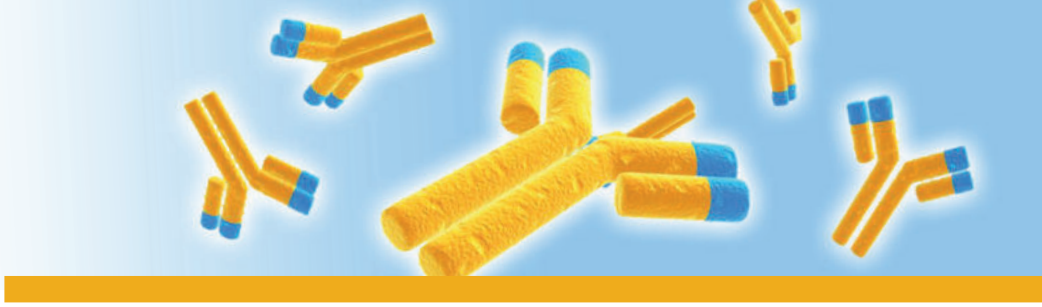
AdipoGen®
LIFE SCIENCES
insights



www.adipogen.com

Recombinant Monoclonal Antibodies

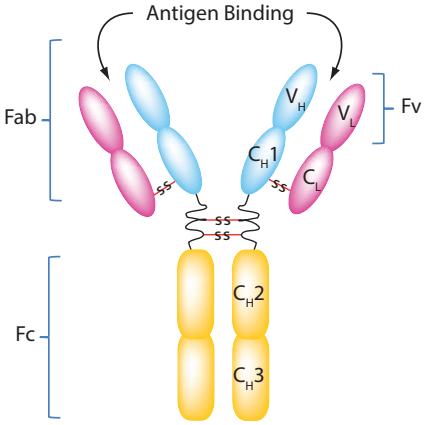
RecMAbs™ – Produced with No Use of Animals

AdipoGen Life Sciences (AdipoGen) is a research company developing proteins, biochemicals, antibodies and ELISA Kits. To promote the advancement of non-animal alternative approaches (3Rs), AdipoGen implemented the antibody phage display technology in-house to develop monoclonal antibodies without the use of animals. Using this technology, AdipoGen was a forerunner in releasing the first recombinant monoclonal antibody for research on the market in 2010: **anti-APRIL (mouse), mAb (rec.) (blocking) (Apry-1-1)**. Since then, our portfolio of fully validated recombinant antibodies made with the phage display technology continues to grow, with a focus on functional antibodies that can block or activate their respective target.

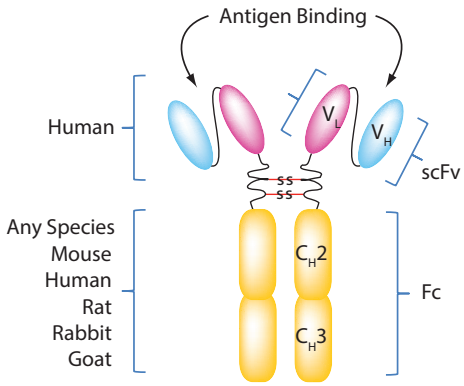
FEATURES OF NON-ANIMAL SOURCE RecMAbs™

- **Developed from a human antibody phage display library.**
- **Consists of a scFv (single chain fragment variable) which is composed of VH (variable domain of the human immunoglobulin heavy chain) and VL (variable domain of the human immunoglobulin light chain) fused to a Fc region.**
- **Produced in mammalian cells (CHO or HEK 293).**
- **Similar properties compared to monoclonal antibodies developed in mice/rat (e.g. affinity in the low nanomolar range).**
- **Standard secondary antibodies can be used.**
- **Ideal for conserved antigens (which are poorly immunogenic in animals).**
- **Detect conformational epitopes (e.g. GTP-bound proteins).**
- **Detect protein modifications (e.g. phosphorylations, ubiquitinations).**
- **Allows to exchange the Fc region with Fc from other species.**

