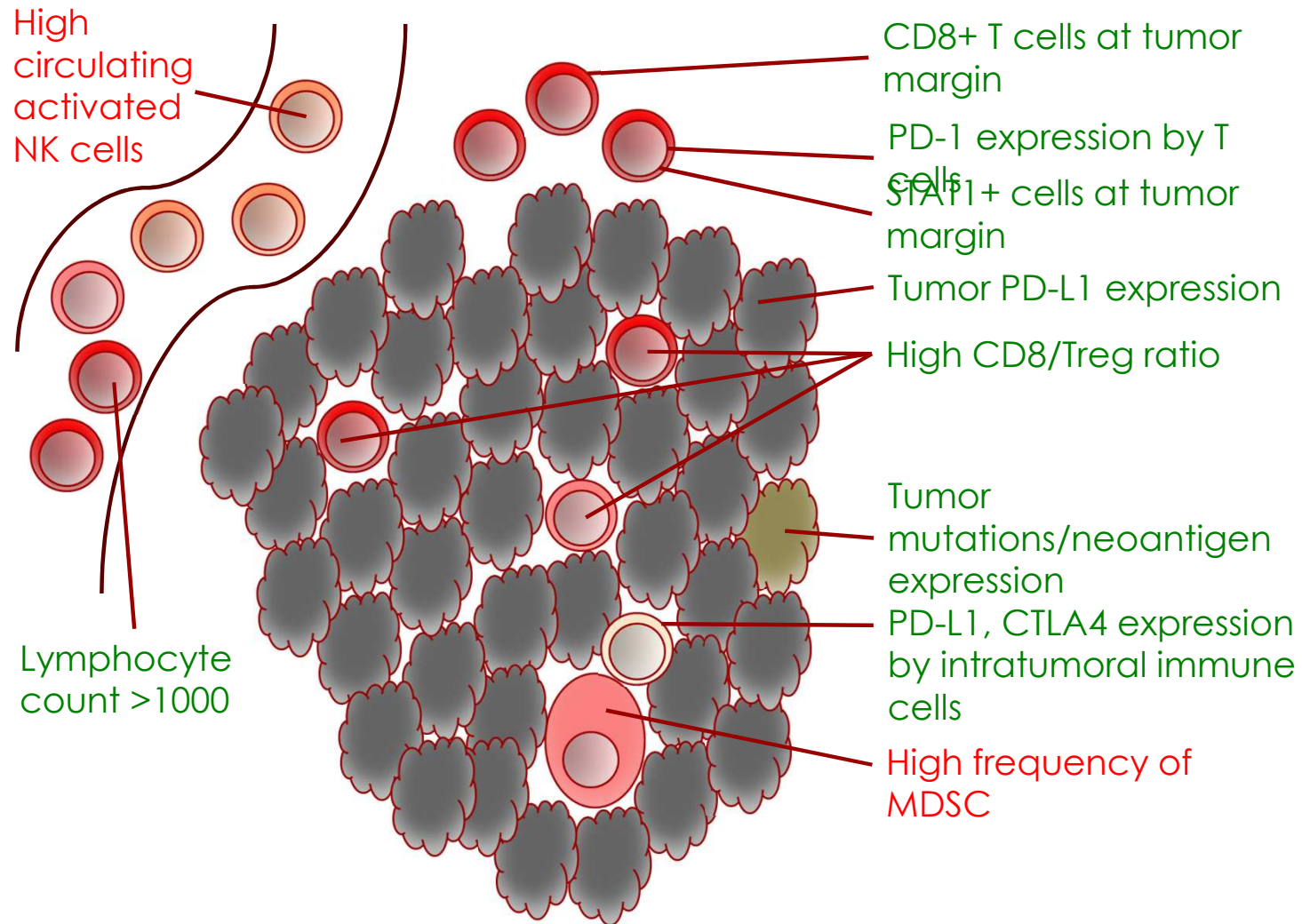
Same  
therapy  
for all  
patients

Precision  
therapy

Individual  
therapy  
for each  
patient

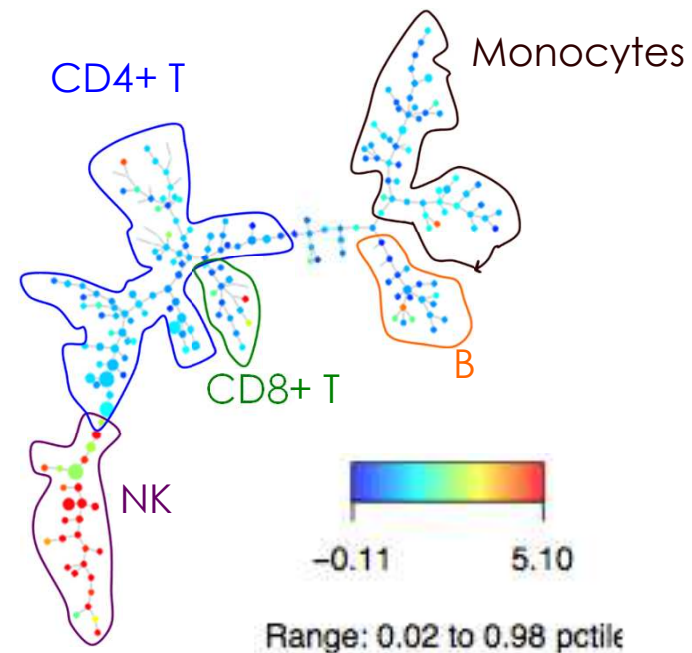
## Why measure the immune system?

