



Fusion BioLabs Ready-to-Use Next-Generation Human Synthetic scFv Phage Display Library Kit Information

SKU# ADL-13: Ready-to-Use Next-Generation Human Synthetic scFv Phage Display Library Kit

Product Overview

Format: pelB-VH (VH3-23)-(G₄S)₃-VL (VK1-39)-HA-6xHis-Amber Stop Codon-cP3

Master Scaffold: Human Germline *IGHV* 3-23*01 / *IGKV* 1-39*01 (O12 allele)

C-Terminal Cassette: HA Tag + 6xHis Tag + Amber Stop Codon (NotI footprint boundary)

Total Functional Diversity: 5.8×10^{10} unique transformants

Phage Titer: 4.8×10^{12} pfu/ml

Validation: Next-Generation Sequencing (Illumina NovaSeq 6000 Paired-End)

Product Description

The Fusion BioLabs ADL-13 Premium Synthetic Human scFv Phage Display Library Kit utilizes an optimized VH3-23 / VK1-39 germline framework pairing. The construct features a universal (G₄S)₃ linker and a downstream HA tag, 6xHis tag, and Amber stop codon prior to the phage cP3 protein. This architecture enables efficient nickel-affinity purification and direct soluble fragment expression in non-suppressor *E. coli* strains.

Paratope Architecture & Diversification

- Heavy Chain Scaffold: Wild-type IGHV3-23*01 framework

- HCDR1: Targeted soft randomization at 4 solvent-exposed positions; anchors fixed.
- HCDR2: Targeted soft randomization at 4 ridge positions; anchors fixed.
- HCDR3: Tri-pool length diversity (12, 15, and 18 AA) using customized TRIM mixes.

- Light Chain Scaffold: Wild-type IGKV1-39*01 framework

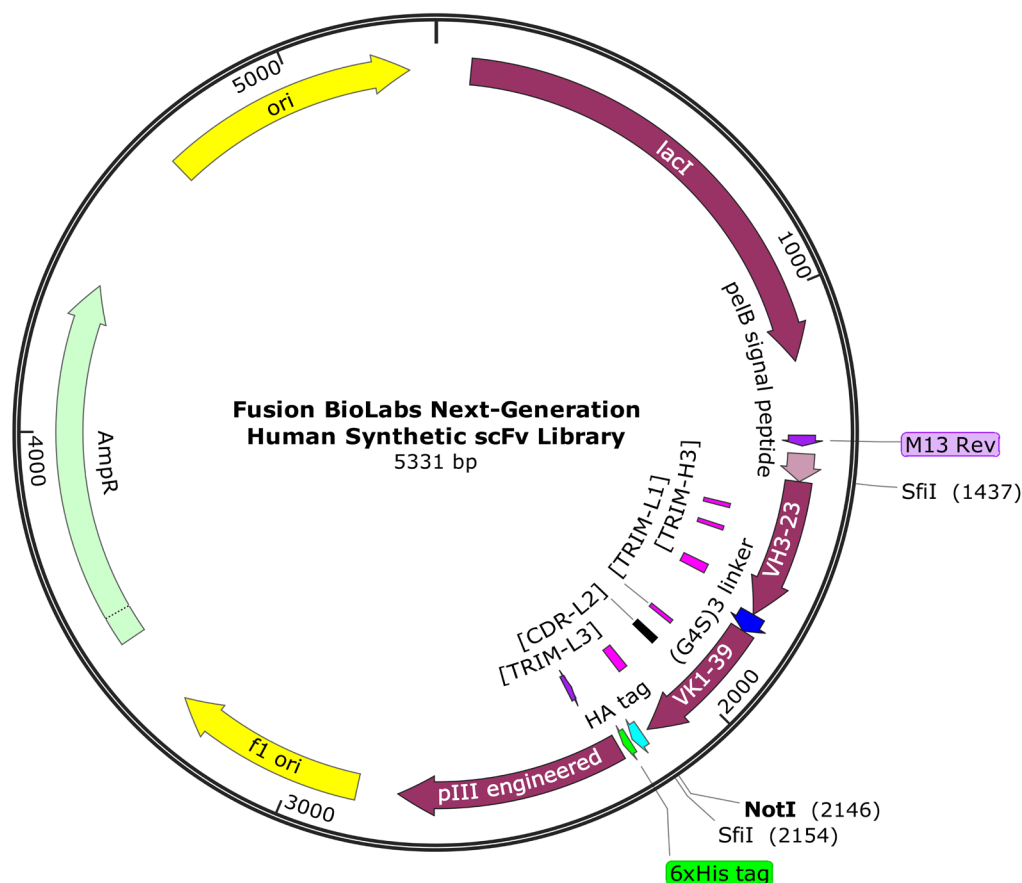
- LCDR1: Targeted soft randomization at 4 central positions.
- LCDR2: 100% Fixed wild-type sequence for structural bedrock stability.
- LCDR3: Fixed 9 AA optimal loop length with full position diversification.



Ready-to-Use Next-Generation Human Synthetic scFv Phage Display Library Kit Content

Component	Quantity	Composition	Storage
Next-Generation Human Synthetic scFv library (ready-to-panning phage; 4.8×10^{12} pfu/ml)	1.0 ml	1×PBS with 25% glycerol	-80°C
M13KO7 Helper Phage (2×10^{12} pfu/ml)	0.5 ml	1×PBS with 25% glycerol	-80°C
Chemically Competent TG1 E. coli (2.5×10^8 cfu/ml)	0.5 ml	2×YT with 25% Glycerol	-80°C
M13 Rev Primer (1.6 μ M)	0.2 ml	1×TE Buffer	-20°C
pIII Rev Primer (1.6 μ M)	0.2 ml	1×TE Buffer	-20°C

Vector Map





Comments for Fusion BioLabs Vector

Next-Generation Human Synthetic scFv (one typical clone)

lac I promoter: bases 5-82

lac I ORF: bases 83-1165

M13 Rev priming site: bases 1340-1364

pelB signal peptide: bases 1383-1448

scFv ORF: bases 1449-2144

HA tag: bases 2160-2186

6xHis tag: bases 2193-2210

Amber stop codon: bases 2220-2222

cP3 ORF: 2223-2753

pIII Rev priming site: 2254-2270

f1 origin: bases 2849-3304

Ampicillin resistance ORF: base 3491-4351

pUC origin: bases 4683-5271