

Tough Problems...
***Innovative
Solutions***

CORNING

Complete Cell Culture Solutions
from Corning



Corning's Innovative Cell Culture

Tough Problems... Innovative Solutions

Problems isolating tumor or adult stem cells?

Problems with cell function?

Problems with cell attachment?

Corning's newest innovations can help you solve today's research problems:

- ▶ HYPERFlask® vessels for growing more cells
- ▶ Corning® CellBIND® Surface for improving cell growth and performance
- ▶ Corning Ultra-Low Attachment Surfaces for culturing stem cells, tumor cells, EBS
- ▶ Corning Synthemax™-R Surface for stem cells
- ▶ Corning Osteo Assay Surface for osteogenesis research
- ▶ New reliable and convenient disposable spinner flasks

For over 90 years, Corning has been providing researchers with quality culture tools:

- ▶ The first cell culture flasks were made from PYREX® glass in 1923
- ▶ The first roller cultures in 1933 were grown in PYREX culture tubes.
- ▶ The virus for the first polio vaccine in 1954 was grown in PYREX 5L Povitsky flasks.



This high yield, high performance HYPERFlask® vessel utilizes a multi-layered gas permeable growing surface for efficient gas exchange.



Break the glass habit! Try Corning 1L and 3L disposable spinner flasks.

PROBLEM: Growing more cells

SOLUTION: **Corning® HYPERFlask Vessels**

Life science researchers are constantly trying to produce more cells for experiments and assays, or producing recombinant proteins, antibodies and viral vectors. Corning's innovative solution to this problem is the novel HYPERFlask vessel which offers 1720 cm² growth area (equivalent to ten T-175 flasks) in the footprint of a traditional 175 cm² flask.

- ▶ Ten interconnected polystyrene film growth chambers allow direct cellular gas exchange through the entire growth surface
- ▶ Corning CellBIND® surface treated for superior cell attachment and growth
- ▶ Saves incubator space and labor to feed cultures

Other solutions for growing more cells are Corning CellSTACK Culture Chambers. These multilayered vessels are available in 1, 2, 5, 10 and 40 layer formats that are ideal for culture scale up. Each layer has a 636 cm² cell growth area.

PROBLEM: Tired of cleaning, assembling and sterilizing glass spinner flasks

SOLUTION: **Corning Disposable Spinner Flasks**

Cleaning, assembling and sterilizing reusable glass spinner flasks is too time consuming, expensive and risky to meet researchers' needs. Corning's new sterile disposable spinner flasks perform the same as traditional glass vessels.

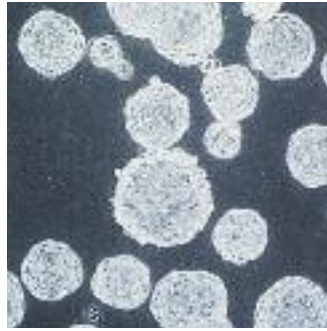
- ▶ Available in 125 mL, 500 mL, 1L and 3L sizes
- ▶ Made from USP Class VI materials, sterilized by gamma radiation (SAL 10⁻⁶) and certified nonpyrogenic
- ▶ Filling accessories and vented caps are available
- ▶ RNase-/DNase-free

Corning also has a solution for those who prefer shaker flasks for their suspension cultures – baffled or unbaffled disposable polycarbonate Erlenmeyer flasks available in 125 mL, 250 mL, 500 mL, 1L, 2L and 3L sizes.

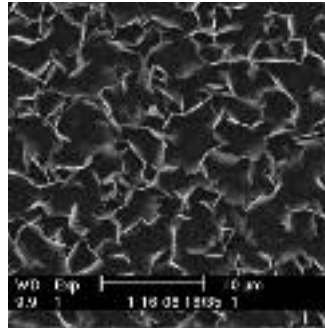
Products/Solutions



The Corning® CellBIND® Surface is available on flasks, dishes, multiple well plates, CellSTACK® chambers, roller bottles and CellCube® chambers.