General Antibody Schematic



AdipoGen RecMAbs™ Schematic

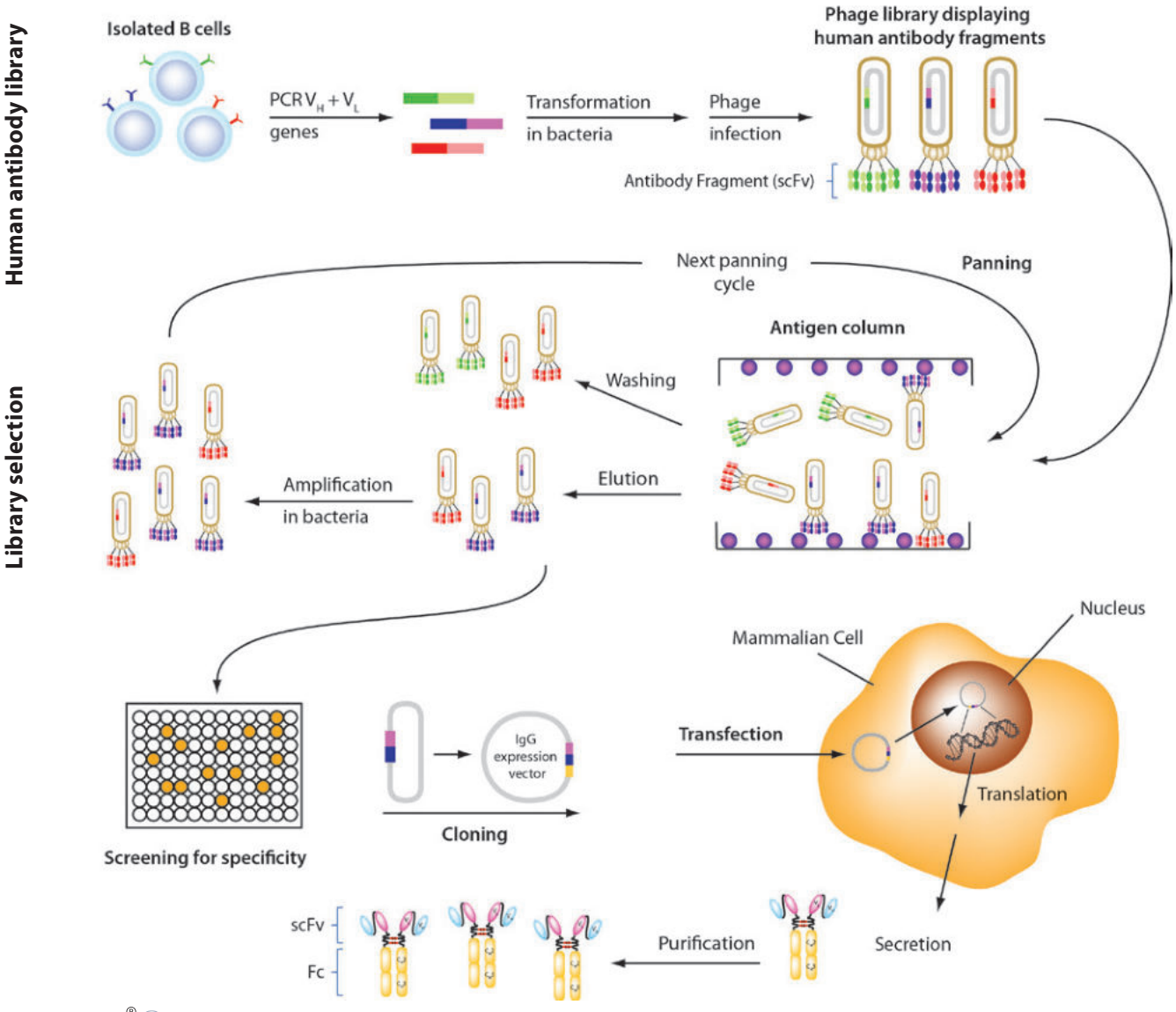


Visit www.adipogen.com for a Comprehensive List of Unique Tools!

