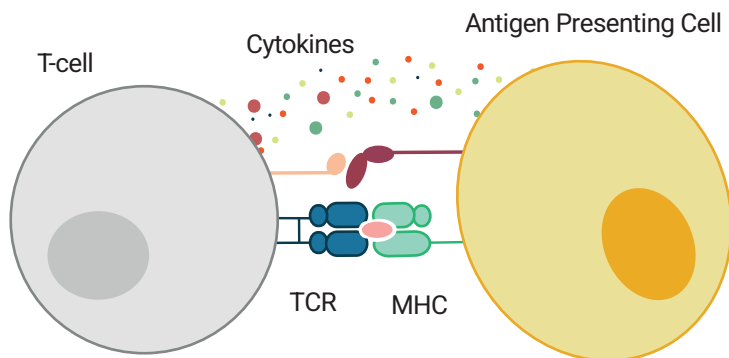


T-Cell Services for Immune Research

New T-cell services to support your research and development of novel immunotherapies

T-cells are indispensable for an effective and specific immune response. The activation of T-cells is antigen-specific and requires recognition of peptides bound to HLA molecules (peptide-HLA) by the T-cell receptor (TCR). The peptide-HLA-mediated activation of T-cells triggers the production and release of activation markers such as cytokines.

The enzyme-linked immune absorbent spot (ELISpot) assay determines the frequency of antigen-specific T-cells by detecting secreted activation markers. T-cells are activated with antigens in PBMC culture to enable T-cell binding to peptide-HLA complex on antigen presenting cells. The method is remarkably robust, accurate, and sensitive and allows the differentiation between different T-cell subtypes.



T-CELL SERVICES AVAILABLE

- T-Cell Immune Monitoring
- T-Cell Epitope Mapping
- Combined B-Cell and T-Cell Epitope Discovery
- T-Cell Epitope Prediction
- T-Cell Killing Assay
- iTreg Polarization and Suppression Assay
- T-Cell Receptor Sequencing
- Peptide Library Generation
- Supply of HLA-Specific or Disease-Associated PBMCs

APPLICATIONS

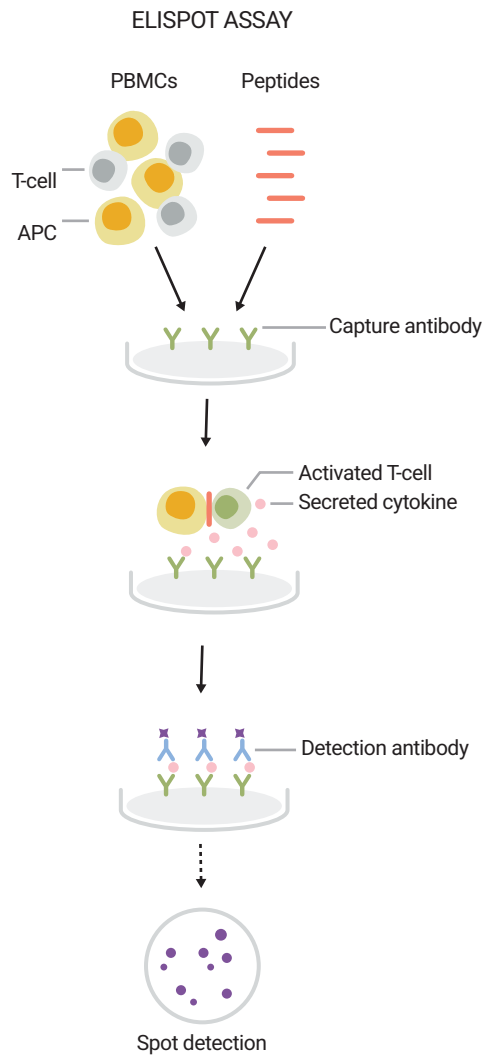
- Peptide vaccine development
- Adverse immune effect analysis
- DC vaccine development
- Immunogenicity improvement
- Adoptive T-cell therapy
- And many more...

ELISpot/ FluoroSpot	as single-cytokine, double-cytokine, or triple-cytokine analysis
Human & mouse	IFN- γ , TNF- α , IL-2, IL-4, IL-10, IL-17, granzyme B, perforin
Rat, pig	IFN- γ

More cytokines and species are available on request

T-Cell Epitope Mapping

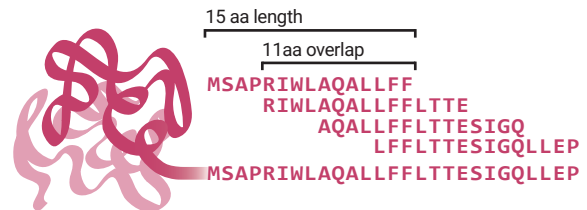
T-cell epitope mapping describes the search for peptide sequences of an antigen that elicit a T-cell response when presented on an HLA/MHC molecule. We typically apply a two-step approach: Initially, mini pools containing equal number of peptides are tested for T-cell activation, followed by an individual validation of each peptide within a positive peptide mini pool.



T-cell epitope mapping strategy: Target proteins or antigens are converted into overlapping peptides. Peptides are assigned to mini pools and evaluated for T-cell activation using donor PBMCs in ELISpot assays. Peptides from positive pools are further individually tested to validate immunogenicity on the epitope level.

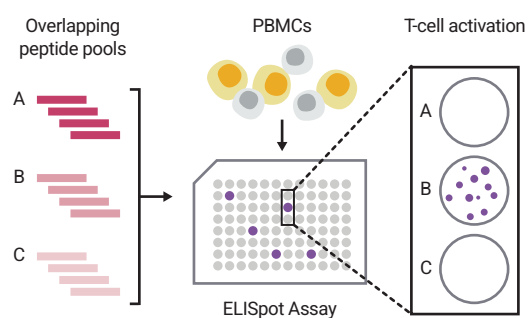
PEPTIDE LIBRARY DESIGN

Protein / Antigen → Overlapping peptide library

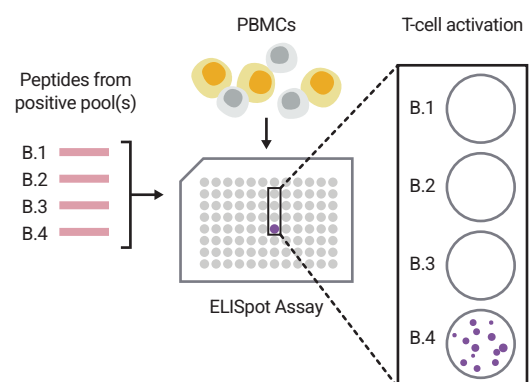


MAPPING STRATEGY

Step 1: Screening by mini pools



Step 2: Fine mapping



Our approach also allows the identification of peptides recognized by both B-cell and T-cell receptors. To identify coincident T-cell and B-cell epitopes, we combine peptide microarray-based antibody profiling with ELISpot assays: Serum samples are screened with PEPperCHIP® Peptide Microarrays for B-cell receptor epitopes. Identified hit peptides are validated by T-cell immunogenicity prediction tools. Promising candidates are then further evaluated using ELISpot assays with PBMCs from the same donors.