



Jul 24, 2019

## A Leading Service Provider in Phage Display & Antibody Library

[Echo Han](#)<sup>1</sup><sup>1</sup>na[1](#) *Works for me* [dx.doi.org/10.17504/protocols.io.5r8g59w](https://dx.doi.org/10.17504/protocols.io.5r8g59w)

Echo Han



### 1 About the Company

Founded by scientists who are dedicated to the conquering of cancer, Creative Biolabs believes to build up a custom-service-centered business model that is crucial for optimizing the drug development process, leveraging accessible resources, and forming a team of various background to conduct drug discovery in future, which motivates to deliver the highest quality results to the clients efficiently and effectively.

- 2 As the leading custom service provider with extensive experience in various antibody production and engineering fields, Creative Biolabs' portfolio includes mouse and rat monoclonal antibody production using hybridoma technology, human, monkey, rabbit, chicken, dog, llama and camel monoclonal antibody production using various antibody library technologies (including phage display, bacterial display and yeast display). Conducting in depth [antibody humanization](#) and affinity maturation using phage display and DNA mutagenesis approaches are also areas of expertise. In addition, OEM services for bulk scale antibody manufacturing, including bacterial production of scFv, diabody, tandem scFv, miniantibody and Fab, and mammalian cell expression of minibody, chimeric IgG and IgG, are also available at the most competitive price in the industry.

### 3 Main services of Phage Display & Antibody Library (Ref: [Phage Display Infographic](#))

As one of the most frequently applied laboratory technique for analyzing protein-protein, protein-peptide and protein-DNA interactions, phage display works upon displaying the interest protein (peptides, antibodies, scaffolds or others) on the surface of employing phage and then being used to interrogate the constructed libraries containing innumerable displayed phages.

#### Highlights:

- Immune, naïve or synthetic library construction
- Pre-made library screening
- Large library capacity from  $10^7$  to over  $10^{12}$
- High affinity from  $10^{-7}$  to  $10^{-9}$
- Various phage display systems (M13, T4, T7)
- Tailored biopanning strategies
- Comprehensive QC validation

### 4 1. Phage Display Library Construction

Creative Biolabs adapts the system (M13, T4 or T7) to meet a variety of requirements, which through manipulation on DNA, can help create gene variants and phage display library can be built accordingly. Combined with neo biopanning strategies, types of library include antibody library, scaffold library, peptide library, and cDNA library.

#### 1.1 [Antibody Library](#) (Immune, Naïve, Semi-synthetic, Synthetic)

High-standard antibody libraries can be constructed with interest antibody displayed in either scFv or Fab format. With the help of Creative Biolabs, fully or semi synthetic antibody ones including scaffold library, peptide library, cDNA library are also reachable with human plasma cells and splenocytes from naïve or immune animals accepted. Libraries over  $10^{10}$  can be constructed by the following three methods.

Hard randomization: complete diversity is introduced by using degenerate codons encoding all twenty natural amino acids.

Tailored randomization: incomplete or biased diversity is introduced by using degenerate codons encoding a subset of natural amino acids.

Diversification: degenerate codons are synthesized using trimer phosphoramidites corresponding to 20 natural amino acids, which exclude stop codons.

## 5 1. Phage Display Library Screening

For global clients, [phage display](#) library screening services covering various types are provided by scientists at Creative Biolabs through outstanding biopanning strategies and state-of-the-art equipment, which include libraries from Creative Biolabs' customized constructed libraries, in-house premade antibody libraries, peptide libraries, scaffold libraries, libraries provided by clients, other commercialized libraries, *etc.* To meet miscellaneous requirements, services are applicable to broad targets like purified targets unpurified targets, intact cells, tissues or any other *in vivo* targets through a comprehensive set of strategies that include Solid-Phase Screening, Solution-Sorting Screening, Cell-Based Screening, *In vivo* Screening, *Ex vivo* Screening, to guarantee satisfactory results.

## 6 Creative Biolabs has been dedicated for a long term to improving the development and application of phage display technology. Several phage display based platforms and tailored hundreds of particular libraries and thousands of specific antibody products have already been produced and developed to customers' research and project goals on a world scale. With extensive experience and advanced platform, offering the best service and the most qualified products to satisfy each demand from customers stands as the purposes of services. [Phage display FAQ](#) is ready for reference and further inquiries are available at <https://www.creative-biolabs.com/>.



This is an open access protocol distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited