

# Our cell biology portfolio at a glance

We have simplified our portfolio to show you how our most popular products and services are used whether you are looking for a single tool or more comprehensive and integrated solutions.

This handbook is meant to expedite your search for the right cell biology product and give you an in-depth look at the many ways we can help accelerate research.

## thermo scientific

Complete products for bioproduction, cell culture, molecular biology, protein biology, and high-content analysis

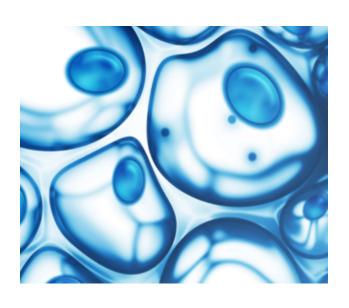
# invitrogen

Products for cell, protein, and molecular biology technologies, and transfection and drug discovery

## gibco

Media, FBS, supplements, cells, and reagents for cell culture

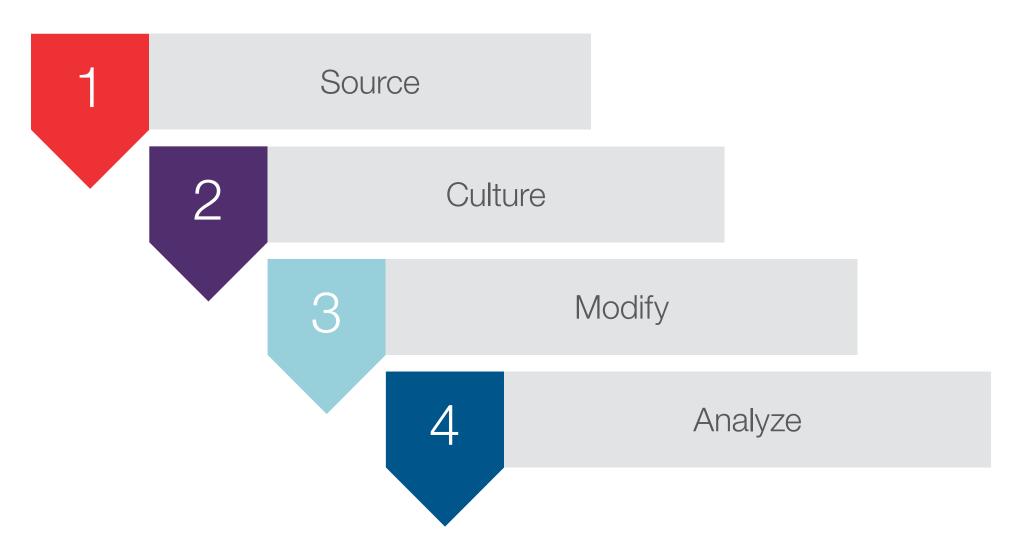
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# Cell biology: harnessing the power of the cell

Cell biology is the study of the structure and functions of cells. We offer the tools necessary to investigate changes to these fundamental building blocks of life. We provide a comprehensive selection of products of superior quality, designed to help researchers achieve their next breakthrough. We enable our customers to harness the power of cells to improve human health.



# Where our products work

Our products help you culture, modify, and analyze cells. Or, we can do it for you with one of our many customized services.

you with one	of our many cus	stomized services.	Workflow product categories	
1	Source	Starting with the right cell type or cell line is the foundation for any experiment.	Primary cells     Stem cells	<ul><li>Engineered cell lines</li><li>Reprogramming</li></ul>
2	Culture	Cell culture is the process by which cells are grown in a controlled, artificial environment.	<ul><li>Media and supplements</li><li>FBS and other sera</li></ul>	<ul><li>Cell culture plastics</li><li>Matrices</li></ul>
3	Modify	Essential tools for transfection, protein expression, genome editing, and cell differentiation form the basis for many research projects.	<ul><li>Gene synthesis</li><li>Transfection and protein expression</li></ul>	<ul><li>Gene editing</li><li>Cell differentiation</li></ul>
4	Analyze	There are a variety of tools that help researchers analyze cells to better understand, predict, and influence the underlying factors of cell health, proliferation, function, and death.	<ul><li>Characterization</li><li>Counting and imaging</li></ul>	Screening
5	Services	We offer a wide range of services for cell-based research to help scientists at any point in their workflow.	<ul><li>Stem cell services</li><li>Drug discovery services</li></ul>	Custom biology services

# Most popular products

These are some of the most popular products from our portfolio. The presence of these products in the following categories illustrates where our newest or best-known products can help you get results.

## 3D models, organoids, and spheroids

• Optimized plastics, media, supplements, matrices, reagents, primary cell lines, growth factors, and more

## thermofisher.com/organoid

#### Cell culture

- Gibco<sup>™</sup> Dulbecco's Modified Eagle Medium (DMEM)
- Gibco™ RPMI 1640 Medium

### thermofisher.com/media

Gibco™ Hank's Balanced Salt Solution (HBSS)

### thermofisher.com/balancedsalts

- Gibco<sup>™</sup> TrypLE<sup>™</sup> Express Enzyme
- Gibco™ Trypsin solutions

#### thermofisher.com/celldissociation

#### Sera

- Gibco<sup>™</sup> Value FBS\*
- Gibco™ Premium FBS\*
- Gibco<sup>™</sup> Specialty FBS\*

#### thermofisher.com/fbs

#### **Matrices**

- Gibco™ Collagen
- Gibco™ AlgiMatrix™ 3D Culture System
- Gibco™ rhLaminin-521
- Gibco™ Geltrex™ matrices
- Gibco<sup>™</sup> Poly-D-Lysine

#### thermofisher.com/3dcellculture

### **Plastics**

- Thermo Scientific™ Nunc™ EasYFlask™ and EasYDish™ cultureware
- Thermo Scientific<sup>™</sup> Nunc<sup>™</sup> cell culture plates
- Thermo Scientific™ Nunclon™ Sphera™ U-bottom 96-well plates
- Thermo Scientific™ Nunc™ conical tubes

