ANH Application Catalog

Cell Culture

Cell Culture

Cell culture is the process by which human, animal, or insect cells are grown in a favorable artificial environment. Animal cell culture is now one of the major tools used in the life sciences in areas of research that have a potential for economic value and commercialization. There are 3 major steps for basic cell cultivation: seeding, harvesting and cryopreservation.

ANH provides several products for supporting basic cell culture such cells, cell culture vessels, media and reagents, and products for cryopreservation.

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1. Seeding

Cell seeding is the first stage of cell cultivation and its efficiency and distribution can affect the final biological performance. In this step must have a cell (cell line, primary cell), cell culture vessel (flask, plate, dish), media, serum and supplements for starting cell culture.

1.1 Cell Line

Cell lines are generated by sub-culturing primary cells to different divisions. There are 2 types of cells; adherent cells and suspension cells. Adherent cells need to be attached to the culture vessel for proliferation. On the other hand, suspension cells do not attach to the surface of the culture vessels which can be grown floating in the culture medium. ANH provides cell lines from JCRB and Riken.

Brand	Cat. No	Description	Source
JCRB	IFO50010	C6/36, normal fibroblast, This cell line is useful for replication of flaviviruses and dengue virus.	mosquito
JCRB	JCRB0075	SF-TY, normal fibroblast	Human
JCRB	JCRB0615	NIH/3T3 clone 5611, A cell line which was established from NIH Swiss mouse embryo.	Mouse
Riken	RCB0988	CACO-2, Human colon carcinoma	Human
JCRB	JCRB9018	CHO-K1, Chinese hamster ovary	Hamster

For more information, please go to English | JCRB Cell Bank or Cell Engineering Division -CELL BANK- (RIKEN BRC)

1.2 Corning® flasks

T Flasks are available in 25 cm^2, 75 cm^2, 150 cm^2, 175 cm^2 and 225 cm^2 of sizes, surface and cap styles to meet your needs.

Corning's Surface

- Tissue-culture (TC) treated for optimum attachment and growth of anchorage-dependent cells.
- Corning CellBIND® Surface is a novel cell culture treatment that increases surface wettability for more even and consistent cell attachment
- Not-treated polystyrene surface is hydrophobic in nature and binds biomolecules through passive interactions. It is suitable primarily for suspension cells.
- Ultra-Low Attachment surface has a covalently bonded hydrogel designed to minimize cell attachment, protein absorption, enzyme activation, and cellular activation.

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.
- 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 nonwettable membrane sealed to the cap, providing consistent, sterile gas exchange while minimizing the risk of contamination.

Maintaining optimal cell to medium ratios is important for obtaining good cell growth. As a starting point, we recommend 0.2 to 0.3 mL medium for each square centimeter of culture vessel growth surface area

Plug Seal Cap

Phenolic Cap

Vent Cap

Brand	Cat. No	Description	Unit/Case	Stock Items
Corning	3289	CellBIND 25cm² Rectangular Canted Neck Cell Culture Flask with Vent Cap	200 pcs	
Corning	3290	CellBIND 75cm² Rectangular Canted Neck Cell Culture Flask with Vent Cap	100 pcs	
Corning	3291	CellBIND 150cm² Canted Neck Cell Culture Flask with Vent Cap	50 pcs	
Corning	3292	CellBIND 175cm² Angled Neck Cell Culture Flask with Vent Cap	50 pcs	
Corning	3814	Ultra-Low Attachment 75cm² Rectangular Canted Neck Cell Culture Flask with Vent Cap	24 pcs	
Corning	3815	Ultra-Low Attachment 25cm² Rectangular Canted Neck Cell Culture Flask with Vent Cap	24 pcs	
Corning	430168	25cm² Rectangular Canted Neck Cell Culture Flask with Plug Seal Cap	200 pcs	✓
Corning	430372	25cm² Rectangular Canted Neck Cell Culture Flask with Phenolic-Style Cap	200 pcs	✓
Corning	430639	25cm² Rectangular Canted Neck Cell Culture Flask with Vent Cap	200 pcs	✓
Corning	430641U	75cm² U-Shaped Canted Neck Cell Culture	100 pcs	✓

