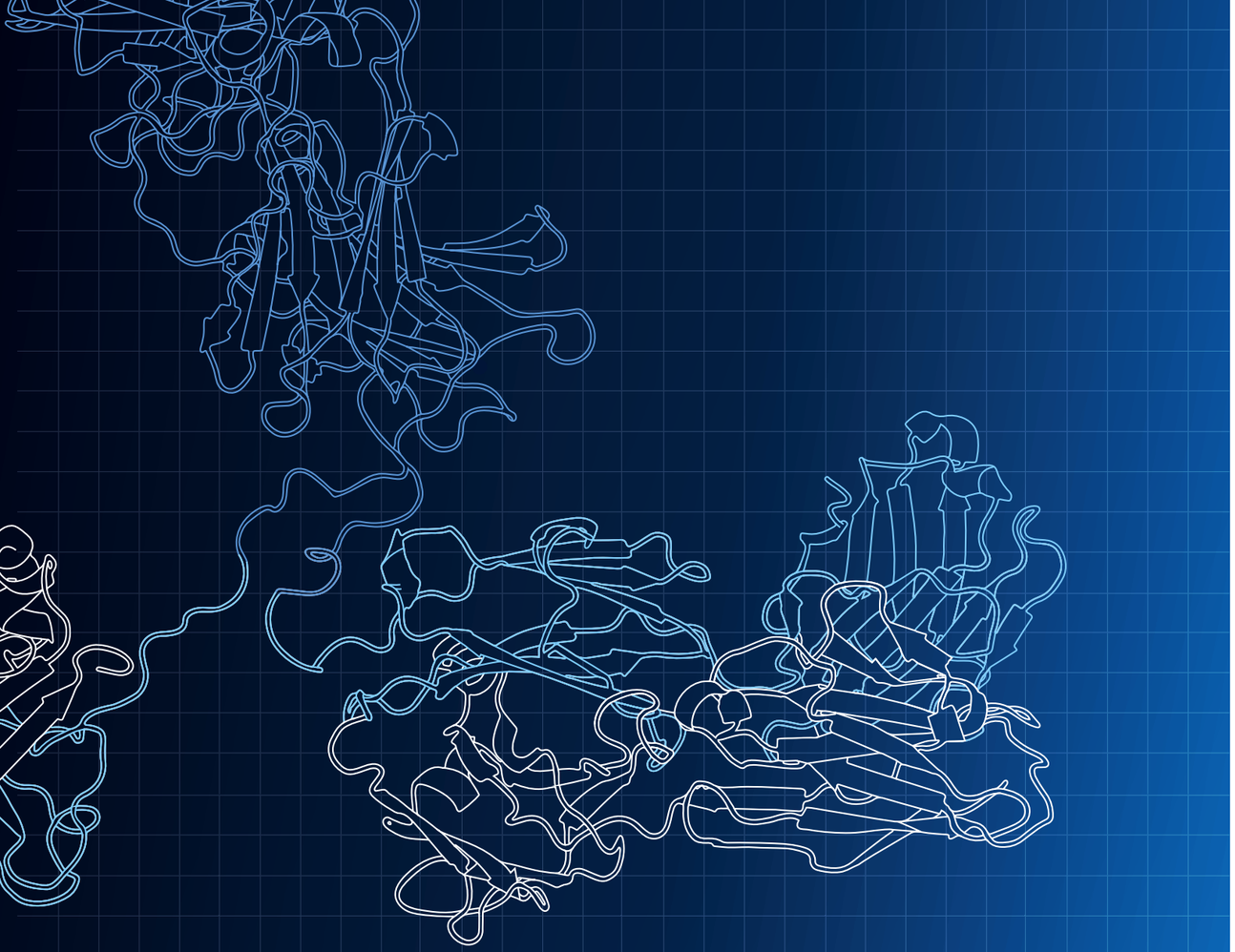
Antibodies Designed Just for You

HuCAL® Recombinant Monoclonal Antibody Generation Service

BIO-RAD

代理商 | 進階生物科技 Level Biotechnology Inc. 免付費專線 | 0800-251-302



Let the antibody experts at Bio-Rad design and generate monoclonal antibodies to meet your precise requirements.

Our custom recombinant monoclonal antibody generation service utilizes the well-established and powerful Human Combinatorial Antibody Library (HuCAL®) and CysDisplay®, a proprietary method of phage display, combined with automated, high-throughput processes developed by scientists at Bio-Rad.

Antibodies Designed Just for You

What if there was a technology that would allow you to carry out research and development that was previously impossible?

