Immune Biomarker

An **immune biomarker** is a measurable indicator related to the immune system that reflects immune activation, suppression, or regulation. These biomarkers are used in **diagnosis**, **prognosis**, and **monitoring** of diseases, especially in oncology, immunology, and infectious diseases.

Examples

- `'CD4+ T cells'`: reflect helper T cell levels (e.g., HIV monitoring)
- `'CD8+ T cells'`: indicate cytotoxic immune activity (e.g., cancer response)
- `'PD-L1'`: predicts response to immune checkpoint inhibitors
- `'IL-6'`: pro-inflammatory cytokine elevated in systemic inflammation
- `'CRP'`: general marker of inflammation

Categories

- Cell surface markers (e.g., CD3, CD4, CD8)
- Soluble proteins (e.g., cytokines, chemokines, antibodies)
- Gene expression profiles (e.g., IFN-γ response signatures)
- Functional assays (e.g., lymphocyte activation tests)

Relevance

Immune biomarkers are essential in:

- Identifying immune-related diseases
- Stratifying patients for treatment (e.g., immunotherapy)
- Monitoring therapeutic response or disease progression

See also: immune_biomarker_distribution | spatial_distribution | pd-l1 | cd8