

Biotech

Biotech essentials

High-performance, flexible, and reliable products
that will set you up for success



Techniques like cell growth, modification and analysis, sample preparation, synthetic biology, polymerase chain reaction (PCR), real-time PCR (qPCR), sequencing, electrophoresis, and western blotting are the building blocks of your projects. Getting these fundamentals right the first time is critical to moving quickly and efficiently toward your end goal.

In order to do this, you need a partner who can supply all the right products and services. They need to be reliable, flexible, scalable, and save you time so that you can minimize development and product costs, reduce risk, and reach your next milestone faster.

We have a whole range of solutions dedicated to serving these needs ranging from off-the-shelf and customizable reagents and instruments to outsourcing services and manufacturing solutions.

We'll work with you every step of the way to ensure you're set for success.

thermofisher.com/biotechessentials

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Cell growth, scale-up, and modification

Whether you are culturing or modifying your cells, our range of Thermo Scientific™, Invitrogen™, and Gibco™ products will deliver the quality, consistency, and performance you need at every step of your journey from discovery to commercialization.



thermofisher.com/media

Cell growth and scale-up Gibco™ media and supplements

From the basic formulations to the newest innovations, Gibco products provide superior quality, consistency, and performance—to enable you to get it right the first time.

- **Gibco cell culture media** are designed to support the growth and maintenance of a variety of mammalian cells and cell lines. We've developed ready-to-use products as well as powdered and concentrated liquid formulations to fit your experimental setup and budget.
- **Gibco™ BenchStable™ Medium** is stored at room temperature so you don't have to wait for your media to warm up—saving you valuable time. It also frees up your cold storage space and uses more sustainable packaging so you use less energy.
- **Gibco supplements** including balanced salt solutions, cell dissociation reagents, antibiotics, and more are designed to deliver reproducibility.
- **Gibco™ StemScale™ PSC Suspension Medium** delivers 5–10 fold expansion per passage and 3x the expansion capability of other suspension media, a simplified workflow, and consistency across cell lines so you can generate large volumes of high-quality human pluripotent stem cells (PSCs) in suspension culture.



Thermo Scientific™ Nunc™ and Nalgene™ cell culture plastics

Get robust results from your cell culture work with Nunc and Nalgene cell culture plastics. Manufactured using only high-quality raw materials that comply with USP Class VI testing and tested with Gibco media, our plastics offer optimal cell growth across multiple cell lines.

Choose from a range of surfaces and formats all designed to make your cell culture work easier and more scalable—flasks, dishes, plates, conical tubes, and serological pipettes.

thermofisher.com/cellcultureplastics

Gibco™ fetal bovine serum

Used by 14 of the top 15 pharma companies and accounting for 45% of all FBS citations,* Gibco FBS offers you the performance, quality, and consistency you need to reduce the unknowns in your work and move quickly toward your goals.



thermofisher.com/fbs

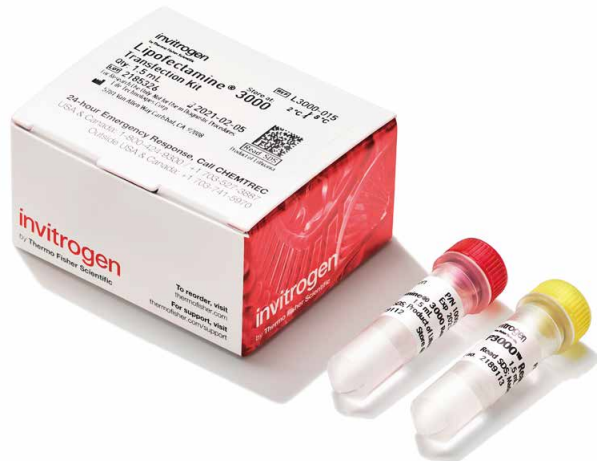
We propose differentiated workflow solutions from specialty serum to innovative packaging like the aliquot-free **Gibco™ One Shot™ FBS 50 mL bottle**.

* From 2006 to 2015.

Transfection



thermofisher.com/neon



Invitrogen™ Lipofectamine™ 3000 Transfection Reagent

Get superior transfection performance with our most advanced lipid nanotechnology:

- Superior performance—highest efficiency into the broadest spectrum of difficult-to-transfect and common cell types
- Improved cell viability—gentle on your cells, with low toxicity
- Versatility—single kit for DNA, RNA, and cotransfection

thermofisher.com/lipofectamine3000

Cell modification

Invitrogen™ Neon™ NxT Electroporation System

Protect your valuable research time and samples with a compact electroporation machine designed and engineered for performance, speed, simplicity, and flexibility. The reliable power of its proprietary biologically compatible pipette tip chamber generates a more uniform electric field for a significant increase in transfection efficiency and cell viability in difficult-to-transfect cell lines including immune, primary, and stem cells.

- Performance—Achieve >90% efficiency and >95% cell viability in more than 150 mammalian cell lines
- Flexibility—Precisely optimize electroporation parameters to deliver DNA, RNA, or protein in as little as 2×10^4 cells to as much as 6×10^6 cells per reaction
- Time-saving—Plug-and-play out of box and transfect cells quickly with a three-step workflow, a single buffer kit, and an intuitive user interface
- Preserve samples—Minimize sample transfer loss and contamination risk of valuable cells with unique and compact electroporation instrument design

thermofisher.com/neonnx



Invitrogen™ TrueDesign™ Genome Editor

Easily create accurate and successful knock-in experiments. Our free design tool has an intuitive point-and-type interface that provides unrivaled flexibility and support for creating genome edits. The simple step-by-step program allows you to:

- Generate a complete knock-in design in minutes
- Edit up to 30 bases in any human gene using CRISPR-Cas9 or TALENs to create SNP or amino acid changes
- Add a GFP or RFP tag and create adaptor primers for Invitrogen™ TrueTag™ Donor DNA Kits to produce a donor template without cloning
- With a single click you can download comprehensive documentation

thermofisher.com/truedesign

Cellular analysis

Our cellular analysis product portfolio combines the strengths of Invitrogen™ fluorescent reagents and versatile analysis instrumentation. Discover more about your samples with automated cell counting, automated multiwell plate scanning, long-term live-cell imaging, and powerful image analysis.



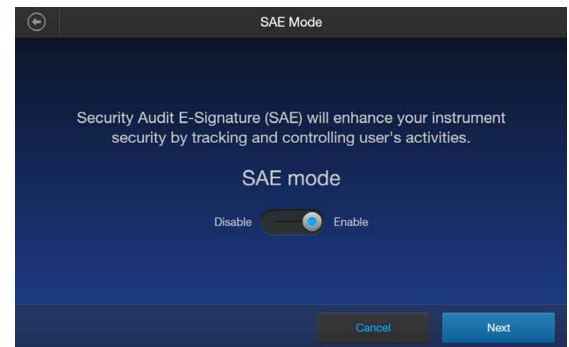
Cell counting

Invitrogen™ Countess™ 3 FL Automated Cell Counter

With the optional Invitrogen™ Countess™ SAE Software Solution, embrace the support of electronic record-keeping in compliance with FDA 21 CFR Part 11 guidelines. Satisfy the necessary regulatory technical requirements with the Countess SAE Software Solution and submit the results confidently and securely every time.

Perform cell viability using trypan blue or **Invitrogen™ ReadyCount™ Green/Red Viability Stain**.

Obtain apoptosis and viability data with a viability dye such as **Invitrogen™ SYTOX™ Red Dead Cell Stain**, in combination with an apoptosis indicator that measures caspase activation, such as **Invitrogen™ CellEvent™ Caspase-3/7 Green Detection Reagent**.



thermofisher.com/countess



thermofisher.com/evosm7000

thermofisher.com/microscopyreagents

thermofisher.com/cellstructure

Fluorescence imaging

Invitrogen™ EVOS™ M7000 Imaging System

A powerful, fast, and fully automated system for reliable results.

Bring high performance and fast, automated imaging right to your lab bench with the EVOS M7000 Imaging System. This system has been designed with advanced capabilities to simplify demanding cell-based imaging applications such as live-cell analysis, image stitching, and Z-stacking, so you can focus on acquiring images and data rather than instrument operation.

When combined with the **Invitrogen™ EVOS™ Onstage Incubator (OSI-2)**, the EVOS M7000 Imaging System is ideal for long-term monitoring of cell cultures and time-lapse imaging at high resolution.

Extensive quantitative imaging and statistical analysis can be performed in combination with **Invitrogen™ Celleste™ Image Analysis Software**, an optional advanced software package offering powerful tools for image segmentation and classification including 2D, 3D deconvolution, visualization, and analysis.



thermofisher.com/varioskanlux

Cellular quantification/ microplate detection Thermo Scientific™ Varioskan™ LUX Multimode Microplate Reader

This instrument was designed for the highest performance and highest quality of results in a wide variety of applications. Automatic dynamic range selection adjusts the optimal reading gain based on signal intensity; smart safety controls alert users to potential errors before they happen, all to help save your time, avoid experimental errors, and get you to your goals faster.

The Varioskan LUX instrument includes a range of measurement technologies: absorbance, fluorescence intensity, luminescence, TRF (time-resolved fluorescence), and the AlphaScreen™ method. Fast readout of signals across a range of measurement modes (endpoint, kinetic, multipoint, spectral scanning, and kinetic spectral scanning), enables a variety of cellular assays.

An integrated gas module enables precise control of CO₂ and O₂ levels for optimal cell growth.