Antibody phage display is an *in vitro* technology to generate recombinant monoclonal antibodies (RecMAbs™) without the us of animals. It is an alternative to the hybridoma technology that circumvents the limitations of the immune system. Antibodies developed by "antibody phage display technology" use human naïve antibody gene libraries. These libraries consist of billions of scFv (single chain fragment variable) composed of VH (variable domain of the human immunoglobulin heavy chain) and VL (variable domain of the human immunoglobulin light chain) connected by a polypeptide linker. The antibody fragments are fused to the coat protein pIII and displayed on the surface of filamentous bacteriophages (M13). The scFvs are selected *in vitro* by affinity selection on the antigen in a process termed panning, where the antigen of interest is coated on a vial (see Figure). Panning methods are based on four major steps: i) preparation of phage-displaying libraries; ii) adsorbing the specific binding phage on an antigen-coated vial, iii) removal of non-specific or low affinity phages, and iv) recovering of target binders that will be reamplified after bacteria infection for the next round of selection. Multiple rounds of panning are performed to enrich the antigen-specific scFv-phages. Monoclonal antibodies are subsequently identified by screening after the last round of selection. The selected monoclonal scFv is cloned into an appropriate vector containing a Fc portion of interest and then produced in mammalian cells to generate an IgG like scFv-Fc fusion protein.

There are many advantages to use recombinant antibodies instead of "classical" antibodies: i) no requirement of sacrificing animals in an animal facility; ii) economical production and permanent storage of DNA clones; iii) sequence-defined antibodies allowing reproducibility in experiments; iv) use of a single chain antibody fragment to reformat a RecMAb™ into a full-length IgG construct for research or therapeutic purposes.

Production of Recombinant Monoclonal Antibodies (RecMAbs™)



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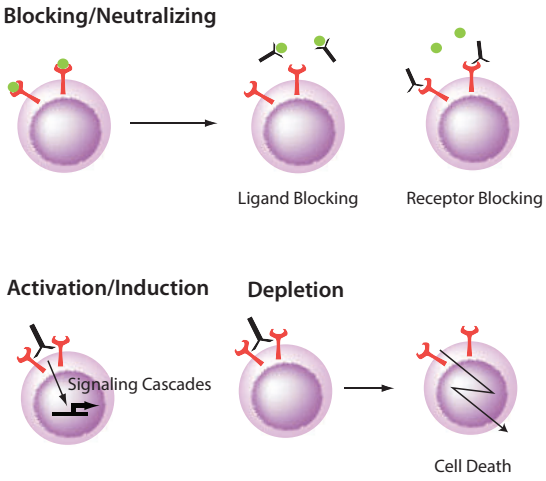
An important attribute of the RecMAbs™ phage display approach is the ability to design selection strategies to generate antibodies with customized functions (FuncAbs™), which furthermore can be classified based on activity or mode of binding. By example, it is possible to generate RecMAbs™ that: (i) preferentially recognize a specific conformational state and thus, have the potential to induce a specified conformational change; (ii) target specific regions of the surface of the target protein ("regio-specific") or (iii) specifically recognize multi-protein complexes.

Antibodies Mode of Binding

Different Types of Antibody Functionality



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Custom Recombinant Monoclonal Antibodies [RecMAbs™]

Antibodies developed from a NON-ANIMAL SOURCE using *in vitro* antibody phage display technology

FEATURES:

- **Developed from a human antibody phage display library.**
- **Consists of scFv (single chain fragment variable) composed of VH (variable domain of the human immunoglobulin heavy chain) and VL (variable domain of the human immunoglobulin light chain) fused to a Fc region.**
- **Produced in mammalian cells (CHO or HEK 293).**
- **Similar properties compared to monoclonal antibodies developed in mice / rat (e.g. affinity in the low nanomolar range).**
- **Standard secondary antibodies can be used.**
- **Ideal for conserved antigens (which are poorly immunogenic in animals).**
- **Detect conformational epitopes (e.g. GTP-bound proteins).**
- **Detect protein modifications (e.g. phosphorylations, ubiquitinations).**
- **Possibility to exchange the Fc region with Fc from other species.**
- **For Research Purpose or Therapeutic Applications.**

Ask for Custom Production!