BIO-RAD'S CUSTOM RECOMBINANT ANTIBODY SERVICE OFFERS:

- Selection from an established synthetic library of 45 billion fully human antibodies
- High specificity achieved using in vitro guided selection strategies
- Success rate of 90%, including challenging specificities, such as low immunogenic or toxic antigens
- Purified antibodies dispatched in as little as 8 weeks
- Fab and full length immunoglobulin format options for assay design flexibility
- Antibody sequence available
- High quality and reproducibility through consistent recombinant production methods
- No immunization of animals, reducing the use of animals in research
- Proven experience as a result of generating more than 35,000 antibodies

Whether you are trying to characterize a novel protein or design a new assay for a biomarker or unique biological product, the specialized antibodies you need often just don't exist. This is where Bio-Rad's antibody generation experts come in. We can make your ideal antibody a reality, enabling you to do the outstanding research that leads to new discoveries, and the excitement and rewards that brings.

Our highly experienced technical specialists work with you to design the blueprint for the specialized antibodies you need. A recombinant monoclonal antibody made using HuCAL technology ensures you get the exact antibody - highly specific and high quality - that works in your hands and with clear advantages over antibodies generated using traditional methods.

What more could you achieve with custom antibodies designed just for you?

We transform your ideas into your unique antibody blueprint

Library of 45 billion antibodies

STANDARD OPTIONS

GUIDED SELECTION
DESIGN YOUR SPECIFICITY

- Epitope specific
- Modification specific: phosphorylated, oxidized
- Shared epitope, different proteins
- Sandwich ELISA pair
- Anti-idiotypic, types 1, 2 and 3
- Special conditions: denatured, buffer, temperature
- Select for or exclude cross-reactivity
- Recognize/differentiate homologs
- Rapid Pool Maturation (RapMAT®)

OPTIONAL EXTRAS

PRIMARY SCREENING

- Bead-based
- Flow cytometry
- Inhibition assay

[Add 1-2 weeks]

SECONDARY SCREENING

- Off-rate screening, binding strength
- Western blotting

[Add 2-4 weeks]

OPTIONAL EXTRAS

PURCHASE SEQUENCE

- Possible at any time

OPTIONAL EXTRAS

CHARACTERIZATION & MODIFICATION

- PK, ADA bridging assay
- Inhibition assay
- Epitope binning
- Affinity measurement
- Extended QC for critical reagents
- Endotoxin reduction
- Conjugation

OPTIONAL EXTRAS

FAB SERVICES

- Conversion of Fab format

[Approx. 5 weeks]

- Fab production

[From 2 weeks]

- Purchase sequence or FabXpress Kit

IG SERVICES

- Convert to full length antibody Human IgGs, IgA, IgE, IgM Chimeric mouse, rat

[Approx. 10 weeks]

- Purchase sequence

Standard service generates Fab antibodies in 8 weeks

3 weeks	1 week	1 week	3 weeks

PHAGE DISPLAY 3 ROUNDS → **SUBCLONING** → **COLONY PICKING** → **SCREENING** → **SEQUENCING** → **EXPRESSION & PURIFICATION** → **QUALITY CONTROL** → **DISPATCH** → **ANTIBODY PRODUCTION**

STANDARD OPTIONS

ANTIGEN

- Protein
- Peptide
- Antibody
- Hapten
- Whole cells
- DNA, oligo
- Toxin
- Carbohydrate
- Inactive virus/bacteria

[Project starts within 3 weeks of antigen being received]

OPTIONAL EXTRAS

ANTIGEN GENERATION SERVICES

- Bacterial expression
- Mammalian expression
- Peptide design, synthesis
- Purchase commercial product

[Add 4-12 weeks]

1,000 - 10,000
Plate with *E. coli* colonies producing Fab

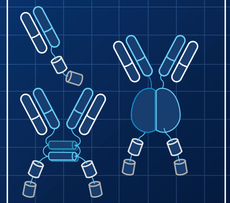
370 clones
Master plate

100-150 hits
Identification of positive clones by ELISA

~20 clones
Identification of unique antibodies

DATABASE

All unique Fabs
Fab available in different formats and with different tags



Specificity (ELISA) Purity (SDS PAGE)

OPTIONAL EXTRAS

APPLICATION TESTING

- ELISA pair selection (plate/bead-based)
- Flow cytometry
- Western blotting

OPTIONAL EXTRAS

MATURATION SERVICES

- Affinity measurement
- Single binder maturation
- Cross cloning

The Key to Your Design Blueprint

Guided Selection Strategies

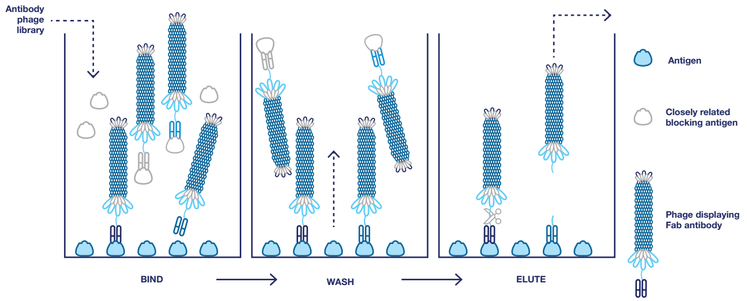
Drawing on many years of experience, we design guided selection strategies to select highly specific antibodies from the antibody library such as epitope and phospho-specific antibodies, anti-idiotypic antibodies, and sandwich ELISA pairs.