Intuitive **Thermo Scientific™ SkanIt™ Software** provides powerful data analysis and calculations such as cell viability percentages and cytotoxic potency. For additional benefit and ease of use, SkanIt Software includes several ready-made protocols for cell health assays, such as for the **Invitrogen™ alamarBlue™** and **PrestoBlue™** assays, multiplexing, ATP assays, DLR assays, and the NanoBRET™ assay. SkanIt Drug Discovery Edition Software is also available, which incorporates CFR 21 Part 11 compliance features for regulated environments.

The Varioskan LUX instrument can be combined with the EVOS M7000 Imaging System for the fluorescence-based quantification and imaging of complex biological systems, without requiring separate assay optimization.

Fluorescent secondary antibodies for imaging Invitrogen™ Alexa Fluor™ Plus Secondary Antibodies

Make your low-abundance targets visible, spend less time optimizing, and make every one of your precious samples count. Alexa Fluor Plus conjugate technology provides higher signal-to-noise ratios with minimized cross-reactivity for fluorescent imaging. Available across the fluorescent spectra, Alexa Fluor Plus secondary antibodies provide flexibility in experimental design to fit the needs of your instrumentation or when expanding the number of readouts for multiplexing applications.

thermofisher.com/alexafuorplus



thermofisher.com/microplateassays

Fluorescence microplate applications

Combining the sensitivity of a fluorescence-based assay with a microplate format enables a rapid, quantitative readout suitable for high-throughput analysis. In a microplate well, the fluorescent signal can be generated within whole cells, in cell lysates, or in purified enzyme preparations and may then be analyzed by measuring fluorescence intensity from the well without the need for cellular imaging.

Many of these assays include substrates, buffers, and calibration standards as well as kinetic or endpoint protocols.





Cellular analysis screening

thermofisher.com/attune

Invitrogen™ Attune™ Flow Cytometers

This benchtop flow cytometer uses a revolutionary technology—acoustic focusing—to align cells prior to interrogation with a laser for your multicolor flow cytometry analysis. Now with the flexibility to create a customized 4-laser, 14-color system, the Attune Flow Cytometers are designed to accommodate existing experimental protocols and lab budgets.

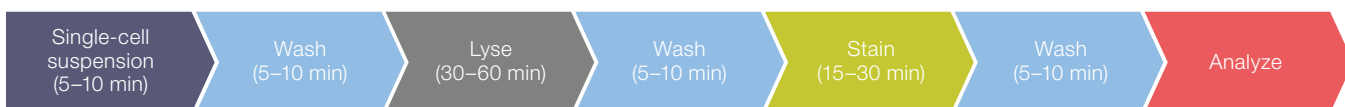
- Conserve sample and quickly run experiments with sample flow rates ranging from 12.5–1,000 $\mu\text{L}/\text{min}$
- Intuitive software interface and easy-to-follow workflow that is quick to learn, teach, and use, including the optional 21 CFR Part 11 compliance software upgrade for preclinical security, auditing, and e-signatures; IQ/OQ service available
- Save time and minimize cell handling with faster protocols and walk-away automation with the Invitrogen™ CytKick™ Max Autosampler:
 - Runs a 96-well plate in 22 minutes
 - Passive cooling component
 -
- Switch between analyzing tubes and plates with the click of a button
- Running 1 and 2 mL tubes
- Compatible with Thermo Fisher Scientific automation and robotics
- Expand your capabilities with up to 6 channels of detection off the violet laser
- A flow cytometry analyzer with brightfield imaging capabilities; morphological observations and image parameter measurements add to the richness of flow cytometry data more than multiplexed staining alone
- Improve data accuracy with >25 image-derived label-free imaging parameters
- Compatible with mammalian cells, algae, bacteria, yeast, parasites, and plant cells

Choose from more than 25,000 flow antibody conjugates, compensation beads, and viability reagents by visiting thermofisher.com/flowcytometry

Did you know we offer flow cytometry panel design services for free? Request panel design help from our scientists at thermofisher.com/paneldesign

Save up to 90 minutes in preparation time with your whole blood samples

Generic sample preparation workflow



No-wash, no-lyse sample preparation workflow



Up to
65%
reduction in
prep time

* Compared to conventional cytometers.

Internal data standard

Equivalent Reference Fluorophore (ERF) beads are particles labeled with specific fluorophores to provide a fluorescent intensity reference. These beads provide a method to accurately compare data from different types of instruments at different locations or data run on the same instrument on different days.

Benefits include:

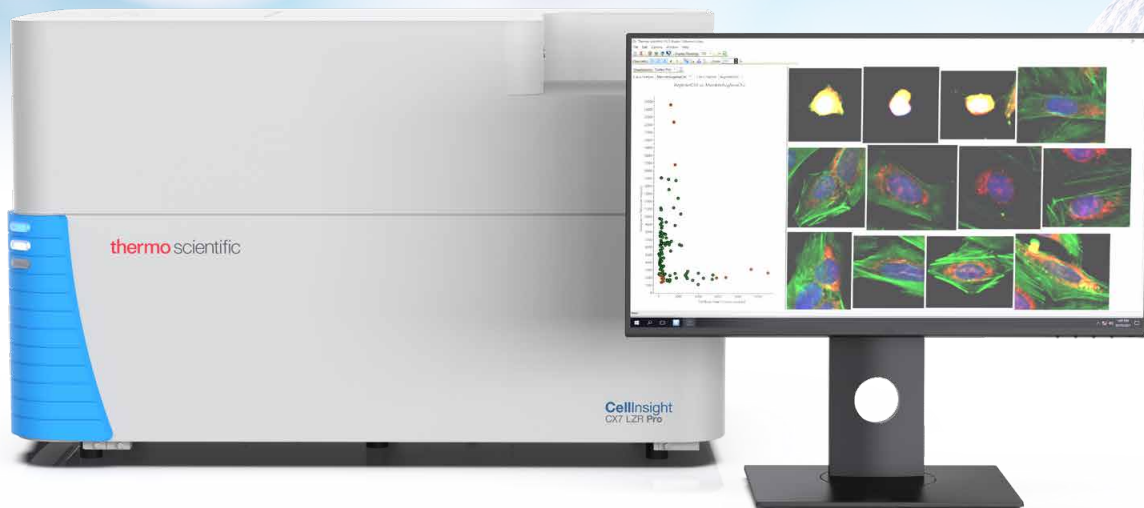
- Standardized ERF values assigned by the National Institute of Standards and Technology (NIST), an independent organization
- Values for 26 channels collected from emitted fluorescence from 415–910 nm
- ERF values for a particular channel under a specified set of instrument conditions are comparable between instruments and over time, even when different manufacturers' calibration beads are used

Learn more at [thermofisher.com/flowcalibration](https://www.thermofisher.com/flowcalibration)

Fixation reagents

Fixatives are necessary for saving samples to be used later or for looking at intracellular or intranuclear targets. Ready-to-use fixation kits are optimized for flow cytometry applications. Benefits of using these kits include the following:

- Methods used to stain cells take into consideration the location of the target proteins
- The fixation and permeabilization methods keep the morphological light-scattering characteristics of the cell intact
- Reagents in the kits help reduce background staining



thermofisher.com/hcs

High-content screening

Thermo Scientific™ CellInsight™ CX7 LZR Pro HCS Platform

Bring automated quantitative cell analysis to your screening lab. The CellInsight CX7 LZR Pro system, equipped with an sCMOS camera, offers a powerful and integrated way to develop and automate high-content assays, using a combination of 5-color brightfield and 7-color fluorescence imaging. With laser illumination, the platform enables rapid imaging in both wide-field and confocal modes, with deep penetration into 3D samples.

- Faster scan times—up to 5x faster than confocal imaging, EurekaScan™ Finder enables average 14.6-fold faster screening of rare reverts
- Quantifiably brilliant data—laser-based lighting provides superior spheroid illumination
- Enhanced speed and sensitivity for superior performance—seven independent lasers provide superior multiplexing with minimal bleed through

A scalable system that will flex around your changing needs:

Scalable cell biology

Connect directly to the **Thermo Scientific™ Orbitor™ RS2 Microplate Mover** to increase processing capacity up to 80 plates

Screen thousands of samples

HCS Studio Cell Analysis software accelerates your study with “on-the-fly” real-time analysis, enabling faster acquisition of data

Scalable image storage

Store Image and Database Management Software expands to a server-based platform, allowing huge amounts of images and data to be managed

Invitrogen™ Qubit™ fluorometers

Quickly and specifically quantify DNA, RNA, or non-degraded proteins.

- Devices use as little as 1 µL of sample, even with very dilute samples
- Invitrogen™ Qubit™ 4 Fluorometer for single-sample quantification and Invitrogen™ Qubit™ Flex Fluorometer for quantification of up to 8 samples
- Save your results to a USB memory device, local area network, or the Thermo Fisher™ Connect Platform



thermofisher.com/qubit



thermofisher.com/qubitassays

Invitrogen™ Qubit™ assays

Sensitive and specific nucleic acid and protein quantification assays. Invitrogen Qubit assays use target-selective dyes that emit fluorescence only when bound to their DNA, RNA, or protein target. They are more accurate than traditional UV absorbance, which can overestimate sample concentrations due to contaminants such as salts, solvents, detergents, proteins, and free nucleotides. Fluorescence measurements are also much more sensitive than UV absorbance, and Qubit Fluorometers can accurately measure dilute samples with significantly less noise.



