

Harnessing Next Generation Cytometry in Immunology

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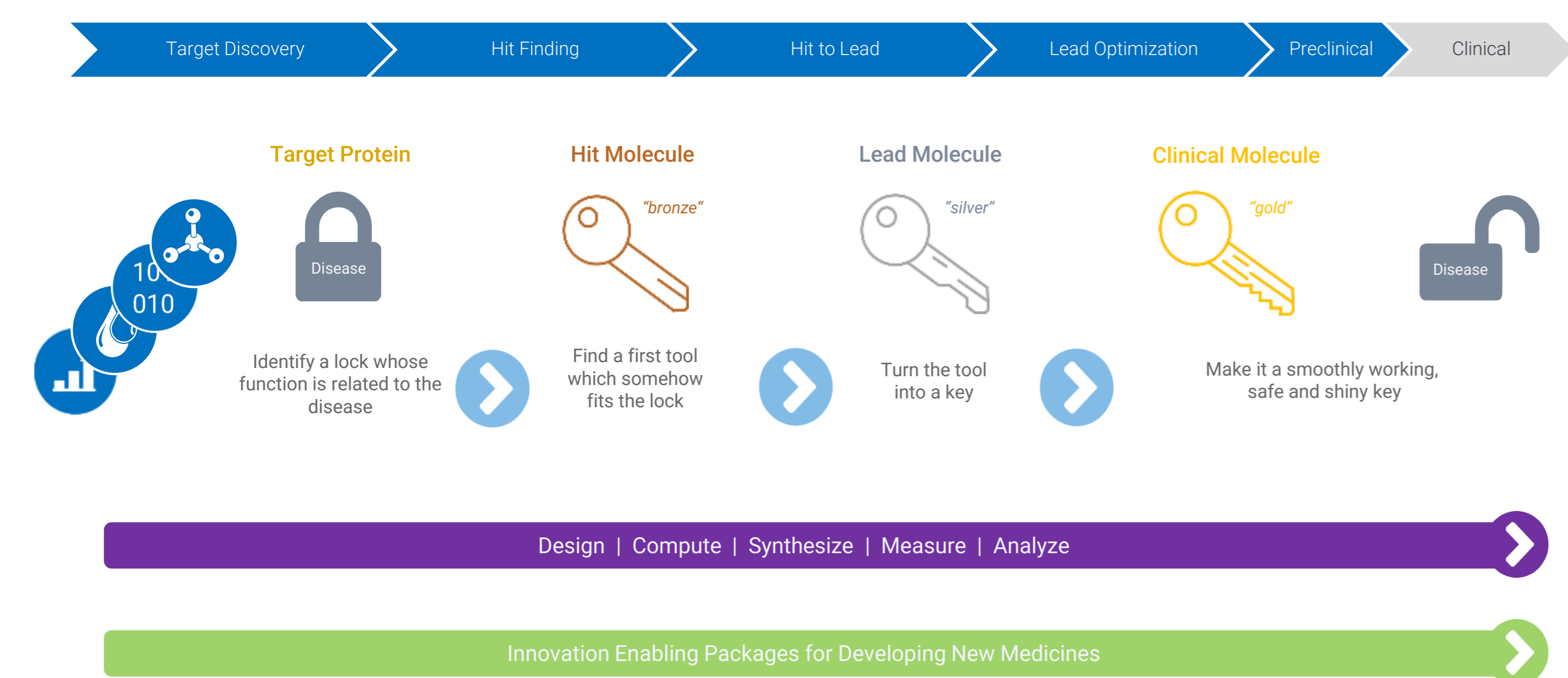
Introduction

The high variability in the distribution of immune and non-immune compartments within the tumor microenvironments (TME) among patients drives their response or potential resistance to current treatment strategies. Understanding this diversity is a key to patient tailored treatment which can meet individual's needs.

- Immune cell profiling
- Single-cell RNA sequencing
- Tissue-based IHC
- Full spectrum flow cytometry or functional assays

are detrimental in proper disease assessment and contribute to novel drug discovery.