		Flask with Vent Cap		
Corning	430720U	75cm² U-Shaped Canted Neck Cell Culture Flask with Plug Seal Cap	100 pcs	✓
Corning	430725U	75cm² U-Shaped Canted Neck Cell Culture Flask with Phenolic-Style Cap	100 pcs	✓
Corning	430823	430823 150cm² Rectangular Canted Neck Cell Culture Flask with Plug Seal Cap	50 pcs	
Corning	430824	430824 150cm² Rectangular Canted Neck Cell Culture Flask with Phenolic-Style Cap	50 pcs	
Corning	430825	150cm² Rectangular Canted Neck Cell Culture Flask with Vent Cap	50 pcs	
Corning	431079	175cm² Angled Neck Cell Culture Flask with Plug Seal Cap	50 pcs	
Corning	431080	175cm² Angled Neck Cell Culture Flask with Vent Cap	50 pcs	
Corning	431465	150cm² Rectangular Canted Neck Not Treated Cell Culture Flask with Vent Cap	50 pcs	
Corning	431466	CellBIND 175cm² Angled Neck Cell Culture Flask with Vent Cap	50 pcs	

1.3 Costar® Multiple Well Plate

Costar® 6-, 12-, 24-, 48 and 96-well Cell Culture Plates, Sterile, Nonpyrogenic. Individual alphanumeric codes for well identification, flat bottoms. Treated for optimal cell attachment (except where noted).

Corning® CellBIND® surface is a novel cell culture treatment that increases surface wettability for more even and consistent cell attachment.

Ultra-Low Attachment surface plates feature a covalently bound hydrogel layer that minimizes cell attachment, protein absorption, and cellular activation.

Brand	Cat. No	Description	Unit/Case	Stock Items
Corning	3335	CellBIND 6-Well Clear Multiple Well Plates, Flat Bottom, with Lid, Sterile	50 pcs	
Corning	3336	CellBIND 12-Well Clear Multiple Well Plates, Flat Bottom, with Lid, Sterile	50 pcs	
Corning	3337	CellBIND 24-Well Clear Multiple Well Plates, Flat Bottom, with Lid, Sterile	50 pcs	
Corning	3338	CellBIND 48-Well Multiple Well Plates, Flat Bottom, Clear, with Lid, Sterile	50 pcs	
Corning	3471	6 Well Clear, Flat Bottom, Ultra Low Attachment Multiple Well Plates with Lid, Sterile, Individually Wrapped	24 pcs	
Corning	3473	24 Well Clear Flat Bottom, Ultra Low Attachment Multiple Well Plates with Lid, Sterile, Individually Wrapped	24 pcs	
Corning	3513	12 Well Clear, Tissue Culture-Treated	50 pcs	✓

		Multiple Well Plates with Lid, Sterile, Individually Wrapped		
Corning	3516	6 Well Clear, Tissue Culture-Treated Multiple Well Plates with Lid, Sterile, Individually Wrapped	50 pcs	✓
Corning	3524	24 Well Clear, Tissue Culture-Treated Multiple Well Plates with Lid, Sterile, Individually Wrapped	100 pcs	✓
Corning	3548	48 Well Clear, Tissue Culture-Treated Multiple Well Plates with Lid, Sterile, Individually Wrapped	100 pcs	✓
Corning	3599	96-Well Clear Flat Bottom, Polystyrene, Tissue Culture-Treated Microplate with Lid, Sterile, Individually Wrapped	100 pcs	✓
Corning	3736	6 Well Clear Not Treated Multiple Well Plates with Lid, Sterile, Bulk Packed	100 pcs	
Corning	3737	12 Well Clear, Not Treated, Multiple Well Plates with Lid, Sterile, Bulk Packaged	100 pcs	
Corning	3738	24 Well Clear, Not Treated Multiple Well Plates with Lid, Sterile, Bulk Packaged	100 pcs	

