



CELL CULTURE - THE BASICS

YOUR RESEARCH - OUR SOLUTION

Let's
GR**OW**
together

 **Fisher
Scientific**

What is cell culture?

Cell culture refers to the removal of cells from an animal or plant and their subsequent growth in a favorable artificial environment. Cells can be removed from:

- tissue directly and disaggregated by enzymatic or mechanical means before cultivation,
- or derived from a cell line or cell strain that has already been established.

What do we need?

- A substrate or medium that supplies the essential nutrients (amino acids, carbohydrates, vitamins, minerals)
- Growth factors and supplements
- Hormones
- Gases (O₂, CO₂)
- A regulated physico-chemical environment (pH, osmotic pressure, temperature)

How to choose your media

The choice of cell culture media is extremely important, and significantly affects the success of cell culture experiments ^[1]. The selection of the media depends on the type of cells to be cultured and also the purpose of the culture and resources available in the laboratory ^[2,3]. Different cell types have highly specific growth requirements, therefore, the most suitable media for each cell type must be determined experimentally ^[4,5,6]. In general, it's always good to start with MEM for adherent cells and RPMI-1640 for suspension cells.

Media Type	Examples	Uses
Basal media	MEM DMEM	Primary and diploid culture
Complex media	RPMI-1640, IMDM	Supports wide range of mammalian cells

^[1] Weller T, Wheeldon S. The cultivation *in vitro* of cells derived from adult *Schistosoma mansoni*. I. Methodology; criteria for evaluation of cultures; and development of media. *Am J Trop Med Hyg.* 1982;31:335-48

^[2] Yang H. Selection of culture media for human and rabbit corneal epithelia. *Zhonghua Yan Ke Za Zhi.* 1991;27:351-3

^[3] Clifford W, Anellis A, Ross E. Evaluation of media, time and temperature of incubation, and method of enumeration of several strains of *Clostridium perfringens* spores. *Appl Microbiol.* 1974;27:784-92

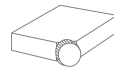
^[4] Sato JD, Hayashi I, Hayashi J, Hoshi H, Kawamoto T, McKeehan WL et al. Specific cell types and their requirements. In: Davis JM, editor. *Basic Cell Culture: A Practical Approach.* Oxford: Oxford University Press; 1994.

^[5] Schumpp B, Schlaeger E. Optimization of culture conditions for high cell density proliferation of HL-60 human promyelocytic leukemia cells. *J Cell Sci.* 1990;97:639-47

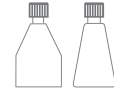
^[6] McKeehan W, Barnes D, Reid L, Stanbridge E, Murakami H, Sato G. Frontiers in mammalian cell culture. *In Vitro Cell Dev Biol.* 1990;26:9-23

How to choose your flask

Flask shapes



- **Low profile flasks** have reduced height for incubator space savings. The corner neck gives direct access to the flask corner.



- **Triangular and modified triangular flasks** offer good pipet and cell scraper access to the corners. The wider base provides added stability.



- **Rectangular flasks** have a ramp from the bottom to the canted neck for easier pouring and pipet access. Most canted neck flasks also have an antitip skirt to enhance stability.



- **Angled neck and traditional straight neck flasks** utilise the entire bottom area for cell growth. Their design saves on space and reduces medium sloshing into the neck.



- **U-shape T-75 flasks** have rounded shoulders for an easier grip and better access when removing or tightening the cap. The new ergonomic shape also reduces the number of corners, improves cell scraping, and allows the use of a larger pipet.

Flask neck styles



- **Straight neck flasks** are ideal for larger volumes since the design reduces medium sloshing into the cap.



- **Canted neck flasks** allow easier pouring and improved access to the flask for pipetting or scraping. The canted neck design was a Corning innovation that first appeared in 1974.



- **Angled neck** improves pipet access and reduces medium sloshing into the neck. This patented design was a Corning innovation that first appeared in 1988.

Flask cap styles



- **Plug seal caps** feature one-piece linerless construction and are designed for use in closed systems, providing a liquid- and gas-tight seal. When loosened, this cap can also be used in open systems. This cap design was a Corning innovation that first appeared in 1974.



