

Antibody Modelling — Paratope/Epitope & Affinity Maturation — Hands-on

Build and optimize antibody models from sequence all the way to in-silico affinity maturation. This module covers antibody architecture, CDR numbering, paratope–epitope mapping, antibody–antigen docking and rational mutation strategies with basic developability and liability checks.

Antibody Modelling — Paratope/Epitope & Affinity Maturation

[Help Desk](#) · [WhatsApp](#)

Session Index

[Session 1 — Antibody Architecture, CDRs & Paratope/Epitope Basics](#) [Session 2 — Antibody Modelling & CDR Loop Conformations](#) [Session 3 — Epitope Mapping, Docking & Affinity Estimation](#) [Session 4 — In-Silico Affinity Maturation & Developability](#)

Session 1

Fee: Rs 22800 [Apply Now](#)

Antibody Architecture, CDRs & Paratope/Epitope Basics

Antibody structure and region definitions

[VH/VL, CH/CL domains](#) [framework vs CDR regions](#)
[Fab, Fc and formats overview](#)

Numbering schemes and CDR definitions

[Kabat / Chothia / IMGT schemes](#) [CDR boundaries and H3 special case](#) [tools for automated numbering](#)

Paratope and epitope fundamentals

paratope residue composition **linear vs conformational epitopes** **contact types and footprint size**

Session 2

Fee: Rs 26800 Apply Now

Antibody Modelling & CDR Loop Conformations

Template based antibody modelling

germline and template selection **framework grafting concepts** **light/heavy chain orientation**

CDR loop modelling strategies

canonical classes for CDRs **H3 loop conformational diversity** **loop sampling and refinement ideas**

Geometry, clashes and quick validation checks

interface clashes and bumps **backbone geometry and Ramachandran** **exposed liabilities inspection**

Session 3

Fee: Rs 30800 Apply Now

Epitope Mapping, Docking & Affinity Estimation

Epitope mapping approaches

sequence and structure based predictors **surface exposure and flexibility metrics** **use of experimental hints when available**

Antibody–antigen docking concepts

paratope and epitope constraints **global vs local docking ideas** **interface clustering and scoring**

Affinity estimation and contact analysis

contact maps and interaction fingerprints **in-silico alanine scanning ideas** **relative affinity ranking concepts**

Session 4

Fee: Rs 33800 Apply Now

In-Silico Affinity Maturation & Developability

Designing mutations for affinity improvement

paratope residue hot-spot analysis **focused CDR libraries** **maintaining epitope specificity**

Basic in-silico developability checks

surface charge and hydrophobicity **liabilities**
(deamidation, oxidation motifs) **self-association risk indicators**

Deliverables: antibody design and maturation report

ranked variant panel with rationale **structure and interface figures** **experiment ready mutation suggestions**