Anchorage-independent cells can grow and form spheroids on Ultra-Low Attachment surfaces and can be easily isolated and harvested.



Scanning Electron Micrograph of Corning Osteo Assay Surface



Synthemax-R Surface coated 6 well plate

PROBLEM: Growing difficult-to-attach cells

SOLUTION: **Corning CellBIND Surface**

Unattached cells do not grow well, may enter apoptosis or be lost during assays or when cultures are fed. The Corning CellBIND surface has solved this problem for many cell lines because it is more hydrophilic for better cell attachment:

- ▶ Under reduced serum or serum-free conditions
- ▶ For faster recovery of thawed cells with better viability
- ▶ Easier, safer and less expensive than biological coatings

PROBLEM: Isolating and growing stem cells and tumor cells

SOLUTION: **Corning Ultra-Low Attachment Surfaces**

Isolating adult stem or tumor cells from tissues is made difficult by fibroblasts and other cells that quickly attach and then rapidly overgrow the desired cells. However, with the Corning Ultra-Low Attachment surface, it is difficult for fibroblasts or other differentiated, attachment-dependent cells to attach. As a result, they eventually undergo apoptosis and die, leaving behind anchorage-independent stem or tumor cells that grow unattached as spheroids.

- ▶ Promotes easy to harvest embryoid body formation from ES cells
- ▶ Inhibits the attachment and activation of macrophages and neutrophils
- ▶ Prevents stem cells from attachment-mediated differentiation

Corning offers Ultra-Low Attachment surface on flasks, dishes, multiple well plates, microplates and CellSTACK® Chambers.

PROBLEM: Tedious handling of dentine bone slices or bone biomaterials for osteogenesis assays

SOLUTION: **Corning Osteo Assay Surface**

Many bone assay readouts can be inconsistent and unpredictable due to the substrate which is chosen for the experiment. With Corning Osteo Assay Surface, the proprietary surface coating technology delivers lot-to-lot consistency, meaning reproducible osteogenesis assay results.

- ▶ Unique 3-dimensional structure that mimics *in vivo* bone for *in vitro* bone cell assays.
- ▶ Osteoclast and osteoblast functional activity, precursor differentiation, and co-culture can be performed.
- ▶ Available in 24 well, 96 well and Stripwell™ formats.

PROBLEM: Non-defined coating and/or surface for stem cell growth

SOLUTION: **Corning Synthemax™-R Surface for Research**

Researchers working on future commercial therapeutic applications may experience regulation difficulties during trials with a non-defined culture system. The Corning Synthemax surface provides a xeno-free surface for cell culture that replaces traditional coatings.

- ▶ Peptide acrylate coating creates a uniform, active surface for stem cell attachment, growth, and differentiation.
- ▶ Lot-to-lot consistency facilitates reproducible results.
- ▶ Ready-to-use with no preparation required.
- ▶ Available in two formats: 6 well plates and T-75 flasks.

Growing Cells

Corning offers the largest selection of traditional culture vessel styles and sizes so you can find the one that best meets your needs. For more help on growing cells, check out the *Guide for Identifying and Correcting Common Cell Growth Problems* under Technical Literature at www.corning.com/lifesciences.



New 100 cm² low profile flasks save valuable incubator space.



Try the Corning CellBIND Surface for improved cell attachment.



Corning microplates and surfaces can meet all your culture applications.

Flasks

Corning offers more flask choices:

- ▶ 25 cm² through 1720 cm² growth areas are available
- ▶ Plug seal, vented, phenolic-style or septum caps and canted, angled or straight necks
- ▶ Traditional TC treated, Ultra-Low Attachment, Corning® CellBIND® Surface, Corning Synthemax™ Surface, or Osteo Assay Surface

Dishes

Corning offers more dish choices:

- ▶ 35, 60, 100, 150 mm round dish styles
- ▶ 245 mm square dish with 500 cm² growth area
- ▶ Untreated, traditional TC treated, Ultra-Low Attachment or Corning CellBIND Surfaces