- **Phenolic style caps** are designed (when loosened) for use in open systems requiring gas exchange. With the caps slightly loosened, gas is exchanged between the environments inside and outside of the flask.



- **Vent caps** contain a 0.2 µm pore nonwetable membrane sealed to the cap, providing consistent, sterile gas exchange while minimizing the risk of contamination. These caps are highly recommended for use in all CO₂ incubators, especially for long-term use. The vent cap was a Corning innovation that first appeared in 1988.

MEM, also called **Eagle's minimal essential medium**, was a cell culture medium developed by Harry Eagle that can be used to maintain cells in tissue culture. It only contains 12 kinds of non-essential amino acids, glutamine, eight vitamins and some basic inorganic salts.

CORNING

MEM (Minimum Essential Medium)

Contains	Alt. No				
	10-009	10-010	15-010	15-015	17-305
L-Glutamine	x	x			
Phenol Red	x	x	x	x	
Calcium and magnesium	x	x	x		x
Sodium bicarbonate	x	x	x	x	x
Non-essential amino acids	x				
Sodium pyruvate	x				
Earle's salts	x	x	x	x	x

Cat. No	Alt. No	Description	Size	Pack qty
15313531	10-010-CVR	[+] Earle's salts, L-glutamine	500mL	6
15363591	10-010-CMR	[+] Earle's salts, L-glutamine	1L	6
15333551	15-010-CVR	[+] Earle's salts; [-] L-glutamine	500mL	6
15383611	15-010-CMR	[+] Earle's salts; [-] L-glutamine	1L	6
15303571	17-305-CVR	[+] Earle's salts; [-] L-glutamine, Phenol Red	500mL	6
15363551	15-015-CVR	[-] L-glutamine, calcium, magnesium	500mL	6

CORNING

MEM (Minimum Essential Medium) Alpha medium

Contains	Alt. No	
	10-022	15-012
L-Glutamine	x	
Phenol red	x	x
Nucleosides	x	
Sodium pyruvate	x	x
Sodium bicarbonate	x	x

Cat. No	Alt. No	Description	Size	Pack qty
15363531	10-022-CVR	[+] Earle's salts, ribonucleosides, deoxyribonucleosides, L-glutamine	500mL	6
15343551	15-012-CVR	[+] Earle's salts; [-] ribonucleosides, deoxyribonucleosides, L-glutamine	500mL	6

CORNING

Improved MEM (Richter's Modification)

Cat. No	Alt. No	Description	Size	Pack qty
15373531	10-024-CVR	[+] L-Glutamine	500mL	6
15393531	10-026-CVR	[+] L-Glutamine; [-] Phenol Red	500mL	6

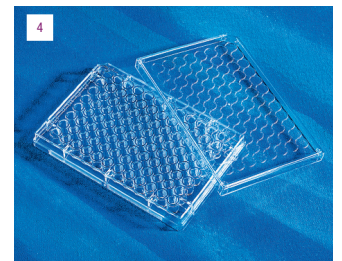
CORNING

Corning U-shape cell culture flasks

Corning's enhanced T-75 flask features a U-shaped design, which improves usability while maintaining the same environment for cell growth as previous designs. The U-shaped T-75 flask includes specific design advances, such as rounded shoulders, which allow for an easier grip and for better access when removing or tightening the cap. The new ergonomic shape also reduces the number of corners, improves cell scraping, and provides the option to use a larger pipette (up to 50mL).

- Manufactured from optically clear virgin polystyrene
- Printed with lot numbers for ease in traceability
- 100% integrity tested
- Sterilised by gamma irradiation and certified nonpyrogenic

Cat. No	Alt. No	Description	Pack qty
15370591	174901	75cm ² , Tissue culture treated, phenolic-style cap	100
15360591	174900	75cm ² , Tissue culture treated, plug seal cap	100
15350591	174899	75cm ² , Tissue culture treated, vented cap	100
15380591	174898	75cm ² , Not treated, vented cap	100