1.4 Cell Culture Dish

- Treated Cell Culture Dishes
- 245 mm square dishes offer 500 cm^2 growth surface
- Stacking beads aid in handling
- Vents provide consistent gas exchange
- Manufactured from optically clear virgin polystyrene
- Sterile
- Nonpyrogenic

Brand	Cat. No	Description	Unit/Case	Stock Items
Corning	430165	35mm x 10mm Style Dish Tissue Culture-Treated, Bulk Packaged	500/Case	✓
Corning	430166	60mm x 15mm Style Dish, Tissue Culture-Treated, Sterile, Bulk Packaged	500/Case	✓
Corning	430167	100mm x 20mm Style Tissue Culture-Treated Culture Dish, Bulk Packaged	500/Case	✓
Corning	430599	150X25MM, Tissue Culture-Treated Culture Dish, Bulk Packaged	60/Case	
Corning	431110	500cm Square Dish, Tissue Culture-Treated, Sterile, Bulk Packaged	16/Case	

1.5 Cell Culture Media

A growth medium or culture medium is a liquid or gel designed to support the growth of cells. Cell culture media generally comprise an appropriate source of energy and compounds which regulate the cell cycle. A typical culture medium is composed of a complement of amino acids, vitamins, inorganic salts, glucose, and serum as a source of growth factors, hormones, and attachment factors. In addition to nutrients, the medium also helps maintain pH and osmolality. There are 2 types of cell culture media: Liquid and power media

MEM (Minimum Essential Medium): Liquid

Brand	Cat. No	Description	Size
Corning	10-009-CV	[+] 1.5 g/L sodium bicarbonate, NEAA, L-glutamine, sodium pyruvate	500 mL
Corning	10-010-CV	[+] Earle's salts, L-glutamine	500 mL
Corning	10-010-CM	[+] Earle's salts, L-glutamine	1 L
Corning	15-010-CV	[+] Earle's salts [-] L-glutamine	500 mL
Corning	15-010-CM	[+] Earle's salts [-] L-glutamine	1 L
Corning	17-305-CV	[+] Earle's salts [-] L-glutamine, phenol red	500 mL
Corning	15-015-CV	[-] L-glutamine, calcium, magnesium	500 mL

MEM (Minimum Essential Medium): Powder

Brand	Cat. No	Description	Size
Corning	50-010-PB	Powder [+] Earle's salts and L-glutamine[-] sodium bicarbonate	10 L
Corning	90-009-PB	Powder [+] Earle's salts[-] L-glutamine, phenol red, sodium bicarbonate	10 L
Corning	50-011-PB	Powder [+] Earle's salts, L-glutamine, NEAA[-] sodium bicarbonate	10 L

DMEM (Dulbecco's Modification of Eagle's Media): Liquid

Brand	Cat. No	Description	Size
Corning	10-013-CV	[+] 4.5 g/L glucose (high glucose), L-glutamine, sodium pyruvate	500 mL
Corning	10-013-CM	[+] 4.5 g/L glucose ((high glucose), L-glutamine, sodium pyruvate	1 L
Corning	10-014-CV	[+] 1 g/L glucose (low glucose), L-glutamine, sodium pyruvate	500 mL
Corning	10-014-CM	[+] 1 g/L glucose (low glucose), L-glutamine, sodium pyruvate	1 L
Corning	10-017-CV	[+] 4.5 g/L glucose (high glucose), L-glutamine [-] sodium pyruvate	500 mL
Corning	10-017-CM	[+] 4.5 g/L glucose (high glucose), L-glutamine [-] sodium pyruvate	1 L
Corning	10-027-CV	[+] 25 mM HEPES, 4.5 g/L glucose (high glucose), L-glutamine [-] sodium pyruvate	500 mL
Corning	15-013-CV	[+] 4.5 g/L glucose (high glucose), sodium pyruvate [-] L-glutamine	500 mL

