



Humanness and Immunogenicity Assessment

Repertoire OASign Humanness and RPEMHC Class II MHC T-Cell Epitope Prediction

Evaluate therapeutic antibody humanness and Anti-Drug Antibody (ADA) risk by combining repertoire self-tolerance with physical Class II MHC presentation. AbLead unites OASign (human 9-mer repertoire frequency) and RPEMHC (DeepMHCII ensemble Class II MHC presentation across 11 global core DRB1 alleles) in a single diagnostic workspace.



Figure: Integrated Humanness workspace showing OASign repertoire scores, RPEMHC Class II MHC ADA risks, and predictive de-immunization scans.

CORE CAPABILITIES

- **Dual-Metric Clinical Risk Scoring:** Combines OASign (TCR self-tolerance) with RPEMHC (Class II MHC presenting probability across 11 global HLA alleles).
- **High-Risk MHC-II Hotspots:** Scans 15-mer sliding windows, classifying peptides as 100% Germline (tolerated), Somatic Mutations, or Non-Germline.
- **1-Click Noise Reduction:** Instantly filters out natural germline binders to isolate actionable non-germline de-immunization liabilities.
- **Dual-Track Sequence Alignment:** Displays non-human 9-mer clusters alongside predicted MHC-II binding grooves with mutation trajectories.

DEVELOPABILITY ADVANTAGE and IMPACT

- **Mitigate Clinical ADA Risk:** Prevents neutralizing Anti-Drug Antibody formation that causes rapid clearance, loss of efficacy, and adverse reactions.
- **Predictive De-Immunization Scans:** Evaluates all 20 amino acid substitutions per position across MHC-II binding, germline frequency (PFA), and Sapiens AI.
- **Targeted Lead Optimization:** Preserves critical paratope binding residues while replacing high-risk presenting residues with tolerated human alternatives.
- **Comprehensive Excel Export:** One-click export of complete diagnostic tables, 20 allele affinity profiles, and Fv hotspot inventories for regulatory dossiers.

The AbLead Advantage: A candidate is only safe if it scores well on both humanness and MHC presentation: AbLead combines OASign self-tolerance with RPEMHC presentation to deliver true clinical immunogenicity de-risking.

Accelerate Your Antibody Lead Optimization and De-Risk Development

Request a Live Demo: ablead@ketchemconsulting.com | Explore Platform: ablead.ketchemconsulting.com

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