VALIDATED Recombinant Monoclonal Antibodies [RecMAbs™] with No Use of Animals

PRODUCT NAME	PID	ISOTYPE	APPLICATIONS	SPECIES
anti-Angiopoietin-2, mAb (rec.) (blocking) (Angy-2-1)	AG-27B-0016	Mouse IgG2bλ	ELISA, FUNC, ICC	Human, Mouse
anti-Angiopoietin-2 (human), mAb (rec.) (blocking) (Angy-1-4)	AG-27B-0015	Human IgG2λ	ELISA, FUNC	Human
anti-APRIL (mouse), mAb (rec.) (blocking) (Apry-1-1)	AG-27B-0001	Mouse IgG2bλ	ELISA, IP, FUNC	Mouse
anti-APRIL (mouse), mAb (rec.) (blocking) (Apry-1-3)	AG-27B-0017	Human IgG1λ	ELISA, IP, FUNC	Mouse
anti-EGFP, mAB (rec.) (G3)	AG-27B-0007	Human IgG2λ	ELISA, ICC, IP	-
anti-Giantin, mAb (rec.) (TA10)	AG-27B-0003	Human IgG2λ	ICC	Human, Mouse
anti-HMGB1, mAb (rec.) (Giby-1-4)	AG-27B-0002	Human IgG2λ	ELISA, WB	Human, Mouse, Rat
anti-IL-1R2 (mouse), mAb (rec.) (Praxy-1-1)	AG-27B-0011	Mouse IgG2bλ	ELISA, FACS	Mouse
anti-IL-33 (mouse), mAb (rec.) (blocking) (Bondy-1-1)	AG-27B-0013	Mouse IgG2b	ELISA, FUNC	Mouse
anti-IL-33 (mouse), mAb (rec.) (Carly-1-4)	AG-27B-0012	Human IgG2λ	ELISA, WB	Mouse
anti-LRP5/6, mAb (rec.) (Heldy-1-4)	AG-27B-0019	Human IgG2λ	FACS	Human, Mouse
anti-Myosin IIA (non-muscle) (heavy chain), mAb (rec.) (SF9)	AG-27B-0010	Human IgG2λ	EM, ELISA, ICC, IP	Drosophila, Human, Mouse, Rat
anti-Netrin-1 (human), mAb (rec.) (blocking) (2F5) (preservative-free)	AG-27B-0018PF	Mouse IgG2λ	ELISA, FUNC	Human, Mouse
anti-Netrin-1 (human), mAb (rec.) (H4) (preservative-free)	AG-27B-0020PF	Mouse IgG2λ	ELISA, FUNC (Negative Control)	Human, Mouse
anti-PEDF (human), mAb (rec.) (Serpy-1-4)	AG-27B-0014	Human IgG2λ	ELISA, WB	Human
anti-PSD-95 (palmitoylated), mAb (rec.) (PF11)	AG-27B-0021	Human IgG2	ICC, IHC	Human, Mouse, Rat
anti-Rab1-GTP, mAb (rec.) (ROF7)	AG-27B-0006	Human IgG2λ	ICC, IP	Dog, Human, Mouse, Rat
anti-Rab6-GTP, mAb (rec.) (AA2)	AG-27B-0004	Human IgG2λ	ICC	Drosophila, Human, Mouse
anti-α-Tubulin, mAb (rec.) (F2C)	AG-27B-0005	Human IgG2λ	ICC, WB	Bovine, Human, Mouse
anti-β-Tubulin, mAb (rec.) (S11B)	AG-27B-0008	Human IgG2λ	ELISA, ICC, IP	Drosophila, Human, Monkey, Mouse, Pig, Rat
anti-Tubulin-GTP, mAb (rec.) (MB11)	AG-27B-0009	Human IgG2λ	ICC	Drosophila, Human, Mouse, Rat

APPLICATIONS: FACS: Flow Cytometry; **FUNC:** Functional Application; **ICC:** Immunocytochemistry; **IHC:** Immunohistochemistry **IP:** Immunoprecipitation; **WB:** Western blot
FORMULATION: PF = Preservative free

AdipoGen® LIFE SCIENCES
www.adipogen.com

AdipoGen Life Sciences
TEL +41-61-926-60-40
FAX +41-61-926-60-49
info@adipogen.com

Distributed in Italy by:

Vinci-Biochem®

VINCI-BIOCHEM Srl
Contatto diretto: 0571 568 147
vb@vincibiochem.it
www.vincibiochem.it

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