Corning	15-013-CM	[+] 4.5 g/L glucose (high glucose), sodium pyruvate [-] L-glutamine	1 L
Corning	15-017-CV	[+] 4.5 g/L glucose (high glucose), [-] L-glutamine, sodium pyruvate	500 mL
Corning	15-017-CM	+] 4.5 g/L glucose (high glucose), [-] L-glutamine, sodium pyruvate	1 L
Corning	15-018-CV	[+] 4.5 g/L glucose (high glucose), 25 mM HEPES, sodium pyruvate [-] L-glutamine	500 mL
Corning	15-018-CM	[+] 4.5 g/L glucose (high glucose), 25 mM HEPES, sodium pyruvate [-] L-glutamine	1 L
Corning	17-204-CI	[+] 4.5 g/L glucose (high glucose) and sodium pyruvate[-] L-glutamine, L-methionine, L-cystine	100 mL
Corning	17-205-CV	[+] 4.5 g/L glucose (high glucose), sodium pyruvate [-] L-glutamine, phenol red	500 mL
Corning	17-207-CV	[-] glucose (no glucose), L-glutamine, sodium pyruvate	500 mL
Corning	10-101-CV	[+] Corning glutaGRO, 4.5 g/L glucose (high glucose), sodium pyruvate, phenol red	500 mL
Corning	10-102-CV	[+] Corning glutaGRO, 4.5 g/L glucose (high glucose), phenol red [-] sodium pyruvate	500 mL

DMEM (Dulbecco's Modification of Eagle's Media): Powder

Brand	Cat. No	Description	Size
Corning	50-003-PB	Powder [+] 4.5 g/L glucose, L-glutamine, sodium pyruvate[-] sodium bicarbonate	10 L
Corning	50-013-PB	Powder [+] 4.5 g/L glucose, L-glutamine[-] sodium bicarbonate, sodium pyruvate	10 L
Corning	90-013-PB	Powder [+] 4.5 g/L glucose[-] sodium	10 L

		bicarbonate, L-glutamine, sodium pyruvate, phenol red	
Corning	90-113-PB	Powder [-] sodium bicarbonate, glucose, L-glutamine, sodium pyruvate, phenol red	10 L

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

Brand	Cat. No	Description	Size
Corning	10-090-CV	[+] L-glutamine	500 mL
Corning	10-090-CM	[+] L-glutamine	1 L
Corning	10-092-CV	[+] L-glutamine, 15 mM HEPES	500 mL
Corning	10-092-CM	[+] L-glutamine, 15 mM HEPES	1 L
Corning	10-103-CV	+] Corning glutaGRO	500 mL
Corning	15-090-CV	[-] L-glutamine	500 mL
Corning	15-090-CM	[-] L-glutamine	1 L
Corning	16-405-CV	[+] L-glutamine [-] phenol red	500 mL

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

Brand	Cat. No	Description	Size
Corning	90-090-PB	[-] sodium bicarbonate, L-glutamine, phenol red	10 L
Corning	90-091-PB	[-] sodium bicarbonate, L-glutamine	10 L

Alpha MEM (A MEM) : Liquid

Brand	Cat. No	Description	Size
Corning	10-022-CV	[+] Earle's salts, ribonucleosides, deoxyribonucleosides, L-glutamine	500 mL

Corning	15-012-CV	[+] Earle's salts [-] ribonucleosides, deoxyribonucleosides, L-glutamine	500 mL

Iscove's Modification of DMEM (IMDM) : Liquid

Brand	Cat. No	Description	Size
Corning	10-016-CV	[+] L-glutamine,25 mM HEPES [-] beta-thioglycerol, beta-mercaptoethanol	500 mL
Corning	10-016-CM	[+] L-glutamine,25 mM HEPES [-] beta-thioglycerol, beta-mercaptoethanol	1 L
Corning	15-016-CV	[+] 25 mM HEPES,[-] beta-thioglycerol, beta-mercaptoethanol, L-glutamine	500 mL

