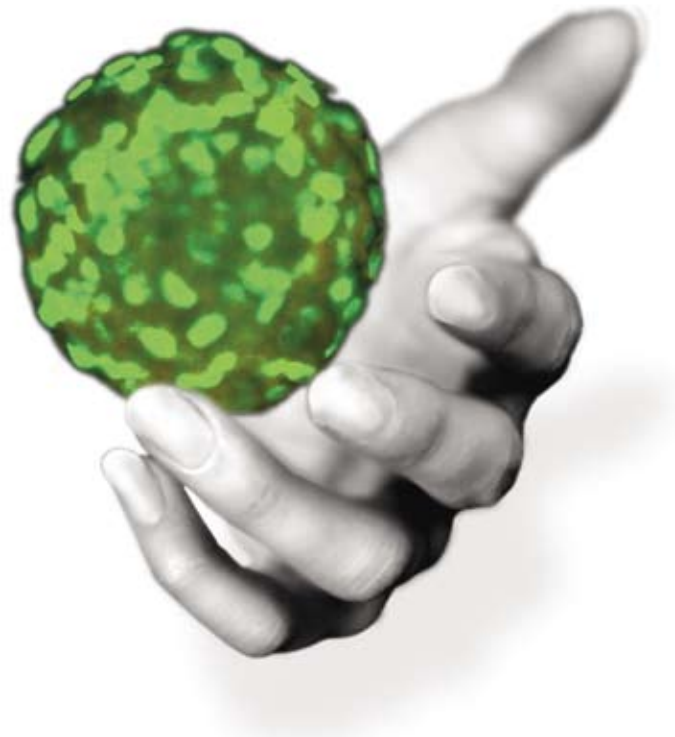




As real as it gets

GIBCO® Geltrex™ Reduced Growth Factor Basement Membrane Matrix

- 3D matrix that mimics *in vivo* conditions; superior to 2D cell culture
- Reduced growth factor content and protein specification ensure lot consistency
- Suitable for a broad range of applications
- Functional testing on each lot



Geltrex™ matrix is a soluble form of reduced growth factor (RGF) basement membrane extract (BME) purified from continuous sheets of specialized extracellular matrix that form an interface between Engelbreth-Holm-Swarm (EHS) tumor cells. The major components of Geltrex™ matrix include laminin, collagen IV, entactin, and heparin sulfate proteoglycan, which provide the foundation for three-dimensional (3D) culture studies. Like naturally occurring basement membrane, Geltrex™ reduced growth

factor basement membrane not only supports cells and cell layers, but also plays an essential role in tissue organization that affects cell adhesion, migration, proliferation, and differentiation.

It is easy to prepare suspensions using Geltrex™ matrix, and it offers, on average, a 2-fold reduction in several growth factors. As a result, analyses of specific growth factor effects in applications requiring basement membrane extract can be carried out in a controlled and reproducible way using Geltrex™ matrix.

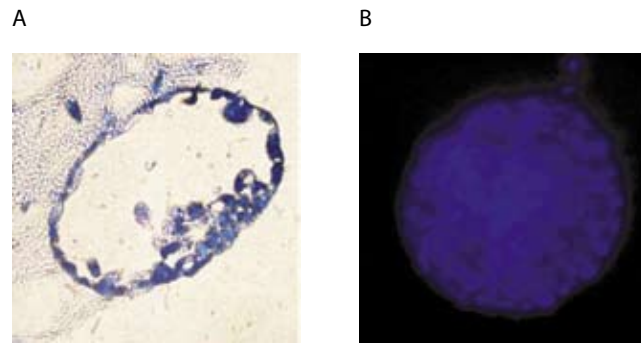


Figure 1—Cross-section of MCF-10A acinar structure grown on Geltrex™ matrix. Cells were cultured in assay medium with 2% Geltrex™ matrix and stained with (A) a mixture of azur A and methylene blue (for basement membranes), and (B) Hoechst 33342 (for nuclei). The assay medium was DMEM, 2% horse serum, 20 ng/ml EGF, 500 ng/ml hydrocortisone, 100 ng/ml cholera toxin, 10 mg/ml insulin, and 2X pen/strep.

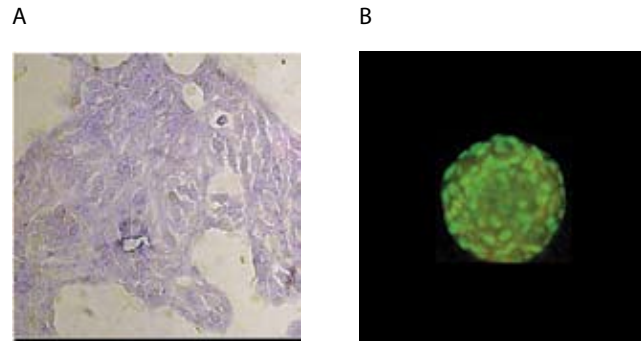


Figure 2—MCF-10A cells grown 2D on plastic vs. 3D on Geltrex™ matrix. (A) Cells were cultured in assay medium without Geltrex™ matrix and stained with a mixture of azur A and methylene blue (for basement membranes). (B) Cells were cultured in assay medium with 2% Geltrex™ matrix and stained with SYBR® Green I dye (for nuclear membrane) and propidium iodide (for nuclei). The assay medium was DMEM, 2% horse serum, 20 ng/ml EGF, 500 ng/ml hydrocortisone, 100 ng/ml cholera toxin, 10 mg/ml insulin, and 2X pen/strep.