CORNING

Corning multiple well plates, sterile

- Tissue culture-treated for optimum cell attachment and growth
- Optically clear plates compatible with most automatic diluters, readers, and pipettors
- Raised well rims, lid rings, and recessed areas prevent cross-contamination and reduce evaporation
- Uniform wall thickness ensures distortion-free well bottoms
- Well positions are labeled with alphanumeric markings
- Gamma radiation sterilised and certified nonpyrogenic

Cat. No	Alt. No	Description	Pack qty
10578911	3516	6-well plate, 1/tray	50
10146810	3506	6-well plate, 5/bag	100
10253041	3513	12-well plate, 1/tray	50
10732552	3524	24-well plate, 1/tray	100
10377841	3527	24-well plate, 5/bag	100
10380932	3526	24-well plate, 1/tray	50
10065370	3548	48-well plate, 1/tray	100
10695951	3596	96-well plate, 1/tray	50

DMEM (Dulbecco's Modification of Eagle's Medium)

Contains	Alt. No												
	10-101	10-102	10-013	10-014	10-017	10-027	15-013	15-017	15-018	17-204	17-205	17-206	17-207
L-Glutamine			X	X	X	X							
Sodium pyruvate			X	X			X		X	X	X	X	
Phenol Red			X	X	X	X	X	X	X	X		X	X
L-Cystine			X	X	X	X	X	X			X	X	X
L-Methionine			X	X	X	X	X	X	X	X	X		X
Phosphate						X			X				
HEPES				X									
Low glucose			X		X	X	X	X	X	X	X	X	
High glucose	X	X											
GlutaGro™													

A variation of MEM, called **Dulbecco's Modified Eagle's Minimal (DMEM)**, (Dulbecco/Vogt modified Eagle's Minimal Essential Medium), contains approximately four times as much of the vitamins and amino acids present in the original formula and two to four times as much glucose. Additionally, it contains iron and Phenol Red. DMEM is further divided into low glucose type (450g/L glucose) and high-glucose type (1000g/L glucose). High-glucose DMEM is suitable for some tumour cells with faster growth speed and difficult attachment, as it is better to retain and grow cells in one place.

IDMEM is a modification of basic DMEM by Iscove and contains 42 ingredients. It includes selenium as well as additional amino acids and vitamins. In addition, this unique medium lacks iron, with potassium nitrate replacing ferric nitrate. It is well suited for difficult proliferating, low-density cell cultures, including hybrid cell selection after cell fusion, and selection of transformed cell after DNA transfection.

Cat. No	Alt. No	Description	Size	Pack qty
15393541	10-101-CVR	[+] Corning glutagro™ supplement, 4.5 g/L glucose, sodium pyruvate, phenol red	500mL	6
15333611	10-102-CVR	[+] Corning glutagro™ supplement, 4.5 g/L glucose, Phenol Red; [-] sodium pyruvate	500mL	6
15323531	10-013-CVR	[+] 4.5 g/L glucose, L-glutamine, sodium pyruvate	500mL	6
15373591	10-013-CMR	[+] 4.5 g/L glucose, L-glutamine, sodium pyruvate	1L	6
15393591	10-013-LXR	[+] 4.5 g/L glucose, L-glutamine, sodium pyruvate	10L	1
15383591	10-013-LBR	[+] 4.5 g/L glucose, L-glutamine, sodium pyruvate	20L	1
15333531	10-014-CVR	[+] 1.0 g/L glucose, sodium pyruvate, L-glutamine	500mL	6
15303601	10-014-CMR	[+] 1.0 g/L glucose, sodium pyruvate, L-glutamine	1L	6
15353531	10-017-CVR	[+] 4.5 g/L glucose, L-glutamine; [-] sodium pyruvate	500mL	6
15323601	10-017-CMR	[+] 4.5 g/L glucose, L-glutamine; [-] sodium pyruvate	1L	6
15353551	15-013-CVR	[+] 4.5 g/L glucose, sodium pyruvate; [-] L-glutamine	500mL	6
15393611	15-013-CMR	[+] 4.5 g/L glucose, sodium pyruvate; [-] L-glutamine	1L	6
15313621	15-013-LXR	[+] 4.5 g/L glucose, sodium pyruvate; [-] L-glutamine	10L	1
15303621	15-013-LBR	[+] 4.5 g/L glucose, sodium pyruvate; [-] L-glutamine	20L	1
15383551	15-017-CVR	[+] 4.5 g/L glucose; [-] L-glutamine, sodium pyruvate	500mL	6
15323621	15-017-CMR	[+] 4.5 g/L glucose; [-] L-glutamine, sodium pyruvate	1L	6
15393551	15-018-CVR	[+] 4.5 g/L glucose, sodium pyruvate, 25 mM HEPES; [-] L-glutamine	500mL	6
15333621	15-018-CMR	[+] 4.5 g/L glucose, sodium pyruvate, 25 mM HEPES; [-] L-glutamine	1L	6
15373561	17-204-CIR	[+] 4.5 g/L glucose, sodium pyruvate; [-] L-glutamine, L-methionine, L-cystine	100mL	6
15383561	17-205-CVR	[+] 4.5 g/L glucose, sodium pyruvate; [-] L-glutamine, phenol red	100mL	6
15383621	17-206-CIR	[+] 4.5 g/L glucose, sodium pyruvate; [-] L-glutamine, phosphate	100mL	6
15393561	17-207-CVR	[-] Glucose, L-glutamine, sodium pyruvate	500mL	6

