Multi-Epitope Vaccine Design — Linkers & Spacers — Hands-on

Learn how to transform a short list of B cell and T cell epitopes into rational multi epitope vaccine constructs. This module focuses on construct architecture, linker and spacer choices, ordering strategies, and high level manufacturability and safety considerations that plug into broader immunoinformatics and vaccinology workflows.

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Session Index

Session 1

Fee: Rs 8800 Apply Now

Principles of Multi Epitope Vaccine Design

When and why to use multi epitope constructs

pathogen vs cancer applications **covering strain diversity and HLA diversity** **boosting breadth and depth of responses**

Input epitope panel and grouping by function

CTL vs helper T vs B cell epitopes **conserved vs**

variable targets core vs optional candidates

High level construct goals and design constraints

inducing balanced CD8, CD4 and antibody responses keeping length and complexity manageable compatibility with chosen platform

Session 2

Fee: Rs 11800 Apply Now

Linkers, Spacers & Construct Architecture

Concepts of linkers and spacers in epitope constructs

flexible vs rigid linkers (orientation) protease sensitive vs resistant motifs cleavage to restore natural epitopes (conceptual)

Ordering strategies for T cell and B cell epitopes (conceptual)

grouping CTL and helper epitopes placing B cell epitopes in accessible zones avoiding junctional neo epitopes where possible

Inclusion of targeting domains and helper elements (conceptual)

secretory signals and trafficking motifs universal helper epitopes (orientation) tags for purification and detection

Session 3

Fee: Rs 14800 Apply Now

Expression, Processing & Safety Constraints

Host expression, codon usage and basic manufacturability checks

target expression system selection length, composition and stability heuristics disordered and aggregation prone segments (orientation)

Processing, presentation and junctional epitope considerations (conceptual)

proteasomal and endosomal processing logic **linker design to favour correct cleavage (conceptual)** **monitoring potential junctional motifs**

Safety, self similarity and allergenicity at construct level (conceptual)

homology to host proteins at full construct scale **presence of known allergen like patterns (orientation)** **link back to dedicated safety modules**

Session 4

Fee: Rs 18800 Apply Now

Construct Design Brief & Mini Project

From epitope table to one or more candidate constructs (conceptual workflow)

selecting epitopes and grouping by role **drafting architecture, order and linking strategy** **documenting design assumptions**

Summarising construct features for internal or external review

tabular summary of epitopes, linkers and domains **high level coverage and safety notes** **figures or schematic maps**

Handoff to structural, formulation and in vivo evaluation modules

linking to structural epitope mapping and docking alignment with adjuvant and delivery strategies **outlining preclinical testing roadmap**