Structurally Validated Synthetic Human Antibody Library for Broad Target Screening

A next-generation synthetic human antibody library designed to accelerate therapeutic and diagnostic antibody discovery. Developed using structurally validated human frameworks and rationally engineered CDR diversity, the library delivers high-quality, fully human binders with improved stability and expression. It is compatible with phage, yeast, and mammalian display systems, enabling efficient screening against diverse and complex targets, including GPCRs.

Background

Monoclonal antibody therapeutics are among the most successful drug classes, yet traditional discovery methods rely on immunisation or donor-derived B-cell repertoires. These approaches can be slow, ethically constrained, and limited in diversity. Synthetic antibody libraries provide a renewable and fully human source of high-affinity binders for therapeutic and diagnostic applications.

The Problem

Existing synthetic libraries often face challenges with stability, aggregation, and limited expression across different platforms.

Invention: Benefits & Application

Benefits

- Fully synthetic and human — no donor or immunization required.
- High stability and solubility — optimized frameworks reduce aggregation and expression issues.
- Versatile across display systems — compatible with phage, yeast, or mammalian display formats.
- Broad target range — suitable for membrane proteins, GPCRs, and post-translationally modified antigens.

Applications

- Therapeutic antibody discovery (oncology, inflammation, autoimmunity).
- Generation of antibodies against difficult or poorly immunogenic targets.
- Diagnostic antibody and biosensor development.
- Use as a plug-in discovery engine for antibody screening companies or CROs.
- Scaffold for further antibody engineering (bispecifics, ADCs, peptide-in-antibody constructs).

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