

Twist High Throughput Custom Antibody Production

Relieve your antibody production bottleneck

KEY BENEFITS

High-throughput

- Simultaneous production of thousands of antibody proteins
- Flexible scale, from 10s to 1000s of antibodies

Customizable

- Use Twist’s vectors, or a vector of your choice
- Purified IgG, VHH-Fc, VHH, scFv, and Fab formats available

One-stop-shop for precision

- Antibodies made from 100% sequence-perfect, NGS-verified genes to ensure accuracy and quality
- Twist will manage DNA synthesis, cloning, expression, and purification
- Robust project-to-project expression consistency

Our best in class service

- Ph.D. Level scientific support
- BFX Screening tools provide insight into potential liabilities
- Dedicated Project Management

SPECIFICATIONS

- **Volume:** 1 mL, 4 mL, 8 mL and 24 mL cultures
- **Yield:** See table below
- **Format:** Protein A or His-tag purified antibody or supernatant
- **Available Subtypes:** IgG1, IgG2, IgG4, Kappa and Lambda light chain, and VHH-Fc (IgG1 and IgG2)

In the antibody development pipeline, researchers often experience a bottleneck when transitioning from biopanning to antibody characterization. The high-throughput nature of technologies like phage-display and single B-cell sequencing make it possible to identify hundreds to thousands of potentially high-affinity antibodies for development. Further study of these hits requires expression of as full-length antibodies—a process that is often low-throughput, resource-intensive, and a significant hurdle to progress.

Twist High Throughput Antibody Production provides a comprehensive and efficient solution for antibody production and purification, enabling the simultaneous generation of many distinct antibodies for screening and discovery purposes. With high throughput production of antibodies in quantities ranging from 15 µg to 3,000 µg—sufficient to characterize candidates for further study—Twist provides a premium quality product without a premium price tag.

A key component of antibody screening is determining the ease of expression within transfected cells. Twist uses the industry workhorse HEK-293 transient expression system for robust, reproducible, and scalable yields. As is the nature of antibody production, expression yields can vary based on antibody sequence. Twist provides yield data on each antibody sequence to be used as a screening tool for candidate selection. Additionally, we will provide control yield data to provide peace of mind and confidence that transfection and protein production were successful.

Antibody yields

ANTIBODY FORMAT	SCALE	AVERAGE YIELDS*(µG)
IgG	8 mL	760
IgG	1 mL	180
VHH	8 mL	1050
VHH	1 mL	290

*Average yields represents data from all customer orders collected from commercial launch (12/2022) to present

1 mL EXPRESSION ANTIBODY YIELD, N=482

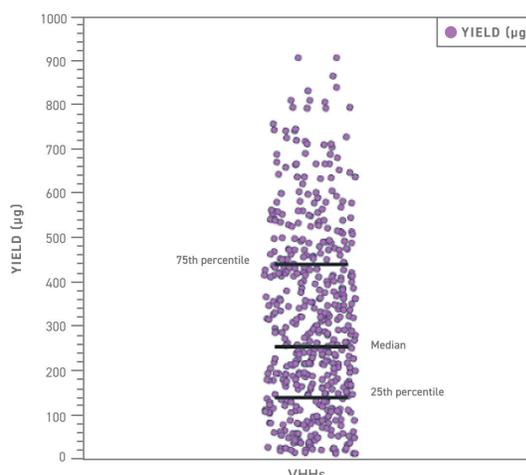
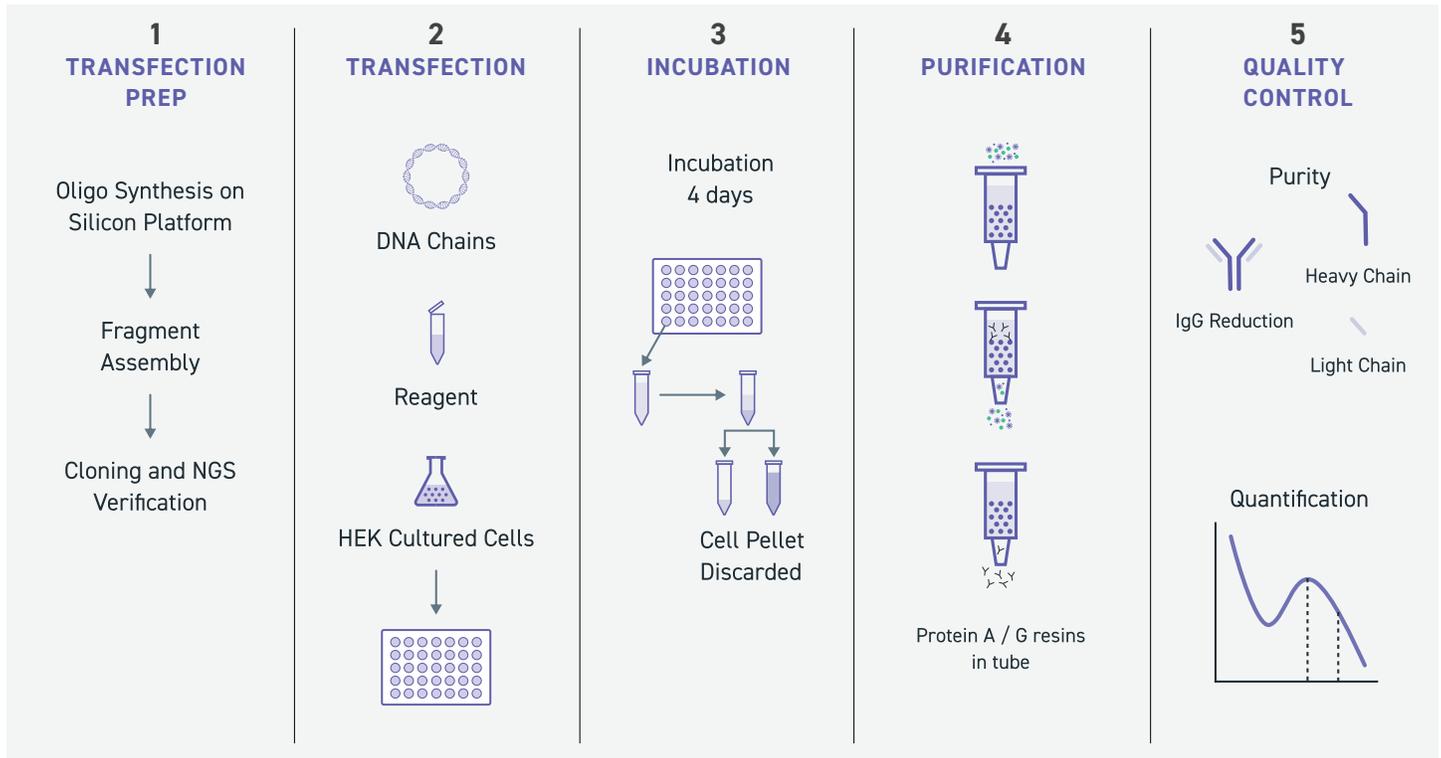


