Growing with the Gibco Viral Vector workflow

Thermo Fisher SCIENTIFIC

Plasmid development & production

AAV

Gibco™ AAV-MAX Control Plasmids Kit

The Gibco AAV-MAX Control Plasmids Kit consists of an optimized mix of three plasmids needed to produce adeno-associated virus serotype 2 (AAV2)–expressing GFP: pAAV-CMV-emGFP, pAAV-Rep2Cap2, and pHelper. These three plasmids must be used with a HEK293 cell line that stably expresses the adenovirus E1 gene. The kit contains an optimized mix of the three plasmids, as well as a separate tube of each plasmid, providing users with flexibility to change plasmid ratios if desired.

- Saves process development time with optimized plasmid ratios
- Serves as a positive control for AAV2-GFP production with the AAV-MAX Helper-Free AAV Production System (Cat. No. A51217)

Learn more

LV

Gibco™ LV-MAX™ Lentiviral Packaging Mix

The LV-MAX Lentiviral Packaging Mix is a single, optimized set of packaging plasmids, designed to streamline and enhance the production of lentiviral vectors. This mix contains a defined combination of three essential packaging plasmids: pLP1, pLP2, and pLP/VSVG, which together supply the necessary structural and replication proteins in trans when expressed in HEK293-derived Viral Production Cells.

- Optimized formulation: Combines three packaging plasmids (pLP1, pLP2, and pLP/VSVG) into a single mix, saving process development time by minimizing the need to optimize plasmid ratios
- High titer: Achieves high titers of lentiviral vectors when used with the LV-MAX Lentiviral Production System

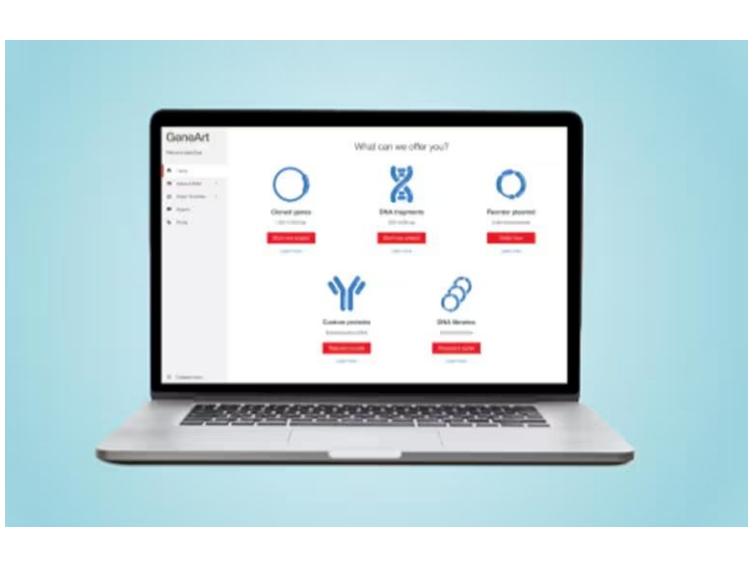
Learn more

Virus Agnostic Production

GeneArt™ DNA Libraries

GeneArt custom gene synthesis service offers a reliable and cost-effective method for tailoring DNA sequences with 100% accuracy. In addition, we offer sequence optimization with our patented GeneOptimizer algorithm which uses a multifactorial approach that goes beyond basic codon optimization to maximize gene expression.

- Reliable delivery: Save time and effort by outsourcing your cloning and DNA fragment needs so you can focus on more important aspects of your research.
- Fast synthesis: Turnaround times start at 5 business days. Standard delivery times are faster than many conventional cloning methods.
- Flexible, custom process: Obtain the exact sequence you need in the vector of choice—including challenging, complex constructs and custom vectors.
- Optimize discovery: Utilize GeneOptimizer tool to improve protein expression and translational efficiency to enable a faster path to discovery when it matters.