Count on leading services and instrument expertise to support your life-changing work

There's no time for downtime in your lab. Built on more than 40 years of service expertise, our superior services and support solutions and applications help keep your lab up and running. More than 2,000 trained professionals make up the industry's largest network, ready to assist you when you need it. And smart features such as remote instrument services help keep you productive and focused on making the next discovery.

thermofisher.com/instrumentservices



thermofisher.com/kingfisherapex

Sample preparation

Consistently extract and purify your nucleic acids, proteins, and cells with maximum yield, purity, and integrity from virtually any sample type using Thermo Scientific™ KingFisher™ purification systems, Applied Biosystems™ MagMAX™ kits and reagents, and Invitrogen™ Dynabeads™ magnetic beads.

Automated sample preparation

Thermo Scientific™ KingFisher™ Apex Automated Purification System

Achieve peak performance for purifying DNA, RNA, proteins, or cells with flexibility for fast and reproducible results for almost any application.

- Elute in lower volumes (10 µL) for demanding downstream applications
- Purify 24 to 96 samples in 25–65 minutes
- Control heating and cooling to maintain sample integrity
- Elute in storage tubes and revisit samples later
- Safeguard against contamination with 2 built-in UV lights



Consistent

The unique instrument design, moving magnetic beads instead of liquids can help lead to cleaner extractions and consistent results with every run



Convenient

Easy to set up and run, or customize to fit your lab's needs



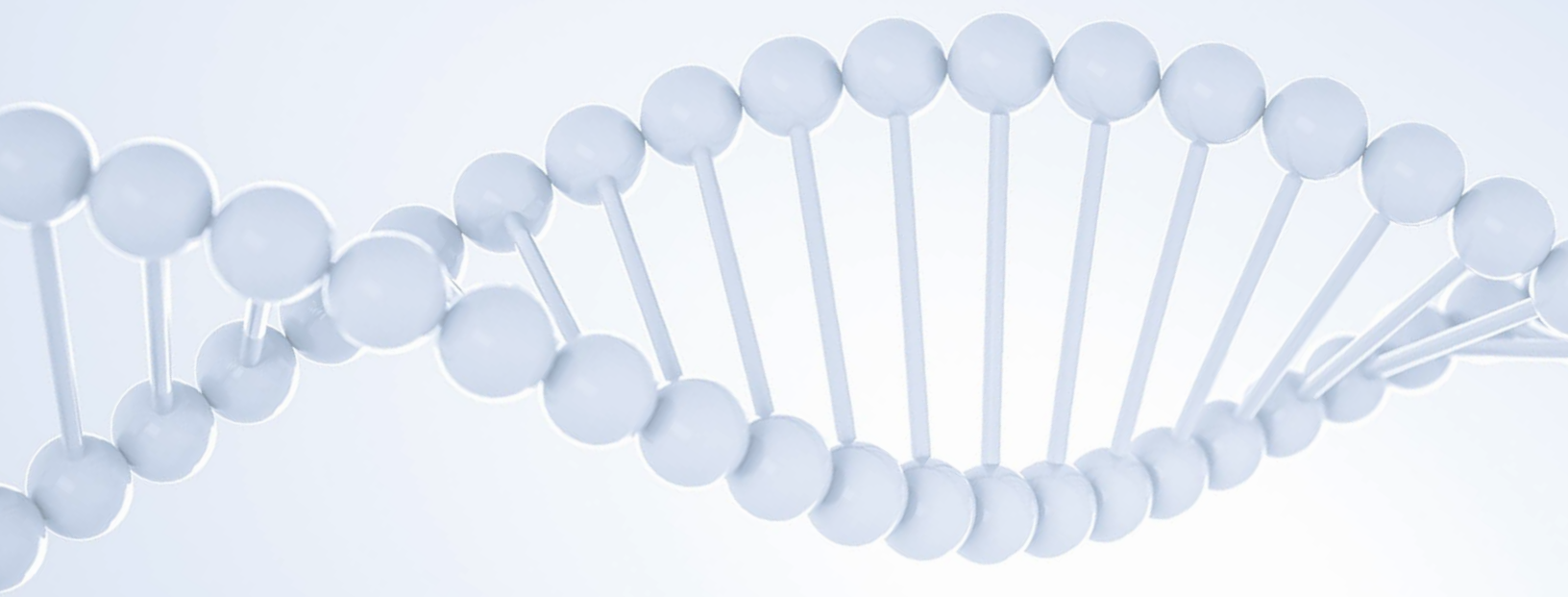
Versatile

Enables more applications than any other sample preparation instrument



Supported

Backed by the industry's largest network of specialists dedicated to supporting these instruments



Kits and reagents optimized for KingFisher instruments

Applied Biosystems™ MagMAX™ DNA/RNA purification kits

- Superior binding capacity—the large surface area of a magnetic bead and thorough exposure to the target during mixing enables superior binding and washing efficiency
- Less clogging—due to mobile dispersion and regular density
- Improved elution—efficient elution in small volumes
- Purify high-quality nucleic acids from a variety of sample types such as cultured cells, tissues, blood, plasma, serum, urine, FFPE, viruses, microbes, fungi, stool, soil, wastewater, plants, and more

thermofisher.com/magmax

Invitrogen™ Dynabeads™ magnetic beads

- Dynabeads magnetic beads offer the best balance of high yield and reproducibility with low nonspecific binding for immunoprecipitation and cell isolation
- Multiple ligands available for different protein purification strategies, including immobilized protein A/G, Ni-NTA, glutathione, and anti-FLAG
 - Dynabeads magnetic beads also have solutions for mRNA synthesis and purification, cell isolation, activation, and exosomes

thermofisher.com/dynal



thermofisher.com/kingfisher



Dynabeads magnetic beads portfolio

Invitrogen™ Dynabeads™ Streptavidin

Streptavidin-coupled Invitrogen™ Dynabeads™ magnetic beads can provide an ideal platform for isolation and handling of biotinylated molecules and targets (e.g., antibodies, proteins, peptides, small molecules, sugars, lectins, oligonucleotides, DNA, and RNA

- No centrifugation, precipitation, or columns
- In-solution binding with rapid kinetics
- Excellent mechanical and chemical stability
- Reduced variability and increased consistency
- Process can be automated for isolation of biotinylated DNA, RNA, proteins, or cells

Selection guide			
	Bead size: 2.8 µm Viscous samples	Bead size: 1 µm Higher binding capacity + automation	
Hydrophobic	Dynabeads M-280 Streptavidin* <ul style="list-style-type: none"> • Immunoassays • Protein purification • Cell isolation 	Dynabeads MyOne Streptavidin T1* <ul style="list-style-type: none"> • Immunoassays • ChIP or RIP • Protein purification • Cell isolation 	Dynabeads Streptavidin for Target Enrichment Target enrichment for NGS
	Hydrophilic	Dynabeads M-270 Streptavidin* <ul style="list-style-type: none"> • Prep for ssDNA • Protocols with high salt concentrations • Immunoassays 	Dynabeads MyOne Streptavidin C1* <ul style="list-style-type: none"> • Prep for ssDNA • Protein purification for mass spectrometry

* 1 mL of each product is supplied in the Invitrogen™ Dynabeads™ Streptavidin Trial Kit, Cat. No. 65801D.

Invitrogen™ Dynabeads™ Streptavidin for Target Enrichment

Boost your library preparation with standalone Dynabeads magnetic beads for target enrichment.

- High purity—helps minimize non-specific binding
- High reproducibility—achieve consistent results and can help reduce the risk of failure
- High sensitivity—secure successful NGS workflow
- Automation—enables high-throughput enrichment

thermofisher.com/streptavidinbeads



Vaccine research and development

Invitrogen™ Dynabeads™ Streptavidin for In Vitro Transcription, Dynabeads™ Carboxylic Acid

for RNA Purification, and Dynabeads™ RNA Binding Buffer are innovative solutions for mRNA vaccine research from discovery to production.

- Reusable DNA template for cost efficiency
- Reproducible results
- High yield and excellent mRNA integrity
- Easy and fast automation with Thermo Scientific™ KingFisher™ instruments

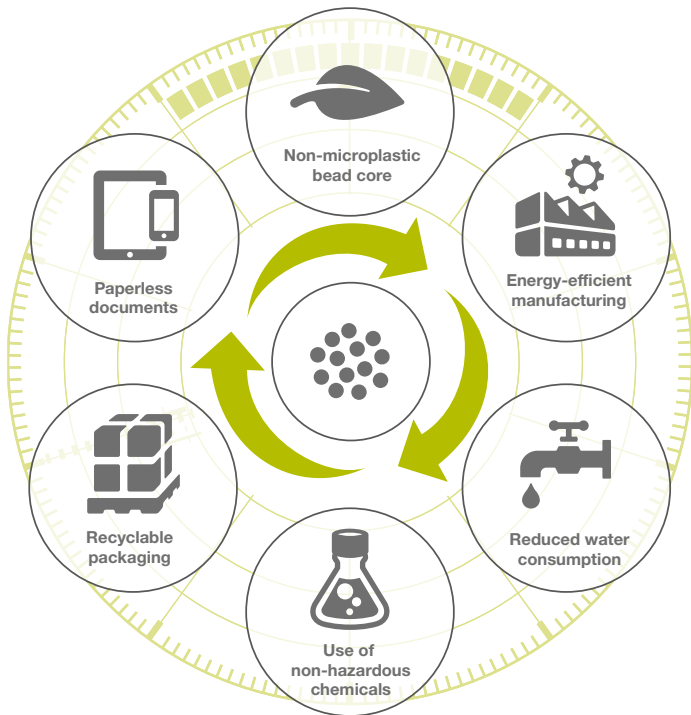
thermofisher.com/dynabeadsmrna



Immunoprecipitation (IP) with Invitrogen™ DynaGreen™ magnetic beads

Sustainable DynaGreen magnetic beads are a highly magnetic, submicron bead platform with a pioneering green design. These 250-nanometer superparamagnetic beads enable high-performance direct and indirect IP of proteins, protein complexes, protein–nucleic acid complexes, and other antigens (Ag).