Microplates

Corning and Costar® Multiple Well Plates offer more choices:

- ▶ 6, 12, 24, 48, 96, 384 and 1536 well formats
- ▶ Choice of black, white or clear 96, 384 and 1536 plate formats
- ▶ Only Corning has Ultra-Low Attachment Surface, Corning CellBIND Surface, Corning Synthemax™ Surface, or Osteo Assay Surface

Feeding Cells

Corning offers a large selection of filters, bottles and caps for sterilizing and storing media, sera and other reagents used for cell culture. For more information on storage bottles, check out the *Corning® Storage Bottle Selection and Use Guide* under Technical Literature at www.corning.com/lifesciences.



Corning screw cap PYREX® glass bottles can meet your storage needs.



Corning's square glass and polycarbonate media bottles are autoclavable.



Corning's polyethersulfone filters are best for filtering culture media.

Glass Storage Bottles

Corning offers more choices:

- ▶ Round or square bottles, regular or wide mouths
- ▶ 25, 50, 100, 250, 500 mL and 1, 2, 5 and 10L sizes
- ▶ Reusable and autoclavable

Plastic Storage Bottles

Corning offers more choices:

- ▶ Sterile disposable round polystyrene bottles
- ▶ Reusable square autoclavable polycarbonate bottles
- ▶ 125, 150, 250, 500 mL and 1L sizes

Vacuum Filters

Corning filters offer more choices:

- ▶ Complete filter systems with bottles or bottle top filters
- ▶ 150, 250, 500 and 1000 mL capacity filter funnels
- ▶ Polyethersulfone, Cellulose Acetate, Cellulose Nitrate or Nylon membranes

Harvesting Cells

Corning offers a wide selection of pipets, centrifuge tubes and cell scrapers to make cell harvesting easier. For more help on cell harvesting, check out the *Subculturing Monolayer Cell Culture* protocol under Technical Literature at www.corning.com/lifesciences.



Corning offers the most pipet and packaging choices.

Serological Pipets

Corning offers more pipet choices:

- ▶ 1, 2, 5, 10, 25, 50 and 100 mL sizes
- ▶ Clear plastic, paper/plastic, clean room or bulk packaging options
- ▶ Unique color-coded magnifying stripe for easier meniscus viewing



Corning's universal rack holds both 15 and 50 mL tubes.

Centrifuge Tubes

Corning offers more tube choices:

- ▶ 0.65, 1.5, 1.7 and 2 mL microcentrifuge tubes
- ▶ 15, 50, 250 and 500 mL centrifuge tubes
- ▶ Chemically resistant polypropylene or clear polyethylene terephthalate (PET)



Scrapers and lifters allow harvesting cells without harsh enzymes.

Cell Scrapers

Corning offers both cell lifters and scrapers:

- ▶ Cell lifters for removing stem and other cell colonies from dishes
- ▶ Small and large scrapers for flasks and roller bottles
- ▶ Individually wrapped for extra safety

Freezing

Corning offers a large selection of cryogenic vials and accessories for freezing cells. For more information on cell freezing, check out the *Cryogenic Preservation and Storage of Animal Cells* protocol and guide under Technical Literature at www.corning.com/lifesciences.



Corning offers a choice of 3 cap designs for their cryogenic vials.

Cryogenic Vials

Corning offers more vial choices:

- ▶ 3 vial styles: internal thread, external thread, and plug seal
- ▶ 4 sizes: 1.2, 2.0, 4.0 and 5.0 mL
- ▶ Large marking area and dark graduations



The larger rack has a tray that can be used as an ice bath.

Cryogenic Racks

Corning offers two vial racks:

- ▶ White polycarbonate (30 vials)
- ▶ Orange polypropylene (50 vials)
- ▶ Racks have locking feature for use with Corning® self-standing vials



Polycarbonate boxes can withstand ultracold temperatures.