- Cancer patients are variably immunosuppressed (by their tumor, by prior therapy)
- Immunotherapies rely on the immune system to produce a response, yet we don't measure the relevant features of each patient's immune system
  - Global immunocompetence: PBMC subsets and functions
  - Tumor-specific: Antigen-specific T cells (tumor neoepitopes), tumor microenvironment features



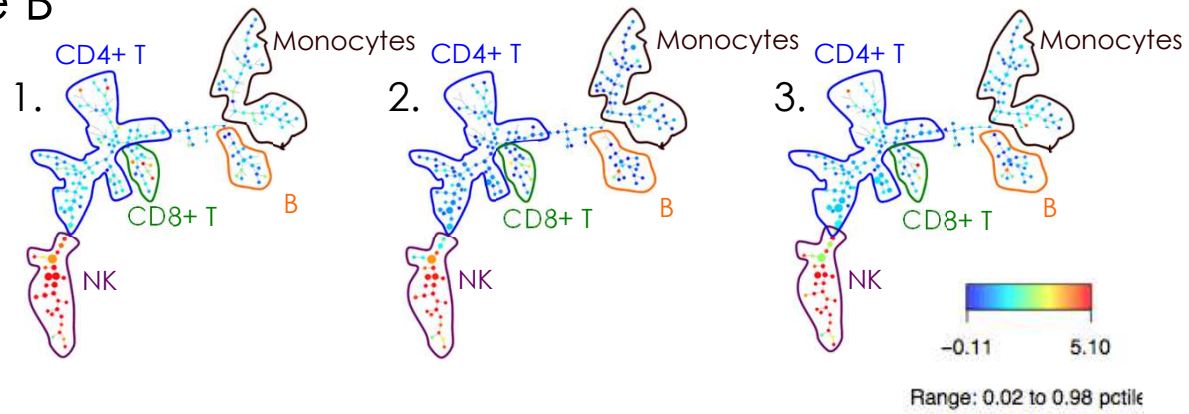
# Looking for baseline predictors of response in PBMC

- Anti-EGFR (Cetuximab) as a targeted therapy in K-ras<sup>wt</sup> head and neck cancer (Holbrook Kohrt)
- PBMC at baseline stimulated with PMA+ ionomycin
- CyTOF mass cytometry with 38 marker panel
- Clustering and display of data using SPADE

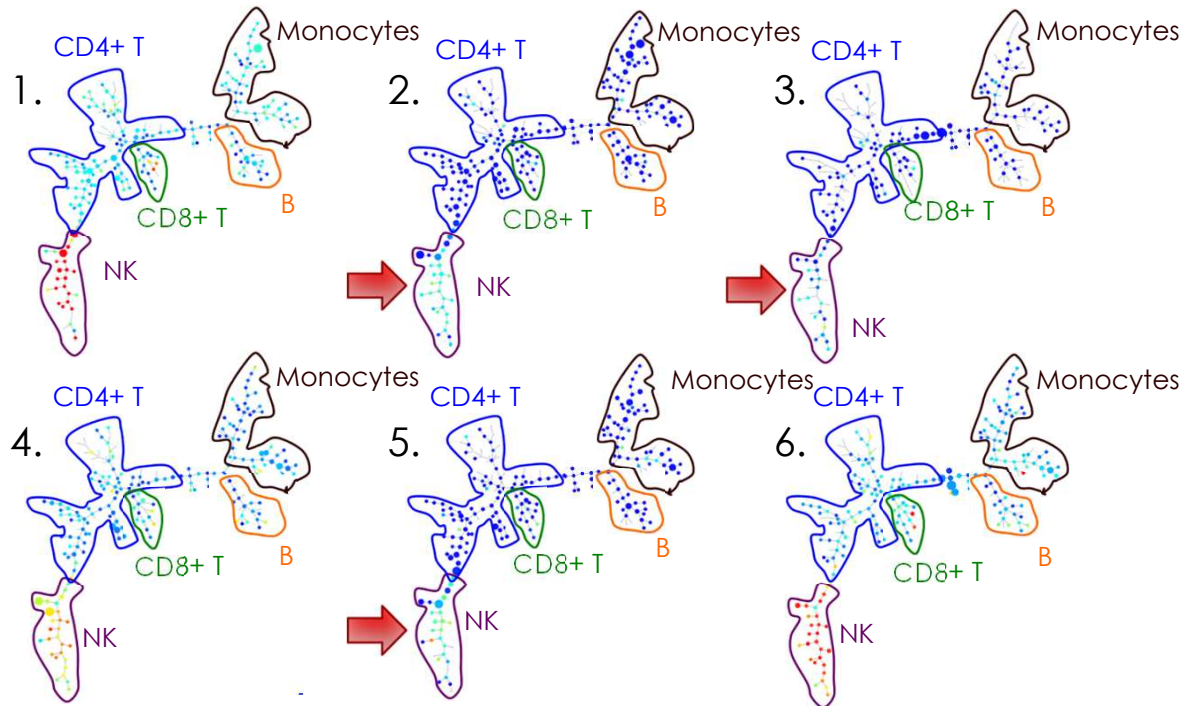


# Granzyme B

Controls



Patients



Chang et al.  
2014. *Cancer Immunol Immunother*  
63: 713–719.



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