## thermofisher.com/cellcultureplastics

## Pluripotent stem cells

 Invitrogen™ CytoTune™-iPS 2.0 Sendai Reprogramming Kit

## thermofisher.com/cytotune

• Gibco™ StemFlex™ Medium

#### thermofisher.com/stemflex

Gibco<sup>™</sup> Essential 8<sup>™</sup> Medium

#### thermofisher.com/essential8

• Gibco™ KnockOut™ Serum Replacement

#### thermofisher.com/ksr

### **Cell therapy**

- Gibco™ CTS™ AIM V™ SFM\*\*
- Gibco™ CTS™ OpTmizer™ T Cell Expansion SFM⁺
- Gibco™ CTS™ StemPro™ MSC SFM¹
- Gibco<sup>™</sup> CTS<sup>™</sup> Immune Cell Serum Replacement (SR)<sup>‡</sup>
- Gibco™ CTS™ Essential 8™ Medium<sup>‡</sup>
- Gibco™ CTS™ CytoTune™-iPS 2.1 Sendai Reprogramming Kit<sup>§</sup>

#### thermofisher.com/cts

## Neurobiology

• Gibco™ B-27™ Plus Supplement

#### thermofisher.com/b27

Gibco<sup>™</sup> CultureOne<sup>™</sup> Supplement

#### thermofisher.com/cultureone

Gibco™ Neurobasal™ Plus Medium

thermofisher.com/neurobasal

## **Protein expression**

Gibco<sup>™</sup> ExpiCHO<sup>™</sup> Expression System

### thermofisher.com/expicho

Gibco™ Expi293™ Expression System

### thermofisher.com/expi293

Gibco<sup>™</sup> ExpiSf<sup>™</sup> Expression System

### thermofisher.com/expisf

#### **Transfection**

Invitrogen™ Lipofectamine™ 3000 Transfection Reagent

## thermofisher.com/lipofectamine3000

Invitrogen<sup>™</sup> Neon<sup>™</sup> Transfection System

#### thermofisher.com/neon

• Invitrogen™ Lipofectamine™ Stem Transfection Reagent

## thermofisher.com/lipofectaminestem

 Invitrogen<sup>™</sup> Lipofectamine<sup>™</sup> RNAiMAX Transfection Reagent

#### thermofisher.com/rnaimax

Gibco™ LV-MAX™ Transfection Kit

thermofisher.com/lvmax

<sup>\*</sup> Also available in the innovative Gibco™ One Shot™ 50 mL bottles and in heatinactivated format.

<sup>\*\*</sup> For Human *Ex Vivo* Tissue and Cell Culture Processing Applications. Caution: Not intended for direct administration to humans or animals.

<sup>†</sup> For Human *Ex Vivo* Tissue and Cell Culture Processing Applications. Caution: When used as a medical device, federal law restricts this device to sale by or on the order of a physician.

<sup>‡</sup> For Research Use or Manufacturing of Cell, Gene, or Tissue-Based Products. Caution: Not intended for direct administration into humans or animals.



# Products used in research



Area of res	search	Cell type or cell line	Reprogramming	Media	Plastics	Supplements	Matrices	Dissociation
			2			+	<b>3</b>	::
	Brain	Pluripotent stem cell (PSC)		Gibco" DMEM/F-12 Gibco" Neurobasal" Medium Gibco" Essential 8" Medium Gibco" Essential 6" Medium Gibco" StemFlex" Medium		Gibco" FGF2, EGF, BDNF, NT-3, DKK1, BMPR1A, GDNF, Laminin, and bFGF recombinant proteins Gibco" RevitaCell" Supplement Gibco" N-2 Supplement Gibco" GlutaMAX" Supplement Gibco" KnockOut" Serum Replacement (SR)	Gibco" Geltrex" matrix Gibco" AlgiMatrix" 3D Culture System	
3D organoids and spheroids		Primary hepatocyte		Gibco" HepaRG" Medium Gibco" HepExtend" Media Kit Gibco" Advanced DMEM/F12 Gibco" Williams' E Medium, no phenol red	Thermo Scientific" Nunclon"	Gibco" Primary Hepatocyte Maintenance Supplements     GlutaMAX Supplement	Geltrex matrix	
	Liver	Adult tissue     Stem or progenitor cell	Specific products are available for PSC lines; find out more at thermofisher.	Gibco Advanced DMEM/F-12	Sphera" plates, flasks, and dishes  • Thermo Scientific" Nalgene" Single-Use PETG Erlenmeyer Flasks  • Thermo Scientific" Nunc" polycarbonate Cell Culture	<ul> <li>Gibco™ FGF10, HGF, EGF, Noggin, BMP7, and FGF19 recombinant proteins</li> </ul>	AlgiMatrix 3D Culture System	• Gibco™ TrypLE™
Find out more at thermofisher.		• PSC	com/organoid or reach out to a technical sales specialist	Gibco DMEM/F-12 Gibco RPMI 1640 Medium Gibco StemPro MSC SFM*		Gibco" HGF, EGF, BMP4, VEGF, Activin, PDGFBB, and FGF2 recombinant proteins     KnockOut SR		Express Enzyme  • Gibco" Versene Solution
com/organoid	Intestine	• PSC		Gibco Advanced DMEM/F-12 Gibco DMEM/F-12 Gibco TKnockOut DMEM Gibco RPMI 1640 Medium		Gibco" Activin, FGF4, BMP2, EGF, Noggin, SHH, IGF1, and FGF2 recombinant proteins	Geltrex matrix     AlgiMatrix 3D	
		Adult tissue     Stem or progenitor cell		Gibco DMEM     Gibco Advanced     DMEM/F-12		Gibco" Noggin, EGF, and FGF10 recombinant proteins	Culture System	
	Kidney	• PSC		Gibco Advanced RPMI 1640 Medium Gibco DMEM/F-12		Gibco" FGF2, Noggin, Activin, FGF9, BMP4, BMP7, and LIF recombinant proteins KnockOut SR	Geltrex matrix     AlgiMatrix 3D     Culture System	
	Lung	• PSC		Gibco Advanced     DMEM/F-12     Gibco RPMI 1640 Medium		<ul><li>Activin, FGF4, FGF2, Noggin, and SHH</li><li>KnockOut SR</li></ul>	Geltrex matrix     AlgiMatrix 3D     Culture System	

<sup>\*</sup> For Human Ex Vivo Tissue and Cell Culture Processing Applications. Caution: When used as a medical device, federal law restricts this device to sale by or on the order of a physician.

