# ANH Application Catalog

## *3D Cell Cultivation*

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**3D Cell Cultivation**

3D cell cultivation for animal cells is a culture cell in the environment that is suitable for cells to grow in three dimensions. On the other hand, 2D cell cultivation in which cells are grown in a flat monolayer on a cell culture vessel. Meanwhile, 3D cell cultivation can be grown with or without a supporting scaffold. Pros of 3D cell cultivation: it better mimic tissue-like structures; can exhibit differentiated cellular function; able to co-culture more than two different cell types, simulating microenvironment conditions such as hypoxia and nutrient gradients; and better predict in vivo responses to drug treatment

ANH provides many products for supporting 3D cell cultivation. We have tools providing easier access to models, such as transwell permeable supports, spheroid microplate, Alvetex® Scaffolds and Koken® collagen. Our company is committed to working with you in critical areas like cancer biology, tissue engineering, and regenerative medicine to help you bring safe, effective drugs and therapies to market in less time with greater certainty.

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## 1. Transwell Permeable Supports

Permeable supports, also known as cell culture inserts, are an essential tool for the study of both anchorage-dependent and independent cell lines. You can use cell culture inserts to:

- Produce a cell culture environment that closely resembles an in vivo state
- Allow polarized cells to carry out metabolic activities in a more natural manner because the cells feed both apically and basolaterally
- Angiogenesis for blood tube formation
- Co-culture cells with or without cell-to-cell contact
- Migration, invasion and wound healing assay

Selection guides will help you choose the right combination, there are membrane types, pore size,and format to create a cell culture environment that more closely mimics the in vivo environment you desire.

- Polycarbonate (PC) translucent inserts are treated for optimal cell attachment.
- Polyester (PET) membrane that is tissue culture (TC)-treated for optimal cell attachment and growth and suitable for better cell visibility under phase contrast microscopy.
- Collagen-coated membrane inserts have a collagen-treated PTFE membrane that promote cell attachment and spreading, while allowing cells to be visualized during culture.

There are 0.4, 3.0, 5.0 and 8.0 μm in dish (75 mm diameter), 6 (24 mm diameter), 12 (12 mm diameter), and 24 (6.5 mm diameter) plate formats. Collagen-coated membrane insert have a collagen-treated PTFE membrane * For 24 well format, Packaged 12 inserts in a 24 well plate.

| Brand | Cat. No | Description | Unit/Case | Plate Format |
|---|---|---|---|---|
| Corning | 3413 | 6.5mm Transwell Insert with 0.4um Pore Polycarbonate (PC) Membrane, Sterile | 4 Plates | 12well |
| Corning | 3415 | 6.5mm Transwell Insert with 0.4um Pore Polycarbonate (PC) Membrane, Sterile | 4 Plates | 24well |
| Corning | 3421 | 6.5mm Transwell Insert with 0.4um Pore Polycarbonate (PC) Membrane, Sterile | 4 Plates | 24well |
| Corning | 3422 | 6.5mm Transwell Insert with 0.4um Pore Polycarbonate (PC) Membrane, Sterile | 4 Plates | 24well |
| Corning | 3401 | 12mm Transwell Permeable Support with 0.4um Pore Polycarbonate (PC) Membrane, Sterile | 4 Plates | 12well |
| Corning | 3402 | 12mm Transwell Permeable Support with 3.0um Pore Polycarbonate (PC) Membrane, Sterile | 4 Plates | 12well |
| Corning | 3412 | 24mm Transwell Insert with 0.4um Pore Polycarbonate (PC) Membrane, Sterile | 4 Plates | 6well |
| Corning | 3414 | 24mm Transwell Permeable Support with 3.0um Pore Polycarbonate (PC) Membrane, Sterile | 4 Plates | 6well |
| Corning | 3428 | 24mm Transwell Permeable Support with 8.0um Pore Polycarbonate (PC) Membrane, Sterile | 4 Plates | 6well |
| Corning | 3420 | 75mm Transwell Permeable Support with 3.0um Pore Polycarbonate (PC) Membrane, Sterile | 12 inserts | dish |
| Corning | 3470 | 6.5mm Transwell Permeable Support with 0.4um Pore Polyester (PET) Membrane, Sterile | 4 Plates | 24well |
| Corning | 3472 | 6.5mm Transwell Permeable Support with 3.0um Pore Polyester (PET) Membrane, Sterile | 4 Plates | 24well |