Fully Integrated Solutions From Target to Patient



Nuvisan ICB Flow Cytometry Core Facility

Analysers Equipment (S1)

- Cytex Aurora (VBR lasers)
- BD Canto II (VBR lasers)
- Miltenyi MACSQuant X (VBR lasers)
- Sartorius Intellicyt iQueScreener PLUS (VBR lasers)

Cell sorting Equipment (S2)

- Sony MA 900 (VBYGR lasers)

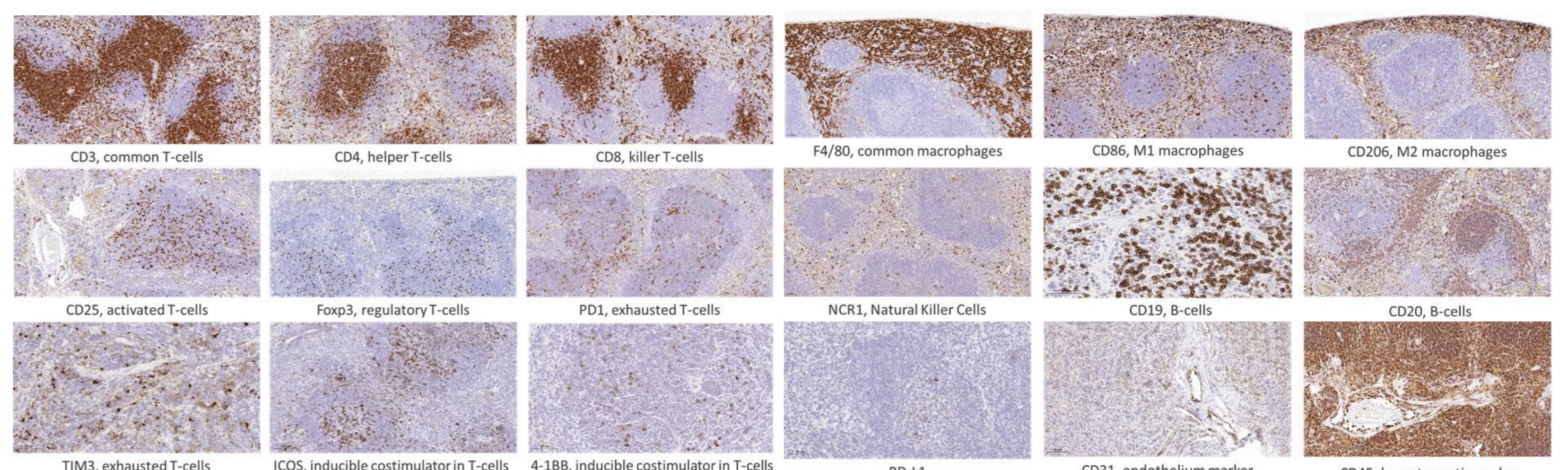
Applications

- Immunophenotyping
- Cell proliferation/ killing assays
- Cytokine & Functional profiling
- Antibody screening
- Cell line development
- Primary cell screening
- Target identification with siRNA / CRISPR
- Monitor treatment efficacy
- Phosphorylation assays
- Cell sorting for subsequent single cell sequencing

Service

- Scientific consultation (mouse, human, rat, NHP)
- Panel design (>25 parameters)
- High throughput screening
- Preparation of samples (solid or liquid tissues)
- QC & Acquisition
- Data analysis (manual gating & unsupervised clustering)
- Instrument/Analysis Cytometry Training