- High performance—high yield and purity for direct and indirect immunoprecipitation
- Sustainable—reduced environmental impact with energy-efficient manufacturing, recyclable packaging, and a non-microplastic magnetic bead core
- Trusted—backed by 30 years of Dynabeads magnetic beads quality and innovation
- Flexible—effortlessly scale your experiments with simple manual and automated workflows on KingFisher purification systems



thermofisher.com/dynagreen

Synthetic biology

From DNA and RNA oligonucleotides to complete gene synthesis and protein production, we have it all. With a variety of custom and pre-designed products for CRISPR gene editing, RNAi, and other applications, our innovations can get you to your next milestone quickly.

Invitrogen™ oligonucleotides

1. Custom DNA and RNA oligos

The Invitrogen™ Custom Oligo Service has been supporting researchers all over the world for over 20 years. We offer a complete range of custom-synthesized oligonucleotide primers, probes, and genes. Our oligos can be used in a variety of applications, including:

- Research: PCR, qPCR, cloning, sequencing, RNAi, and gene synthesis and detection
- Diagnostics: diagnostic tests
- Target screening

2. Pre-designed DNA oligos and primers

In addition to our custom synthesis, we offer a selection of other high-quality, pre-designed DNA primers and oligos that are commonly used in a variety of molecular biology and genomic applications, such as:

- Expression analyses
- Epigenetic research
- Next-generation sequencing (NGS)

3. Invitrogen™ CRISPR-Cas9™ products and services

Precise gene editing, fluorescent tagging, and gene knockout for loss-of-function are powered by the Invitrogen™ TrueDesign™ online CRISPR design tool and accompanying nuclease and guide RNA reagents. Our products and custom gene editing services support:

- Disease model generation
- Gene functional analysis
- Cell line engineering



Invitrogen™ GeneArt™ Gene Synthesis and Protein Services

Conventional PCR and cloning techniques require optimization and troubleshooting, which take up valuable lab time and resources (Figure 1, next page). GeneArt Gene Synthesis tools go beyond traditional gene synthesis by enabling expression optimization for maximum performance.

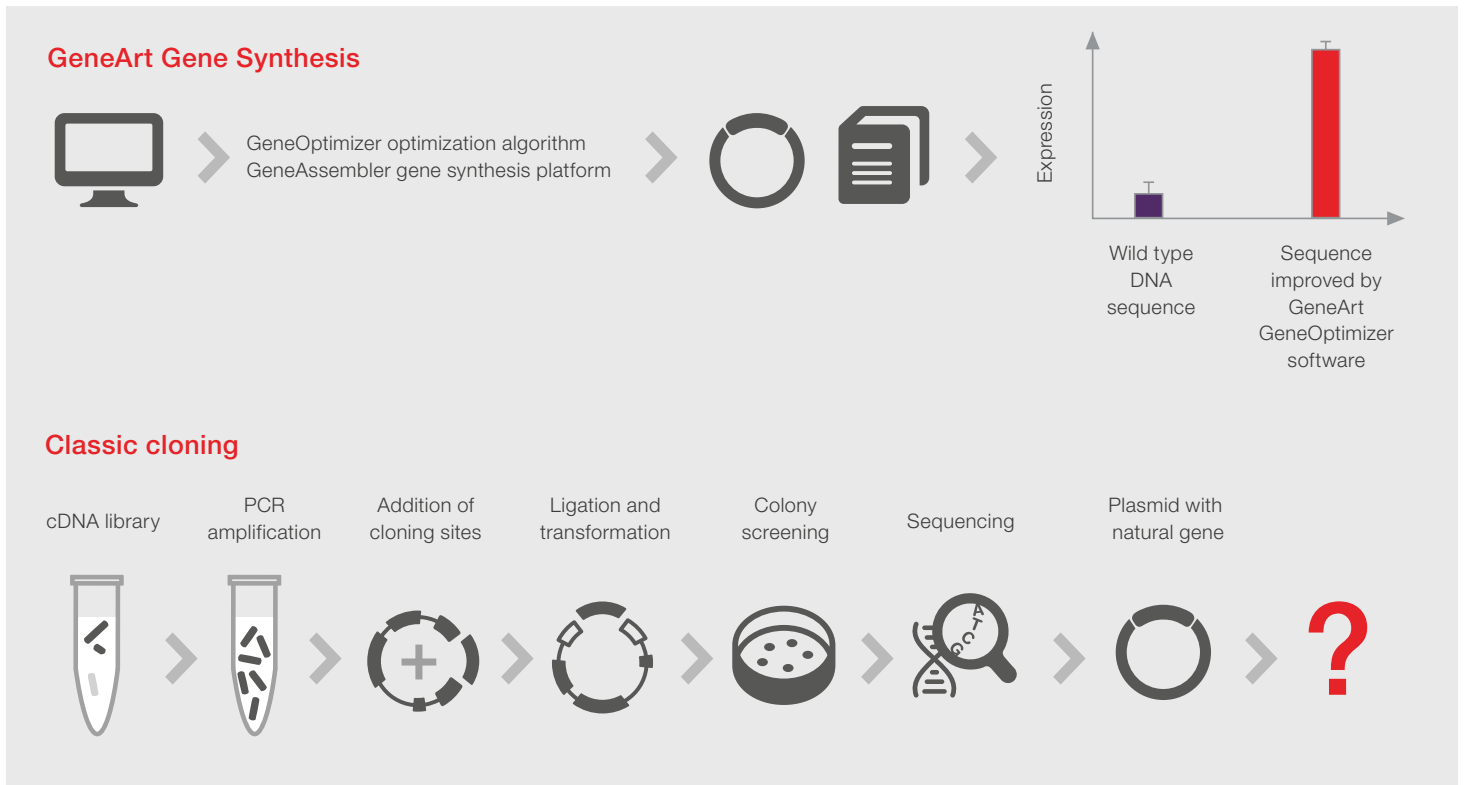
Custom gene synthesis circumvents the limitations of PCR-based workflows. With this technique, synthetic biology has made it possible to reliably, safely, and cost-effectively obtain customized DNA constructs with 100% verified sequence accuracy.

GeneArt Services also include

- Subcloning, including into your own vector, and express cloning directly into expression vectors, saving days
- Plasmid service providing highly pure and homogenous plasmid DNA that is transfection-ready
- DNA libraries, including combinatorial, controlled randomization, and site-saturation mutagenesis for rational protein design
- A complete gene-to-protein workflow to go from digital sequence all the way to purified protein

Get a complete overview of GeneArt Services at thermofisher.com/geneart

Figure 1. GeneArt Gene Synthesis and optimization are faster than classic cloning methods and can provide better results.



Get a complete overview of GeneArt Services at thermofisher.com/genear

Invitrogen™ GeneArt™ Strings™ Gene Fragments

In addition to fully cloned genes and protein services, GeneArt Strings DNA Fragments are also available to save time and effort. These are dsDNA, linear fragments that are delivered fast and ready for cloning (Table 1).

Only a minimal number of colonies (~3) will need to be picked.

GeneArt Strings DNA Fragments	
How to order	GeneArt portal or GeneArt Strings Assistant
Benefits	Faster turnaround time
Length	200–3,000 bp
Accuracy (error per base)	Less than 1 in 5,000
GC content	30–70% GC
Total reliability	95%
Production time	From 3 business days
Delivery amount (lyophilized DNA)	Minimum >200 ng Average 900 ng

No time to place an order?
Check out our fast, cost-effective way to order your oligos at thermofisher.com/valueoligos

Table 1.



thermofisher.com/proflex

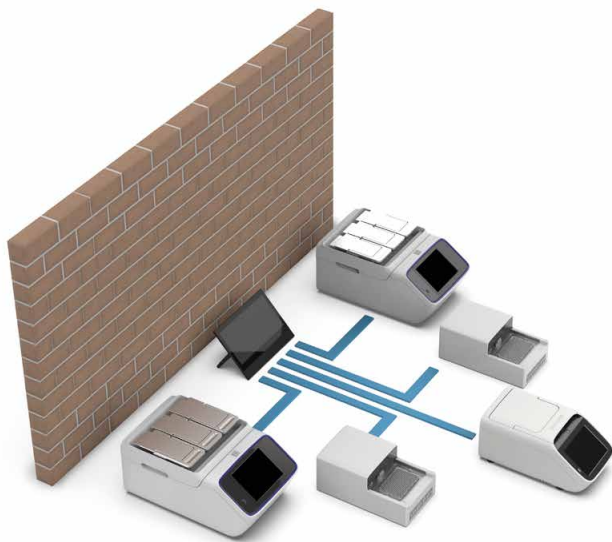
PCR

Consistently arrive at results quicker, with more confidence and less optimization using our scalable systems, innovative DNA polymerases, and reliable PCR plastics.

Thermal cyclers Applied Biosystems™ ProFlex™ PCR System

Ultimate flexibility that scales up or down, supporting the evolution of your assay development.

