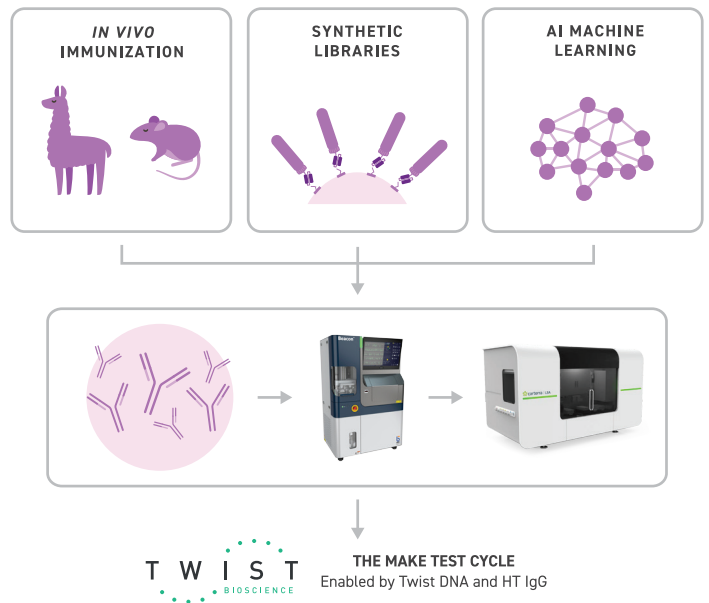# Twist's New Gold Standard in Antibody Discovery

Twist Biopharma and Abveris have joined forces to deliver an industry-leading, end-to-end antibody discovery solution that leverages comprehensive *in vivo*, *in vitro*, and *in silico* antibody discovery and engineering services. The combination of streamlined workflows can enable not only expedited timelines, but also can drive success against diverse therapeutic targets including challenging antigens like multi-pass transmembrane proteins.

Our team of antibody experts will work with you every step of the way, from design to final product, in order to guarantee delivery of fully validated and functionally relevant development-ready drug candidates tailored to your specific program needs.

ONE-STOP SHOP THAT COMBINES THE PROPRIETARY TECHNOLOGY, EXPERTISE, AND ADVANTAGES OF ALL THREE PLATFORMS

IN VIVO IMMUNIZATION

SYNTHETIC LIBRARIES

AI MACHINE LEARNING

THE MAKE TEST CYCLE
Enabled by Twist DNA and HT IgG
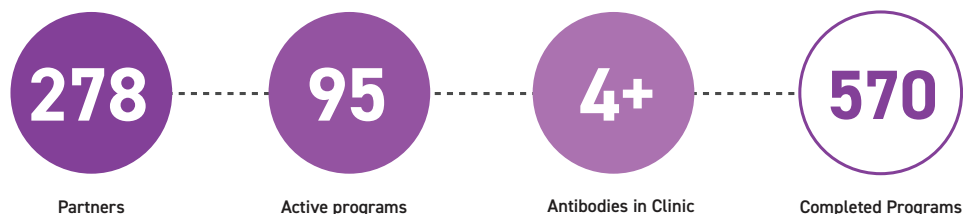
Our Approaches to Antibody Discovery

The Twist-Abveris pairing delivers expertise in all three key approaches to antibody discovery: *in vitro* phage display using synthetic libraries, *in vivo* discovery through immunized animals, and *in silico* artificial intelligence-aided antibody engineering.

Industry-Leading Technology
Our antibody discovery offerings are built atop Twist Bioscience's extensive USA-based manufacturing power. Twist Bioscience, seamlessly supports the upstream and downstream steps in antibody discovery from library generation to high-throughput recombinant expression of mAbs. Twist's ultra high-throughput NGS-sequence verified gene synthesis and high throughput IgG capabilities can enable our partners to get the most out of the antibody make-test cycle.

A Proven Team & Track Record of Success
You can feel confident about partnering with Twist for your antibody discovery needs. Twist has 278 partners and over 95 active programs, while Abveris boasts 570 completed discovery campaigns and 4+ partner programs in clinical trials.

