

# Hypherphage

A robust platform to develop recombinant antibodies



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Exceptional reproducibility of antibody production

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Future-proof supply

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Fast production

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Controlled conditions

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Animal free

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**CliniSciences Group**

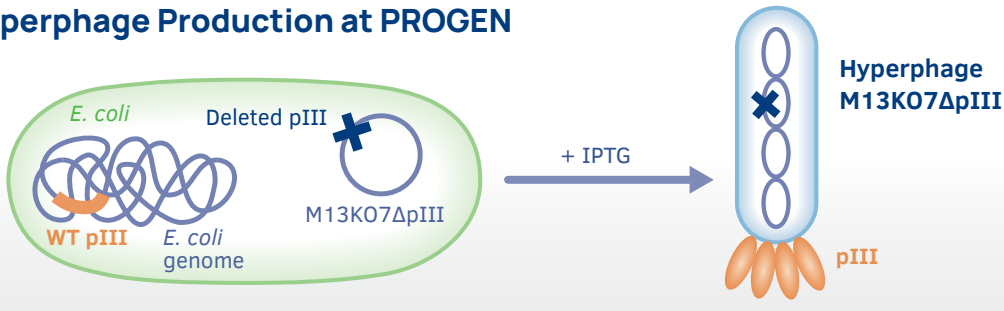


**PROGEN**

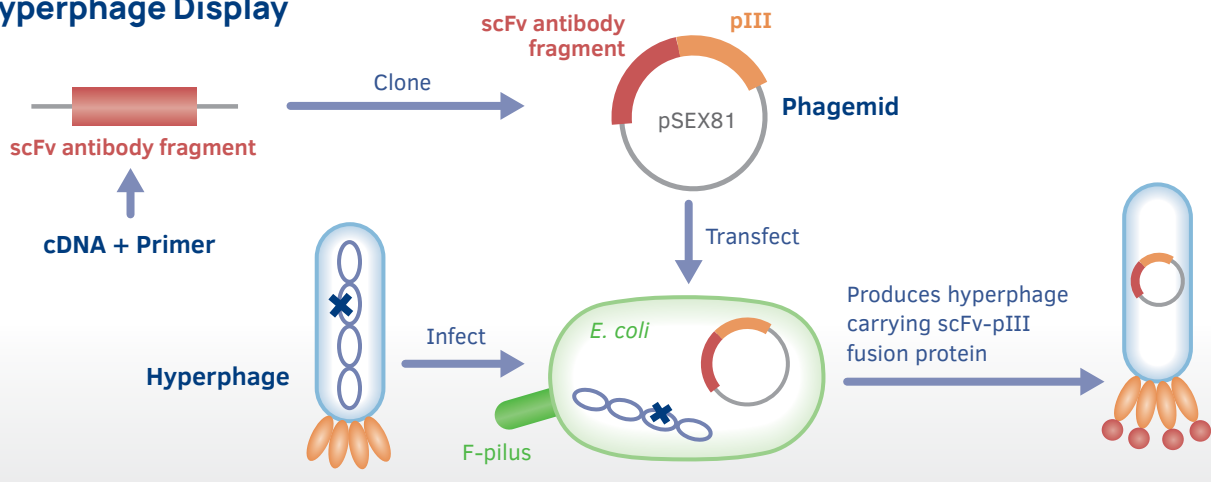
# The Hyperphage System

An established platform to discover recombinant antibodies, as well as being a powerful tool to improve antibody properties.