Iscove's Modification of DMEM (IMDM) : Powder

Brand	Cat. No	Description	Size
Corning	50-016-PB	[+] L-glutamine, 25 mM HEPES[-] a-thioglycerol, ß-mercaptoethanol, sodium bicarbonate	10 L

RPMI 1640 : Liquid

Brand	Cat. No	Description	Size
Corning	10-040-CV	[+] L-glutamine	500 mL
Corning	10-041-CV	[+] L-glutamine, 25 mM HEPES	500 mL
Corning	10-041-CM	[+] L-glutamine, 25 mM HEPES	1 L
Corning	10-043-CV	[+] L-glutamine [-] glucose	500 mL
Corning	10-104-CV	[+] Corning glutaGRO, phenol red	500 mL
Corning	15-040-CV	L-glutamine	500 mL

Corning	15-040-CM	L-glutamine	1 L
Corning	15-041-CV	[+] 25 mM HEPES [-] L-glutamine	500 mL
Corning	17-104-CI	[-] L-glutamine, L-methionine, L-cystine	10 mL
Corning	17-105-CV	[-] L-glutamine, phenol red	500 mL

RPMI 1640 : Powder

Brand	Cat. No	Description	Size
Corning	50-020-PB	Powder [+] L-glutamine,[-] sodium bicarbonate	10 L
Corning	90-022-PB	Powder [-] L-glutamine, phenol red, sodium bicarbonate	10 L

F-12K Nutrient Mixture (Kaighn's Modification) : Liquid

Brand	Cat. No	Description	Size
Corning	10-025-CV	[+] L-glutamine	500 mL

Ham's F-10 Medium : Liquid

Brand	Cat. No	Description	Size
Corning	10-070-CV	[+] L-glutamine	500 mL

Ham's F-12 Medium : Liquid

Brand	Cat. No	Description	Size
Corning	10-080-CV	[+] L-glutamine	500 mL
Corning	10-080-CM	[+] L-glutamine	1 L

Improved MEM (Richter's Modification) : Liquid

Brand	Cat. No	Description	Size
Corning	10-016-CV	[+] L-glutamine,25 mM HEPES [-] beta-thioglycerol, beta-mercaptoethanol	500 mL
Corning	10-016-CM	[+] L-glutamine,25 mM HEPES [-] beta-thioglycerol, beta-mercaptoethanol	1 L
Corning	15-016-CV	[+] 25 mM HEPES,[-] beta-thioglycerol, beta-mercaptoethanol, L-glutamine	500 mL

Leibovitz's L-15 (Modification) : Liquid

Brand	Cat. No	Description	Size
Corning	10-045-CV	[+] L-glutamine	500 mL

McCoy's 5A (Iwaketa and Grace Modification) : Liquid

Brand	Cat. No	Description	Size
Corning	10-050-CV	[+] L-glutamine	500 mL
Corning	10-051-CI	[+] L-glutamine, 25 mM HEPES	100 mL

Medium 199 (Modification) : Liquid

Brand	Cat. No	Description	Size
Corning	10-060-CV	[+] Earle's salts, L-glutamine	500 mL

1.6 Serum

Fetal Bovine Serum (FBS) is a light brown-colored liquid separated from the blood of the bovine fetus All the material meets the approval of the United States Department of Agriculture (USDA) and is obtained from source free of bovine spongiform encephalopathy (BSE) and Foot and Mouth Disease (FMD), and other reportable

Brand	Cat. No	Description	Size
Corning	35-015-CV	Fetal Bovine Serum, 500 mL, Premium, United States Origin	500 mL

1.7 Cell Culture Supplements

Growth media is used for cell culture. These cultures require nutrients, supplement, and other reagents specific to the product being grown to maximize results and consistency. Specialized media are sometimes required for cell culture growth. Some cells, termed fastidious organisms, require specialized environments due to complex nutritional requirements

L-glutamine

L-glutamine is an essential amino acid and a key component of culture media, serving as a major energy source for propagating cells. It is very stable as a dry powder and as a frozen solution but degrades rapidly in liquid media or stock solutions, producing toxic compounds. Optimal cell performance usually requires supplementation of the media with L-glutamine prior to use. This formulation is prepared in cell culture grade water.

Brand	Cat. No	Description	Size
Corning	25-005-CI	L-Glutamine, 200 mM solution	100 mL
Corning	25-005-CV	L-Glutamine, 200 mM solution	500 mL
Corning	61-030-RM	L-Glutamine Powder	100 g

Glutagro (Stable L-glutamine)

Corning glutagro supplement is composed of L-alanyl-L-glutamine, an alternative and more stable version of glutamine. Corning glutagro takes longer than L-glutamine to break down to ammonia, but it still provides the same support to cells in culture as L-glutamine.

Brand	Cat. No	Description	Size
Corning	25-015-CI	Glutagro™, 200 mM Solution, 100x [+] 8.5 g/L NaCI	100 mL

MEM Amino Acids Solution

Brand	Cat. No	Description	Size
Corning	25-030-CI	MEM Amino Acids, 50x Solution [-] L-glutamine	100 mL

MEM Non-essential Amino Acids Solution

Brand	Cat. No	Description	Size
Corning	25-020-CI	MEM Vitamins 100x Solution	100 mL

1.8 Buffer

Growth of animal cells in a nutritionally complete tissue culture medium is usually optimal when the medium is buffered at a pH in the range 7.2 to 7.4. To function most efficiently the pKa of the chosen buffer should be as close to the required pH as possible. The most commonly used buffer in tissue culture media is the sodium bicarbonate and HEPES

Sodium Bicarbonate

Sodium Bicarbonate is a buffer commonly used for maintaining the pH of cell culture medium in the presence of 4–10% carbon dioxide. In addition to buffering, sodium bicarbonate provides some nutritional benefit, while rarely displaying any cell toxicity.

Brand	Cat. No	Description	Size
Corning	25-035-CI	Sodium Bicarbonate, 7.5% solution	100 mL
Corning	61-065-RO	Sodium bicarbonate, Powder	500 g

HEPES

The most commonly used buffering system for media is bicarbonate. This is due to its nutritional benefits despite the reduced buffering capacity at physiological pH. Addition of HEPES provides supplemental buffering to cell culture medium at pH 7.2 through 7.6. The level of HEPES in cell culture media may vary from 10mM to 25mM. HEPES has no nutritional benefit to cells. It is added to the media solely for extra buffering capacity when cell culture requires extended periods of manipulation outside of a CO_2 incubator.

Brand	Cat. No	Description	Size
Corning	25-060-CI	HEPES, Liquid 1M Solution (238.3 mg/ mL)	100 mL
Corning	61-034-RM	HEPES, Powder	100 g

1.9 Antibiotic and Antimycotics

Use of antibiotics in cell culture minimizes the loss of valuable cells, reagents, time and efforts due to contamination. Maintenance of aseptic conditions and techniques is vital to a research laboratory that handles cell culture.

Brand	Cat. No	Description	Size
Corning	30-002-CI	Penicillin-Streptomycin Solution, 100x	100 mL
Corning	30-003-CF	Amphotericin B, Liquid	50 mL
Corning	30-004-CI	Antibiotic-Antimycotic Solution	100 mL
Corning	30-005-CR	Gentamicin Sulfate, Liquid	10 mL
Corning	30-006-CF	Kanamycin Sulfate, Liquid	50 mL

Corning	30-009-CI	Penicillin-Streptomycin-L-Glutamine, 100x [+] 29.2 mg/ mL L-glutamine	100 mL
Corning	30-100-RB	Blasticidin S HCl	50 mg
Corning	30-234-CI	G418 Sulfate, Liquid, 50 mg/ mL Solution	100 mL
Corning	30-240-CR	Hygromycin B Solution	20 mL

2. Harvest cells

In cell culture, cell harvesting refers to collecting cells from culture surfaces and isolating them from the culture medium. For attachment cells, Trypsin and Cell Dissociation Reagents are used for detach cells from the surface of a cell culture vessel.

2.1 PBS

PBS (phosphate buffered saline) is a balanced salt solution used for a variety of cell culture applications, such as washing cells before dissociation, transporting cells or tissue, diluting cells for counting, and preparing reagents.

Brand	Cat. No	Description	Size
Corning	21-040-CV	Phosphate-Buffered Saline, 1X [-] calcium and magnesium, pH 7.4 ± 0.1	500 mL
Corning	21-040-CM	Phosphate-Buffered Saline, 1X [-] calcium and magnesium, pH 7.4 ± 0.1	1 L

2.2 Trypsin

Trypsinization is the process of cell dissociation using trypsin, a proteolytic enzyme which breaks down proteins, to dissociate adherent cells from the vessel in which they are being cultured. When added to a cell culture, trypsin breaks down the proteins which enable the cells to adhere to the vessel.

Brand	Cat. No	Description	Size
Corning	25-050-CI	0.25% Trypsin in HBSS	100 mL

Corning	25-051-CI	0.05% Trypsin 0.53 mM EDTA in HBSS	100 mL
Corning	25-052-CI	0.05% Trypsin 0.53 mM EDTA in HBSS	100 mL
Corning	25-053-CI	0.25% Trypsin 2.21 mM EDTA in HBSS	100 mL

2.3 Corning Cell Counter

For years, the choice between manual and automated cell counting has been a difficult one. Manual cell counting, on the one hand, is accurate, but time-consuming and very user-dependent. Automated cell counting is much faster and less user-dependent, but the cost of disposable counting slides can be an issue. A tough choice, but now there is a solution.

The new Corning Cell Counter is the first automated cell counter that combines the best of both worlds.

- Fast – thanks to its online image processing
- Accurate – thanks to its cloud-based machine learning algorithm.
- Low-cost – works with common reusable glass hemocytometer. No consumables required.

Brand	Cat. No	Description	Unit
Corning	6749	Cell Counter	1 Ea
Corning	480200	Counting Chamber	1 Pcs
Corning	25-900-CI	Trypan Blue Solution, 0.4% (w/v) in PBS, pH 7.5 ± 0.5	100 mL

3. Cryopreservation

Cryopreservation or Freezing cells is a method whereby cells are frozen, maintaining their viability, until they are defrosted months or years later. Cells are cryopreserved to minimize genetic change and avoid loss through contamination.

3.1 Freezing media

Cryopreservation is a pivotal process in cell cultivation. Fetal bovine serum (FBS) supplemented with 10% (v/v) dimethyl sulfoxide (DMSO) is extensively used as a freezing medium for mammalian cells using conventional methods. However, FBS should ideally be avoided because of serious concerns regarding bovine spongiform encephalopathy and other infectious agents such as viruses. The main problem is the use of serum, in particular, when the cells have already been cultured and will be re-cultured in a serum-free medium (SFM). Corning developed a novel serum-free freezing medium.

Characteristics:

- Chemical-resistant glass bottle is free from the erosional effect of DMSO (dimethyl sulfoxide.
- Low-viscosity lets the suspension of cells easier.
- No dilution is required.
- capable to freeze preservation in a long term
- Animal-derived components are free.

Brand	Cat. No	Description	Size
Corning	88-701-CB	KM Banker I, chemically defined	120 mL
Corning	88-702-CB	KM Banker II, especially for lymphocytes	120 mL

3.2 Cryogenic Vial and Accessories

Corning has external thread and internal thread cryogenic vials available in 4 sizes: 1.2, 2, 4, and 5 mL.