IDMEM (Iscove's Modification of DMEM)

Contains	Alt. No	
	10-016	15-016
L-Glutamine	X	
Sodium pyruvate	X	X
Phenol Red	X	X
Sodium bicarbonate	X	X

Cat. No	Alt. No	Description	Size	Pack qty
15343531	10-016-CVR	[+] L-Glutamine	500mL	6
15313601	10-016-CMR	[+] L-Glutamine and 25mM HEPES; [-] α-thioglycerol, β-mercaptoethanol	1L	6
15373551	15-016-CVR	[+] 25mM HEPES; [-] α-thioglycerol, β-mercaptoethanol, L-Glutamine	500mL	6

Thermo Scientific™ UpCell cultureware

The UpCell surface is designed to respond to changes in temperature. It releases adherent cells by a simple reduction of the temperature of the cell culture. Products with the UpCell surface include Thermo Scientific Nunc MicroWell plates, multidishes and dishes.

Cat. No	Alt. No	Description	Pack qty
Multiwell and assay plates			
10542204	174901	6 well	6
10288143	174900	12 well	6
10532204	174899	24 well	6
10616234	174898	48 well	6
10609114	174897	96 microwell plate with flat bottom	8
Culture dishes			
10463665	174904	35mm	30
10592954	174903	60mm	30
10398963	174906	60mm with grid	30
10073833	174902	100mm	6
10165613	174905	100mm with grid	6

Ham's F-10 medium is a classical media designed by Ham in 1962 to support the growth of mouse and human diploid cells in 1962. **Ham's F-12**, an improved product, has been used for the growth of primary rat hepatocytes and rat prostate epithelial cells. A clonal toxicity assay using CHO cells has also been reported with Ham's F-12 as the medium of choice.

Ham, R.G. 1984, Formulation of basal nutrient media. In Cell Culture Methods for Cell Biology, Vol. 1 (D. W. Barnes, D. A. Sirbasku, and G. H. Sato, eds.) pp. 3-21. Alan R. Liss, New York



Roswell Park Memorial Institute medium, commonly referred to as **RPMI**, is another popular medium used in cell culture and tissue culture. The initial formula is suitable for growth of suspension cells, mainly for lymphoid cells. This medium contains a great deal of phosphate and is formulated for use in a 5% carbon dioxide atmosphere. RPMI1640, the most mature improved and commonly-used medium, is suitable for most types of cells, including tumour cells, normal cell, primary culture cells and passage cell.