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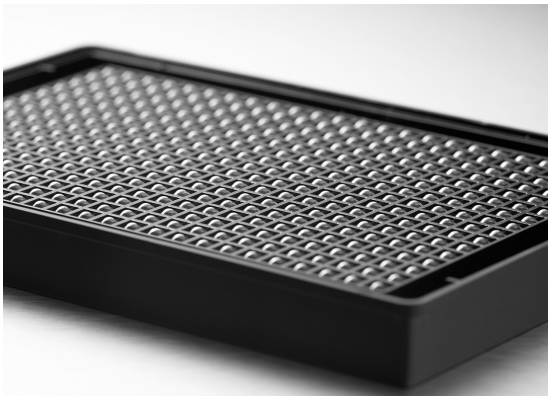
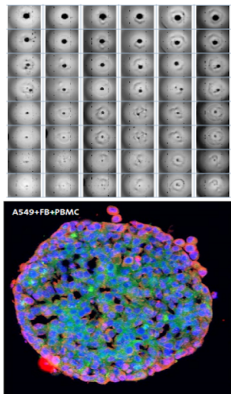
|---|---|---|---|---|
| Corning | 3460 | 12mm Transwell Permeable Support with 0.4um Pore Polyester (PET) Membrane, Sterile | 4 Plates | 12well |
| Corning | 3462 | 12mm Transwell Permeable Support with 3.0um Pore Polyester (PET) Membrane, Sterile, | 4 Plates | 12well |
| Corning | 3450 | 24mm Transwell Permeable Support with 0.4um Pore Polyester (PET) Membrane, Sterile | 4 Plates | 6well |
| Corning | 3452 | 24mm Transwell Permeable Support with 3.0um Pore Polyester (PET) Membrane, Sterile | 4 Plates | 6 well |
| Corning | 3491 | 24mm Transwell-COL Collagen-Coated Insert with 0.4um Pore PTFE Membrane, Sterile | 4 Plate | 6 well |
| Corning | 3493 | 12mm Transwell-COL Collagen-Coated Insert with 0.4um Pore PTFE Membrane, Sterile | 2 Plates | 12well |
| Corning | 3494 | 12mm Transwell-COL Collagen-Coated Insert with 3.0um Pore PTFE Membrane, Sterile | 2 Plates | 12well |
| Corning | 3495 | 6.5mm Transwell-COL Collagen-Coated Insert with 0.4um Pore PTFE Membrane, Sterile | 2 Plates | 24well |
| Corning | 3496 | 6.5mm Transwell-COL Collagen-Coated Insert with 3.0um Pore PTFE Membrane, Sterile | 2 Plates | 24well |

## 2. Spheroid microplate

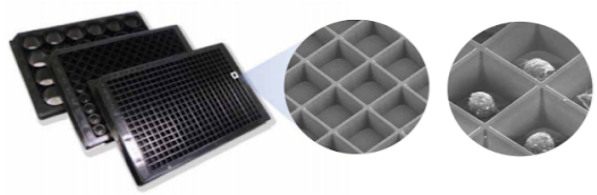




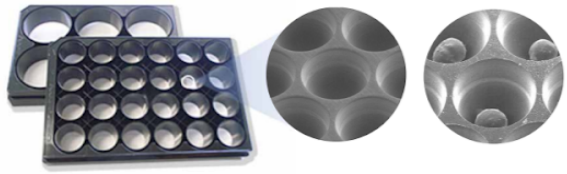

3D Spheroids simplified with Corning, culture, assay, and analyze your spheroids all in one microplate. The Corning® spheroid microplate features a novel and proprietary design that allows you to use one microplate to achieve all of these steps without manipulating or transferring delicate spheroids. The microplates feature black opaque walls and clear, round well-bottom geometry, as well as the Corning Ultra-Low Attachment surface, which is hydrophilic, biologically inert and non-degradable. All Corning spheroid microplates feature a unique well-bottom design that enables highly reproducible growth of 3D

spheroid cultures. The opaque side walls and gridded bottom design reduce well-to-well cross-talk and background fluorescence/luminescence.

Corning Elplasia plates address this need by enabling researchers to generate a high density of spheroids in a scaffold-free model using microcavity technology. Use Corning Elplasia plates to generate, culture, and analyze hundreds to thousands of spheroids all in a standard plate footprint. Corning Elplasia plates are available in multiple formats, two well geometry types, and two surface coatings.



