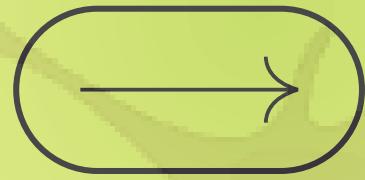
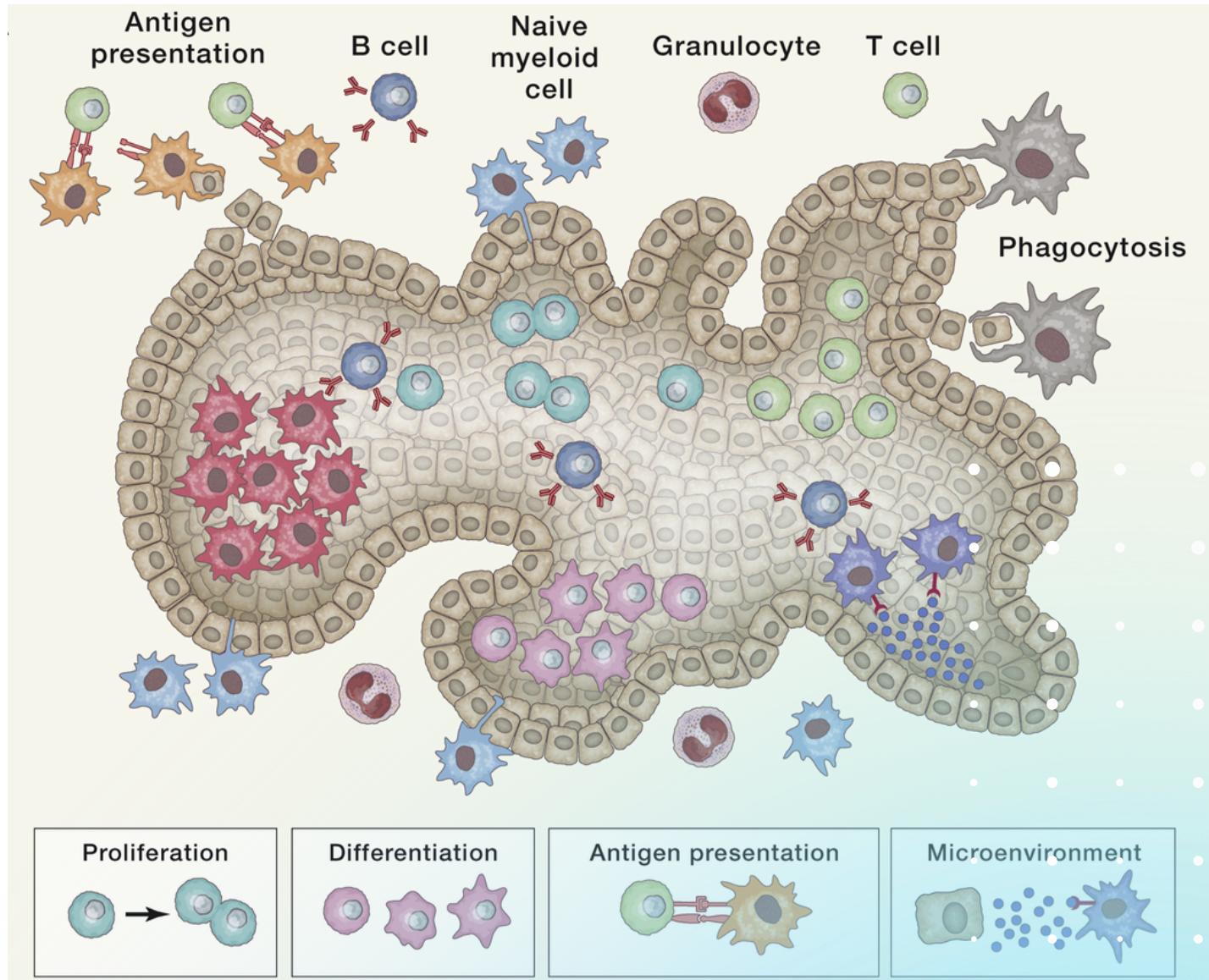