CORNING

DMEM/Ham's F-12 50/50 Mix

Contains	Alt. No				
	10-090	10-092	10-103	15-090	16-405
L-Glutamine	x	x			x
Sodium pyruvate	x	x		x	x
Phenol Red	x	x		x	
HEPES		x			
Glutagro			x		
Sodium bicarbonate	x	x		x	x

Cat. No	Alt. No	Description	Size	Pack qty
15373541	10-090-CVR	[+] L-Glutamine	500mL	6
15313611	10-090-CMR	[+] L-Glutamine	1L	6
15383541	10-092-CVR	[+] L-Glutamine, 15mM HEPES	500mL	6
15323611	10-092-CMR	[+] L-glutamine, 15mM HEPES	1L	6
15353561	16-405-CVR	[+] L-Glutamine; [-] Phenol Red	500mL	6
15323561	15-090-CVR	[+] L-Glutamine	500mL	6
15363621	15-090-CMR	[-] L-Glutamine	1L	6
15303551	10-103-CVR	[+] Corning glutagro™ supplement	500mL	6

CORNING

RPMI 1640

Contains	Alt. No							
	10-040	10-041	10-043	10-104	15-040	15-041	17-104	17-105
L-Glutamine	x	x	x					
Phenol Red	x	x	x	x	x	x	x	
HEPES		x				x		
L-Cystine/L-Methionine	x	x	x	x	x	x		x
Sodium bicarbonate	x	x	x	x	x	x	x	x
Glutagro™				x				

Cat. No	Alt. No	Description	Size	Pack qty
15343601	10-040-CMR	[+] L-Glutamine	1L	6
15303541	10-040-CVR	[+] L-Glutamine	500mL	6
15353601	10-040-LBR	[+] L-Glutamine	20L	6
15363601	10-040-LXR	[+] L-Glutamine	10L	6
15373601	10-041-CMR	[+] L-Glutamine and 25mM HEPES	1L	6
15313541	10-041-CVR	[+] L-Glutamine and 25mM HEPES	500mL	6
15323541	10-043-CVR	[+] L-Glutamine; [-] glucose	500mL	6
15313551	10-104-CVR	[+] Corning™ glutagro™ supplement, phenol red	500mL	6
15343621	15-040-CMR	[-] L-Glutamine	1L	6
15303561	15-040-CVR	[-] L-Glutamine	500mL	6
15353621	15-040-LBR	[-] L-Glutamine	20L	6
15313561	15-041-CVR	[+] 25mM HEPES; [-] L-Glutamine	500mL	6
15373621	17-104-CIR	[-] L-Glutamine, L-Methionine, L-Cystine	100mL	6
15363561	17-105-CVR	[-] L-Glutamine, Phenol Red	500mL	6

CORNING

Other classical media

Cat. No	Alt. No	Description	Contains	Size	Pack qty
15383531	10-025-CVR	F-12K Nutrient Mixture (Kaighn's Modification)	[+] L-Glutamine	500mL	6
15333541	10-045-CVR	Leibovitz's L-15 (Modification)	[+] L-Glutamine	500mL	6
15383601	10-050-CVR	McCoy's 5A (Iwaketa and Grace Modification)	[+] L-Glutamine, Phenol Red, sodium bicarbonate	500mL	6
15393601	10-051-CIR	McCoy's 5A (Iwaketa and Grace Modification)	[+] L-Glutamine, Phenol Red, sodium bicarbonate, 25mM HEPES	100mL	6
15343541	10-060-CVR	Medium 199 (Modification)	[+] Earle's salts, L-Glutamine, Phenol Red, sodium bicarbonate	500mL	6
15353541	10-070-CVR	Ham's F-10 Medium	[+] L-Glutamine	500mL	6
15363541	10-080-CVR	Ham's F-12 Medium	[+] L-Glutamine	500mL	6
15333561	15-100-CVR	MCDB 131, 1x	[-] L-Glutamine	500mL	6
15343561	15-110-CVR	CMRL 1066	[-] L-Glutamine	500mL	6