Cryogenic Accessories

Corning accessories make it easier to store and find your frozen vials:

- ▶ Polycarbonate storage boxes for 1-2 mL vials or 4-5 mL vials
- ▶ Color-coded cap inserts for easy sample identification

Technical Help and Training

Corning is committed to helping you solve your everyday cell culture problems.

Cell culture is one of the most difficult life science tools to master. Training new students, technicians and researchers in the art of cell culture can be both difficult and time consuming. Experienced lab personnel are often too busy to provide new employees with adequate training. As a result, new workers are often forced to learn cell culture through trial and error which can lead to costly mistakes and poorly trained personnel. In addition to providing you with cell culture products and surfaces technologies that help make your research better, Corning also is committed to helping you solve your everyday cell culture problems, including training.

The Corning Scientific Seminar Series are free online technical presentations that provide novel tips, best practices and proven techniques to thousands of researchers each year. Delivered by scientists, these one-hour sessions have proven useful for technicians as well as for researchers who have been doing cell culture and assays for years.

Real-Time,
Recorded
Sessions or
on CD

Past seminar topics, available as downloadable recordings, include:

- ▶ Cell Culture Contamination: Every Researcher's Nightmare!
- ▶ Growing Happier Cells
- ▶ Aseptic Technique
- ▶ Grow More Cells! Scaling Up Cell Production
- ▶ Achieving More *In Vitro*-like Cultures and Better Assays with Permeable Supports
- ▶ Life and Death *In Vitro* – Growth and Toxicity
- ▶ Detecting, Removing and Managing Mycoplasma Contamination
- ▶ Solving Cell Culture Problems

New seminars are presented monthly. To see a schedule, register for new training seminars or to download previously recorded seminars, visit www.corning.com/lifesciences.

Corning's Technical Information Website offers over 70 cell culture technical articles, selection guides, bibliographies and protocols available that can be viewed or downloaded online at www.corning.com/lifesciences/technical_information:

More than
70 Technical
Resources
Online

- Basic topics include managing cell culture contamination, mycoplasma testing, cell storage and cryopreservation, and solving cell culture problems.
- Learn more about Corning's newest cell culture surfaces including technical notes and bibliographies for Corning® CellBIND® surfaces.
- Also available are techniques for scaling up cell culture including videos on using the Corning CellSTACK® Chambers and new HYPERFlask® vessels.



Corning provides both innovative high-quality products and free online cell culture training and protocols to use them.

Corning's Technical Information Center (TIC) gives you direct access to well trained and knowledgeable staff who will work with you to solve your cell culture problems. They can be contacted by calling 800.492.1110 Monday through Friday from 8:00 am to 5:30 pm Eastern Time or by email at CLStechserv@Corning.com.

Talk to a
Technical
Specialist
Live

They can help you:

- ▶ Troubleshoot Corning products and applications
- ▶ Select the right Corning product to meet your needs
- ▶ Obtain product specifications or cross references on over 3,000 Corning Life Science products
- ▶ Locate your local Corning Account Manager
- ▶ Find helpful cell culture technical information

Try us out today!

What attendees had to say about past seminars:

"We are not getting information like this from anywhere. The seminar was amazing, very useful to my work. Thanks for organizing these sessions."

"Great tips! I'll pass along information I learned here to my colleagues to let them know how we should conduct cell culture properly. Many thanks again indeed."

"I use your seminars as training for new employees and estimate they save my company more than \$24,000 a year in training costs."

Product Ordering Information

Corning® CellBIND® Vessels

Cat. No.	Product Description (All vessels are sterile)	Qty/Case
3290	Corning CellBIND Surface 75 cm ² rectangular canted neck flask with vent cap	100
3320	Corning CellBIND Surface CellSTACK®-10 Chamber with vent caps	6
3296	Corning CellBIND Surface 100 mm dish	40
3335	Corning CellBIND Surface 6 well clear microplate, flat bottom, with lid	50
3337	Corning CellBIND Surface 24 well clear microplate flat bottom, with lid	50
3683	Corning CellBIND Surface 384 well flat clear bottom black microplates, with lid	50
3300	Corning CellBIND Surface 96 Well Clear Flat Bottom Microplate, with Lid	50

Other vessel sizes and format are available.

