Biological vs. Synthetic ECMs

ECM proteins help cultured cells attach, grow, and function in an *in vivo*-like environment, so choosing the right product is critical.

Biological ECMs
The Jack of All Trades

- Animal or recombinant
- Many scientific references
- Inherent biological variability

Most labs start here:

- Supports a wide range of cell types and applications
- Very helpful for fastidious, primary, sensitive, and stem cell types

Synthetic ECMs
The Specialists

- Synthetic peptides and formulations
- Limited amount of scientific references
- Fully defined/ standardized

Useful for special purposes:

- Provides more control and tunability

Consider the compatibilities of the Cell type, Application, and Variability tolerance

Biological ECMs are derived from living things, so they inherently have the attachment motifs and interaction sites found in nature, and have a long track record in research literature. Consider strategies such as lot matching to minimize variability.

An increasing number of synthetic options can replicate different aspects of biological ECMs and promote the binding and growth of specific cell types. You can add growth factors at known concentrations and eliminate interference from components you don't want.

BIOLOGICAL OPTIONS FROM CORNING

- **Corning Matrigel Matrix** is a trusted ECM with a 35-year track record that covers both 2D and 3D culture applications. Matrigel matrix is a solubilized basement membrane preparation rich in ECM proteins.
- **Corning Laminin** works well with neuronal and pluripotent stem cells and is available in both mouse and recombinant derived forms.
- **Corning Fibronectin, human**, supports a variety of cell types, promoting spreading, attachment, and proliferation.
- **Corning Collagen Type I and IV** support adhesion, growth, and differentiation for a variety of cell culture applications. Human collagens as well as collagens from other animal species are available.

SYNTHETIC OPTIONS FROM CORNING

- **Corning Synthegel 3D Matrix Kits** provide a defined, consistent surface for 3D applications like cancer spheroid growth.
- **Corning Synthemax** is a vitronectin-based peptide that allows pluripotent cell expansion and propagation of various progenitor cell types, including MSCs.
- **Corning PureCoat ECM Mimetic Cultureware** contain biologically active, animal-free peptides rationally designed to mimic the cell attachment process and motifs of native ECM proteins. Two coating options support the growth of stem and primary cells across a broad range of defined media formulations: Fibronectin peptide and Collagen I peptide.

Explore Corning's ECM resources and learn about our hydrogel offerings for tissue models, spheroid models, and organoid models.

www.corning.com/ECMs

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