



Antibody Affinity Maturation and Functional Engineering

Affinity maturation is the process by which B cells produce antibodies with increased affinity for antigen during the course of an immune response. With repeated exposures to the same antigen, the immune system will produce antibodies of successively greater affinities. The main principles of *in vivo* affinity maturation (somatic hypermutation), namely point mutation and selection, are enhanced for the biotechnological approach of *in vitro* affinity maturation.

BioAtla has developed a technology platform for the rapid and efficient *in vitro* affinity maturation of your antibodies. BioAtla's process, similar to natural affinity maturation by somatic hypermutation, uses the power of comprehensive point mutations in the variable domains (or CDRs) and combinations thereof.

BioAtla's technology combines comprehensive mutagenesis, shuffling and synthesis technologies to enhance single or multiple antibody properties and binding characteristics. Our Comprehensive Protein Evolution™ (CPE™) technology rapidly generates antibody variants by testing amino acids at every position along an antibody's domain sequences. After performing CPE, we employ our Combinatorial Protein Synthesis™ (CPS™) technology to combine the upmutants identified by CPE and amplify the desired characteristics of your antibody by combining the best properties into a new, high-performance antibody.

The combination of CPE™ and CPS™ technologies significantly expands the pool of antibody variants available to be screened, and it dramatically increases the probability of finding antibodies with single or multiple enhanced characteristics such as binding affinity, specificity, thermo-stability, expression level, effector functions, glycosylation, reduced immunogenicity and solubility – while generating a formidable intellectual property position on the developed molecules.

We will work with you to develop and implement the appropriate assays to screen for the ideal antibody candidates.

BENEFITS

- Comprehensive
- Achieves highest affinity possible
- Multiplexed screening
- Cell-based functional assays
- Rapid
- Fine tuning for IP
- Fc Engineering
- Superior to other evolution methods such as random mutagenesis and alanine scanning