# 3 Modify 4 Analyze 5 Services

Area of	research	Gene editing	Gene delivery	Differentiation	Characterization	Screening or imaging	Services
		12%°		<b>&amp;</b>	Yľ	Ţ	X
	Brain						
3D organoids and spheroids Find out more at thermofisher.	Liver	<ul> <li>Invitrogen" CRISPR products and services</li> <li>Invitrogen" TALEN products and services</li> </ul>	N/A*	N/A*	Applied Biosystems" QuantStudio" real-time PCR instruments Applied Biosystems" TaqMan* hPSC Scorecard Panel Applied Biosystems" TaqMan* Assays Invitrogen" reagents Invitrogen" functional assays and readouts	Thermo Scientific" CellInsight" CX7 LZR High-Content Analysis (HCA) Platform Thermo Scientific" Varioskan" LUX Multimode Microplate Reader Invitrogen" EVOS" imaging systems	Custom biology services:  Cell line engineering Cas9 iPSC lines Custom media solutions  Cell model services: Applied Biosystems KaryoStat characterization services PluriTest pluripotency service
com/organoid	Intestine						TaqMan hPSC Scorecard service
	Kidney						
	Lung						

<sup>\*</sup> These tools can be used prior to 3D culturing in a general cell culture research step. Contact your local technical specialist to learn more.

# Products used in research continued

# 1 Source 2 Culture

Area of research	Cell type or cell line	Reprogramming	Media	Plastics	Supplements	Matrices	Dissociation
		2			+	<b>&amp;</b>	
	Induced PSC (iPSC)/ human embryonic stem cell (hESC) products     Episomal iPSC line	Invitrogen™ CytoTune- iPS™ 2.0 Sendai Reprogramming Kit	<ul><li>Essential 8 Medium</li><li>StemFlex Medium</li><li>Gibco DMEM/F-12</li></ul>	Thermo Scientific™ Nunclon™ Delta flasks, dishes, and plates     Thermo Scientific™ Nunc™ poly-D-lysine— coated flasks and plates	RevitaCell Supplement     KnockOut SR	Gibco™ Geltrex™ LDEV- Free Reduced Growth Factor Basement Membrane Matrix Gibco™ Vitronectin truncated protein (VTN-N) Glbco™ rhLaminin-521	Versene Solution     StemPro medium
Neurobiology	Human NSCs     Gibco" Human     Astrocytes (primary cell)		Neurobasal Plus Medium     Gibco DMEM/F-12	Thermo Scientific™ Nunc" Lab-Tek II chamber slides with CC² glass Thermo Scientific™ Nunc" optical bottom	B-27 Plus Supplement     CultureOne Supplement     KnockOut SR	Geltrex LDEV-Free Reduced Growth Factor Basement Membrane Matrix     Gibco rhLaminin-521	Gibco" StemPro" Accutase" Cell Dissociation Reagent Gibco" TrypLE" Select Enzymes
Find out more at thermofisher.com/neuro	Primary neurons (mouse and rat)	N/A	Neurobasal Medium     Neurobasal Plus Medium     Premium FBS, Certified     Specialty FBS, charcoal stripped or dialyzed	plates with polymer or CC² glass base  • Nunclon Sphera flasks, dishes, and plates	B-27 Plus Supplement     CultureOne Supplement	Poly-D-Lysine	
	iPSC/ESC products     Episomal iPSC line	Invitrogen" Episomal iPSC vectors     Invitrogen" Epi5™ Episomal kit     CytoTune-iPS 2.0 kit     Gibco" CTS" CytoTune-iPS 2.1 kit**	Essential 8 and Essential 8 Flex Media     StemFlex Medium     Gibco™ KnockOut™     DMEM/F-12	Nuncion Delta flasks,	KnockOut SR     Gibco" Knockout" SR     Multi-Species (mouse and human)     RevitaCell Supplement	Geltrex LDEV-Free Reduced Growth Factor Basement Membrane Matrix     Gibco VTN-N     Gibco rhLaminin-521	Versene Solution     StemPro Accutase Cell     Dissociation Reagent     TrypLE Select Enzyme
Stem cells	Mesenchymal stem cells (MSCs)*	N/A	Gibco" MesenPRO RS" Medium! StemPro MSC SFM! StemPro MSC SFM, XenoFree! Specialty FBS, MSC Qualified	dishes, and plates  Nunclon Sphera plates, flasks, and dishes  Nunc Lab-Tek and Lab-Tek II chamber slides  Nunc optical bottom plates	GlutaMAX Supplement	Gibco" CTS" CELLstart" substrate**	TrypLE Select Enzyme
Find out more at thermofisher.com/ stemcells	• NSCs	N/A	KnockOut DMEM/F-12     StemPro NSC SFM		Glbco" StemPro" Neural Supplement <sup>†</sup> B-27 Supplement, minus vitamin A     N-2 Supplement     GlutaMAX Supplement	Geltrex LDEV-Free     Reduced Growth Factor     Basement Membrane     Matrix     Gibco VTN-N     Gibco rhLaminin-521	StemPro Accutase Cell Dissociation Reagent     TrypLE Express Enzyme

<sup>\*</sup> We do not offer this product.

<sup>\*\*\*</sup> For Research Use or Non-Commerical Manufacturing of Cell-Based Products for Clinical Research. Caution: Not intended for direct administration into humans or animals.

<sup>†</sup> For Research Use or Further Manufacturing. Not for diagnostic use or direct administration in to humans or animals.

<sup>‡</sup> For Human Ex Vivo Tissue and Cell Culture Processing Applications. Caution: When used as a medical device, federal law restricts this device to sale by or on the order of a physician.