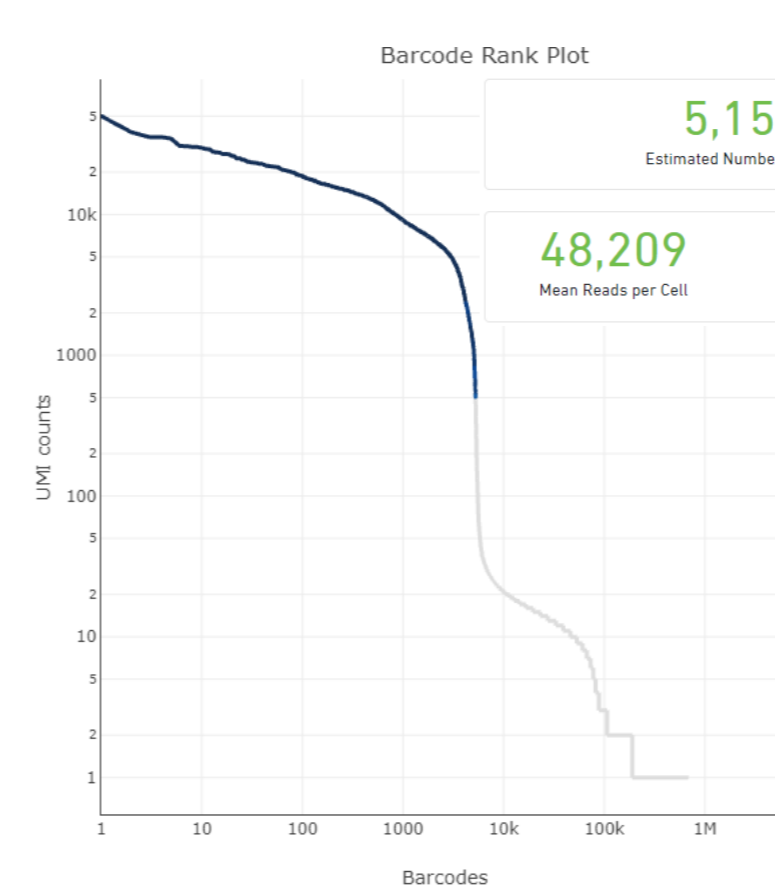
Comprehensive Spatial Profiling of Lymphoid Organs and TILs