Corning Elplasia square bottom type adherent plates



Corning Elplasia round bottom plates with Corning Ultra-Low Attachment (ULA) surface

| Brand | Cat. No | Description | Unit/Case |
|---|---|---|---|
| Corning | 7007 | 96-Well Clear Round Bottom Ultra Low Attachment Microplate with Lid, Sterile, Individually Wrapped | 24 plates |
| Corning | 4515 | 96-Well Black with Clear Round Bottom Ultra Low Attachment Spheroid Microplate, Ind Packed, with Lid, Sterile | 5 plates |
| Corning | 4520 | 96-Well Black with Clear Round Bottom Ultra Low Attachment Spheroid Microplate, with Lid, Sterile | 50 plates |
| Corning | 4440 | Elplasia 6-well Black/Clear Round Bottom Ultra-Low Attachment, Microcavity Plate, with Lid | 5 plates |
| Corning | 4441 | Elplasia 24-well Black/Clear Round Bottom Ultra-Low Attachment, Microcavity Plate, with Lid | 5 plates |
| Corning | 4442 | Elplasia 96-Well Black/Clear Round Bottom Ultra-Low Attachment, Microcavity Microplate, with Lid | 5 plates |
| Corning | 4444 | Elplasia 6-well Black/Clear, Square, Plasma Treated, Microcavity Plate, with Lid | 5 plates |

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|---|---|---|---|
| Corning | 4445 | Elplasia 24-well Black/Clear, Square, Plasma Treated, Microcavity Plate, with Lid | 5 plates |
| Corning | 4446 | Elplasia 96-Well Black/Clear, Square, Plasma Treated, Microcavity Microplate, with Lid | 5 plates |
| Corning | 4447 | Elplasia 384-well Black/Clear, Square, Plasma Treated, Microcavity Microplate, with Lid | 5 plates |

## 3. 3D Clear Tissue Clearing Reagent

Despite the growing relevance of 3D cell culture as a research model, imaging techniques used to characterize these models are highly limited. Due to the thickness and opacity of 3D cellular structures, most current imaging technologies cannot penetrate to the center of the tissues, resulting in only the outer 2 to 3 layers of cells being detected. This causes the dark centers often seen in images of 3D cell culture models, which proves highly problematic for accurate analysis as these outer cells are most exposed to compounds, nutrients and oxygen and thus do not reflect the entire cell population.

Corning now offers 3D Clear Tissue Clearing reagent that can be used in a tissue clearing technique, designed specifically to support imaging for 3D cell culture models and plate-based high throughput processing. When paired with fluorescent labeling (e.g., fluorescent protein, immunofluorescence, chemical dyes) and high content confocal microscopy, Corning 3D Clear reagent allows for complete 3D cell culture model characterization and more accurate drug screening.

| Brand | Cat. No | Description | Unit |
|---|---|---|---|
| Corning | 5730 | orning® 3D Clear tissue clearing reagent starter kit Includes: Corning 3D Clear reagent (30 mL), Corning 3D Clear antibody buffer (30 mL), Corning 3D Clear blocking buffer (30 mL), Corning 3D Clear penetration buffer (30 mL), Corning 3D Clear washing buffer 10X (70 mL) | 1 Kit |
| Corning | 5731 | Corning 3D Clear tissue clearing reagent, 10 mL | 1 Bot |

