Twist Minotaur scFv Library

Reach deeper with bovine-inspired human antibodies containing ultralong HCDR3

The Twist Minotaur scFv Library is a new synthetic antibody library that grafts ultralong HCDR3 loops from bovine antibodies into a fully human antibody framework. These elongated HCDR3 loops protrude far from the antibody surface, enabling access to occluded epitopes within protein crevices, pores, and channels. Be among the first to access the synthetic advantage for the discovery of antibodies against general and hard-to-drug targets like GPCRs, ion channels, and other membrane-bound proteins.

KEY BENEFITS

Produce scFv antibodies against challenging epitopes

- Fully human antibody framework sequences
- Proven, highly manufacturable framework
- Developability liabilities removed
- Two sublibraries of >10^9 diversity

Explore challenging epitopes with ultralong bovine HCDR3 loops

- Ideal for targeting hard-to-reach epitopes
- Ultralong HCDR3 loops up to 60 amino acids in length
- Defined cysteine mutations replicate bovine antibody diversification
- Cysteine-less HCDR3 sequences also included for more diversity

Synthetic library advantage

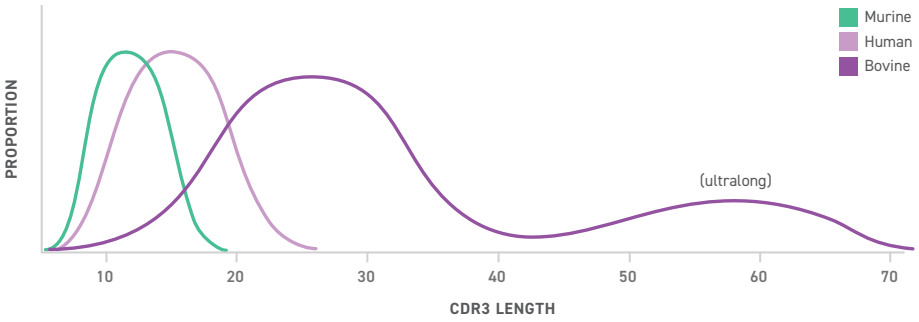
- Avoid immunization
- Focus on effective sequence space
- Screen multiple targets simultaneously
- Engineer and optimize antibodies with ease

APPLICATIONS

Therapeutic antibody discovery and development for any indication

Library Specifications

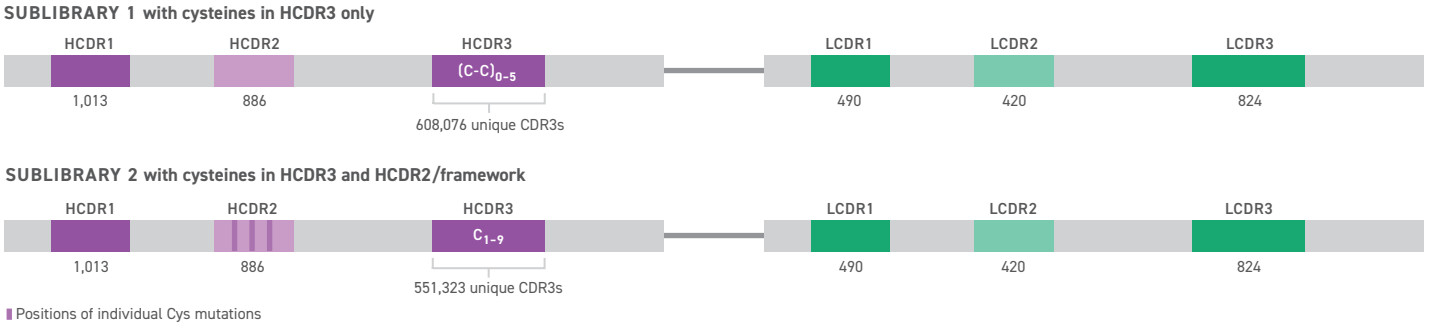
The Twist Minotaur scFv Library incorporates ultralong bovine HCDR3s into the VH3-23/VK1-39 human antibody framework. The ultralong HCDR3 loops are up to 60 amino acids in length, making them three- to fourfold longer than the average human CDR3 loop.



The Twist Minotaur scFv Library includes a set of two sublibraries, each of which incorporates diversity from the Twist Hyperimmune Original Fab Library (HCDR1, HCDR2, LCDR1, LCDR2, and LCDR3) and a proprietary bovine antibody database (HCDR3). Both sublibraries are provided as a part of the Minotaur scFv library, and can be panned in parallel against your target of interest.

Sublibrary 1 introduces ultralong bovine HCDR3 loops with an even number of up to ten cysteines to promote the formation of stabilizing disulfide bonds, diversifying the library repertoire. The diversity of Sublibrary 1 is 6 x 10^9.

Sublibrary 2 contains an odd number of up to nine cysteines in ultralong HCDR3 and another cysteine in HCDR2 or the human antibody framework. By mimicking what is observed spatially in native bovine antibodies, Sublibrary 2 offers three cysteine-mutated versions of the human framework to foster disulfide bond formation with the sole cysteine in the HCDR3 loop. The diversity of Sublibrary 2 is 3.6 x 10^9.



Library Panning & Screening

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