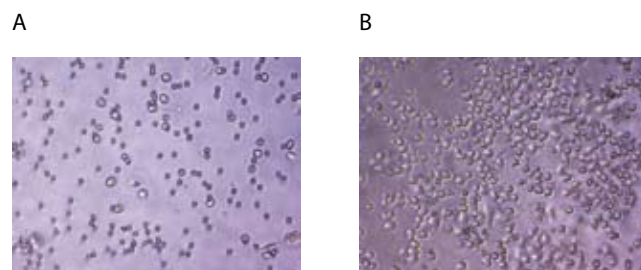


Figure 3—Chemoinvasion of MDA-MB-231 breast cancer cells in (A) BD Matrigel™ matrix vs. (B) Geltrex™ matrix.

Broad range of applications

Geltrex™ matrix is suitable for a broad range of applications. Geltrex™ matrix promotes the differentiation of human epithelial cell lines derived from mammary glands (MCF-10A) (Figures 1 and 2) into acinar structures, and can be used for promotion and maintenance of a differentiated phenotype in a variety of cell cultures including primary epithelial cells, endothelial cells, glandular cells, neurons, and smooth muscle cells. Geltrex™ matrix can be employed in various assays including angiogenesis, neurite outgrowth, and tumor cell invasion assays, and be used as a vehicle to augment the tumorigenicity of injected tumor cells in nude mice.

During carcinoma development, cell cycle controls associated with normal homeostasis, cellular proliferation, and death are lost, and as a result, these processes can be monitored to study carcinoma development. Geltrex™ matrix creates a 3D microenvironment to enable modeling of early oncogenesis. A comparison of Geltrex™ matrix to BD Matrigel™ matrix (BD Biosciences) in a chemoinvasion assay under the same conditions shows extensive invasion of MDA-MB-231 cells in the Geltrex™ matrix (Figure 3).

Geltrex™ matrix supports the growth of hESC

Geltrex™ matrix is a solubilized basement membrane preparation similar to BD Biosciences BD Matrigel™ matrix. Like Matrigel™ matrix, Geltrex™ matrix contains laminin and collagen. Using normal hESC (human embryonic stem cell) medium conditioned by overnight incubation with mouse embryonic fibroblasts (MEFs), hESCs can be successfully grown on Geltrex™ matrix (Figure 4).

Ready-to-use matrix

Following appropriate dilutions, Geltrex™ matrix is a ready-to-use soluble form of basement membrane matrix that requires no additional treatments before use. Depending on the application, different thicknesses and concentrations of Geltrex™ matrix are required. Scientists can culture cells within Geltrex™ matrix without affecting cell viability by choosing one of the methods recommended for the specific application (details of various protocols can be found in the product insert for Geltrex™ matrix).

Peace of mind with each lot

Geltrex™ matrix is backed by GIBCO® quality production standards, customer service, technical support, and other extensive offerings that make GIBCO® the most trusted name in cell culture. Superior-performance Geltrex™ matrix is manufactured under stringent manufacturing protocols. To ensure lot consistency, each lot must meet a protein and endotoxin specification. Performance testing by functional angiogenesis tube formation and USP sterility testing are also performed on each lot (Figure 5).

Geltrex™ matrix and the AlgiMatrix™ 3D Culture System contribute to a broader product portfolio of GIBCO® 3D culture systems, which was developed to meet the demand for 3D cell culture products in fields such as stem cell and cancer research, drug development, toxicology, and development and morphogenesis, as well as tissue and organ engineering.

Visit us at www.invitrogen.com/3D-CellCulture to learn more about the Geltrex™ 3D Culture System and related products for 3D cell culture.

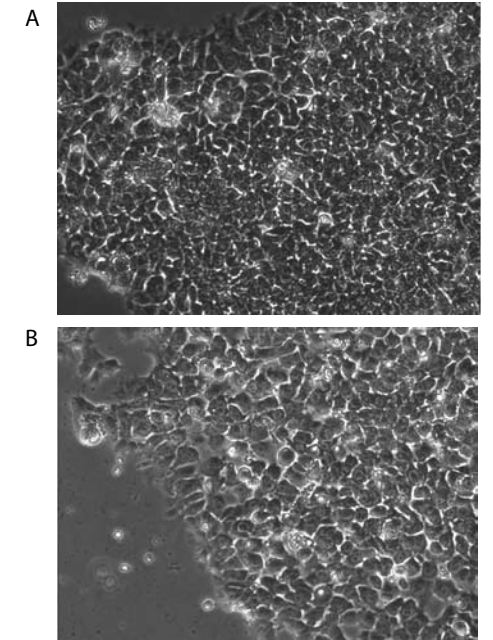


Figure 4—Human embryonic stem cells (hESCs) grown on Geltrex™ matrix (A) and on Matrigel™ (B) side by side for multiple passages. The cells grown on Geltrex™ matrix were successfully expanded and differentiated into multiple lineages (data not shown).

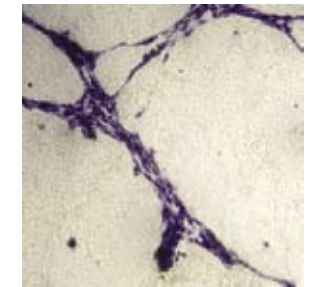


Figure 5—Vessel formation. SVEC4-10 cells incubated 24 hours at 37°C with 5% FBS and Geltrex™ matrix.



Cell Culture

Ordering information

Product	Quantity	Cat. no.
Geltrex™ Reduced Growth Factor Basement Membrane Matrix	5 ml	12760-021
For current prices, please visit www.invitrogen.com .		

References

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