Other cell culture reagents and supplements

Category	Cat. No	Alt. No	Description	Size	Pack qty
	15323581	25-000-CIR	Sodium pyruvate, 100mM solution with 8.5g/L NaCl	100mL	6
Amino acids and vitamins	15323641	25-020-CIR	MEM vitamins, 100x	100mL	6
Amino acids and vitamins	15333581	25-025-CIR	MEM non-essential amino acids, 100x	100mL	6
Amino acids and vitamins	15343581	25-030-CIR	MEM amino acids, [-] L-glutamine, 50x	100mL	6
Antibiotics and antimycotics	15313681	30-240-CR	Hygromycin B solution	10mL	1
Antibiotics and antimycotics	15313671	30-001-CI	Penicillin-Streptomycin solution, 50x	100mL	6
Antibiotics and antimycotics	15323671	30-002-CI	Penicillin-Streptomycin solution, 100x	100mL	6
Buffers	15353581	25-035-CI	Sodium bicarbonate, 7.5% solution	100mL	6
Buffers	15323661	25-060-CI	HEPES, 1M solution (238.3mg/mL)	100mL	6
Enzymatic cell dissociation agents	15393641	25-050-CI	0.25% Trypsin in HBSS; [-] calcium, magnesium	100mL	6
Enzymatic cell dissociation agents	15303651	25-051-CI	0.05% Trypsin/0.53mM EDTA in HBSS; [+] sodium bicarbonate, [-] calcium, magnesium	100mL	6
Enzymatic cell dissociation agents	15313651	25-052-CI	0.05% Trypsin/0.53mM EDTA in HBSS; [-] sodium bicarbonate, calcium, magnesium	100mL	6
Enzymatic cell dissociation agents	15323651	25-052-CV	0.05% Trypsin/0.53mM EDTA in HBSS; [-] sodium bicarbonate, calcium, magnesium	500mL	6
Enzymatic cell dissociation agents	15333651	25-053-CI	0.25% Trypsin/2.21mM EDTA in HBSS; [-] sodium bicarbonate, calcium, magnesium	100mL	6
Enzymatic cell dissociation agents	15343651	25-054-CI	2.5% Trypsin in HBSS; [-] calcium, magnesium, phenol red	100mL	6
Hybridoma reagents	15373641	25-046-CI	HAT (Hypoxanthine, Aminopterin, Thymidine), 50x	100mL	1
Hybridoma reagents	15383641	25-047-CI	HT (Hypoxanthine, Thymidine), 50x	100mL	1
Miscellaneous reagents	15303671	25-950-CQC	DMSO (dimethyl sulfoxide)	250mL	1
Miscellaneous reagents	15363581	25-037-CIR	45% Glucose solution	100mL	1
Miscellaneous reagents	15393661	25-900-CI	Trypan Blue solution, 0.4% (w/v) in PBS, pH7.5 ± 0.5	100mL	1

CORNING

Corning CellBIND™ surface cultureware

Optimal growth – Corning CellBIND™ surface-treated gas permeable polystyrene for superior cell attachment and growth
 Increase cell yield – ten-fold higher cell yield increases productivity and capacity
 Time and space savings – reduce processing time and incubator storage space by handling one flask compared to 10 traditional 175cm² flasks
 Two extra caps (single, double bagged) per case now included.

Cat. No	Alt. No	Description	Pack qty
Multiwell and assay plates			
10234832	3335	6 well plate, clear, sterile, with lid	50
10739864	3336	12 well plate, clear, sterile, with lid	50
10224882	3337	24 well plate, clear, sterile, with lid	50
10251443	3338	48 well plate, clear, sterile, with lid	50
10510733	3300	96 well plate, clear bottom, sterile, with lid	50
Flasks and hyperflasks			
10194302	3289	25cm ² with vented cap, sterile	200
10327342	3290	75cm ² with vented cap, sterile	100
10787994	3291	150cm ² with vented cap, sterile	50
10664553	3292	175cm ² with vented cap, sterile	50
10103642	3293	225cm ² with vented cap, sterile	25
10031352	3298	175cm ² with phenolic cap, sterile	50
10222613	10024	HYPERFlask™, treated, sterile, bar coded, double bagged	24
10281845	10030	HYPERFlask™ M, treated, sterile, bar coded, individually wrapped	4
10343305	10020	HYPERFlask™ M, treated, sterile, bar coded, double bagged	4
10569765	10034	HYPERFlask™ M, treated, sterile, bar coded, double bagged	24
Culture dishes			
10757804	3294	35mm	210
10665893	3295	60mm	126
10581873	3296	100mm	40



CORNING

High content screening microplates with glass bottom

High optical quality, glass bottom, black microplates are ideal for performing high content cell-based assays using imaging systems. The glass bottom provides a flat and optically clear surface that reduces autofocus time, increases throughput, and is ideal for cell growth.