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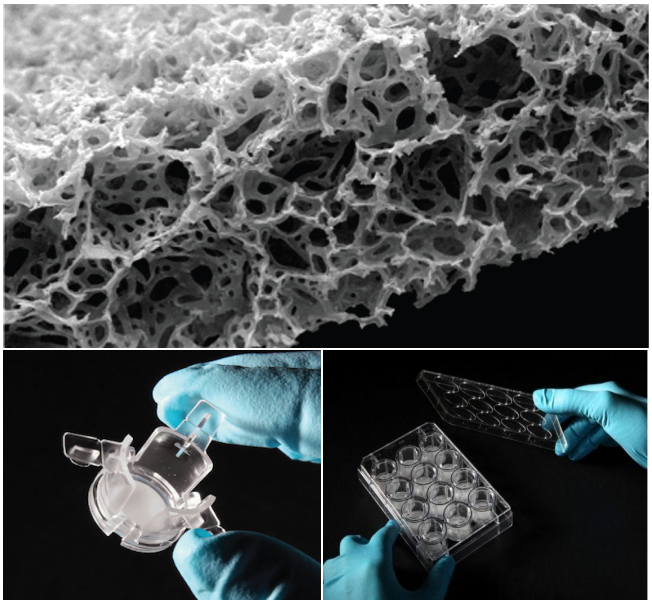
|---|---|---|---|
| Corning | 5732 | Corning 3D Clear tissue clearing reagent, 30 mL | 1 Bot |
| Corning | 5733 | Corning 3D Clear tissue clearing reagent, 100 mL | 1 Bot |
| Corning | 5734 | Corning 3D Clear antibody buffer, 30 mL | 1 Bot |
| Corning | 5735 | Corning 3D Clear antibody buffer, 100 mL | 1 Bot |
| Corning | 5736 | Corning 3D Clear blocking buffer, 30 mL | 1 Bot |
| Corning | 5737 | Corning 3D Clear blocking buffer, 100 mL | 1 Bot |
| Corning | 5738 | Corning 3D Clear penetration buffer, 30 mL | 1 Bot |
| Corning | 5739 | Corning 3D Clear penetration buffer, 100 mL | 1 Bot |
| Corning | 5740 | Corning 3D Clear washing buffer 10X, 70 mL | 1 Bot |
| Corning | 5741 | Corning 3D Clear washing buffer 10X, 200 mL | 1 Bot |

## 4. Scaffolds



Alvetex™, REPROCELL's highly porous polystyrene scaffold for 3D cell culture, brings a new dimension to your research capabilities. Our multi award winning technology overcomes the limitations associated with traditional cell culture by creating a new dimension. 3D cell cultures using Alvetex technology deliver more *in vivo*-like results over traditional two-dimensional monolayer cultures.

| Brand | Cat. No | Description | Unit/Case |
|---|---|---|---|
| REPROCELL | AVP002-2 | Alvetex Scaffold 12 well | 2 plates |
| REPROCELL | AVP006-2 | Alvetex Scaffold 24 well plate | 2 plates |
| REPROCELL | AVP009-2 | Alvetex Scaffold 96 well plate | 2 plates |
| REPROCELL | AVP010-2 | Alvetex Scaffold 384 well plate | 2 plates |
| REPROCELL | AVP004-12 | Alvetex Scaffold 6 well insert | 12 plates |
| REPROCELL | AVP005-12 | Alvetex Scaffold 12 well insert | 12 plates |
| REPROCELL | AVP011-2 | Alvetex Perfusion plate | 2 plates |
| REPROCELL | AVP012-12 | Alvetex Scaffold 24 well insert | 12 inserts |
| REPROCELL | AVP015-2 | Alvetex Well insert holder x 2 and deep Petri-dish | 2 Pack |
| REPROCELL | STP004-12 | Alvetex Strata 6 well insert × 12 | 12 inserts |
| REPROCELL | STP005-12 | Alvetex Strata 12 well insert × 12 | 12 inserts |
| REPROCELL | AVP-KIT-1 | Alvetex Scaffold Plate Starter Kit | 1 kit |

## 5. Koken® collagen


Atelocollagen is formed by peptidase treatment of native collagen. Atelocollagen forms a wide variety of physical forms depending on the way solutions are treated during precipitation. In addition, atelocollagen is bioabsorbable, making it ideal for combined in vitro-in vivo studies.

| Brand | Cat. No | Description | Unit |
|---|---|---|---|
| REPROCELL | KKN-IPC-30 | Atelocollagen, Bovine dermis, 3 mg/mL | 50 mL |
| REPROCELL | KKN-IPC-50 | Atelocollagen, Bovine dermis, 5 mg/mL | 50 mL |
| REPROCELL | KKN-MEN-01 | Atelocollagen permeable membrane for 50mm culture dish | 5 pcs |
| REPROCELL | KKN-CLP-01 | Atelocollagen powder | 500 mg |
| REPROCELL | KKN-CLS-01 | Atelocollagen sponge | 1 pcs |
| REPROCELL | KKN-CLF-01 | Atelocollagen membrane | 1 pcs |
| REPROCELL | KKN-CS-35 | Collagen sponge for 35mm culture dish | 5 pcs |
| REPROCELL | KKN-CSH-10 | Atelocollagen Honeycomb sponge | 100 mg |
| REPROCELL | KKN-MIC-00 | Collagen microspheres | 15 mL |
| REPROCELL | KKN-CSM-25 | Atelocollagen sponge, MIGHTY | 25 pcs |