- Manufactured from polypropylene to withstand temperatures down to -196 °C.
- Vials have a silicone washer for secure seal.
- Rnase-/DNase-free
- Sterile
- Nonpyrogenic

Cryogenic Vials

Brand	Cat. No	Description	Unit/Case	Stock Items
Corning	430487	1.2mL Internal Threaded Polypropylene Cryogenic Vial, Self-Standing with Conical Bottom, Sterile, Bulk	500 pcs	
Corning	430488	2mL Internal Threaded Polypropylene Cryogenic Vial, Self-Standing with Round Bottom, Sterile	500 pcs	✓
Corning	430491	4mL Internal Threaded Polypropylene Cryogenic Vial, Self-Standing with Round Bottom, Sterile	500 pcs	
Corning	430499	Assorted Polypropylene Cryogenic Vial Cap Inserts	500 pcs	
Corning	430656	5mL Internal Threaded Polypropylene Cryogenic Vial, Self-Standing with Round Bottom	500 pcs	
Corning	430658	1.2mL External Threaded Polypropylene Cryogenic Vial, Self-Standing with Conical Bottom, Sterile	500 pcs	
Corning	430659	2mL External Threaded Polypropylene	500 pcs	✓

		Cryogenic Vial, Self-Standing with Round Bottom, Sterile		
Corning	430662	4mL External Threaded Polypropylene Cryogenic Vial, Self-Standing with Round Bottom, Sterile	500 pcs	
Corning	430663	5mL External Threaded Polypropylene Cryogenic Vial, Self-Standing with Round Bottom, Sterile	500 pcs	

Cryogenic Vials Racks and Storage Box

Brand	Cat. No	Description	Unit/Case	Stock Items
Corning	431119	Polycarbonate 1 - 2mL Cryogenic Vial Storage Box, Holds 81 Vials	10 pcs	
Corning	431120	Polycarbonate 4 - 5mL Cryogenic Vial Storage Box, Holds 81 Vials	10 pcs	
Corning	431121	Polycarbonate 1 - 2mL Cryogenic Vial Storage Box, Holds 100 Vials	10 pcs	

3.3 Freezing Container

Corning CoolCell alcohol-free cell freezing containers ensure a standardized controlled-rate of freezing of -1°C/minute cell freezing in a -80°C freezer—without alcohol or any fluids.

CoolCell cryogenic containers are proven for use with a variety of cell types including stem cells, primary cells, PBMC, cell lines, insect cells, yeast, and others. The proprietary Corning CoolCell technology utilizes a thermo-conductive alloy core and highly-insulative outer material to control the rate of heat removal and provide reproducible cell cryopreservation. CoolCell units are easy to use and deliver results comparable to expensive programmable freezers at a fraction of the cost.

Brand	Cat. No	Description	Unit/Case
Corning	432001	CoolCell LX, Cell Freezing Container, for 12 x 1mL or 2mL Cryogenic Vials, Purple	1 pcs
Corning	432002	CoolCell LX, Cell Freezing Container, for 12 x 1mL or 2mL Cryogenic Vials, Green	1 pcs
Corning	432003	CoolCell LX, Cell Freezing Container, for 12 x 1mL or 2mL Cryogenic Vials, Orange	1 pcs
Corning	432004	CoolCell LX, Cell Freezing Container, for 12 x 1mL or 2mL Cryogenic Vials, Pink	1 pcs
Corning	432005	CoolCell 5mL LX, Cell Freezing Container, for 12 x 3.5mL to 5mL Cryogenic Vials, Purple	1 pcs
Corning	432006	CoolCell FTS30, Freezing Container, for 30 x 1mL or 2mL Cryogenic Vials, Purple	1 pcs
Corning	432007	CoolCell FTS30, Freezing Container, for 30 x 1mL or 2mL Cryogenic Vials, Orange	1 pcs
Corning	432008	CoolCell FTS30, Freezing Container, for 30 x 1mL or 2mL Cryogenic Vials, Green	1 pcs

Corning	432009	CoolCell FTS30, Freezing Container, for 30 x 1mL or 2mL Cryogenic Vials, Pink	1 pcs