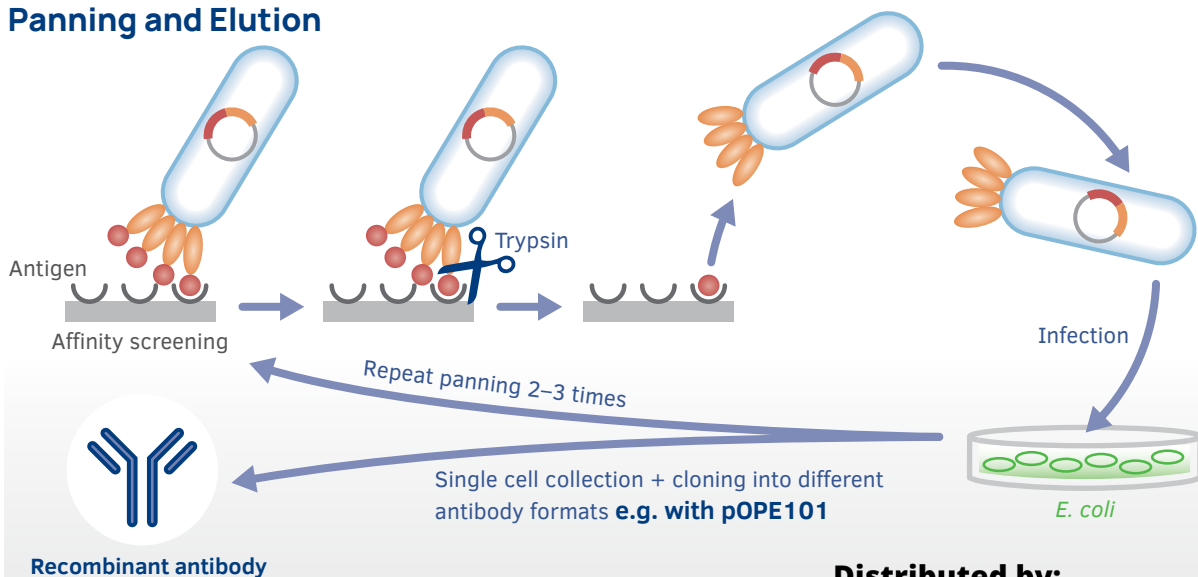
## Hyperphage Production at PROGEN



## Hyperphage Display



## Panning and Elution



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## Antibody Library Preparation

The first step is to create antibody variable heavy (VH) and light chain (VL) PCR products. Antibody PCR products are ligated into the pSEX81 surface expression vector (phagemid). This creates a fusion protein containing VH and VL combined with the pIII minor capsid protein derived from the M13 bacteriophage.

### Suitable products for this step

-  Mouse IgG Library Primer Set, Cat. No. F2010

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-  Human IgG/IgM Library Primer Set, Cat. No. F2000

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-  pSEX81 Surface Expression Phagemid Vector, Cat. No. PR3005

## Hyperphage Display

Hyperphages carry a deletion in the pIII gene. They are generated by an *E. coli* packaging cell line producing functional pIII. The resulting hyperphages carry functional pIII on their surface but lack the pIII gene in their genome. These hyperphages can be used to infect bacteria with a phagemid library. Due to the resulting display phages carrying several copies of the antibody or peptide on its surface, panning efficiency is increased dramatically.


### Suitable products for this step

-  Hyperphage stock M13K07ΔpIII, Cat. No. PRHYPE or PRHYPE-XS


## Quantification

The anti-M13/fd/F1 specifically detects the phage outer surface protein pVIII. Using the Phage Titration ELISA, a standard curve is prepared using a dilution series of phage suspension of known titer. The particle number is estimated in comparison to the standard curve.

### Suitable products for this step

-  Phage Titration ELISA, Cat. No. PRPHAGE

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-  anti-M13/fd/F1 Filamentous Phages mouse monoclonal, B62-FE2, Cat.No. 61097 (available with several conjugates)

## Expression of functional recombinant single-chain Fv antibody fragments in *E. coli*

The identified clones of interest can easily be produced by *E. Coli*. This is done by transforming the bacteria with the pOPE101 Expression Vector, which includes the desired antibody fragment. As the expression vector contains a c-Myc and His-tag, the expressed antibody fragment can be purified by metal chelation or affinity purification.

### Suitable products for this step

-  pOPE101 Expression Vector, Cat. No. PR3004

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## Making gene therapy better. Together.

Our commitment to scientists is to support them in making new scientific discoveries and groundbreaking research within the life sciences and gene therapy. It is our underlying mission, to help progress new therapies safely, quickly and affordably, so together we can provide solutions to people suffering from poor health and affected by disease every day.

PROGEN is made up of a team of experts within AAV and the life sciences and is partnered with gene therapy experts worldwide. We are more than just a manufacturer of antibodies, proteins and ELISA kits. We strive to understand what scientists need, so we can create solutions and ultimately deliver high quality antibodies

and exclusive AAV products, which solve your research challenges within academia, biotech and pharma, and ensure PROGEN can continue to be a trusted and reliable partner.

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# CliniSciences Group

## Austria

Company: CliniSciences GmbH  
Address: Sternwartestrasse 76, A-1180  
Wien - Austria  
Telephone: +43 720 115 580  
Fax: +43 720 115 577  
Email: [osterreich@clinisciences.com](mailto:osterreich@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Belgium

Company: CliniSciences S.R.L  
Address: Avenue Stalingrad 52, 1000  
Brussels - Belgium  
Telephone: +32 2 31 50 800  
Fax: +32 2 31 50 801  
Email: [belgium@clinisciences.com](mailto:belgium@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Denmark

Company: CliniSciences ApS  
Address: Oesterbrogade 226, st. 1,  
Copenhagen, 2100 - Denmark  
Telephone: +45 89 888 349  
Fax: +45 89 884 064  
Email: [denmark@clinisciences.com](mailto:denmark@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Finland