# Modify



Analyze



Area of research	Gene editing	Gene delivery	Differentiation	Characterization	Screening or imaging	Services
	2%	(E)	<b>&amp;</b>	Yr'	Ō	×
			Gibco" PSC Dopaminergic Neuron Differentiation Kit     Gibco" PSC Neural Induction Medium      B-27 Plus Supplement	Invitrogen" Alkaline Phosphatase (AP) Live Stain     EVOS imaging systems     CellInsight HCA/HCS platforms     TaqMan hPSC Scorecard Panel and Analysis     Applied Biosystems" PrimeView"		
Neurobiology	CRIPSR products and services     TALEN products and services	Invitrogen" Neon" Transfection System	CultureOne Supplement	Global Gene Expression Profile Assays  • Applied Biosystems KaryoStat and KaryoStat HD Assays	■ Invitrogen <sup>™</sup> outgrowth assay	Gibco" CellModel" Differentiation Services
		Invitrogen" Lipofectamine" MessengerMAX" Transfection Reagent     Invitrogen" Lipofectamine" 2000 Transfection Reagent     Lipofectamine RNAiMAX Transfection Reagent*	N/A	Invitrogen" reagents     Invitrogen" NeuroTrace" stains     Invitrogen" Neurite Outgrowth     Staining Kit		
		Lipofectamine Stem Transfection Reagent Lipofectamine RNAiMAX Transfection Reagent* Neon Transfection System	Neural PSC Neural Induction Medium PSC Dopaminergic Neuron Differentiation Kit Cardiac Gibco" PSC Cardiomyocyte Differentiation Kit Endoderm Gibco" PSC Definitive Endoderm Induction Kit	Invitrogen AP EVOS imaging systems CellInsight HCA/HCS platforms TaqMan hPSC Scorecard Panel and Analysis PrimeView Global Gene Expression Profile Assays KaryoStat and KaryoStat HD Assays	Applied Biosystems* MycoSEQ*     Mycoplasma Detection Assay	CellModel services  Reprogramming  Assay development  Differentiation  Cell screening  Characterization
Stem cells	CRIPSR products and services     TALEN products and services	• Neon nansiection system	Gibco" StemPro" Adipogenesis     Differentiation Kit     Gibco" StemPro" Chondrogenesis     Differentiation Kit     Gibco" StemPro" Osteogenesis     Differentiation Kit	Invitrogen" Attune" NxT Flow Cytometer     Applied Biosystems" TaqMan® Gene Expression Assays		Custom media (GMP and cGMP options)
		Lipofectamine Stem     Transfection Reagent     Lipofectamine RNAiMAX     Transfection Reagent*	B-27 Plus Supplement     Neurobasal Plus Medium     CultureOne Supplement	EVOS imaging systems     CellInsight HCA/HCS platforms     TaqMan hPSC Scorecard Panel and Analysis     PrimeView Global Gene Expression Profile Assays     KaryoStat and KaryoStat HD Assays	Biochemical and cellular assays     MycoSEQ Mycoplasma     Detection Assay	CellModel Differentiation Services

\* For knockdown studies across all areas of research.

# Products used in research continued

# 1 Source 2 Culture

Area of res	Area of research Cell type or cell line		Media	Plastics	Supplements	Matrices	Dissociation
					+	<b>3</b>	
		Immortalized hepatocytes (HepG2*, HepaRG)	Gibco Williams' E Medium     Gibco DMEM     Gibco "Synth-a-Freeze" Cryopreservation Medium     Premium FBS, Certified		Gibco" MEM     GlutaMAX Supplement, Metabolism, induction/tox supplement for HepaRG	Collagen     Geltrex matrix	
Drug development (ADME/Tox and DMPK)		Hepatocytes (primary)	Premium FBS, Certified     Gibco Williams' E Medium	Nunclon Delta flasks, dishes, and plates     Nunc ECM-coated flasks and plates     Nunc optical bottom plates	GlutaMAX Supplement Gibco" Hepatocyte Thaw Medium Gibco" Primary Hepatocyte Maintenance Supplement Gibco" HepExtend" Supplement	Collagen     Laminin     Geltrex matrix	TrypLE Express enzymes     Trypsin solutions
Find out more at thermofisher.com/adme	etox	Liver nonparenchymal cells (Kupffer, Stellate, and LSEC* cells)	Gibco DMEM, Gibco Williams' E Medium     RPMI 1640, FBS, and exosome-depleted FBS     Synth-a-Freeze Cryopreservation Medium		GlutaMAX Supplement     HepExtend Supplement	Collagen     Geltrex matrix	
Primary cells		Skin keratinocytes, melanocytes, and dermal fibroblasts	Invitrogen" EpiLife" Medium Gibco" Medium 154, 254, 106, 131 Gibco DMEM/F-12 Premium FBS, Certified Gibco" Keratinocyte-SFM and Defined Keratinocyte-SFM	Nuncion Delta flasks, dishes, and plates     Nunc Lab-Tek and Lab-Tek II	Growth factors: (HKGS, EDGS, HMGS, LSGS, MVGS) (EpiLife, LSGS) Synth-a-Freeze medium	Gibco VTN-N Gibco rhLaminin Gibco" attachment factors	TrypLE Select enzymes
		Heart endothelial cells	• Gibco™ Medium 200, 231	chamber slides  Nunc optical bottom plates	LVES, SMGS, and SMDS     Gibco™ HuMEC	TrypLE enzymes	Gibco® Trypsin-EDTA solutions
Find out more at thermofisher.com/prima	arycells	Mammary epithelial (HMEC) cells	Gibco" Medium 171     Gibco" HuMEC Ready Medium     Gibco" HuMEC Basal Serum-Free Medium	Nunc ECM-coated flasks and plates		Coating Matrix Kit     Gibco Poly-D-Lysine	
		Skeletal myoblast cells	Gibco™ DMEM, low glucose, pryuvate		2% horse cells		
	Biologics	<ul> <li>Gibco™ ExpiCHO-S™ Cells</li> </ul>	Gibco™ ExpiCHO™ Expression Medium				
Protein expression	Structural biology	Invitrogen™ Flp-In™ T-Rex™ 293     Cell Line	Gibco™ FreeStyle™ 293 Expression Medium	Nalgene Single-Use PETG	GlutaMAX Supplement	N/A	N/A
Find out more at thermofisher.com/	Intracellular	<ul> <li>Gibco™ Expi293F™ Cells</li> <li>Gibco™ Sf9, S-21, and</li> </ul>	• Gibco" Sf-900" II and III SFM	Erlenmeyer Flasks	• Gibco™ L-Glutamine**		
proteinexpression	protein	High Five™ cells  • MCF-7*, MDA-MB-231*,	Gibco™Express Five™ SFM				
	Breast cancer	T-47D*, and BT-474* cells	<ul><li>Gibco DMEM, (high glucose)</li><li>Specialty FBS, charcoal stripped</li></ul>	<ul> <li>Nuncion Delta–treated and non-treated flasks, dishes,</li> </ul>			
	Liver cancer	HepG2* and Hep3B* cells		<ul><li>and plates</li><li>Nunclon Sphera flasks,</li></ul>	Gibco™ Penicillin-		TrypLE Express enzymes
Cancer/therapeutic	Lung cancer	<ul> <li>A549*, NCI-H975*, PC-14*, and NCI-H1299* cells</li> </ul>	Gibco RPMI 1640 Medium     One Shot FBS, Certified	dishes, and plates	Streptomycin  GlutaMAX Supplement	Gibco Collagen I     Cibas Fibranastia	
Find out more at	Prostate cancer	DU145*, PC-3*, and LNCap* cells	Gibco DMEM     Gibco Ham's F-12 nutrient mix	Nunc ECM-coated flasks and plates     Nunc Lab-Tek and Lab-Tek II	L-Glutamine**	Gibco Fibronectin	
thermofisher.com/ cancercellculture	Find out more at thermofisher.com/ Cervical	• HeLa cells*	Premium FBS, Certified     Gibco DPBS	chamber slides  Nunc optical-bottom plates			Note: products with Phenol Red are not recommended.

