

Three-Dimensional Upgrade: Creative Biolabs Advances Antibody Engineering and Therapeutics

Creative Biolabs recently rolled out a three-dimensional upgrade designed to make antibodies safer, more potent, and easier to develop.

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Immunogenicity has long been a major bottleneck affecting efficacy. To address this challenge, Creative Biolabs has reinforced its [monoclonal antibody safety](#) enhancement services. By implementing three major strategies—humanization, de-immunization, and tolerance induction—the company effectively reduces anti-drug antibody (ADA) responses caused by foreign protein sequences, improving their biocompatibility in the human body.



Creative Biolabs

"We aim to improve monoclonal antibody safety at its root," said a senior antibody engineer at Creative Biolabs. "Through in silico prediction of T-cell epitopes and precise elimination of immunogenicity hotspots using site-directed mutagenesis, we can enhance the clinical viability of antibodies without compromising their functionality."

The upgraded platform supports multiple antibody formats, including scFv, Fab, and full-length IgG, and is widely applicable to therapeutic areas such as oncology, autoimmune diseases, and infectious diseases.

While safety is the foundation, true success depends on the antibody's binding affinity and biological function. To this end, Creative Biolabs runs an efficacy platform built on affinity maturation techniques and Fc engineering. By leveraging random or targeted mutagenesis,

chain shuffling, and AI-assisted design, the team systematically optimizes antibody-antigen binding strength as well as interactions with immune system components.

Creative Biolabs has also made progress in Fc glycoengineering, enabling the precise adjustment of glycan composition in the CH2 domain. The result is a noticeable lift in key activities such as antibody-dependent cellular cytotoxicity (ADCC) and complement-dependent cytotoxicity (CDC).

"We want our clients to walk away not just with an antibody that binds, but one that acts," the engineer added. "That goal drives our endless fine-tuning of [antibody engineering and therapeutics](#)."

As therapeutic antibodies move from the lab to commercialization, eyes are fixed on their physicochemical traits—stability, purity, concentration, and formulation. Creative Biolabs now offers a fresh [antibody developability](#) boost, zeroing in on traits like thermal stability, solubility, heterogeneity, and clearance rate, ensuring better adaptability during drug development.

The service integrates multiple high-throughput screening methods, including molecular modeling, flow cytometry, and epitope imprinting techniques, to identify and eliminate candidates with poor antibody developability potential early in the pipeline, significantly improving overall project success rates.

"Developability should no longer be an afterthought—it should be embedded in the design process from the start," emphasized the engineer. "A truly high-quality antibody must not only perform in vivo but also remain stable throughout the entire pharmaceutical supply chain."

For details on Creative Biolabs' antibody engineering services, please visit <https://adcc.creative-biolabs.com/>.

About Creative Biolabs

Creative Biolabs is a globally recognized CRO specializing in antibody discovery, engineering, and therapeutics development. With over a decade of experience, the company has built a comprehensive service portfolio covering antibody humanization, affinity maturation, Fc engineering, and developability optimization.

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