# Antibody Phage Display Library Construction Kit

## pAPD-h/k-Fab and pAPD-h/λ-Fab: Human Fab phage display library construction kit

## Catalog#: APD-02

### Product Overview

Fusion BioLabs offers a range of library primer sets and phagemid vector combination for antibody phage display and peptide phage display construction. With customizable features and robust performance, our primer sets and phagemid vectors are designed for facilitating phage display library generation as fast as within one week.

**pAPD-h/k-Fab and pAPD-h/λ-Fab** are the phagemid vectors for construction of a fragment antigen-binding (Fab) library for **human** antibodies. Here are the key steps involved in constructing such a library:

- Amplify V genes from cDNA reverse transcript from RNA isolated from peripheral blood lymphocytes (PBL) or lymphoid tissue of non-immunized or immunized donors using PCR primers corresponding to known $V_H$, $V_κ$, and $V_λ$ gene sequences.
- Amplify CH1 fragment using either **pAPD-h/k-Fab or pAPD-h/λ-Fab** as template, Ck fragment using **pAPD-h/k-Fab** as template and Cλ fragment using **pAPD-h/λ-Fab** as template**.**
- Combine VH repertoires and CH1 fragment, and Vk,λ repertoires and Ck,λ fragment to create $V_H$-$C_{H1}$ and $V_{k,λ}$-$C_{k,λ}$ constructs respectively, using a simple two-fragment PCR assembly procedure.
- Overlap assembly $V_{k,λ}$-$C_{k,λ}$ and $V_H$-$C_{H1}$ to make Fab repertoires.
- Restriction enzyme digestion **pAPD-h/k-Fab** vector or **pAPD-h/λ-Fab** vector and Fab repertoires with SfiI.
- Ligation of digested and purified repertoires into digested and purified **pAPD-h/k-Fab** vector or **pAPD-h/λ-Fab** vector to make human Fab libraries.

### Key Features

**High expression efficiency**: Engineered for efficient expression and display of antibody fragment Fab on the surface, allowing for easy screening and selection of target molecules.
**Flexibility and versatility**: One vector for both antibody library construction and downstream antibody fragment expression. No need subcloning into expression vector for downstream application.

### Specifications

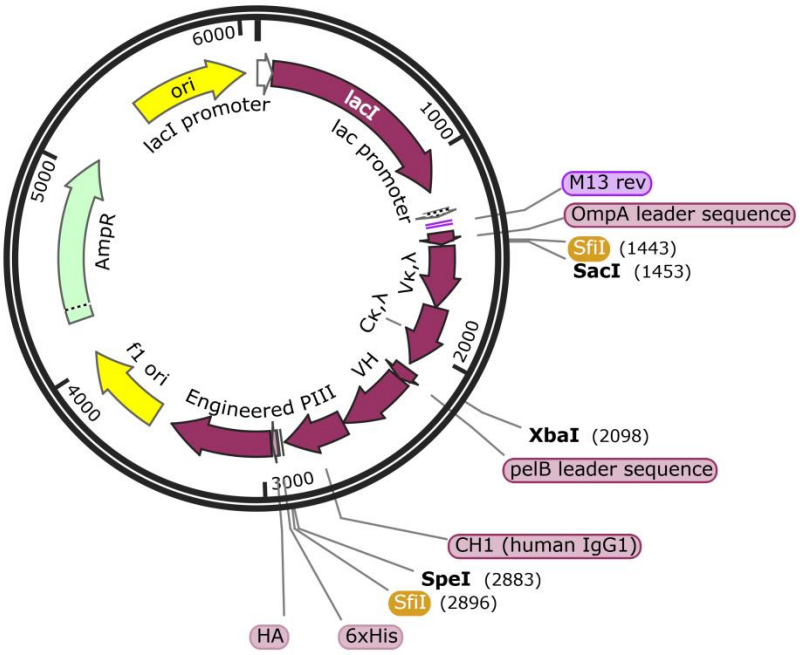
| | |
|---|---|
| **Antibiotic Resistance** | Ampicillin ($Amp^R$) |
| Constitutive or Inducible System | Inducible for downstream expression |
| Delivery Type | Transformation |
| Product Type | Bacterial Expression Vector |
| Cloning Method | Restriction Enzyme SfiI |

## Contents & Storage

| Primer Set | | |
|---|---|---|
| Vial 1 | 200 µl, 10 µM | Forward Primer mix (4 oligos) for $V_k$ fragment amplification |
| Vial 2 | 200 µl, 10 µM | Reverse Primer for $V_k$ fragment amplification |
| Vial 3 | 200 µl, 10 µM | Forward Primer mix (9 oligos) for $V_\lambda$ fragment amplification |
| Vial 4 | 200 µl, 10 µM | Reverse Primer for $V_\lambda$ fragment amplification |
| Vial 5 | 200 µl, 10 µM | Forward and reverse primer mix for $C_k$ fragment amplification |
| Vial 6 | 200 µl, 10 µM | Forward and reverse primer mix for $C_\lambda$ fragment amplification |
| Vial 7 | 200 µl, 10 µM | Forward and reverse primer mix for CH1 fragment amplification |
| Vial 8 | 200 µl, 10 µM | Forward and reverse primer mix for $V_k$-$C_k$ fragment amplification |
| Vial 9 | 200 µl, 10 µM | Forward and reverse primer mix for $V_\lambda$-$C_\lambda$ fragment amplification |
| Vial 10 | 200 µl, 10 µM | Forward and reverse primer mix for $V_H$-$C_{H1}$ fragment amplification |
| Vial 11 | 200 µl, 10 µM | Forward and reverse primer mix for Fab fragment amplification |
| | | |
| pAPD-h/k-Fab and pAPD-h/λ-Fab cloning vector for phage display human Fab library construction | | |
| Vial 12 | 10.0 µg in Tris-EDTA buffer | |

- Store at -20°C. Primer sets and vectors are guaranteed stable for 12 months when properly stored.

## Vector for library Construction




**Phagemid vector for human Fab library construction**
6069 bp