- Interchangeable block formats—3 x 23-well, 96-well, dual 96-well, dual 384-well, and dual flat 96-well
- Run up to 6 experiments at once and up to 3 different users
- Precise control of the PCR temperature thanks to patented Applied Biosystems™ VeriFlex™ Block temperature control technology
- Cloud-enabled system



thermofisher.com/fleetcontrol

More than one thermal cycler? Ultimate control with Fleet Control Software

View and control your thermal cycler inventory in your facility securely behind your firewall with a central “server” computer.

- Create customer permissions and rules for users, methods, and instruments
- Confirm data integrity with audit trail

PCR plastics and DNA polymerases

Applied Biosystems™ MicroAmp™ PCR plastics

- Validated on Applied Biosystems™ thermal cyclers for optimal fit and performance
- Available in all formats to support your needs



thermofisher.com/findplastics

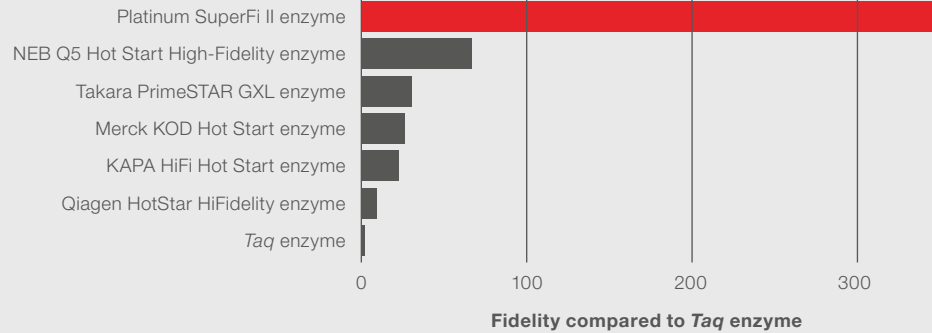
Invitrogen™ Platinum™ SuperFi™ II DNA Polymerase

- Exceptional accuracy—higher than 300x *Taq* fidelity as determined by NGS
- Simplified workflow—buffer formulated for primer annealing at 60°C (no need for a T_m calculator)
- Increased PCR success—robust amplification of GC-rich targets, DNA of suboptimal purity, and long sequences
- Automation enabled—high specificity and benchtop stability for 24 hours after reaction setup, enabled by Invitrogen™ Platinum™ hot-start technology
- Reduced pipetting—master mix options available with or without direct gel-loading dyes



thermofisher.com/platinumsuperfi

Get it right the first time with an extremely low error rate



thermofisher.com/platinumitaq

Invitrogen™ Platinum™ II *Taq* Hot-Start DNA Polymerase

- Innovative universal primer annealing buffer—simplifies optimization of primer annealing and helps to circumvent multiple PCR runs
- Engineered *Taq* DNA polymerase—allows fast cycling and successful amplification even in the presence of inhibitors
- Platinum hot-start technology—enhances specificity, sensitivity, and yields; allows for room-temperature reaction setup



Electrophoresis

Using precast agarose gels can simplify and speed up your nucleic acid electrophoresis workflow. There are no gels to pour, buffers to make, staining or destaining steps to perform, or gel boxes to assemble. Just load your samples and start the run.



thermofisher.com/powersnap

Invitrogen™ E-Gel™ Power Snap Electrophoresis System

Combine rapid, real-time nucleic acid analysis with high-resolution image capture for superior convenience.

- Analyze faster—sample loading to image capture in 15 minutes
- Simple operation—intuitive user interface with large touchscreen and integrated operating system
- Safer handling—minimize handling of hazardous chemicals with Invitrogen™ E-Gel™ precast gel cassettes



thermofisher.com/egel

Invitrogen™ E-Gel™ precast gels

- Minimize time-consuming and messy prep work
- Run up to twice as fast as conventional handcast gels
- Available in a variety of agarose percentages, well formats, and throughput capacities to suit your applications

Need a higher throughput?

Accelerate high-throughput electrophoresis analysis with E-Gel 48 and E-Gel 96 precast gels run on the expandable Invitrogen™ E-Base™ Electrophoresis System. The integrated design of the Invitrogen™ Mother E-Base™ and Daughter E-Base™ devices saves space and allows for up to 384 samples to run at one time.

RNA extraction and cDNA synthesis for qPCR

Kits and reagents that save time and deliver superior performance with even the most challenging samples.

Invitrogen™ SuperScript™ IV CellsDirect™ cDNA Synthesis Kit

Designed to synthesize first-strand cDNA directly from mammalian cell lysates without first isolating the RNA. With lysis and reverse transcription performed in the same tube, the resulting first-strand cDNA is ready to use in many downstream applications such as PCR and qPCR.

- Time-saving—save up to 2 hours in overall workflow time
- Superior sensitivity—easy detection of low-abundance targets
- Direct convenience—no need to isolate RNA
- qPCR compatibility—superior performance with Applied Biosystems™ PowerTrack™ SYBR Green Master Mix



thermofisher.com/cellsdirect

Invitrogen™ SuperScript™ IV Reverse Transcriptase

Engineered to deliver superior performance even with challenging RNA samples.

- Super efficient—up to 100x higher cDNA yield
- Super robust—transcribes even from low-abundance, degraded, or inhibitor-containing RNA samples
- Super fast—10 min cDNA synthesis protocol
- Super convenient—available in a variety of formats
- Extensive quality testing



Invitrogen™ SuperScript™ IV VILO™ Master Mix

- Formulated to deliver exceptional performance in qRT-PCR applications
- Improved C_t —up to 8 fewer cycles compared to other RT reagents
- Superior linearity—works with a broad range of input RNA
- Super reliable—improved qRT-PCR data reproducibility due to single-tube master mix format
- Super safe—integrated, easy, and RNA-friendly genomic DNA (gDNA) removal
- Extensive quality testing

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thermofisher.com/4vilo



thermofisher.com/quantstudiopro

Real-time PCR

Applied Biosystems™ real-time PCR (qPCR) solutions are integrated and scalable and help ensure you get it right. High-performing consumables and innovative qPCR instruments with Cloud access give you anywhere, anytime access to your data and world-class service and support.

qPCR systems

Applied Biosystems™ QuantStudio™ 6 and 7 Pro Real-Time PCR Systems

The QuantStudio 6 and 7 Pro qPCR systems are designed to improve efficiency and streamline your workflow with excellent reliability. Analyze more samples in less time with a smart workflow experience that brings lab-changing innovations to your research:

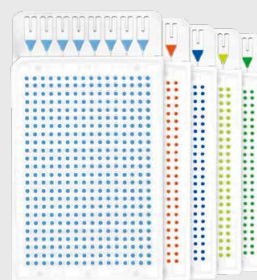
- Ease and convenience with pre-aliquoted assays in 384-well Applied Biosystems™ TaqMan® Array Cards
- Manual error reduction—compatible with Applied Biosystems™ TaqMan® Array Plates with RFID
- Smart features—hands-free functionalities like voice commands and facial authentication
- Superior service and support with Smart Help and Smart Remote Support

qPCR assays

Applied Biosystems™ TaqMan® Assays

TaqMan Assay technology is the gold standard for real-time PCR, delivering the specificity, sensitivity, and reproducibility you need across applications, from gene expression and microRNA analysis to SNP genotyping and CNV studies.

Rapidly generate results with easy-to-use and convenient 384-well TaqMan Array Cards. Customize your array content choosing from more than 20 million predesigned TaqMan Assays or choose from preconfigured content formulated to work right out of the box and backed by our **TaqMan Assay performance guarantee**.*



Pre-designed TaqMan Assays, available in 5 different formats for 29 species, will help you spend your time generating results, not designing and optimizing assays.

thermofisher.com/taqman

* Terms and conditions apply. For complete details go to thermofisher.com/taqmanguarantee

qPCR reagents

Our optimized master mixes deliver accuracy and specificity the first and every time.

Recommended high-performing qPCR reagent for 2-step gene expression:

Applied Biosystems™ TaqMan® Fast Advanced Master Mix

Superior accuracy, dynamic range, and specificity compared to standard master mixes for gene expression and miRNA detection experiments. TaqMan Fast Advanced Master Mixes are optimized for multiplexing and for reduced run times on standard and fast instruments and are stable at room temperature for up to 72 hours in preassembled reactions. Use with TaqMan Assays.



thermofisher.com/qpcrmm

Recommended high-performing qPCR reagent for genotyping:

Applied Biosystems™ TaqPath™ ProAmp™ Master Mix

Accurate results from both pure and crude samples containing PCR inhibitors for your SNP genotyping and copy number variation experiments.

TaqPath master mixes are general purpose reagents manufactured in an ISO 13485–certified facility and labeled “For Laboratory Use.” Use with TaqMan Assays.



thermofisher.com/proamp

Recommended high-performing qPCR reagent for 1-step real-time PCR:

Applied Biosystems™ TaqMan® Fast Virus 1-Step Master Mix

Fast, accurate results from pure and challenging samples (e.g., blood, stool) that may contain PCR inhibitors. The optimized multiplex formulation and convenient, single-vial format make it ideal for high-throughput RT-qPCR applications.

The 4X formulation provides enhanced detection of both RNA and DNA viruses, even with low target input. Use with TaqMan Assays.



thermofisher.com/qpcrmm



Learn more at thermofisher.com/quantigene

Bead-based singleplex and other multiplex gene expression platforms

Invitrogen™ QuantiGene™ Plex assays

QuantiGene Plex assays are hybridization-based and incorporate branched DNA (bDNA) technology which uses signal amplification rather than target amplification for direct measurement of RNA transcripts. The assays are extremely easy to use with a simple ELISA-like workflow and do not require RNA purification and reverse transcription.