- High optical quality and scratch resistant glass
- Glass bottom thickness of 200µm and ultra-clear film with 127µm thickness are well suited for imaging microscopy
- Bottom flatness <50µm to ensure planarity for imaging devices
- Low background fluorescence and minimal cross-talk provides the highest possible optical quality for cell-based assays
- Half area 96 well microplate reduces reagent consumption

Cat. No	Alt. No	Description	Treatment	Bottom	Pack qty
Thin glass bottom					
15389860	4582	96 well half area	Collagen	Glass	10
15309870	4584	96 well half area	Fibronectin	Glass	10
15339870	4586	96 well half area	Poly-D-Lysine	Glass	10
15399860	4583	384 well	Collagen	Glass	10
15329870	4585	384 well	Fibronectin	Glass	10
15359870	4587	384 well	Poly-D-Lysine	Glass	10
Ultra-thin glass bottom					
15368271	4680	96 well half area	TC-treated	Film clear	16
15388271	4681	384 well	TC-treated	Film clear	20

BioCoat™ Poly-D-Lysine and Poly-L-Lysine cellware

Poly-D-Lysine (PDL) and Poly-L-Lysine (PLL) are synthetic compounds that enhance cell adhesion and protein absorption by altering surface charges on the culture substrate. In addition to promoting cell adhesion, Poly-Lysine surface treatments support neurite outgrowth and improve the survival of many central nervous system (CNS) primary cells in culture. As PDL and PLL are synthetic molecules, they do not stimulate biological activity in the cells cultured on them, and they do not introduce impurities carried by natural polymers.

BioCoat™ Poly-D-Lysine cellware

Description	Pack qty	Cat. No.	Alt. No.	Pack qty	Cat. No.	Alt. No.	Pack qty	Cat. No.	Alt. No.
Multiwell and assay plates									
6 well	5	10607271	354413	50	10674242	356413	-	-	-
12 well	5	10533051	354470	50	10672502	356470	-	-	-
24 well	5	10411321	354414	50	10554461	356414	-	-	-
48 well	5	10246201	354509	50	10103721	356509	-	-	-
96 well clear	5	10431701	354461	50	10182141	356461	80	10224392	356690
96 well black/clear	5	10043830	354640	50	10140403	356640	80	10254342	356692
96 well white/clear	5	10379320	354651	50	10202753	356651	80	10192822	356693
96 well white	5	10657071	354620	50	10515631	356620	80	10090712	356691
384 well clear	5	10145860	354662	50	10385911	356662	80	10613683	356695
384 well black/clear	5	10093860	354663	50	10345961	356663	80	10576293	356697
384 well black/clear small volume	5	10736503	354396	50	10262323	356396	-	-	-
384 well white/clear	5	10166000	354660	50	10488842	356660	80	10725203	356694
384 well white	5	10627841	354661	50	10274561	356661	80	10747894	356696
1536 well black/clear	5	11947211	354022	50	13416829	356022	-	-	-

BioCoat™ Poly-D-Lysine cellware

Cat. No.	Alt. No.	Description	Pack qty
Culture dishes			
10399320	354467	35mm	20
10478822	356467	35mm	100
10003860	354468	60mm	20
10204281	356468	60mm	100
10145290	354469	100mm	10
10632122	356469	100mm	40
10307432	354550	150mm	5
Coverslips			
10727911	354086	12mm round No.1 German glass	80
10377032	354077	35mm Coverslip-bottom dishes	20

Corning PureCoat™ amine cultureware

Ultra-low attachment surfaces feature a covalently bound hydrogel layer that effectively inhibits cellular attachment.

- Surface minimises protein absorption, enzyme activation and cellular activation
- Surface is noncytotoxic, biologically inert and nondegradable
- Sterilised by gamma irradiation

Cat. No.	Alt. No.	Description	Pack qty
Culture dishes			
10010582	3261	60mm	20
10000762	3262	100mm	20

For some applications, the use of a combination of ECM proteins, such as Laminin (LM) and attachment factors such as Poly-D-Lysine (PDL) has been shown superior to the use of either alone.