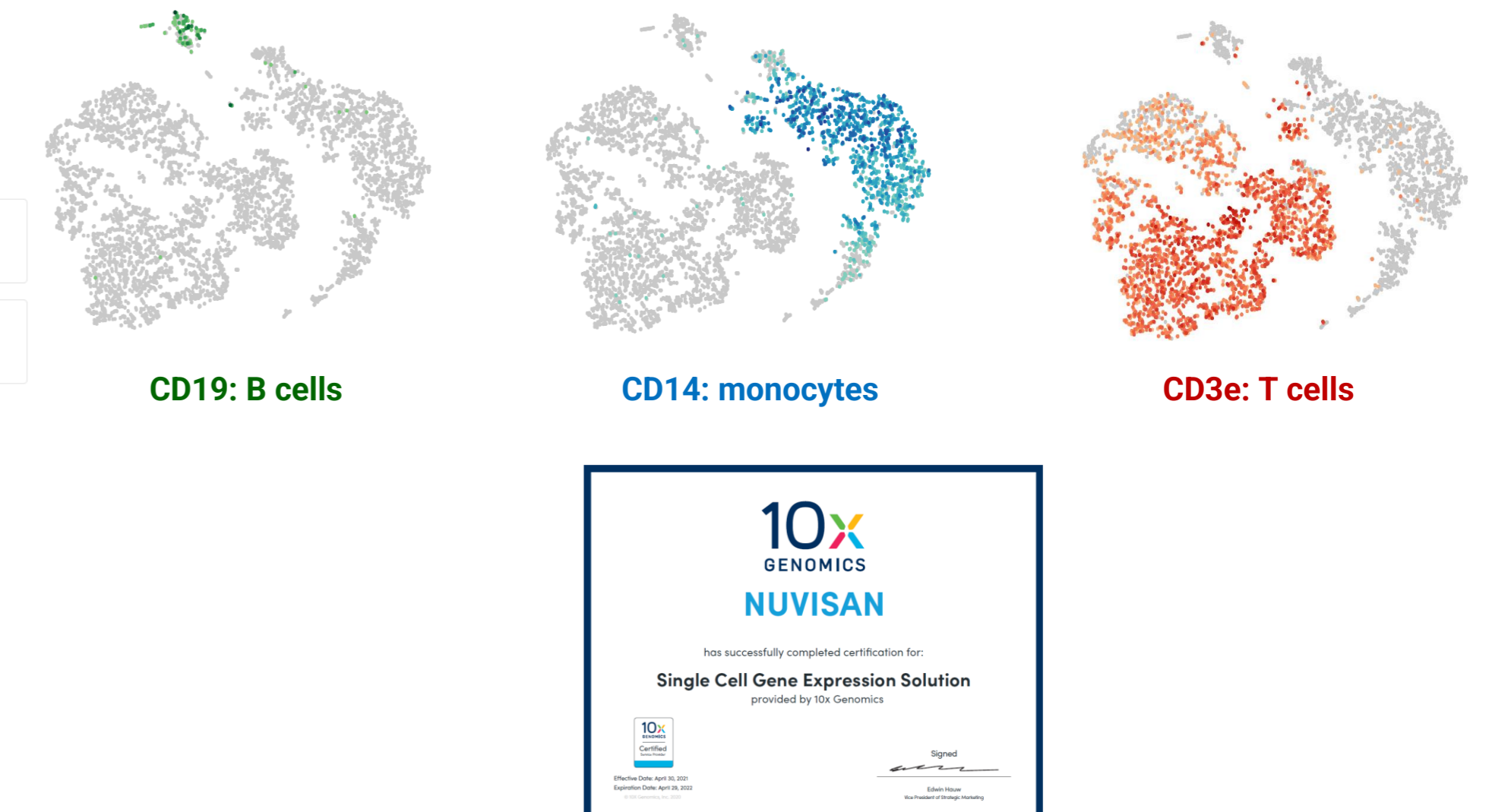
- Spatial profiling of lymphocytes in tissues as well as tumor-infiltrating immune cells can shed light on mechanisms of cancer-immune evasion, thus providing opportunities for the development of novel therapeutic strategies

Use Case: Single Cell RNASeq of PBMCs

Barcode Rank Plot of a representative PBMC single cell sequencing result (10x Genomics v3.1)