# UNLOCKING THE IMMUNE SYSTEM WITH SINGLE-CELL GENOMICS



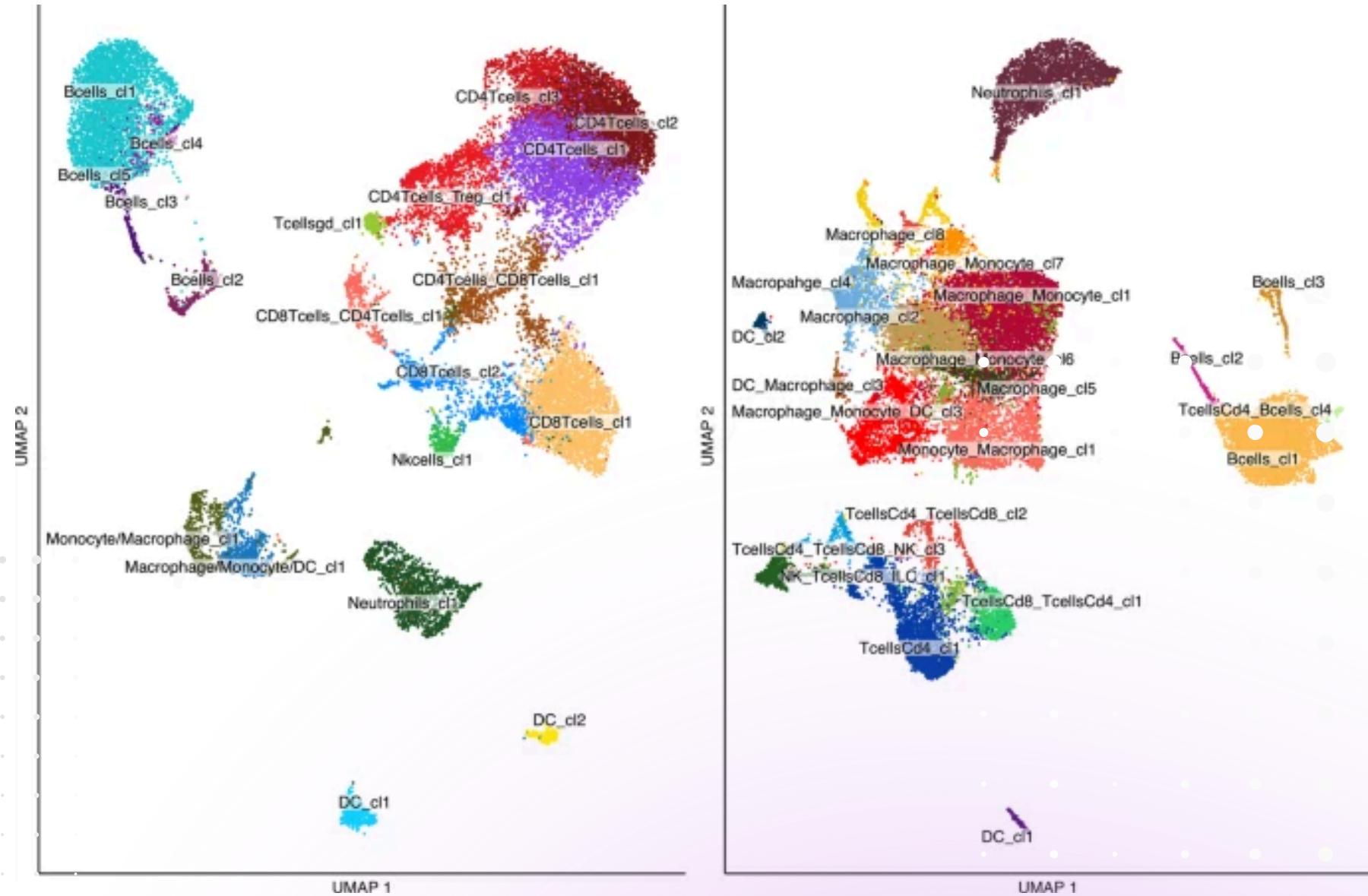


# Immune Landscapes

- Dynamic, diverse cells across all tissues
- Powers development, metabolism, and defense
- Context shapes cells.
- Mapping interactions reveals hidden complexity



Source: Giladi et al., Cell 2018, 172:14–21.