SOME EXAMPLES TO GET YOU THINKING

- Anti-biotherapeutic antibodies
  - Inhibitory
  - Non-inhibitory
  - Drug-target-complex specific
- Differentiate between closely related proteins
  - Modified epitopes, such as phosphorylation, oxidation, methylation
  - Neo-epitopes created by protein cleavage
  - Targeted epitopes, like an enzyme active site
  - Homologous proteins
  - Conformational changes
  - Serotypes of a virus
- Antibodies with cross-reactivity between closely related proteins

GUIDED SELECTION WITH BLOCKING

A closely related blocking antigen is used to remove cross-reactive antibodies (counter selection). Guided selection strategies involve blocking steps or the use of two or more antigens, and are typically used for the isolation of epitope-specific antibodies or for antibodies that recognize shared epitopes on different antigens.



Say Goodbye to Traditional Methods

In addition to the superior specificities provided by guided selection strategies, there are numerous other advantages of HuCAL technology compared to conventional monoclonal antibody generation.

Parameter	HuCAL Monoclonal	Conventional Monoclonal
Technology	Library of 45 billion antibodies Phage display Bacterial and mammalian expression	Immunization Complex cell culture
Antibody specificity	Designed just for you using guided selection	Driven by immune system, less control Extensive screening required
Success rate	~ 90%	~ 75%
Speed of delivery	8 weeks	4-9 months
Flexible formats	Fab antibodies Full length Ig, many isotypes	No
Antibody sequence	Sequence available	Unknown
Fully human	Yes, with choice of human, mouse or rat Fc	No
Antibody engineering and optimization	Choice of detection tags Affinity maturation	No
Animals used	No	Yes

Make Your Ideas a Reality

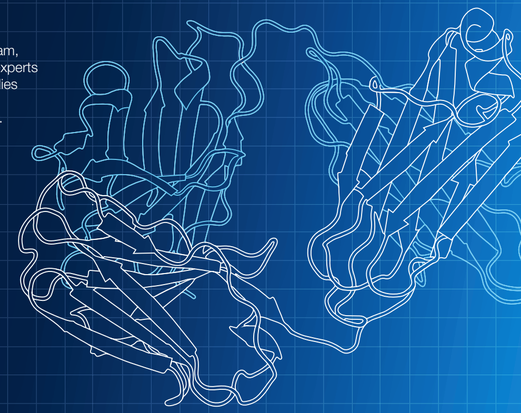
We work on a wide variety of antibody generation projects and each one is unique.

CHOOSE THE NEXT STEPS THAT WORK BEST FOR YOU

1. LEARN MORE ONLINE
   Watch our video 'Designed just for you' to see inside the custom antibody facility and discover more about the technology behind Bio-Rad's custom recombinant antibodies. Find additional resources explaining the antibody generation process in detail, with example case studies, publications and technical articles.
2. REQUEST A TECHNICAL PRESENTATION
   One of our antibody specialists can present the HuCAL technology to you, answering your questions and addressing your specific requirements.
3. DISCUSS YOUR PROJECT IDEAS
   Once your ideas start to take shape, your specialist will work with you to design a detailed blueprint for your antibody. You may also wish to visit the HuCAL technology facility in Germany to meet our scientists and see how the process works.
4. WORKING WITH US
   Your project is managed by a dedicated team, passionate about making antibodies, and experts at what they do. We aim to provide antibodies designed for you that work for you, and an experience that exceeds your expectations.

OUR CUSTOMERS INCLUDE:

- Large pharmaceutical and small biotech companies
- In vitro diagnostic and research assay manufacturers
- Cosmetic, food and environmental companies
- Academic and government research institutes



Visit **bio-rad-antibodies.com/blueprint** to find out more.

HuCAL generated antibodies are not intended for use in humans, and may not be used for therapeutic, prophylactic or palliative purposes. Bio-Rad is a trademark of Bio-Rad Laboratories, Inc. in certain jurisdictions. HuCAL, HuCAL PLATINUM, CysDisplay and RapMAT are trademarks of MorphoSys AG.

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