<sup>\*</sup> We do not sell this product. \*\* For In Vitro Diagnostic Use.

# 3 Modify 4 Analyze 5 Service

Area of	research	Gene editing	Gene delivery	Differentiation	Characterization	Screening or imaging	Services
		230		<b>&amp;</b>	Yr'	Ţ	X
			Lipofectamine 3000 Transfection Reagent Lipofectamine MessengerMAX Transfection Reagent Lipofectamine RNAIMAX Transfection Reagent*		Antibody labeling kits	Toxicity and cell viability assays	
	Drug development (ADME/Tox and DMPK)  • CRISPR products and services • TALEN products and services •		Lipofectamine MessengerMAX Transfection Reagent Lipofectamine RNAiMAX Transfection Reagent* Lentiviral products	N/A	Antibody labeling kits     Vivid screening kits     High-content screening	CYP assays Toxicity and cell viability assays Thermo Scientific" Pierce" LDH Cytotoxicity Assay Kit Invitrogen" ATP Determination Kit Invitrogen" PrestoBlue" Cell Viability Reagent	Toxicity screening Hepatotoxicity screening Disease-specific P450 profiling Custom cell isolation Custom media
			Lipofectamine 3000 Transfecction Reagent Lipofectamine MessengerMAX Transfection Reagent Lipofectamine RNAiMAX Transfection Reagent* Lentiviral products		Antibody labeling kits     High-content screening	CYP assays Toxicity and cell viability assays Thermo Scientific" Pierce" LDH Cytotoxicity Assay Kit Invitrogen" ATP Determination Kit PrestoBlue Cell Viability Reagent	
Primary cells		CRIPSR products and services     TALEN products and services	Lipofectamine LTX Reagent Lipofectamine MessengerMAX Transfection Reagent Lipofectamine CRISPRMAX Transfection Reagent Lipofectamine RNAIMAX Transfection Reagent* Neon Transfection System	N/A	Invitrogen dyes ADME/Tox assays PrestoBlue Cell Viability Reagent Invitrogen" CellEvent" Caspase 3/7 reagent RT-PCR reagents TaqMan Assays Invitrogen" antibody kits Invitrogen" CellLight" reagents	Varioskan LUX Multimode Microplate Reader Countess Automated Cell Counter EVOS FL Auto Imaging System	Custom services Transcription profiling Expression profiling Pooled donor cells and profiles Cell isolation (human primary) Cell-banking production BacMam cell transduction GMP media Assay services FT-PCR reagents High-throughput screening Cellular ELISA (C-ELISA) kit FRET assay TR-FRET assay
Protein expression	Biologics Structural biology	CRIPSR products and services     TALEN products and services	Gibco" ExpiFectamine" CHO Transfection Kit     Gibco" ExpiFectamine" 293 Transfection Kit	N/A	Protein assays Invitrogen" Vivid Colors" protein ve Invitrogen" ELISA kits Multiplex assays for the Luminex" p		Invitrogen™ GeneArt™ Gene-to- Protein Services     Custom protein services
	Intracellualr protein		Bac-to-Bac Baculovirus     Expression System		Attune NxT Flow Cytometer	nation II	233 p. 233 557 77555
	Breast cancer		Lipofectamine 3000 Transfection				
Cancer/ therapeutic	Liver cancer  Lung cancer  Prostate cancer  Cervical cancer		Reagent (basic research)     Opti-MEM Reduced     Serum Medium	N/A			Screening

<sup>\*</sup> For knockdown studies across all areas of research.