- Detect low-abundance genes—exquisite sensitivity allows for the basal measurement of low-expression genes
- Large inventory of validated genes—select from more than 22,500 genes to create pathways and disease-themed panels
- Customization—tailor your custom panel how you need it and receive it within 3 weeks
- Direct from lysate quantitation with no RNA purification required
- Works with difficult sample type such as FFPE tissues and whole blood
- Standardized platform with a simple ELISA-like workflow

Digital PCR

Applied Biosystems™ digital PCR (dPCR) solutions offer a powerful yet easy-to-use dPCR experience through its unique Microfluidic Array Plate (MAP) technology. Measure viral titer, custom genes of interest, molecular integrity, or the presence of residual DNA without the use of a standard curve for faster, simpler, and more precise quantification.

Applied Biosystems™ QuantStudio™ Absolute Q™ Digital PCR System

The QuantStudio Absolute Q Digital PCR System enables all the necessary steps for dPCR – compartmentalization, thermal cycling, and data acquisition – to be conducted on a single instrument. The QuantStudio Absolute Q dPCR workflow is identical to qPCR to improve ease of use, minimize hands-on steps, and maximize consistency through:

- Fast time-to-answer—single instrument with 5 minutes of hands-on time enables results in as little as 90 minutes* with no manual transfer steps required
- Consistency—with proprietary MAP technology, the QuantStudio Absolute Q dPCR system enables exceptional consistency in total micro-chambers analyzed, and eliminates the need for a standard curve to improve variability and accuracy
- Efficiency—minimal sample volume input required with < 5% of reaction wasted, saving your precious samples



Applied Biosystems™ QuantStudio™ Absolute Q™ AutoRun Digital PCR Suite

With flexible instrument configurations and intelligent automation that supports up to 72 hours of hands-free operation, the QuantStudio Absolute Q AutoRun Digital PCR Suite helps to maximize high-throughput multiplex dPCR with a streamlined, walk-away workflow.

- Powerfully simple—the suite is built around the efficient workflow of the QuantStudio Absolute Q dPCR system, enabling consistency while requiring less hands-on prep time for improved productivity
- Walk-away workflow—up to 60 reaction plates can be prepared and loaded in the system to keep dPCR analysis running for up to three days without operator intervention; DNA dPCR reactions on the Applied Biosystems™ QuantStudio™ Absolute Q™ MAP16 Plate Kit are stable for more than 72 hours, offering you peace of mind and improved automated run-to-run data consistency
- Scalable throughput—flexibility to integrate automation using a single or dual QuantStudio Absolute Q dPCR system configuration to dynamically scale throughput to meet your growing needs



thermofisher.com/autorun

* 90-minute time includes reagent digitization, thermal cycling, and data collection. Total time may vary based on assay-specific thermal cycling requirements.



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Sanger sequencing and fragment analysis

Applied Biosystems™ genetic analyzers are a trusted standard for Sanger sequencing and fragment analysis by capillary electrophoresis (CE). Versatile and innovative, our genetic analyzers have been designed with you in mind to meet the demands of your genetic testing needs.

Sanger sequencing applications

Sanger sequencing is the gold standard for sequencing technology since it provides a high degree of accuracy, long-read capabilities, and the flexibility to support a diverse range of applications in many research areas including:

- CRISPR and TALEN-mediated genome editing with Sanger sequencing
- Sanger sequencing solutions for SARS-CoV-2 research
- NGS confirmation with Sanger

Fragment analysis applications

Analysis of DNA fragments enables a variety of applications, from cell line authentication to detection of aneuploidy. While sequencing techniques such as NGS also enable these applications, researchers choose fragment analysis for features such as detection of multi-repeat regions, a faster turnaround time, and a higher sensitivity and resolution.

Applied Biosystems™ SeqStudio™ Genetic Analyzer

Obtain gold-standard sequencing and fragment analysis without the hassle of capillary setup or technical know-how.

Simply add your sequencing samples to the cartridge, click it in place, and get your results without having to wait in the laboratory.

- Universal all-in-one cartridge—this novel system design allows for an on-instrument reagent life of four to six months for maximum convenience
- Reduced setup time—combine sequencing and fragment analysis runs on the same plate
- Speed—receive data for up to 4 samples within 4 hours
- Results fast—with our cloud-based platform, Connect, you will be able to easily access, analyze, and share data anytime, anywhere

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Applied Biosystems™ 3500 Genetic Analyzer

Delivers superior performance, flexibility, and scalability for the work you do every day.

- Improved data uniformity across instruments, runs, and capillaries
- Flexibility to upgrade from 8 to 24 capillaries, to meet your increasing throughput needs
- Increased multiplexing with 6-dye capability

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Applied Biosystems™ 3730 Genetic Analyzer

The highest-throughput capillary electrophoresis instrument built for customers who require an economical, automated, and scalable instrument to process large numbers of sequencing or fragment analysis samples. It is now enabled with the Microsoft™ Windows™ 10 operating system and Cloud connectivity.

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Next-generation sequencing

Ion Torrent™ NGS technology helps you implement a fast and simple workflow that scales to your research needs across multiple applications including oncology, reproductive health, complex inherited disease, infectious diseases, and more.

Ion Torrent™ Genexus™ System

The first turnkey NGS solution that automates the specimen-to-report workflow, including nucleic acid extraction and quantification, library preparation, sequencing, and analysis and reporting, and delivers results in a single day with just two user touchpoints:*

- Unmatched ease of use for all users to get up and running quickly with significantly less training
- Insights from challenging samples with fast, automated workflows
- Ability to analyze individual samples cost-effectively and deliver results faster than ever



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Ion GeneStudio™ S5 System

The Ion GeneStudio S5 System is a scalable, targeted NGS workhorse with wide application breadth and throughput capability.

- Ion Torrent™ semiconductor sequencing optimizes cost and throughput for small and large NGS projects
- Sequencing and analysis in as little as 3 hours
- Automated and simplified workflow with the Ion Chef™ System
- Transform data to accurate insights using Ion Reporter™ software



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Identify new biomarkers with Ion AmpliSeq™ panels for targeted NGS

Sequencing success with a simple workflow and low input of DNA or RNA.

- Small sample input—lowest DNA or RNA input requirement for targeted NGS
- Scalable—one to hundreds of gene targets in a single run
- Fast, automated workflow—from sample to data in as little as 24 hours, with just 45 minutes of hands-on time

OncoPrint™ Solutions for precision oncology clinical research

OncoPrint Solutions offer end-to-end workflows that address specific challenges when implementing NGS for clinical oncology research.

- Broad menu of targeted and pan-cancer assays for biomarker testing
- Low sample input requirements and robust performance with challenging samples
- End-to-end workflow, including bioinformatics and a reporting solution

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thermofisher.com/oncoprint

Mass spectrometry

We offer a wide range of products for discovery to targeted protein quantitation by mass spectrometry.



thermofisher.com/easypep

Thermo Scientific™ EasyPep™ Mass Spectrometry (MS) sample prep kits

Optimized, rapid protein extraction and digestion of samples for MS analysis:

- Save precious time by processing sample for MS analysis in less than 4 hours
- Reagents and protocol verified for cells, plasma, and tissue for 10 µg to 2 mg samples
- Multiple formats available including for high-throughput sample processing applications

Thermo Scientific™ TMTpro™ Labeling Reagents

Next generation of tandem mass tags for the identification and quantification of proteins:

- Concurrent MS analysis of up to 18 samples derived from cells, tissues, or biological fluids
- Increased multiplex capability results in fewer missing quantitative values among samples and within replicates for better quantitative accuracy and precision
- Amine-reactive reagents enable efficient labeling of all peptides regardless of protein sequence or proteolytic enzyme specificity
- Optimized for use with high-resolution Thermo Scientific™ Orbitrap™ platforms with data analysis fully supported by Thermo Scientific™ Proteome Discoverer™ 2.4 software



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Thermo Scientific™ SureQuant™ Kits

SureQuant kits enable multiplex immunoprecipitation to mass spectrometry (mIP-MS) for the simultaneous enrichment and quantitation of multiple total and phosphorylated proteins.

- Complete solution for successful monitoring of the MS system performance, sample preparation, and the absolute or relative quantitation of target proteins/peptides
- Fully validated antibodies, peptides, and control lysate to enable successful quantitation of each target peptide
- Quantitate multiple targets (including isoforms and phosphorylated states) from the pathways



thermofisher.com/ms-targeted-assays

Immunoassays



Thermo Scientific™ AccelerOme™ Automated Sample Preparation Platform

Eight modular kits designed to support optimized, automated sample preparation for the Thermo Scientific™ AccelerOme™ Label-Free MS Sample Prep Kit, AccelerOme™ TMT11plex™ MS Sample Preparation Kit, and AccelerOme™ TMTpro™ 16plex™ MS Sample Preparation Kit at different sample scales. The AccelerOme platform is optimized to fit into the Thermo Scientific™ Orbitrap™ Mass Spectrometer ecosystem, streamlining the entire workflow from sample preparation to data processing.

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Invitrogen™ ProcartaPlex™ multiplex immunoassays

Rely on our 30 years of experience manufacturing and supplying antibody-based, target-specific protein quantitation reagents, kits, and panels.

- Profile more biomarkers with the highest plex Luminex panels available
- Profile up to 80 targets at once, saving precious sample and reducing assay costs
- Individually tested for specificity and endogenous, native protein detection
- Scalable and reproducible performance regardless of plex size
- Available in multiple formats across six species, with ready-to-use and fully customizable mix-and-match panels to meet the needs of your research



thermofisher.com/procartaplex



High-sensitivity Invitrogen™ ProQuantum immunoassays A powerful innovation in protein quantitation.

