B-Cell & T-Cell Epitope Prediction — Hands-on

Gain a practical, immunology aware foundation in B cell and T cell epitope prediction. Connect biological concepts such as peptide binding motifs, processing constraints and antibody accessibility to the feature sets and workflows used in modern immunoinformatics, reverse vaccinology and neoepitope discovery.

B-Cell & T-Cell Epitope Prediction

Help Desk · WhatsApp

Session Index

Session 1 — Epitope Concepts & Immunogenicity Basics | Session 2 — MHC Class I T Cell Epitope Prediction | Session 3 — MHC Class II & B-Cell Epitope Prediction | Session 4 — Practical Epitope Workflow & Mini Case Study

Session 1

Fee: Rs 8800 Apply Now

Epitope Concepts & Immunogenicity Basics

Antigens, epitopes and types of immune recognition

B cell vs T cell epitopes **linear vs conformational** **CTL vs helper T epitopes**

Determinants of immunogenicity and tolerance breaking

binding, processing and presentation **epitope density and context** **self similarity and central tolerance**

Landscape of epitope prediction tasks and outputs

MHC binding scores **processing and transport**

features | immunogenicity and population coverage

Session 2

Fee: Rs 11800 Apply Now

MHC Class I T Cell Epitope Prediction

Class I peptide properties and motif patterns

length preference and anchors | allele specific motifs and pockets | binding stability vs affinity

Binding prediction and processing aware features

ranked binding scores | proteasomal cleavage and TAP transport | filtering strong and weak binders

Data structures from T cell assays and validation readouts

ELISpot and ICS matrices | tetramer staining panels | mapping predicted to observed responses

Session 3

Fee: Rs 14800 Apply Now

MHC Class II & B-Cell Epitope Prediction

Class II binding cores, flanking regions and promiscuity

binding core identification | register shifts and overlapping peptides | promiscuous binders across alleles

Linear B cell epitope features and heuristics

surface accessibility and flexibility | hydrophilicity and turns | sequence windows and smoothing

Conformational B cell epitopes and structural context (conceptual)

antigen surface patches | distance and contact based

features | link forward to structural epitope modules

Session 4

Fee: Rs 18800 Apply Now

Practical Epitope Workflow & Mini Case Study

End to end epitope shortlist from protein sequences

scanning with class I and class II predictors | binding thresholds and rank cut offs | redundancy removal and clustering

Filtering by conservation, safety and coverage (conceptual)

pathogen conservation and variability | autoimmunity and self similarity checks | integration with HLA population coverage

Mini case study and handoff to multi epitope vaccine design

define question and target cohorts | summarise candidate panel and rationale | prepare inputs for linker and construct modules