

Choose the 3D Cell Culture Model that Works Best for Your Research

Cells behave more naturally when their microenvironment mimics *in vivo* conditions. But with these three different models — spheroids, organoids, and tissue models — how do you choose?

Spheroids



WHAT ARE THEY? Many different cell lines may aggregate and form spheroids in suspension or scaffold-free format. There are other cells that may benefit from having the presence of a hydrogel as a scaffold to form more physiological relevant spheroids.

FEATURES: Spheroids can be scaled up using specialized multiwell growth plates. As cell clusters, they form layers. External cells have the most contact with media, drugs, and nutrients. Permeability is important for agents to reach cells deep within the spheroid. Like solid tumors, they develop a necrotic core that replicates the *in vivo* cancer microenvironment.

BEST FOR:

- High throughput screening assays, such as:
 - Drug discovery
 - Cytotoxicity studies
 - Drug or chemotherapy permeability studies
- Stem cell research
- CRISPR

TOOLBOX:

- Corning® Spheroid Microplates
- Corning Elplasia® Microplates, 12K Flask, and 12K Open Well Plate
- Corning Synthegel® 3D Matrix Kits

Organoids



WHAT ARE THEY? Complex 3D cell cultures, created from organ-specific cells. Stem or progenitor cell-derived cells self-assemble to replicate the *in vivo* anatomical structure.

FEATURES: Organoids grow as mini-organs, maintaining cell functionality or characteristics similar to *in vivo*. They're more complex to grow but behave more naturally than 2D cultures. They contain stem and progenitor cells, so cultures survive longer, drift less, and avoid senescence.

BEST FOR:

- Precision medicine
- Disease modeling
- Drug discovery
- Genomics and organ development/response to treatment

TOOLBOX:

- Corning Matrigel® Matrix
- Matrigel Matrix-3D Culture Plates
- Corning Collagens

Tissue Models



WHAT ARE THEY? Models that mimic a broad range of 3D tissue microenvironments. They can be combined with ECMs to create matrices for 3D cell culture.

FEATURES: Tissue models have been developed for a variety of issues to display microanatomy, mimic complex tissues and organ function, and shed light on cell-to-cell interactions.

BEST FOR:

- Skin permeability assays
- Layered skin, bone, liver, and cartilage tissue models
- Toxicology and drug-screening studies
- Regenerative medicine
- 3D bioprinted patient-derived tumor research
- Cancer research

TOOLBOX:

- Transwell® Permeable Supports
- Falcon® Inserts
- Corning BioCoat® Inserts

Learn more by downloading the “How to Get Started in 3D Cell Culture” ebook.

www.corning.com/3D

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