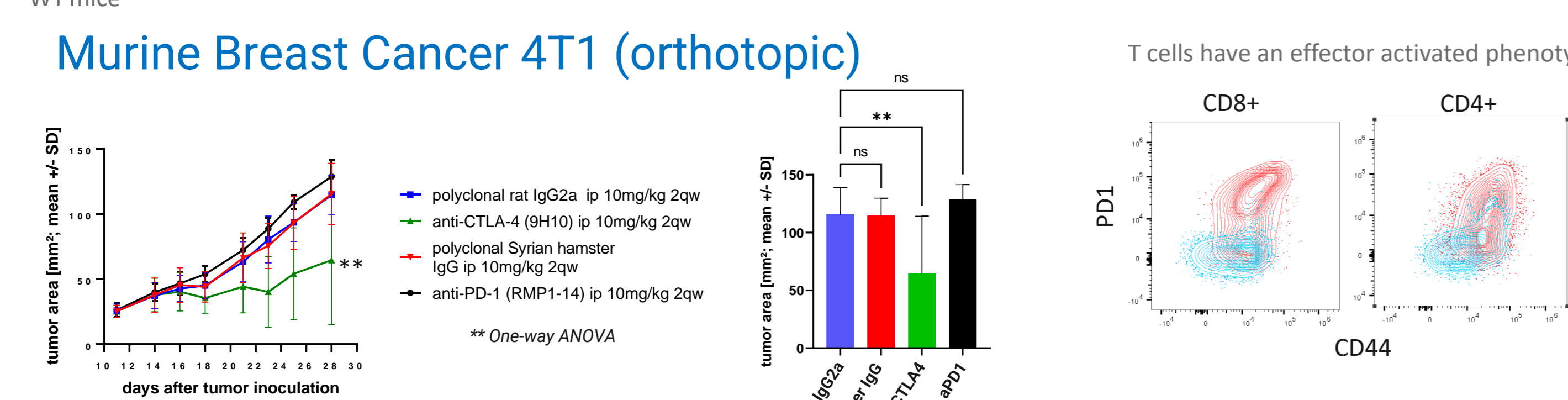
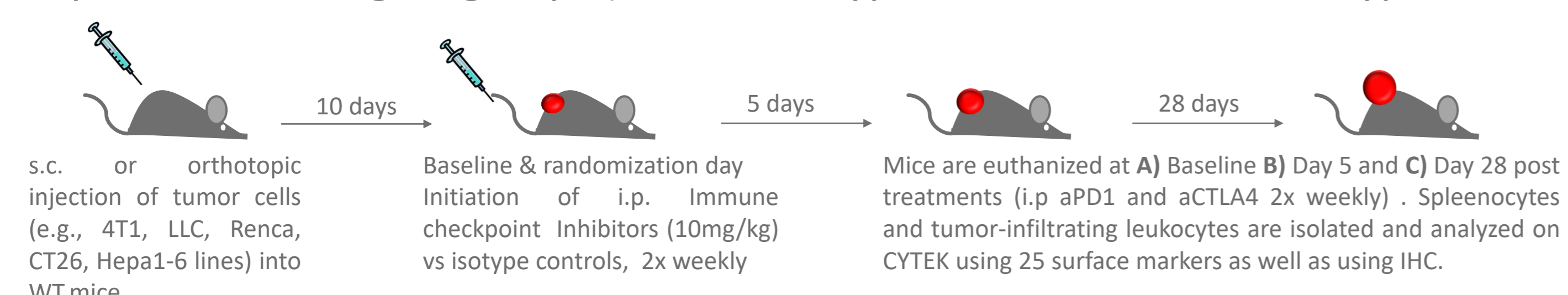


tSNE cluster analysis shows clear separation of PBMC cell populations



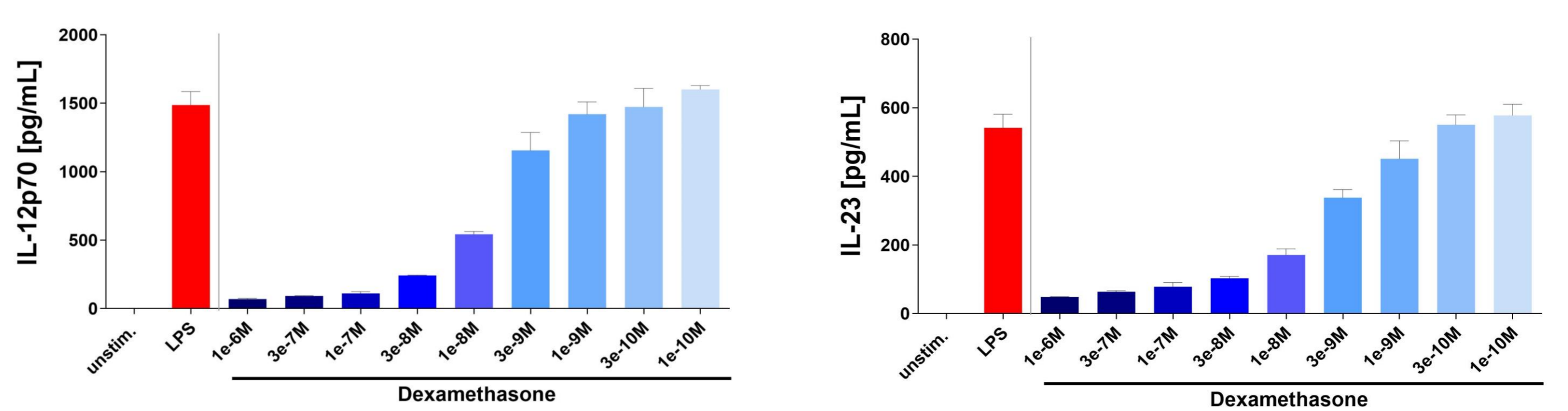
Immune cell composition-Tumor bearing mice