# Products used in research continued



Area of research	Cell type or cell line	Reprogramming	Media	Plastics	Supplements	Matrices	Dissociation
	<b>(</b>	2			+	<b>&amp;</b>	
	• T cell*	N/A	Gibco" CTS" OpTmizer" T Cell Expansion SFM! Gibco" CTS" AIM V" Medium! Gibco" CTS" Synth-a- Freeze" Medium! Gibco" CTS" AIM V" Medium, without phenol red, without antibiotics**:1		Glbco" CTS" IL-2, IL-4, IL-7, IL-15, and IL-21 <sup>11</sup> Gibco" CTS" GM CSF, CTS TNF-α Gibco DPBS GlutaMAX Supplement L-Glutamine <sup>55</sup> Gibco" CTS" Immune Cell SR <sup>2</sup>	N/A	N/A
	• MSC*	N/A	CTS StemPro MSC SFM¹ StemPro MSC SFM, XenoFree¹ MesenPRO RS Medium³ Specialty FBs, MSC Qualified CTS Synth-a-Freeze Medium³		L-Glutamine <sup>55</sup> Gibco" CTS" DPBS¹     Gibco" CTS" GlutaMAX-I Supplement¹	CTS CELLStart Substrate	Gibco" CTS" TrypLE"     Select Enzyme <sup>‡</sup>
	iPSC     Episomal iPSC line	CTS CytoTune-iPS 2.1 Sendai Reprogramming Kit <sup>s</sup>	CTS Essential 8 Medium <sup>†</sup> Gibco" CTS" KnockOut" SR XenoFree Medium <sup>†</sup> KnockOut DMEM/F-12 Gibco" CTS" KnockOut" DMEM <sup>‡</sup>	Nuncion Delta-treated and non-treated flasks, dishes, and plates     Nuncion Sphera flasks,	RevitaCell Supplement Gibco* CTS** Vitronectin* Gibco* rhLaminin-521 EDTA (Versene solution)	CTS Vitronectin Supplement     rhLaminin-521	CTS TrypLE Select Enzyme <sup>†</sup> EDTA (Versene)
Cell therapy	• NSC	N/A	Gibco" CTS" B-27" Supplement, Xeno Free! Gibco" CTS" KnockOut" DMEM/F-12"! Gibco" CTS" N-2 Supplement CultureOne Supplement	dishes, and plates  Nunc ECM-coated flasks and plates	CTS N-2 Supplement  CultureOne Supplement  CTS DPBS*  CTS GlutaMAX-I Supplement*  Gibco" CTS" B-27" Supplement*	CTS CELLstart Substrate <sup>11</sup> CTS Vitronectin <sup>1</sup> Gibco rhLaminin-521	CTS TrypLE Select Enzyme <sup>†</sup>
Find out more at thermofisher.com/ celltherapy	• HSC*	N/A	Gibco" StemPro"-34 SFM CTS Syntha-a-Freeze Medium <sup>‡</sup>		Gibco" CTS" IL-2, IL-3, IL-4, IL-5, IL-6, IL-7; CTS SCF, Gibco" CTS" GM-CSF, Gibco" CTS" FLT3 ligand" Gibco" TPO protein Invitrogen" M-CSF protein CTS Immune Cell SR¹ CTS DPBS¹ CTS GlutaMAX-I Supplement¹	N/A	N/A

<sup>\*</sup> We do not offer this product.

<sup>\*\*</sup> CTS AIM-V Medium, without phenol red, without antibiotics is a serum-free formulation for proliferation and manipulation of T cells and dendritic cells.

<sup>†</sup> For Human Ex Vivo Tissue and Cell Culture Processing Applications. Caution: When used as a medical device, federal law restricts this device to sale by or on the order of a physician.

<sup>‡</sup> For Research Use or Manufacturing of Cell, Gene, or Tissue-Based Products. Caution: Not intended for direct administration into humans or animals.

<sup>§</sup> For Research Use or Further Manufacturing. Not for diagnostic use or direct administration in to humans or animals.

<sup>††</sup> For Research Use or Non-Commerical
Manufacturing of Cell-Based Products for Clinical
Research. Caution: Not intended for direct
administration into humans or animals.

§§ For In Vitro Diagnostic Use.

# 3 Modify Analyze 5 Services

Area of research	Gene editing	Gene delivery	Differentiation	Characterization	Screening or imaging	Services
		(B)	<b>3</b>	Y	Ţ	X
		Gibco" LV-MAX" Lentiviral Production System     Lipofectamine transfection reagents     Neon Transfection System	N/A	Attune NxT Flow Cytometer	Ion Torrent" Oncomine"     Focus Assay     MycoSEQ Mycoplasma     Detection Kit	Custom lentiviral packaging services
	• CRISPR products and services     • TALEN products and services	Lipofectamine transfection reagents     Neon Transfection System	StemPro Osteogenesis     Differentiation Kit     StemPro Chondrogenesis     Differentiation Kit     StemPro Adipogenesis     Differentiation Kit	Attune NxT Flow Cytometer     TaqMan Gene     Expression Assays	MycoSEQ Mycoplasma Detection Kit	CellModel services  Differentiation Characterization Assay development Screening
Cell therapy		Lipofectamine transfection reagents     Neon Transfection System	PSC Cardiomyocyte Differentiation Kit  PSC Dopaminergic Neuron Differentiation Kit  PSC Definitive Endoderm Induction Kit  CTS B-27 Supplement  N-2 Supplement Gibco" CTS" Neurobasal" Medium"  CultureOne Supplement Growth factors: TGF-B1, SCF, FLT 3 Ligand, FGF	Invitrogen Alkaline Phosphatase Live Stain EVOS imaging systems Cellinsight HCA platforms TaqMan hPSC Scorecard Panel and Analysis PrimeView Global Gene Expression Profile Assays KaryoStat and KaryoStat HD Assays	MycoSEQ Mycoplasma     Detection Kit	CellModel services  Reprogramming  Differentiation  Characterization  Assay development  Screening
		Lipofectamine transfection reagents     Neon Transfection System	PSC Neural Induction Medium     PSC Dopaminergic Neuron Differentiation Kit	<ul> <li>EVOS imaging systems</li> <li>CellInsight HCA platforms</li> <li>TaqMan hPSC Scorecard Panel and Analysis</li> <li>PrimeView Global Gene Expression Profile Assays</li> <li>KaryoStat and KaryoStat HD Assays</li> </ul>	Biochemical and cellular assays     MycoSEQ Mycoplasma Detection Kit	CellModel services  Differentiation Characterization Assay development Screening
		Lipofectamine transfection reagents     Neon Transfection System     LV-MAX Lentiviral Production System	See growth factors	Attune NxT Flow Cytometer     EVOS imaging systems     Cellinsight HCA platforms     TaqMan Gene Expression Assays	MycoSEQ Mycoplasma Detection Kit	CellModel services  Reprogramming  Differentiation  Characterization  Assay development  Screening