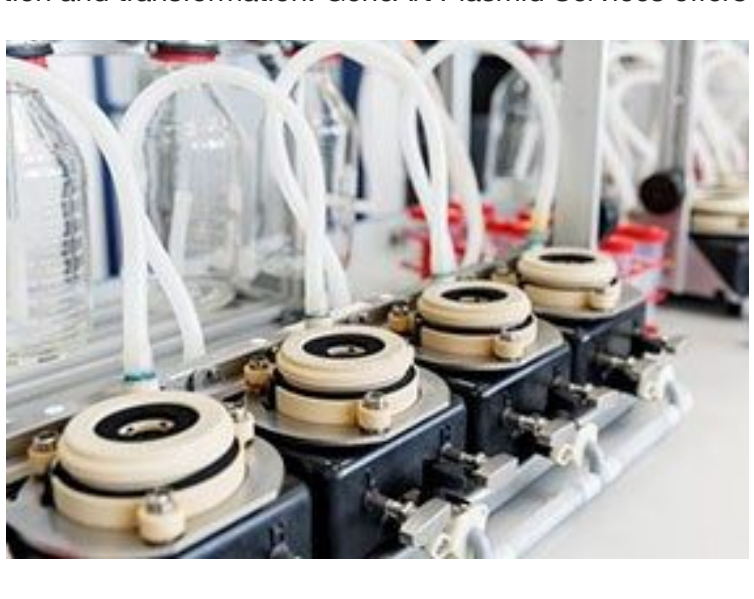


Learn more

GeneArt™ Plasmid Production & Purification Services

The GeneArt Plasmid Purification process produces highly pure, homogenous pDNA ready for transfection and transformation. GeneArt Plasmid Services offers the following:

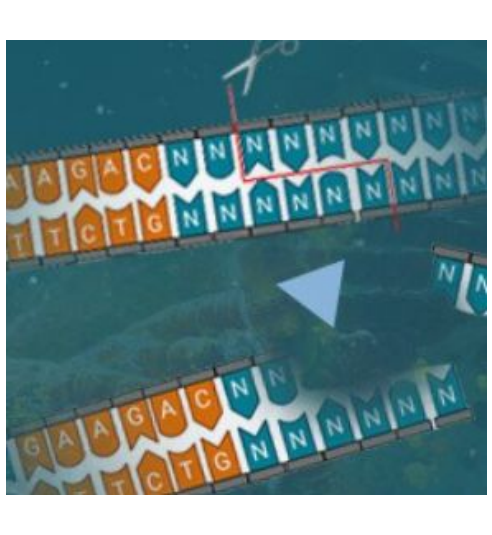
- Extremely low levels of endotoxin: <0.1 EU/µg pDNA in selected scales (generally considered endotoxin-free)
- Scaleup: microgram to milligram scale production
- Completed in as few as 3 business days following gene synthesis
- Delivery in liquid or frozen on dry ice
- Custom aliquoting and tube labeling



Learn more

Thermo Scientific™ FastDigest™ Restriction Enzymes

FastDigest restriction enzymes help enable rapid DNA digestion in just 5–15 minutes, using a universal buffer system that helps ensure compatibility with all enzymes in the range. This helps streamline your processes, allowing for simultaneous digestion with multiple enzymes without the need for buffer changes. Explore our comprehensive selection of FastDigest restriction enzymes to help achieve accurate and reliable results in your cloning, sequencing, and other DNA manipulation experiments.



Learn more

Invitrogen™ TOPO™ TA Cloning™ Kit for Sequencing, with One Shot™ TOP10 Chemically Competent *E. coli*

- Get more sequence: Allows for more insert sequence and less vector sequence when using standard sequencing primers
- Fast and easy: Go from PCR to clones in just 3 steps and in as little as 5 minutes hands-on time
- Efficient: Obtain up to 95% clones with correct insert
- Proven: Reliable performance for over a decade with over 4,000 citations

Learn more

Thermo Scientific™ CloneJET™ PCR Cloning Kit

- Fast: Clone PCR products in as little as 5 minutes
- Versatile: Use with phosphorylated or non-phosphorylated DNA fragments and with either blunt-end or sticky-end PCR products
- Efficient: Generate more than 99% of positive recombinant clones with no cloning background
- Economical: Eliminate the need for expensive blue/white screening
- Compatible: Transform directly into all common E. coli strains including TOP10 and XL1-Blue

Learn more

Invitrogen™ GeneArt™ Seamless Cloning and Assembly Kit

- Speed and Ease: Clone up to 4 DNA fragments, with sequence of your choice, simultaneously in a single vector (up to 13 Kb); no restriction digestion, ligation or recombination sites required
- Precision and Efficiency: Designed to let you clone what you want, where you want, in the orientation you want, and achieve up to 90% correct clones with no extra sequences left behind
- Vector Flexibility: Use our linear vector or a vector of your choice
- Free Tools: Design DNA oligos and more with our free web-based interface that walks you step-by-step through your project
- Diverse Applications: Streamline many synthetic biology and molecular biology techniques through the rapid combination, addition, deletion, or exchange of DNA segments