Company: CliniSciences ApS  
Address: Oesterbrogade 226, st. 1,  
Copenhagen, 2100 - Denmark  
Telephone: +45 89 888 349  
Fax: +45 89 884 064  
Email: [suomi@clinisciences.com](mailto:suomi@clinisciences.com)  
Web: <https://www.clinisciences.com>



## France

Company: CliniSciences S.A.S  
Address: 74 Rue des Suisses, 92000  
Nanterre- France  
Telephone: +33 9 77 40 09 09  
Fax: +33 9 77 40 10 11  
Email: [info@clinisciences.com](mailto:info@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Germany

Company: Biotrend Chemikalien GmbH  
Address: Wilhelm-Mausier-Str. 41-43,  
50827 Köln - Germany  
Telephone: +49 221 9498 320  
Fax: +49 221 9498 325  
Email: [info@biotrend.com](mailto:info@biotrend.com)  
Web: <https://www.biotrend.com>



## Iceland

Company: CliniSciences ApS  
Address: Oesterbrogade 226, st. 1,  
Copenhagen, 2100 - Denmark  
Telephone: +45 89 884 349  
Fax: +45 89 884 064  
Email: [island@clinisciences.com](mailto:island@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Ireland

Company: CliniSciences Limited  
Address: Ground Floor, 71 lower Baggot street  
Dublin D02 P593 - Ireland  
Telephone: +353 1 6971 146  
Fax: +353 1 6971 147  
Email: [ireland@clinisciences.com](mailto:ireland@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Italy

Company: CliniSciences S.r.l  
Address: Via Maremmana inferiore 378  
Roma 00012 Guidonia Montecelio - Italy  
Telephone: +39 06 94 80 56 71  
Fax: +39 06 94 80 00 21  
Email: [italia@clinisciences.com](mailto:italia@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Netherlands

Company: CliniSciences B.V.  
Address: Kraijenhoffstraat 137A,  
1018RG Amsterdam, - Netherlands  
Telephone: +31 85 2082 351  
Fax: +31 85 2082 353  
Email: [nederland@clinisciences.com](mailto:nederland@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Norway

Company: CliniSciences AS  
Address: c/o MerVerdi Munkerudtunet 10  
1164 Oslo - Norway  
Telephone: +47 21 988 882  
Email: [norge@clinisciences.com](mailto:norge@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Poland

Company: CliniSciences sp.Z.o.o.  
Address: ul. Rotmistrza Witolda Pileckiego 67  
lok. 200 - 02-781 Warszawa -Poland  
Telephone: +48 22 307 0535  
Fax: +48 22 307 0532  
Email: [polska@clinisciences.com](mailto:polska@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Portugal

Company: Quimigen Unipessoal LDA  
Address: Rua Almada Negreiros, Lote 5, Loja 14,  
2615-275 Alverca Do Ribatejo - Portugal  
Telephone: +351 30 8808 050  
Fax: +351 30 8808 052  
Email: [info@quimigen.com](mailto:info@quimigen.com)  
Web: <https://www.quimigen.pt>



## Spain

Company: CliniSciences Lab Solutions  
Address: C/ Hermanos del Moral 13  
(Bajo E), 28019, Madrid - Spain  
Telephone: +34 916 750 700  
Fax: +34 91 269 40 74  
Email: [espana@clinisciences.com](mailto:espana@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Sweden

Company: CliniSciences ApS  
Address: Oesterbrogade 226, st. 1,  
Copenhagen, 2100 - Denmark  
Telephone: +45 89 888 349  
Fax: +45 89 884 064  
Email:  [sverige@clinisciences.com](mailto: sverige@clinisciences.com)  
Web: <https://www.clinisciences.com>



## Switzerland

Company: CliniSciences AG  
Address: Fracht Ost Flughafen Kloten  
CH-8058 Zürich - Switzerland  
Telephone: +41 (044) 805 76 81  
Fax: +41 (044) 805 76 75  
Email: [switzerland@clinisciences.com](mailto:switzerland@clinisciences.com)  
Web: <https://www.clinisciences.com>



## UK

Company: CliniSciences Limited  
Address: 11 Progress Business center, Whittle  
Parkway, SL1 6DQ Slough- United Kingdom  
Telephone: +44 (0)1753 866 511  
or +44 (0) 330 684 0982  
Fax: +44 (0)1753 208 899  
Email: [uk@clinisciences.com](mailto:uk@clinisciences.com)  
Web: <https://www.clinisciences.com>



## USA

Company: Biotrend Chemicals LLC  
Address: c/o Carr Riggs Ingram,  
500 Grand Boulevard, Suite 210 Miramar  
Beach, FL 32550- USA  
Telephone: +1 850 650 7790  
Fax: +1 850 650 4383  
Email: [info@biotrend-usa.com](mailto:info@biotrend-usa.com)  
Web: <https://www.biotrend-usa.com>