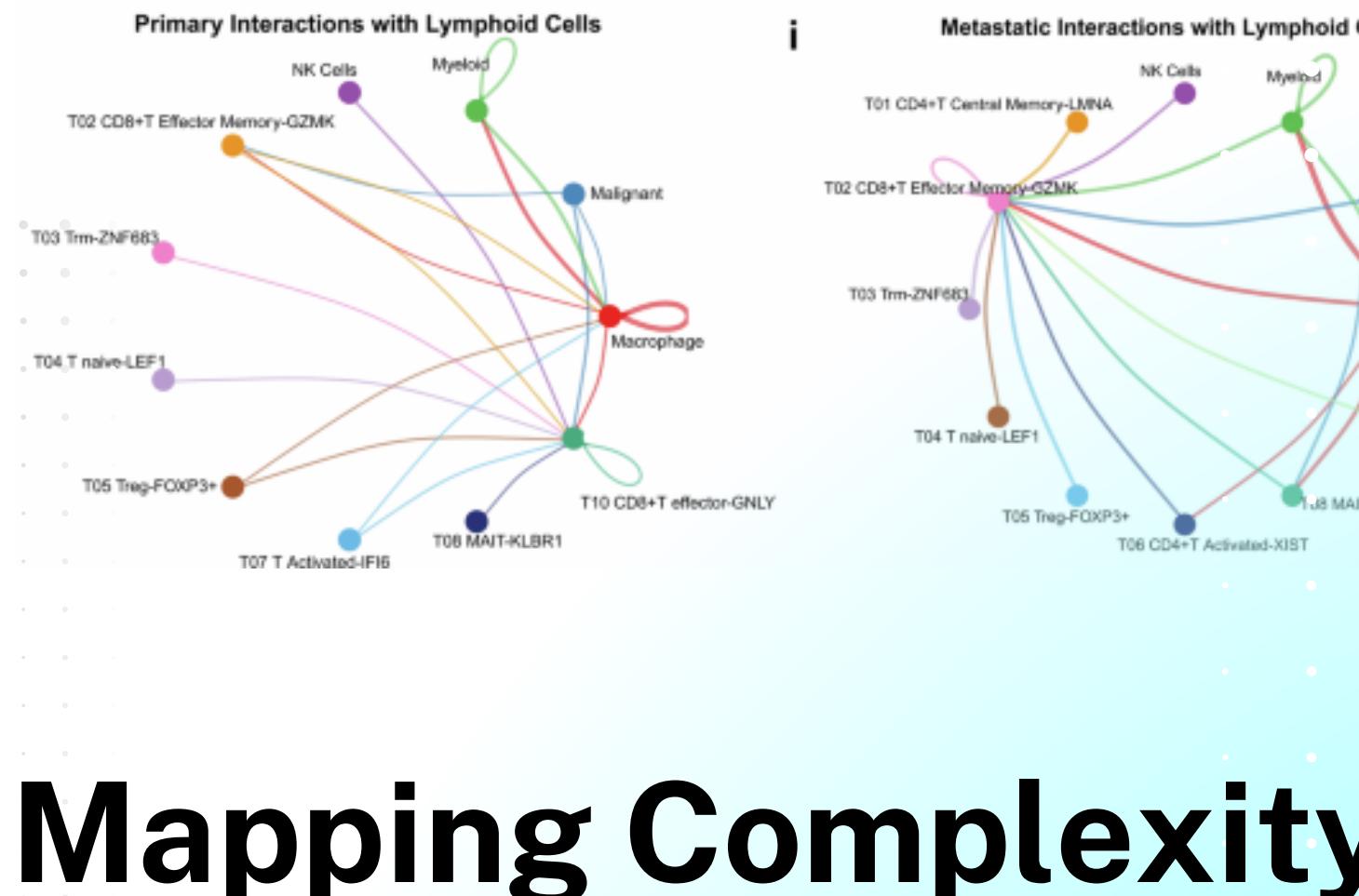
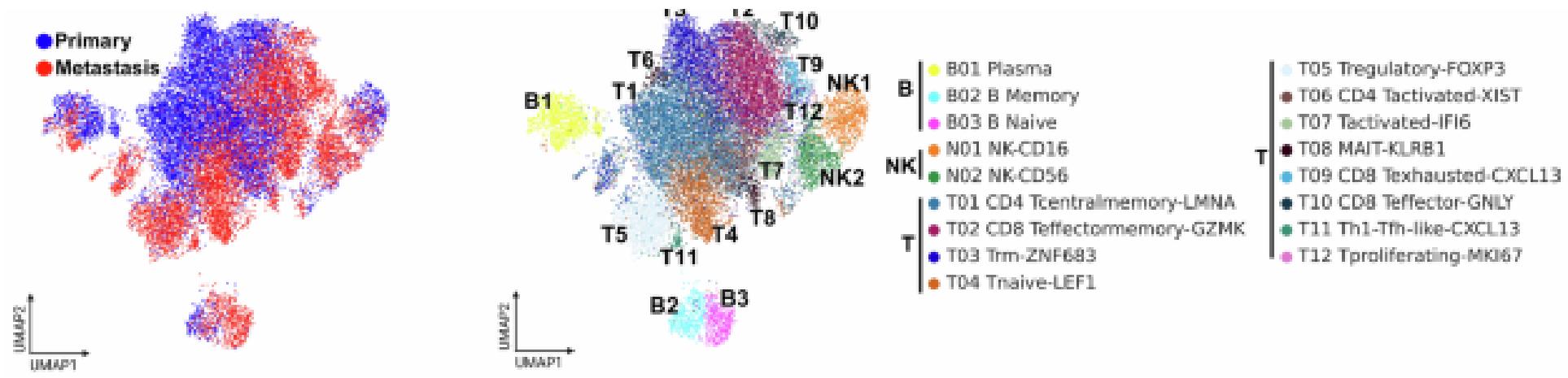


# Single-Cell Revolution

- Studies individual cells instead of bulk populations
- Captures rare and transitional immune states
- Uncovers hidden cell types and communication
- Transforms understanding of immune diversity.

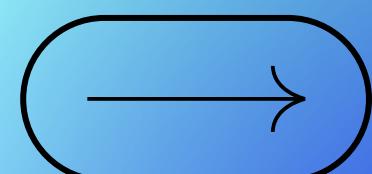


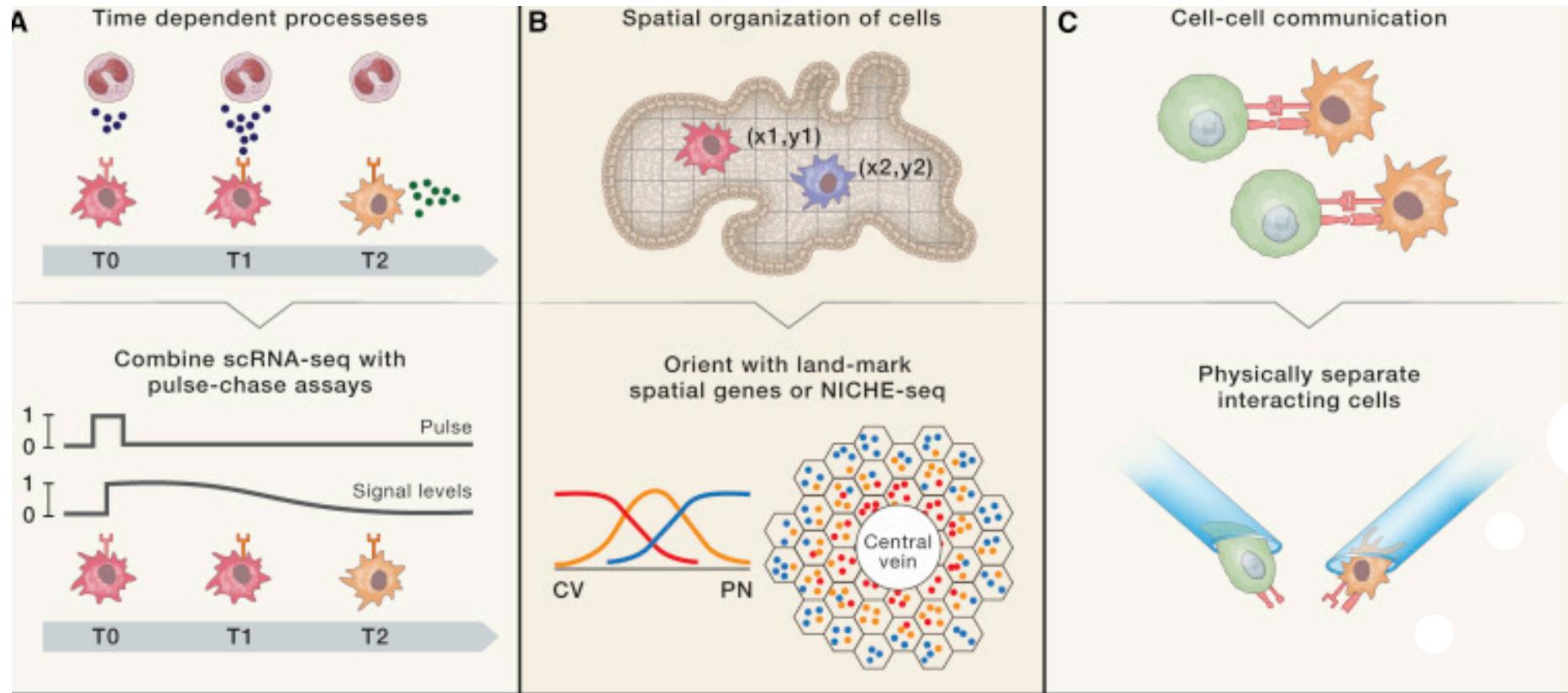
Source: Petralia F, Abelin J, et al. Cell 2022;187(5):1255–1277.



