

Antibody Humanization

Precision Germline Template Matching, BioPhi Sapiens AI, and Structural Exclusions

Humanize non-human leads or convert antibodies across species while protecting binding affinity and paratope integrity. AbLead combines structural annotation with deterministic germline template ranking and BioPhi Sapiens deep learning, complete with configurable structural exclusions for CDRs, Vernier zones, and VHH interfaces.



CORE CAPABILITIES

- **Structural Annotation:** Positional numbering and germline assignment across multiple species.
- **Dual Humanization Modalities:** Choose between deterministic Germline Template Matching or AI-guided BioPhi Sapiens deep learning suggestions.
- **Configurable Structural Exclusions:** Pre-set or custom filters protecting CDR loops, Honegger canonical positions, Vernier zones, and VHH interfaces.
- **Deterministic Ranking:** Ranks candidate germlines by modifiable residue identity, homology, and overall sequence similarity for reproducible selection.

DEVELOPABILITY ADVANTAGE and IMPACT

- **Preserve Binding and Paratope Geometry:** Excludes critical structural framework and Vernier residues to maintain original binding affinity.
- **VHH Solubility Safeguards:** Special VHH interface exclusion preserves hydrophobic tetrad residues to prevent nanobody aggregation.
- **Multi-Species Cross-Conversion:** Rapidly humanize animal antibodies or convert human leads into surrogate animal models for preclinical toxicology.
- **Direct Engineering Transfer:** Transfer selected humanization substitutions directly into the Engineering workspace as a dedicated mutation set in one click.

The AbLead Advantage: AbLead automates antibody humanization by combining rigorous structural exclusions with germline matching, maximizing human sequence identity while safeguarding original target affinity.

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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