BioCoat™ PDL/LM cellware is suitable for culturing many different types of Peripheral Nervous System (PNS) and Central Nervous System (CNS) networks and is useful for promoting neural cell attachment and differentiation.

BioCoat™ Poly-D-Lysine/Laminin cellware

Cat. No.	Alt. No.	Description	Pack qty
Multiwell and assay plates			
10594841	354595	6 well	5
10632892	354619	24 well	5
10020841	354596	96 well	5
Culture dishes			
10152321	354455	100mm	10
Coverslips			
10468681	354087	12mm round No.1 German glass	80
Flasks			
10669462	354687	2 well	12
10629842	354688	8 well	12

BioCoat™ variety pack cellware

BioCoat™ Variety Packs each contain 6 well multiwell plates or culture slides with a selection of different extracellular matrix proteins and attachment factors.

Applications:

- Determination of optimal substrate for growth or differentiation of particular cell types
- Studies of effects of various ECM components on cell behaviour
- Cell adhesion assays

Multiwell plates			
Cat. No.	Alt. No.	Description	Pack qty
10586571	354417	6 well includes: Collagen I, Fibronectin, Laminin, Poly-D-Lysine plates	5
10335631	354431	6 well includes: Collagen I, Collagen IV, Fibronectin, Laminin and Poly-D-Lysine plates	5
Culture slides			
10498842	354656	8 well includes: Collagen I, Fibronectin, Poly-D-Lysine culture slides	12

Thermo Scientific™ Nunc cell culture imaging products

The microscope is essential when wanting to study cells and understand the function of cells. To make life easier for the scientist, numerous cell culture products with optical surfaces have been created as an alternative to using or transferring specimens onto microscope slides.

- The Nunc glass bottom dish combines the convenience of a standard 35mm cell culture dish with the imaging benefits of coverglass to provide the optimum optical characteristics required for high-magnification microscopy and confocal image analysis
- Thermo Scientific™ Nunc™ Lab-Tek™ Permax™ Chamber Slides: ThermoScientific™ Nunclon™ Delta treated surface allows attachment of adherent cells and a consistent surface for growth from chamber slide to cell factory
- Lab-Tek II CC2 glass chamber slides: chemically modified glass provides a growth surface with a positive charge that mimics Poly-D-Lysine and aids in the attachment of fastidious cells
- Thermo Scientific Nunc 96 and 384-well optical bottom plates are ideal for microscopic applications. Black microplates are recommended for fluorescence measurements, with minimum back-scattered light and background fluorescence. White plates are best for luminescence measurements, with maximum reflection and minimal autoluminescence

Cat. No	Alt. No	Description	Pack qty
Multiwell plates			
10281092	165305	96F-well, PS, optical bottom polymer base, cell culture treated, sterile with lid, black	30
10158721	165306	96F-well, PS, optical bottom polymer base, cell culture treated, sterile with lid, white	30
10184221	142761	384F-well, PS, optical bottom polymer base, cell culture treated, sterile with Lid, black	30
10060601	142762	384F-well, PS, optical bottom polymer base, cell culture treated, sterile with lid, white	30
10591483	152029	384F-well, PS, optical bottom polymer base, Poly-D-Lysine treated, with lid, black	20
10082192	152041	384F-well, PS, optical bottom polymer base, Collagen I treated, with lid, black	20
Culture dishes			
15183728	150680	Glass based dish, 12mm	20
15235672	150682	Glass based dish, 27mm	20
Chamber slides			
10549891	177410	1-well, Lab-Tek Permax	96
10324421	177429	2-well, Lab-Tek Permax	96
10304471	177437	4-well, Lab-Tek Permax	96
10098850	177445	8-well, Lab-Tek Permax	96
10164271	154739	1-well, Lab-Tek II CC2	96
13083043	154852	2-well, Lab-Tek II CC2	96
10092371	154917	4-well, Lab-Tek II CC2	96
10564751	154941	8-well, Lab-Tek II CC2	96

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