Figure Description: Following antibody production, 1 mL of antibodies (VHH-Fc in pTwist CMV IgG1-Fc expression vector) were purified, and yields were determined per antibody. Of the 518 antibodies produced, 482 passed our yield cutoff (93%) and 409 yielded > 100 µg per antibody (~79%). This is a typical distribution of antibody yields. Each research project will vary depending on project size and complexity.

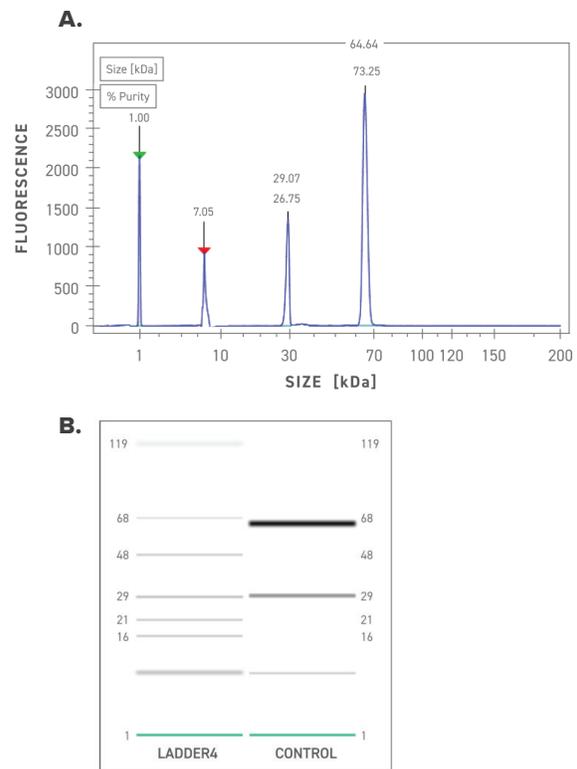
How does Twist Bioscience antibody production work?



Quality antibodies for discovery

To ensure that antibodies are ready for experimentation “out of the box”, quality control (QC) of purified antibodies includes A280 quantitation, size (kDa) and percent purity analysis with a denatured capillary electrophoresis sodium dodecyl sulfate (CE-SDS) assay. After passing QC, the antibody is prepared for shipping unless buffer exchange or other downstream processing is requested. Shown below are typical QC results generated using Twist’s High Throughput Antibody Production workflow. The clean peaks in (A) and bands in (B) show that species within the antibody stock are all of similar size and charge. The peak at 67 kD represents the heavy-chain segment of the antibody, while the peak at 29 kD represents the light-chain segments.

Figure Description: The canonical protocol for Protein Express LabChip is followed to prepare denatured samples for both size and purity analysis. Capillary electrophoresis sodium dodecyl sulfate (CE-SDS) assay is run to collect sizing data benchmarked to a ladder, to provide approximate molecular weight (kDa), as well as a percent purity for both heavy and light chains. The peak at 7 kD is the dye front.



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