# Mapping Complexity

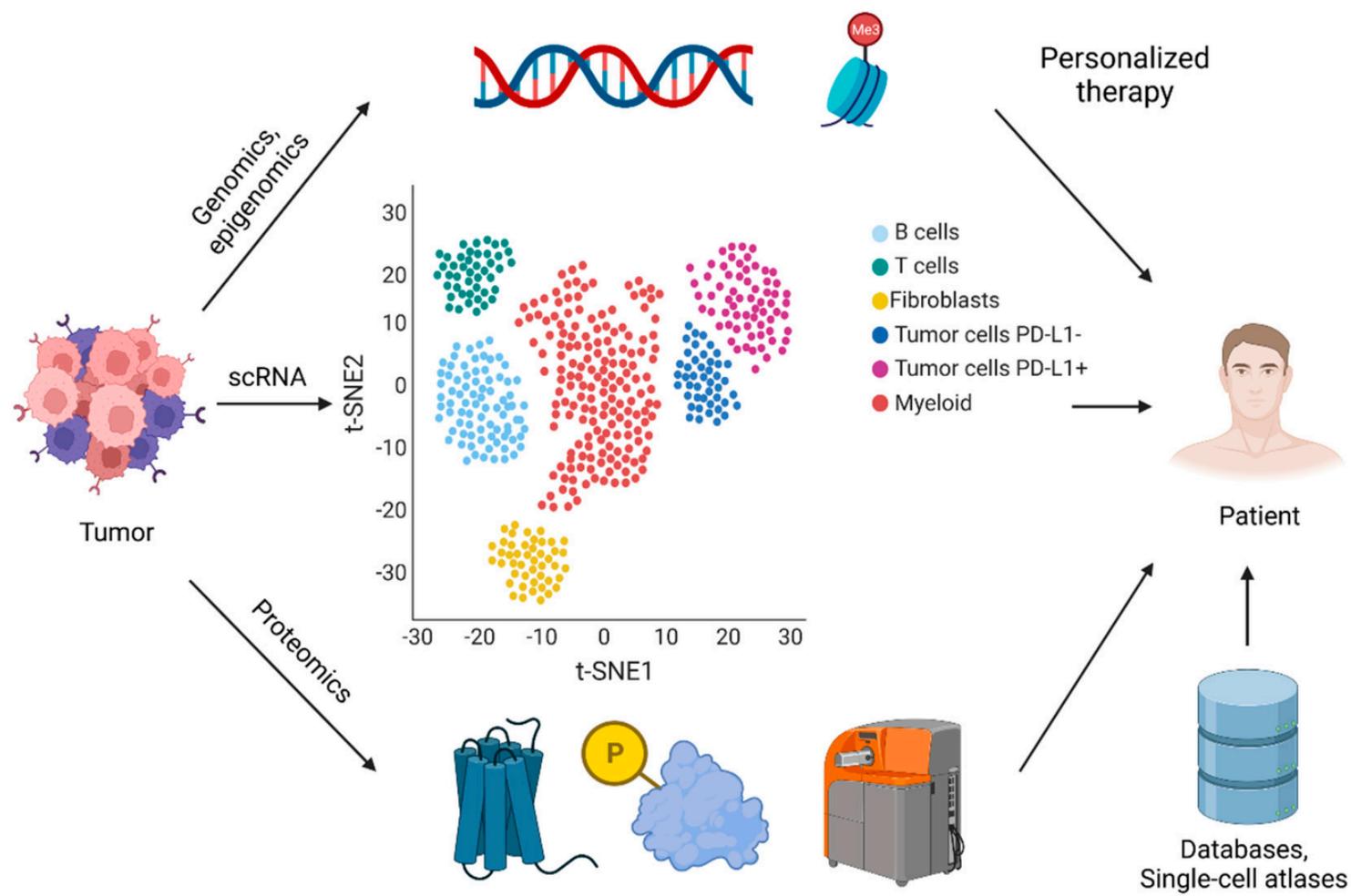
- Profiles thousands of cells in parallel
- Reveals networks within tumors and tissues
- Links gene expression to immune function
- Visualizes spatial organization of cell niches





# Integrating New Dimensions

- Combines spatial, temporal, and genetic data
- Traces lineage and clonal relationships
- Identifies key molecular interactions
- Builds a detailed “atlas” of immune states



# Toward Precision Immunology

- **Links single-cell data to disease mechanisms**
- **Predicts therapy response and patient outcomes**
- **Enables targeted, personalized treatments**
- **Drives the future of immunotherapy research**