278
Partners

95
Active programs

4+
Antibodies in Clinic

570
Completed Programs

Twist *In Vitro* Discovery

- Rapid phage display workflow using industry-leading off-the-shelf synthetic libraries with superior quality
- Discovery against challenging targets by leveraging the combined diversity of the target antibody Library of Libraries
- Extensive experience targeting cell surface targets and whole cells
- Variety of antibody fragment formats including scFv, VHH, and Fab
- Target class specific libraries targeting GPCRs, Ion Channels and Carbohydrate antigens
- Custom generation of synthetic DNA libraries and combinatorial variant libraries to support specialized discovery projects
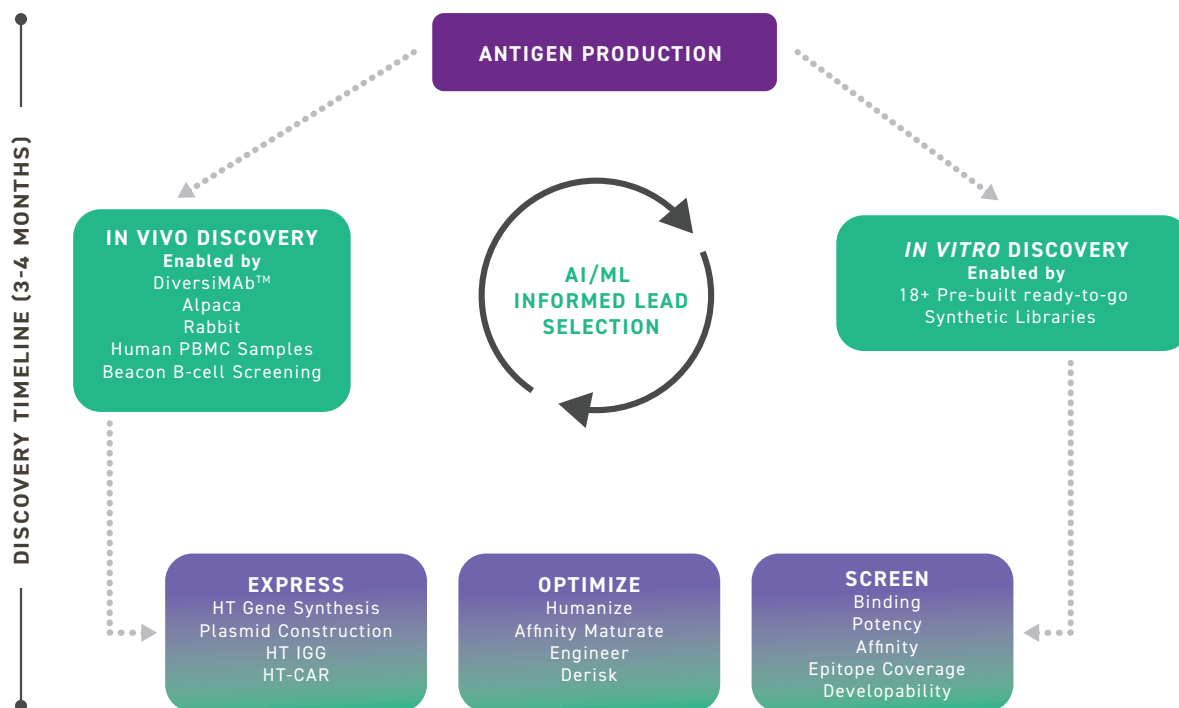
In Vivo Discovery

- Abveris' discovery platform is propelled by proprietary, genetically engineered hyperimmune mouse strains, the DiversimAb™ family
- Therapeutic antibody lead (IgG, ADC, bsAb, multispecific, VHH) and chimeric antigen receptor (CAR) lead discovery
- Reagent and anti-idiotypic mAb discovery to support CMC/clinical assay development
- Function-forward hybridoma and Beacon-based single B cell screening workflows tailored for cell surface receptors
- Delivery of mAb sequences from the start of immunization in as few as 29 days
- Expanded epitopic coverage and diversity via proprietary hyperimmune mice, the DiversimAb™ family

In Silico AI/Machine Learning (ML) Guided Capabilities

- ML algorithms enable more in-depth selection of rare candidates and help to accelerate humanization workflows
- Fast track humanization with our proprietary *in silico* antibody variant generation to rapidly identify humanized leads without the need to generate a new antibody library
- Humanization and optimization combined in one step to optimize and humanize your sequence into a Twist Antibody Optimization (TAO) phage display library
- Lead expansion enabled by ML and deep learning algorithms to identify rare candidates with high affinity, highly developable therapeutic properties
- ML underpins antibody sequence-structure function relationships and uses them to engineer libraries of novel antibodies that are more likely to be optimized for desirable properties
- Rapid, scalable DNA synthesis platform enables us to quickly generate defined synthetic libraries

Twist-Powered Design-Build-Test Cycle

DISCOVERY TIMELINE (3-4 MONTHS)

ANTIGEN PRODUCTION

IN VIVO DISCOVERY
Enabled by
DiversiMAb™
Alpaca
Rabbit
Human PBMC Samples
Beacon B-cell Screening

AI/ML INFORMED LEAD SELECTION

IN VITRO DISCOVERY
Enabled by
18+ Pre-built ready-to-go
Synthetic Libraries

EXPRESS
HT Gene Synthesis
Plasmid Construction
HT IGG
HT-CAR

OPTIMIZE
Humanize
Affinity Maturate
Engineer
Derisk

SCREEN
Binding
Potency
Affinity
Epitope Coverage
Developability