Twist Carbohydrate scFv Library

Discover high-affinity antibodies against notoriously challenging glycan antigens

The Twist Carbohydrate scFv Library is a new synthetic antibody library that leverages diverse structural information from a broad spectrum of known antibodies that bind human, viral, and bacterial glycan antigens. Be among the first to access the synthetic advantage for carbohydrate antibody discovery.

KEY BENEFITS

Produce robust scFv antibodies against glycans

- Proven, highly manufacturable framework
- Fully human antibody sequences
- 2 x 10^9 diversity

Capitalize on proven glycan binding motifs

- Binding sites informed by 130 validated antibodies
- Improved binding contacts with positively and negatively charged amino acids in CDR3

Synthetic library advantage

- Avoid immunization
- Focus on effective sequence space
- Screen multiple targets simultaneously
- Engineer and optimize antibodies with ease

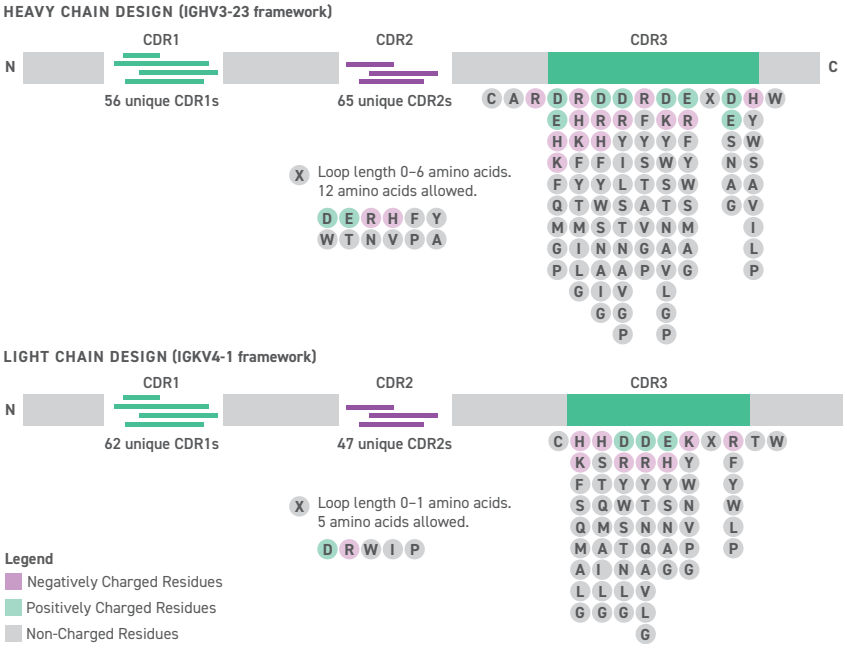
APPLICATIONS

Glycan-targeted drug discovery and development in therapeutic areas including:

- Oncology
- Inflammation
- Infectious diseases

Library Specifications

The Twist Carbohydrate scFv Library is a synthetic phage display library derived from 130 carbohydrate-binding antibodies that target a range of human (carcinoma), viral (Ebola and HIV), and bacterial (Cholera, Shigella, and Chlamydia) glycan antigens. The library combines heavy chain (VH) and light chain (VL) libraries to yield a fully human scFv library of 2 x 10^9 size. The heavy chain design shuffles 56 unique HCDR1s and 65 unique HCDR2s in the context of the human IGHV3-23 framework. The light chain design incorporates 62 unique LCDR1s and 47 unique LCDR2s in the context of the human IGKV4-1 framework. The CDR3 regions derive their diversity from 52 structures of antibodies in complex with carbohydrate antigens and are biased towards incorporating residues that make up the carbohydrate-antigen interface. These CDR3 regions include both positively and negatively charged amino acids, as observed in the 130 carbohydrate-binding antibodies.



Library Panning & Screening

Go from panning to functional assays in 10-12 weeks. The process starts with phage screening the diverse Twist Carbohydrate scFv Library against target antigens and ends with reformatting candidate antibody fragments to full-length IgG.