Learn more

Upstream Viral Vector Production

Cell culture and expansion

Plasmid transfection

Viral vector production

AAV

Gibco™ AAV-MAX Helper-Free AAV Production System

- Components work synergistically to produce high AAV titers greater than 5 x 10^{10} vg/mL (unpurified)
- Suspension-based system has scalable protocols from shake flask to bioreactor scale
- Simplified workflow—streamlined protocol using helper virus-free triple transfection
- Clonal, 293F-derived, high-producer cell line
- Robust transfection protocols are adaptable to large-scale transfection
- The components included in the AAV-MAX System Kit are:
  - 1 vial of Viral Production Cells 2.0
  - 1 L of Viral Production Medium
  - 1 AAV-MAX Transfection Kit for 1 L of production
  - 100 mL Viral-Plex Complexation Buffer
  - 100 mL AAV-MAX Lysis Buffer
  - 100 mL GlutaMAX Supplement
- ***Available in both Research Use Only (RUO) and GMP-compliant Cell Therapy Systems (CTS) versions to support translational and clinical-scale applications***

Learn more

LV

Gibco™ LV-MAX™ Lentiviral Production System

- High LV yields: Achieves functional titers up to 1 x 10^8 TU/mL (unconcentrated)
- High-density growth: Supports growth of Viral Production Cells at densities greater than 1 x 10^7 cells/mL for maximum vector output
- Xeno-free: No animal derived components
- Scalable and reproducible transfection and production: Validated from 96–well plates to multi-liter bioreactors, enabling easy scale-up without sacrificing yields
- Easy and robust culture and transfection protocol:, Seamlessly integrating into any transient production workflow
- The components included in the LV-MAX System Kit are:
  - 2 vials of Viral Production cells
  - 1 L of LV-MAX Production Medium
  - 1 LV-MAX Transfection Kit
- ***Available in both Research Use Only (RUO) and GMP-compliant Cell Therapy Systems (CTS) versions to support translational and clinical-scale applications***

Learn more

Gibco™ CTS™ Opti-MEM™ I Medium

Gibco CTS Opti-MEM I Medium is an improved minimal essential medium (MEM) that is recommended for use with the CTS LV-MAX Transfection Kit as a complexation buffer. This medium contains insulin, transferrin, hypoxanthine, thymidine, and trace elements. CTS Opti-MEM I uses a sodium bicarbonate buffer system (2.4 g/L), and therefore requires a 5–10% CO2 environment to maintain physiological pH. The formulation of CTS Opti-MEM I is identical to research-grade Opti-MEM I Reduced Serum Medium.

- CTS Opti-MEM I is xeno-free and contains human transferrin.
- CTS Opti-MEM I is manufactured in conformity with cGMP for medical devices, 21 CFR, Part 820, and certified to the ISO 13485. Drug Master File and Regulatory Support File available upon request.

Learn more

Downstream Viral Vector Production

Purification

Fill and Finish

AAV

Thermo Scientific™ POROS™ GoPure™ AAVX Pre-packed Column, 0.5 x 5 cm, 1 mL

- Dimensions of 0.5 x 5 cm, with a nominal bed volume of 1 mL, providing a uniform screening platform
- Direct connection to standard chromatography systems
- Packed with POROS high performance resins that offer high dynamic binding capacity and high resolution over a wide range of flow rates

Learn more

LV

Thermo Scientific™ POROS™ GoPure™ 50 D Pre-packed Column, 0.5 x 5 cm, 1 mL

- Dimensions of 0.5 x 5 cm, with a nominal bed volume of 1 mL, providing a uniform screening platform
- Direct connection to standard chromatography systems
- Packed with POROS high performance resins that offer high dynamic binding capacity and high resolution over a wide range of flow rates

Learn more

Thermo Scientific™ POROS™ GoPure™ 50 HQ Pre-packed Column, 0.5 x 5 cm, 1 mL

- Convenient: Ready-to-run columns simplify and speed POROS resin evaluations
- Conserves sample: The 1 mL nominal bed volume minimizes sample requirement for screening multiple resins
- Simplified scalability: The consistency and range of the POROS GoPure family of pre-packed columns simplifies process scale-up and process modeling