- High-sensitivity—detect low levels of proteins with greater sensitivity than traditional methods
- Broad dynamic range— ≥ 5 logarithmic units, minimizing sample dilutions to ensure they fall within the range
- Small sample consumption—use 2–5 μL of sample (instead of 75 μL for triplicate wells with other methods)
- Fast, easy workflow—typically 2 hours from sample to answer, no wash steps, and a single 1-hour incubation
- No proprietary instrument to purchase—runs on any real-time PCR instrument
- Includes intuitive cloud-based software—comprehensive data analysis and statistical group-wise comparison

Invitrogen™ ELISA kits

Immunoassays designed to enable you to quantitate with confidence.

- Wide selection of highly validated targets in different research areas
- Available for multiple species, sample types, and kit formats to provide flexibility
- Bulk and custom service options to meet all your specific project needs
- Leverage our easy-to-use ELISA search tool at thermofisher.com/elisabuilder

Learn more about custom solutions at thermofisher.com/elisa



Western blotting

We offer a comprehensive suite of solutions for every step of your western blotting workflow, so you can get to your next milestone faster with maximum results and minimum hands-on time.



thermofisher.com/proteingelguide

Higher-throughput western blotting

Processing many samples or blots can often become laborious and time-consuming. With our higher-throughput solutions, you can separate, transfer, process, and quantitatively detect up to 2 x 26 samples per run and with less hands-on work. It is designed to help you get more high-quality data in less time, with less work.

Separate—run up to 2 x 26 samples per run Invitrogen™ precast midi protein gels

Precast midi gels have a wider format, enabling one to load up to 26 samples on a single gel. Three gel chemistry options and a variety of well formats are available to meet your higher-throughput electrophoresis needs.

Invitrogen™ SureLock™ Tandem Midi Gel Tank

Designed for easy and consistent vertical protein gel electrophoresis of 1 or 2 Invitrogen™ midi gels. When paired with the Invitrogen™ SureLock™ Tandem Midi Blot Module, this tank performs efficient, 30-minute, room-temperature, wet protein transfers.



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Invitrogen™ PowerEase™ Touch 600W Power Supply

Designed for high-throughput gel electrophoresis, allowing you to run up to 14 midi gels or transfer up to 4 midi gels simultaneously. With a bright LCD touchscreen interface, you can enter in custom programs, or use the preprogrammed protocols for Invitrogen™ protein gels and gel transfers.



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thermofisher.com/iblot3

Transfer—up to 2 midi gels simultaneously

Invitrogen™ iBlot™ 3 Western Blot Transfer System

Designed for rapid 3–6 minute transfer of proteins from polyacrylamide gels to nitrocellulose or PVDF membranes, the iBlot 3 system allows you to simultaneously transfer up to 2 midi gels or 4 mini gels to maximize workflow efficiency.

Probe and detect—process and capture up to 2 midi blots at a time

Invitrogen™ Bandmate™ Automated Western Blot Processor

A The iWestern workflow features innovative, modern solutions designed to address processing efficiency, reproducibility, and robustness of results—because your time is precious. Together, these products enable exceptional western blotting results with minimal hands-on time, from start to finish in approximately 4 hours.



thermofisher.com/bandmate

Invitrogen™ iBright™ Imaging Systems

iBright Imaging Systems feature a large functional imaging area that enables the simultaneous capture and analysis of up to 2 midi or 4 mini blots in a single image. The flagship Invitrogen™ iBright™ FL1500 Imaging System features five fluorescence channels, permitting up to four-color fluorescent western blot multiplexing—expanding your possibilities for studying multiple proteins in a single blot. Each iBright Imaging System model is also now offered with a 21 CFR Part 11 compliance support package.



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thermofisher.com/iwestern

High-efficiency western blotting for mini gels Invitrogen™ iWestern™ workflow

The iWestern workflow features innovative, modern solutions designed to address processing efficiency, reproducibility, and robustness of results—because your time is precious. Together, these products enable exceptional western blotting results with minimal hands-on time, from start to finish in approximately 4 hours.

Our standard iWestern bundle contains our core, innovative iWestern workflow devices, including the necessary consumables and reagents to get started.

- Invitrogen™ PowerEase™ Touch 600W Power Supply
- Invitrogen™ Bolt™ Welcome Pack (including Mini Gel Tank)
- Invitrogen™ iBlot™ 3 Starter Kit
- Invitrogen™ iBind™ Flex Western Starter Kit
- Invitrogen™ iBright™ FL1500 Imaging System

20 minutes*



Gel electrophoresis

- Invitrogen™ PowerEase™ Touch Power Supplies
- Invitrogen™ Precast Protein Gels
- Invitrogen™ Mini Gel Tank
- Invitrogen™ SureLock™ Tandem Midi Gel Tank

6 minutes



Gel to membrane transfer

- Invitrogen™ iBlot™ 3 Western Blot Transfer System

3 hours**



Blot processing

- Invitrogen™ iBind™ Western Systems

Finished



Data capture

- Invitrogen™ iBright™ Imaging Systems





Antibodies

Search hundreds of thousands of primary and secondary antibodies online to find the quality target you need for your research. Or let our team of antibody production professionals help you reach your custom antibody goals with the services to help you develop a novel polyclonal, monoclonal hybridoma, or recombinant antibody. Thermo Fisher delivers exceptional antibody development solutions from antigen design to purification and screening. Our detailed knowledge of antigen determining factors allows us to develop custom antibodies with superior specificity, affinity, and assay utility. This service helps increase the probability that you will obtain an antibody capable of distinguishing among even highly related proteins within complex mixtures to characterize protein expression patterns using IHC, ICC, IF, flow cytometry, ELISA, western blotting, or immunoprecipitation (IP, Co-IP, ChIP). We also have a team of project managers that can help support licensing and bulk packaging inquiries.

thermofisher.com/antibodies

Laboratory essentials

Thermo Scientific™ instruments and consumables are the essential infrastructure of science. From the laboratory to the field, our products are the foundation of scientific innovations taking place everywhere. As a trusted partner to scientists, clinicians, and engineers around the world, we simplify processes and enable discovery with our laboratory products and solutions. And that means as a customer you can focus on what you do best—making breakthroughs that improve and save lives.



thermofisher.com/cryotubes

Thermo Scientific™ Matrix™ 2D tubes

Rely on Matrix 2D tubes to help ensure your samples are easy to locate and identify:

- Unique—no duplicates
- Laser-etched—permanently affixed to the tube for traceability and will not fall off
- High-contrast—allows for fast scanning





Thermo Scientific™ Nalgene™ Rapid-Flow™ filters

Increase sample protection and filtration efficiency:

- Process and store volumes from 50 mL to 1 L
- Available in PES, SFCA, NYL, CN
- Provides fast flow rates and high throughput

thermofisher.com/filtration



Thermo Scientific™ Multidrop™ dispensers

Versatile features and flexibility with excellent performance:

- Run tests faster by filling plates in seconds
- Enables excellent precision and reproducibility

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Thermo Scientific™ ALPS5000™ Automated Plate Heat Sealer

Fast, reliable, and quiet automated plate:

- Quickly and easily seal both Thermo Scientific™ KingFisher™ and PCR plates
- Precise control over sealing parameters to ensure repeatability and a consistent seal
- Up to 2 plates per minute can be sealed in hand-fed, benchtop, or high-throughput robotic applications

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Thermo Scientific™ Heracell™ Vios™ System 160i CO₂ Incubator with Cell Locker™ System

Combine the Heracell Vios CO₂ incubator recovery and contamination-prevention technologies with the Cell Locker System for these additional benefits:

- Stability—preserve an undisturbed environment in Cell Locker Systems when neighboring chamber is opened, minimizing sample variability
- Protection—security from cross contamination due to culture segregation within one incubator
- Flexibility—organize cultures by separating multiple users, cell types, or projects



thermofisher.com/cellocker



thermofisher.com/lynx

Thermo Scientific™ Sorvall™ Lynx™ superspeed centrifuge series

Powerful technologies with breakthrough simplicity:

- Improved ergonomics and performance with lightweight Thermo Scientific™ Fiberlite™ carbon fiber rotors
- Assistance with GMP compliance with secure access and data logging via an intuitive touchscreen interface and Thermo Scientific™ Centri-Log™ Plus software
- Application flexibility and safe, easy rotor exchange with Thermo Scientific™ Auto-Lock™ technology



thermofisher.com/cliptip

Thermo Scientific™ E1-ClipTip™ Electronic Pipettes

Optimum functionality for every application:

- Simplify and speed up pipetting with this electronic programmable pipette
- Pipette between labware formats 8x faster using adjustable tip spacing

Thermo Scientific™ Herasafe™ and Maxisafe™ 2030i biological safety cabinets

Protection that never takes a day off with the following outstanding features:

- Smartflow Plus—unique airflow system that automatically balances velocities to maintain operator and sample protection
- Auto-adjustable Cross Beam UV—automatically compensates for diminished bulb intensity due to age and extends the cycle time to ensure consistent dose; cross beam illuminates the entire worksurface, without shadows for a thorough disinfection of the chamber
- Intuitive touchscreen interface—provides assurance that the BSC is managing safety conditions autonomously, and is simple and intuitive to use, allowing our customers to fully focus on demanding applications and precision science



thermofisher.com/bsc



thermofisher.com/benchtopcentrifuges

Thermo Scientific™ general purpose centrifuge series

Performance simplified at every turn:

- Intuitive touchscreen interface for fast and simple programming
- Application flexibility and safe, easy rotor exchange with Auto-Lock technology
- Improved ergonomics with long-lasting Fiberlite carbon fiber rotors
- Third-party verified biocontainment with glove-friendly Thermo Scientific™ ClickSeal™ biocontainment lids



Thermo Scientific™ Savant™ SpeedVac™ Universal Vacuum Systems

One-click evaporation for removing solvents and concentrating samples while maintaining sample integrity.