# Product categories and offerings

Culture

Source

#### Cell type or cell line Media **Plastics** Dissociation Reprogramming Supplements Matrices Established cell lines Isolation Basal media Cell culture plates Cell culture supplements Extracellular matrices Dissociation Cos7 cells Thermo Scientific™ Nunc™ EasYDish™ Dishes Invitrogen™ Dynabeads™ products Gibco™ Dulbecco's Modified Eagle Gibco™ GlutaMAX™ Supplement Gibco™ Geltrex™ matrices Gibco™ TrypLE™ enzymes Medium (DMEM) Gibco™ Trypsin solutions Hel a cells Invitrogen<sup>™</sup> MagniSort<sup>™</sup> products Thermo Scientific™ Nunc™ Cell Culture-Treated Gibco™ I -Glutamine\*\* Gibco™ Collagen I Gibco™ RPMI 1640 Medium Gibco™ CTS™ Dynabeads™ products\* Gibco™ StemPro™ Accutase™ Cell HEK 293 cells Gibco™ growth factors: HKGS, EDGS, Gibco™ Laminin Thermo Scientific™ Nunclon™ Sphera™ U-Bottom Gibco™ Minimum Essential Medium (MEM) HMGS, LSGS, and MVGS (primary cell) Dissociation Reagent Jurkat cells Gibco™ Vitronectin proteins Find out more at • Gibco™ Dulbecco's Phosphate-Buffered Gibco™ Heat Stable Recombinant Gibco™ Poly-D-Lysine CHO-K1 cells thermofisher.com/cellisolation Find out more at Saline (DPBS) Human bFGF Gibco™ CTS™ thermofisher.com/celldissociation Find out more about our products that Gibco" Hank's Balanced Salt Solution (HBSS)\* thermofisher.com/cellcultureplates Gibco™ recombinant proteins. CELLstart™ substrates\* support >570 cell lines at Reprogramming kits thermofisher.com/celllines Find out more at thermofisher.com/cellculture Find out more at thermofisher.com/ • Invitrogen™ CytoTune™-iPS 2.0 Find out more at Cell culture flasks mediasupplements Sendai Reprogramming Kit thermofisher.com/3D-cellculture Thermo Scientific™ Nunc™ Cell Culture–Treated Specialty cell media Primary cells Invitrogen™ CTS™ CvtoTune-iPS 2.1 FasYFlask™ products Sendai Reprogramming Kit\* Keratinocytes Stem cells • Thermo Scientific™ Nunc™ TripleFlask™ products Invitrogen™ Epi5™ Episomal iPSC Henatocytes Gibco™ KnockOut™ Serum Gibco<sup>™</sup> Essential 8<sup>™</sup> Medium Thermo Scientific™ Nalgene™ Single-Use PETG Replacement Fibroblasts Gibco™ Essential 8™ Flex Medium Erlenmeyer Flasks Gibco™ StemPro™ Neural Supplement¹ Find out more at Neurons Gibco™ StemFlex™ Medium thermofisher.com/reprogramming Find out more at · Neural stem cells (NSCs) Neuronal cells Find out more at thermofisher.com/cellcultureflasks thermofisher.com/stemcells Stem cell lines Gibco™ Neurobasal™ Medium Gibco™ Human Episomal iPSC Line Gibco™ Neurobasal™ Plus Medium Centrifuge tubes Cell therapy Find out more at Cell therapy Thermo Scientific<sup>™</sup> Nunc<sup>™</sup> 15 mL and 50 mL thermofisher.com/primarycells Gibco™ RevitaCell™ Supplement Conical Centrifuge Tubes Gibco™ CTS™ AIM V™ SFM¹ thermofisher.com/stemcells Gibco™ CTS™ StemPro™ Gibco™ CTS™ AIM V™ Medium, without phenol • Thermo Scientific™ Nunc™ EZFlip™ Conical red, without antibiotics\* MSC SFM<sup>5</sup> Gibco<sup>™</sup> CTS<sup>™</sup> Essential 8<sup>™</sup> Medium<sup>‡</sup> Protein expression cell lines Gibco™ IL-2, IL-4, IL-6, and IL-7 Find out more at (Interleukin 2, 4, 6, and 7) CTS Gibco™ Expi293F™ Cells Find out more at thermofisher.com/cellculturetubes Recombinant Human Proteins thermofisher.com/stemcellculture Gibco™ ExpiCHO-S™ Cells Gibco™ CTS™ Immune Cell SR<sup>‡</sup> . Gibco™ Sf9, Sf21, and High Five™ Serological pipettes Find out more at insect cells Thermo Scientific™ Nunc™ Serological Pipettes thermofisher.com/cts Invitrogen<sup>™</sup> Flp-In<sup>™</sup> T-Rex<sup>™</sup> 293 Gibco™ Premium FBS® Thermo Scientific™ Nunc™ Shortie Pipettes Cell Line · Certified US origin Find out more at Neurobiology supplements Find out more at · Qualified, Australia or New Zealand origin thermofisher.com/serologicals (regions in Asia) thermofisher.com/proteinexpression Gibco™ B-27™ Supplement Gibco™ Value FBS thermofisher.com/nuncserologicals Gibco™ B-27™ Plus Supplement · Qualified, Brazil origin Gibco™ CultureOne™ · Qualified, Canada origin Supplement (100X) Qualified, USDA-approved regions Specialty surfaces Find out more at Thermo Scientific™ Nunc™ Poly-D-Lysine or · Qualified, US origin thermofisher.com/neuro Gibco™ Specialty FBS<sup>tt</sup> Collagen I Coated Multidishes and EasYFlasks Thermo Scientific™ Nunc™ Dishes and Multidishes Find out more at thermofisher.com/fbs with UpCell™ Surface Find out more at Primary cell media thermofisher.com/cellcultureplastics • Gibco™ EpiLife™ media Gibco™ Medium 106, 131, 154, 171, Imaging culturewares 200, 231, and 254 Thermo Scientific™ Nunc™ Lab-Tek™ and Gibco™ Keratinocyte-SFM and Defined Lab-Tek™ II Chamber Slide Systems Keratinocyte-SFM Thermo Scientific™ Nunc™ Optical Bottom Plates Find out more at thermofisher.com/primarycellmedia thermofisher.com/cellcultureplastics

\* For Research Use or Non-Commerical Manufacturing of

intended for direct administration into humans or animals.

Cell-Based Products for Clinical Research. Caution: Not

<sup>\*\*</sup> For In Vitro Diagnostic Use.

<sup>†</sup> For Human *Ex Vivo* Tissue and Cell Culture Processing Applications. Caution: Not intended for direct administration to humans or animals.

<sup>‡</sup> For Research Use or Manufacturing of Cell, Gene, or Tissue-Based Products. Caution: Not intended for direct administration into humans or animals.

<sup>§</sup> All sera are available in Gibco™ One Shot™ format for all origins.