Learn more

Thermo Scientific™ CaptureSelect™ Lenti VSVG Affinity Matrix

- Efficient and high-yield single-step purification of lentivirus particles from recombinant suspension cultivated harvest
- Gentle, neutral pH elution conditions to retain lentiviral activity
- Excellent scalability
- Non-animal derived

Learn more

Virus Agnostic Purification Services

Thermo Scientific™ Nalgene™ Rapid-Flow™ Disposable Filter Units

- Increase filtration efficiency. Thermo Scientific™ Nalgene™ Rapid-Flow™ Disposable Filter Units feature the exclusive Rapid-Flow support column design, providing fast flow rates and high throughput. The last line of defense against cell culture contamination—Nalgene Rapid Flow Filter Units and Bottle Tops are the best choice for the filtration of cell culture media, serum, additives and buffers.

Learn more

Bioprocessing Centrifuge Bottles

- Increase filtration efficiency. Thermo Scientific™ Nalgene™ Rapid-Flow™ Disposable Filter Units feature the exclusive Rapid-Flow support column design, providing fast flow rates and high throughput. The last line of defense against cell culture contamination—Nalgene Rapid Flow Filter Units and Bottle Tops are the best choice for the filtration of cell culture media, serum, additives and buffers.

Learn more

AAV, LV and Virus Agnostic Fill & Finish

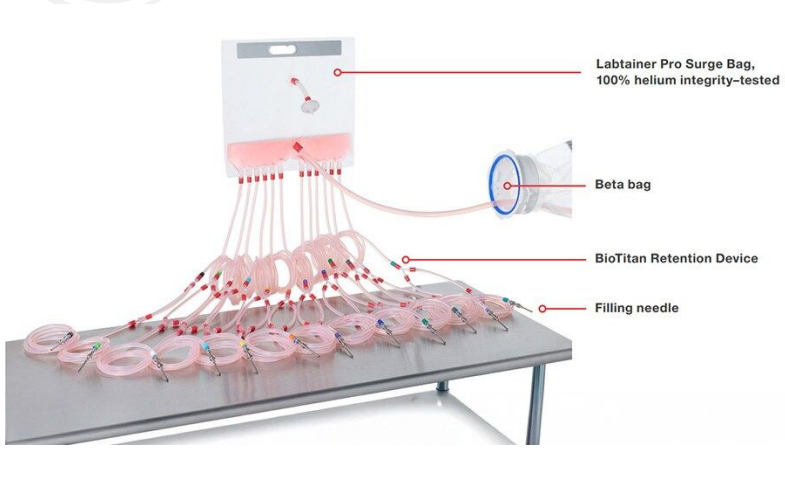
Custom Services: Advanced solutions tailored for you

- When your work requires specialized, reliable, high-quality solutions, count on our staff of experts to help ensure the right workflow options for your research goals. Our wide range of service capabilities leverages a diverse portfolio of quality and consistency, built by some of the most recognized life science brands in the industry, including Applied Biosystems, Invitrogen, and Gibco brands.

Learn more

Fill and Finish Services (Clinical)

- Increased product recovery: Labtainer Pro BioProcess Container (BPC) design enables optimal drainage with very high product recovery
- Integrity assurance: 100% assembly helium integrity test with 10 µm detection limit to help minimize leakage risk
- Improved setup process: BioTitan Retention Device can simplify unpacking steps, compared to traditional cable ties, and helps reduce risk of leaks and connection failures
- Exceptional lead times: Standard and configurable product designs
- High-quality film: Rigorously tested single-use Aegis 5-14 film for durability



Learn more

Cold Storage and Management Services

- Controlled temperature storage, packaging, labeling, and distribution from ambient temperatures, to cryogenic conditions (-190C) conditions
- Cell and gene therapy (CGT) commercial packaging, labeling, and distribution in US and EU, including serialization
- Continuous monitoring solutions for all shipments
- Good Manufacturing Practices (GMP) kit design and production
- Cold chain supplies management and eco-friendly reusable shipper program
- Qualified Person (QP) Release for UK and EU shipments
- Just-in-time packaging, labeling, and distribution services
- Total transportation management

Learn more

Learn more about viral vector solutions at thermofisher.com/lv and thermofisher.com/aav

gibco