- Up to 12 programs for efficient operation
- USB port to download live data
- Choice of kits or modular SpeedVac units to suit the customer and application

thermofisher.com/speedvac



Thermo Scientific™ Solaris™ 2000 and 4000 Open Air Orbital Shakers

Solaris orbital shakers provide a new standard for reliability and technical innovation.

- Extremely reliable heavy-duty mechanism supported by industry-leading warranty
- User programmability for easy setup and reproducibility
- Connectivity-enabled for easy monitoring of operational parameters

thermofisher.com/shakers



Thermo Scientific™ TSX Series Ultra-Low Temperature Freezers

The ENERGY STAR™-certified TSX Series ultra-low freezers are designed to meet the highest standards in reliability, sustainability, and temperature management. At the heart of the TSX Series is V-drive technology, designed to adapt to user patterns, substantially reducing energy and HVAC costs without compromising performance.

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Diagnostic and packaging products

When you need a global partner to help provide diagnostic and packaging solutions with worldwide support, Thermo Fisher Scientific is ready to be that partner. We can provide quality, off-the-shelf offerings or a solution designed specifically for you. Our out-of-the-box and made-to-order diagnostic and packaging products include:

- Thermo Scientific™ Samco™ transfer pipettes
- Thermo Scientific™ Nunc™ well plates
- Thermo Scientific™ Nalgene™ packaging and diagnostic bottles

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Thermo Scientific™ Orion Star™ A211 Benchtop pH Meter

- Informative, easy-to-read backlit graphic display with clear on-screen instructions simplifies operation
- Thermo Scientific™ Orion™ ROSS electrodes provide the optimum choice for stability, rapid response, and accurate pH measurements
- Eliminate the need for magnetic stir bars using the meter-controlled stirrer probe



thermofisher.com/water



Thermo Scientific™ Barnstead™ GenPure™ Pro Water Purification System

Take control of your laboratories ultrapure water.

- Volumetric dispensing for total control of your needed samples
- RNA- and DNA-free water, true built-in ultrafiltration membrane for total confidence in sample safety

thermofisher.com/waterpurification

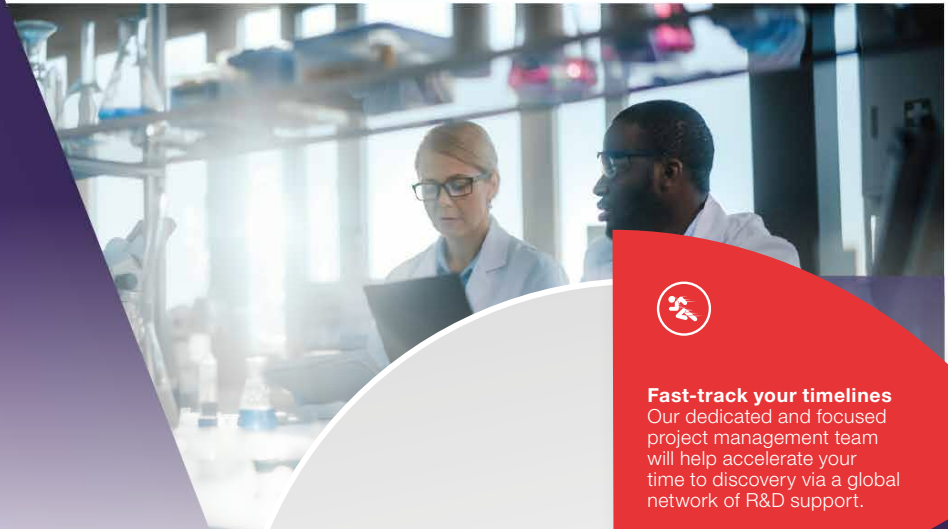
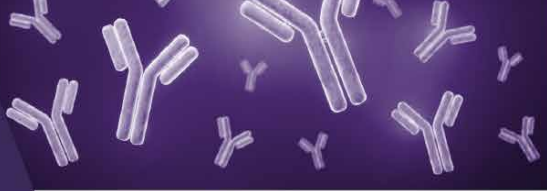


Thermo Scientific™ Precision™ Water Baths

Precision general-purpose water baths are rugged, high-performance water baths.

- Small footprint
- Icon-based graphical display
- Prevent contamination with Gibco™ Lab Armor™ Beads

thermofisher.com/precisionbaths



Outsourcing services

We provide specialized, reliable, and high-quality outsourcing solutions for customers who don't have the capacity, time, or resources to handle a project in-house.

- Optimize your workflow with new technologies by accessing the expansive technological expertise of the R&D scientists who developed our kits
- Expedite your research and development by accessing our robust global network of lab spaces engaged in cutting-edge innovation
- Minimize risk in your pipeline by placing your projects with our team of dedicated scientific project managers that enable quality and on-track delivery

Leverage our experience in lab essentials as a powerful resource to augment your research team—from routine experiments to the most recent and innovative techniques.



Fast-track your timelines

Our dedicated and focused project management team will help accelerate your time to discovery via a global network of R&D support.



Decrease FTE hands-on time

Free up your skilled R&D scientists (and lab space) from routine everyday tasks, allowing them to focus on strategically important initiatives.



Access new technologies and expertise

Benefit from connections to unique skill sets and specialized resources. Our R&D breakthroughs are translated into service offerings that will help you achieve your goals.

We can tailor workflows for all research projects, including:

- Vaccines—gene to protein, cell line production, immunoassays, custom peptides, and custom antibody production
- Small molecules—assay and cellular assay technologies, biochemical and cell-based profiling, loss-of-function screening, genome editing, library screening, drug metabolism and drug safety, oligonucleotides, and microarray analysis
- Immunotherapy—immunoassays, custom antibody production, and custom peptides
- Gene therapy—loss-of-function screening, stem cell services, and genome editing
- Cell therapy—stem cell services, cell line characterization, and genome editing
- Biologics—gene to protein, cell line production, immunoassays, custom peptides, and genome editing
- Biomarkers—loss-of-function screening, custom peptides, immunoassays, custom antibody production, transcriptome profiling, and genotyping analysis

Find out more at thermofisher.com/customservices



Cell Therapy Systems (CTS) products

Gibco™ CTS™ Products

Designed for cell therapy applications.

The CTS product line provides you with cGMP-manufactured products and instruments designed for cell therapy applications so you can transition your therapy to the clinic with confidence.

cGMP manufacturing

- Manufactured in conformity with cGMP for medical devices and 21 CFR Part 820 and following USP<1043> and Ph Eur 5.2.12
- Our manufacturing sites are FDA-registered and ISO 13485–certified and regularly audited

Testing and documentation

- Traceability documentation, including Drug Master Files, Regulatory Support Files, and certificates of origin
- Product safety testing, including sterility, endotoxin, and mycoplasma, on media and reagents

Proven use

- Used in FDA-approved and EMA-approved CAR-T therapies^[1,2] and the first FDA-approved therapeutic cancer vaccine^[3]
- Used in more than 200 clinical trials

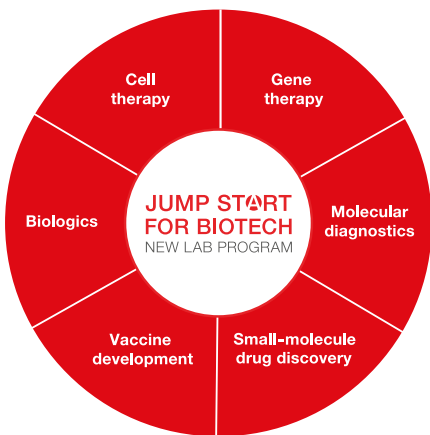
thermofisher.com/cts



1. Tangying LL et al. (2016) Hum Gene Ther Methods 27(6):209-218.

2. <http://thermofisher.mediaroom.com/2017-08-30-First-FDA-Approved-Cell-Therapy-for-Leukemia-Utilizes-Thermo-Fisher-Scientifics-CTS-DynaBeads-Technology>

3. Madan RA et al. (2011) Expert Rev Vaccines 10(2): 141–150.



Jump Start for Biotech: new lab program

Jump Start for Biotech is a free program created to get your new lab up and running with leading-edge products organized by therapeutic and diagnostic development workflows. Gain access to discounts and resources to leverage as you develop ground-breaking therapeutics and diagnostics.

Specialized products for end-to-end therapeutic and diagnostic development

The program includes resources designed for biotech companies:

- Brochures, checklists, and infographics
- Learning centers
- Special discounts and flexible finance options
- Product and workflow consultation
- Personalized lab design support
- Regulatory support and guidance
- On-site and virtual product demonstrations
- Product installation and training
- Ongoing remote support with our technical application specialist team

You are eligible for the free program if you are:

- Opening a new lab within your institution or company
- Moving your lab to a new space
- Expanding an existing lab
- Starting a new lab or company
- Directed to the program by your sales representative

Watch our explainer video and find out more at thermofisher.com/jumpstart



 Find out more at thermofisher.com/biotechessentials

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Notes