<sup>††</sup> Sera designed for specialty applications and sensitive cell culture, including stem cell research, cancer research, reporter assays, immunoassays, and more

Gene editing	Gene delivery	Differentiation	Characterization	Screening or imaging	Services
<b>%</b>		<b>&amp;</b>	Yr	Ō	×
Gene synthesis services Invitrogen" GeneArt" GeneOptimizer" Process Invitrogen" GeneArt" High-Order Genetic Assembly Systems Find out more at thermofisher.com/genesynthesis Genome-editing products Invitrogen" TrueCut" Cas9 Protein v2 Invitrogen" GeneArt" CRISPR Nuclease MRNA Invitrogen" GeneArt" CRISPR Nuclease Vector Invitrogen" TrueGuide" Synthetic gRNA Invitrogen" TrueGuide" Synthetic gRNA Invitrogen" GeneArt" PerfectMatch and Precision TALs Find out more at thermofisher.com/genomeediting Cell line engineering services Knock-in services (Invitrogen" Fip-In" or Jump-in" technology) Knockout services Gene activation, repression, and expression services Find out more at thermofisher.com/cellengineering	Transfection reagents  Invitrogen" Lipofectamine" 3000 and 2000 Transfection Reagents  Invitrogen" Lipofectamine" MessengerMAX" Transfection Reagent  Invitrogen" Lipofectamine" RNAiMAX Transfection Reagent  Invitrogen" Lipofectamine" RNAiMAX Transfection Reagent  Invitrogen" Lipofectamine" CRISPRMAX" Cas9 Transfection Reagent  Invitrogen" Lipofectamine" CRISPRMAX" Cas9 Transfection Reagent  Invitrogen" Neon" Transfection  Electroporation  Invitrogen" Neon" Transfection System  Find out more at thermofisher.com/neon  Transduction  Invitrogen" LentiArray" Lentivirus controls  Gibco" Bac-to-Bac" kits  Gibco" Bac-to-Bac" kits  Gibco" LV-MAX" Transfection Kit  Find out more at thermofisher.com/genedelivery  Protein expression  Gibco" ExpiCHO" Expression System  Gibco" ExpiCHO" Expression System  Gibco" ExpiCHO" Expression System  Gibco" ExpiCHO" Il and Ill SFM  Gibco" ExpiCPO" Il and Ill SFM  Gibco" Express Five" SFM  Find out more at thermofisher.com/proteinexpression	Stem cell differentiation kits and media  Gibco® PSC Dopaminergic Neuron Differentiation Kit  Gibco® PSC Cardiomyocyte Differentiation Kit  Gibco® PSC Definitive Endoderm Induction Kit  Gibco® PSC Neural Induction Medium  Gibco® StemPro® Osteogenesis Differentiation Kit  Gibco® StemPro® Osteogenesis Differentiation Kit  Gibco® StemPro® Adipogenesis Differentiation Kit  Cibco® StemPro® Adipogenesis Differentiation Kit  TultureOne Supplement  Find out more at thermofisher.com/differentiation	Antibodies  Invitrogen" primary antibodies  Invitrogen" secondary antibodies  Invitrogen" Alexa Fluor" and DyLight" secondary antibodies  Invitrogen" flow cytometry antibodies  Invitrogen" immunoassays  Invitrogen" immunoassays  Find out more at thermofisher.com/antibodies  Applied Biosystems" KaryoStat" assays  Applied Biosystems" GeneChip" PrimeView" gene expression assays  Applied Biosystems" TaqMan* hPSC Scorecard Panel  Invitrogen" Neurite Outgrowth Staining Kit  Invitrogen" INF/DEAD" kits  Invitrogen" antibody stains  Find out more at thermofisher.com/characterization  Protein quantitation assays  Thermo Scientific" Pierce" Rapid Gold BCA Protein Assay Kit  Find out more at thermofisher.com/proteinassays  Western blotting  Thermo Scientific" SuperSignal" Chemiluminescent HRP Substrates  Invitrogen" Bolt" 2 Dry Blotting System  Invitrogen" iBiot" 2 Dry Blotting System  Invitrogen" iBind" western systems  Invitrogen" iBright" imaging systems  Find out more at thermofisher.com/western	Cell imaging instruments  Thermo Scientific® CellInsight® CX7 High-Content Analysis Platform  Thermo Scientific® Varioskan® LUX Multimode Microplate Reader  Invitrogen® EVOS® FL Auto Imaging System  Invitrogen® EVOS® FL Auto 2 Imaging System  Find out more at thermofisher.com/cellimaging  Cell counters  Invitrogen® Countess® II Automated Cell Counter  Invitrogen® Countess® II FL Automated Cell Counter  Invitrogen® Countess® II FL Automated Cell Counter  Invitrogen® Automated Invitrogen® Automated Invitrogen® Automated Invitrogen® Invitrogen® Invitrogen® Invitrogen® Invitrogen® Imaging reagents  Invitrogen® Invi	Custom biology services  Target and lead identification and validation  Custom Applied Biosystems" TaqMan Protein Assay development  Kinase profiling Biochemical assay development  Cultom Tab/Eu antibody labeling  Custom Tb/Eu antibody labeling  Cell provisioning SelectScreen" profiling and screening Invitrogen" CRISPR- and TALEN-base genome editing  Lentiviral production  Find out more at thermofisher.com/custombiology  Stem cell services Reprogramming Assay development Differentiation  Cell screening Characterization Custom media (GMP and cGMP options)  Find out more at thermofisher.com/cellmodels

## Additional resources

Explore our cell biology educational centers, virtual events, technical resources, and protocols.

Gibco™ education center

thermofisher.com/gibcoeducation

PSC education center

thermofisher.com/psceducation

FBS education center

thermofisher.com/fbsbasics

Cancer Spheroid and Organoid eLearning Course

thermofisher.com/3dlearningcourse

3D organoid and spheroid customer stories

thermofisher.com/3dstories

Gibco™ Cancer Basics

thermofisher.com/cancercellculturebasics

Gibco<sup>™</sup> Cell Culture Basics

thermofisher.com/cellculturebasics

Gibco™ Cell Culture Heroes

thermofisher.com/cellcultureheroes

Stem Cell Research Learning Center

thermofisher.com/stemcellresources

Gibco™ PSC Workshops

thermofisher.com/pscworkshop

Gibco™ 24 Hours of Stem Cells™ Virtual Event

thermofisher.com/24hours

Gibco™ ExpressionWorld Virtual Event

thermofisher.com/expressionworld

Custom biology services

thermofisher.com/askcustombiology