Experimental design 4 groups (aPD1 vs isotype control, aCTLA4 vs isotype control)



Use Case: IL-23 and IL12p70 Secretion in human LPS-stimulated mDCs

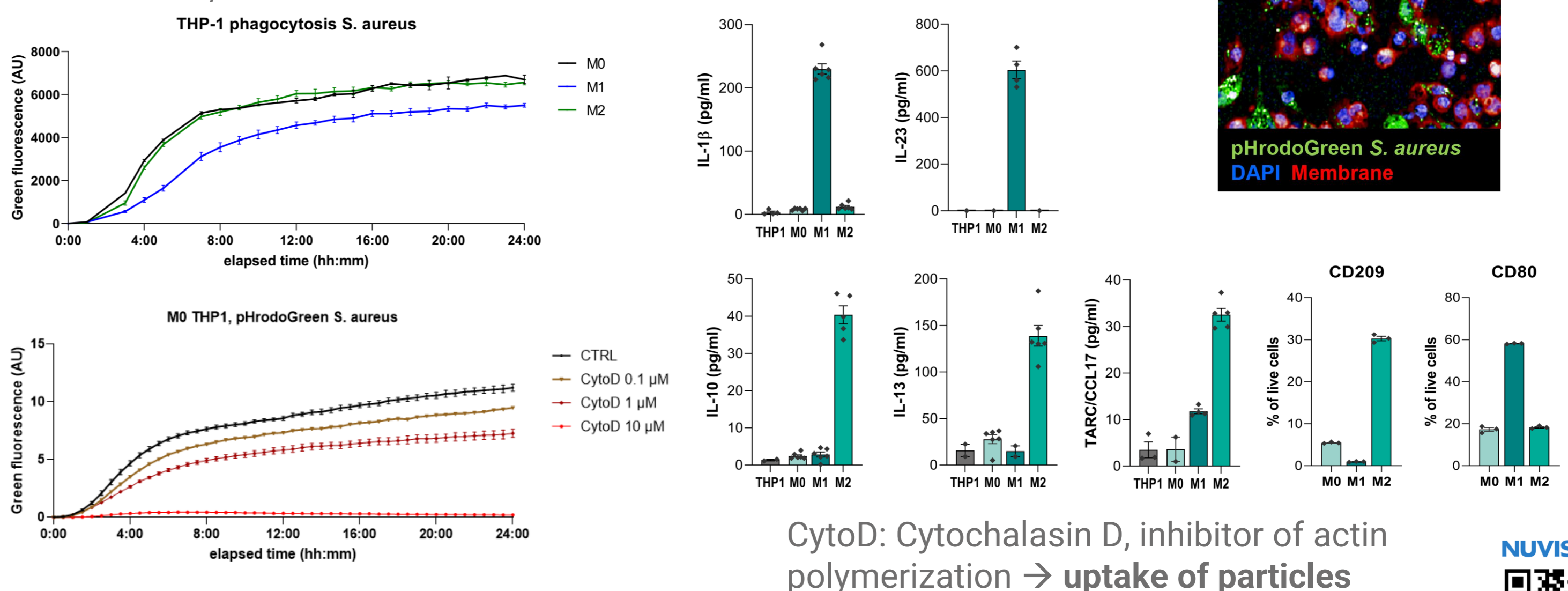
- Dose-dependent cytokine inhibition by Dexamethasone in LPS-stimulated DCs:



Use Case: Macrophage Functionality Assay

THP1 macrophages – S. aureus phagocytosis

- THP1 differentiated with PMA into M0 macrophages, 24h polarisation into M1/M2



CytoD: Cytochalasin D, inhibitor of actin polymerization → uptake of particles