Corning Disposable Spinner Flasks

Cat. No.	Product Description (All vessels are sterile)	Qty/Case
3152	125 mL Disposable Spinner Flask with 70 mm top cap and 2 angled sidearms	12
3153	500 mL Disposable Spinner Flask with 100 mm top cap and 2 angled sidearms	12
3561	1L Disposable Spinner Flask, with solid caps and 2 angled sidearms	6
3563	3L Disposable Spinner Flask, with solid caps and 2 angled sidearms	4

Corning Ultra-Low Attachment Vessels

Cat. No.	Product Description (All vessels are sterile)	Qty/Case
3262	100 mm Ultra-Low Attachment Culture Dish	20
3474	96 Well Clear Flat Bottom Ultra-Low Attachment Microplate	24
3473	24 Well Clear Flat Bottom Ultra-Low Attachment Microplate	24
3471	6 Well Clear Flat Bottom Ultra-Low Attachment Microplate	24
3814	75 cm ² Rectangular Canted Neck Ultra-Low Attachment Flask with vent cap	24
3303	CellSTACK-1 Chambers with Ultra-Low Attachment Surface and vent cap	8

Other vessel sizes and format are available.

Corning HYPERFlask® Vessels

Cat. No.	Product Description	Qty/Pack	Qty/Case
10020	Corning CellBIND Surface 1700 cm ² HYPERFlask M Cell Culture Vessel, for manual use	1	4
10024	Corning CellBIND Surface 1700 cm ² HYPERFlask Cell Culture Vessel, for automation	4	24
10030	Corning CellBIND 1700 cm ² Surface HYPERFlask M Cell Culture Vessel, for manual use	1	4
10034	Corning CellBIND 1700 cm ² Surface HYPERFlask M Cell Culture Vessel, for manual use	4	24

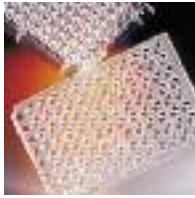
Corning Osteo Assay Surface Multiple Well Plates

Cat. No.	Description	Qty/Pack	Qty/Case
3988	Corning Osteo Assay Surface 96 well multiple well plate	1	4
3987	Corning Osteo Assay Surface 24 well multiple well plate	1	4
3989	Corning Osteo Assay Surface polystyrene 1 x 8 Stripwell™ microplate	1	2

Corning Synthemax™-R Surface 6 Well Multiple Well Plate

Cat. No.	Description	Qty/Pack	Qty/Case
3978XX1	Corning Synthemax-R Surface 6 well multiple well plate	1	2
3979XX1	Corning Synthemax-R Surface 6 well multiple well plate	1	12
3983XX1	Corning Synthemax-R Surface 75 cm ² rectangular canted neck cell culture flask with vent cap	1	2
3984XX1	Corning Synthemax-R Surface 75 cm ² rectangular canted neck cell culture flask with vent cap	1	12





Corning® Low Profile Vessels

Cat. No.	Product Description	Qty/Case
3816	Corning Tissue Culture Treated 100 cm ² Low Profile Flask with Vent Cap	60

Corning Transwell® Permeable Supports

Corning offers over 45 Transwell Permeable Support products in 6, 12, 24 and 96 well plate formats as well as 75 mm diameter inserts for 100 mm dishes. Available membranes include traditional polycarbonate, clear polyethylene terephthalate, collagen-coated polytetrafluoroethylene and Cultrex® Basement Membrane Extract precoated on polycarbonate. Available pore sizes include 0.4, 1.0, 3.0, 5.0 and 8.0 µm diameters. For more detailed information visit the online Transwell Permeable Supports Selection and use Guide under Technical Information at www.corning.com/lifesciences.

For additional product, technical, or distributor information, please visit www.corning.com/lifesciences or call 800.492.1110. Customers outside the United States, please call +1.978.442.2200 or contact your local Corning sales office listed below.

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