

As real as it gets.

GIBCO® AlgiMatrix™ 3D Culture System

- Higher-fidelity, animal-free scaffold for three-dimensional (3D) cell culture
- Ready to use for diverse cell types
- More consistent results than from animal-derived matrices

Developed by Invitrogen, the AlgiMatrix™ 3D Culture System (Figure 1) is the first user-friendly, animal-free bioscaffold available for the development of higher-fidelity cell culture models that are more predictive of disease states and drug responses.

3D cell culture that resembles *in vivo* conditions

The AlgiMatrix™ alginate sponge creates a cell culture model that more closely reflects normal cell morphology and behavior to meet researchers' 3D cell culture requirements in such fields as toxicology, drug development, cancer and stem cell research, development and morphogenesis, tissue and organ engineering, heart disease, diabetes, and Alzheimer's disease.

Convenient, ready to use

The AlgiMatrix™ 3D Culture System is available in a 96-well format that integrates well into any workflow. Cells can be inoculated directly into sterile microtiter plates preloaded with lyophilized alginate sponge; no pretreatment or other preparation is required.

Less variable than animal-derived matrices

Other commercially available 3D matrices—including agar, collagen, and Matrigel™—are either difficult to use or are of animal origin, with significant lot-to-lot variability that can compromise performance. AlgiMatrix™ sponge is formulated using pharmaceutical-grade raw material from brown seaweed. Its pure, chemically defined, and nontoxic macroporous structure yields improved lot-to-lot consistency, superior cell loading, and excellent nutrient delivery, without damage to cells (Figure 2). The AlgiMatrix™ sponge is biodegradable and is stable at room temperature.

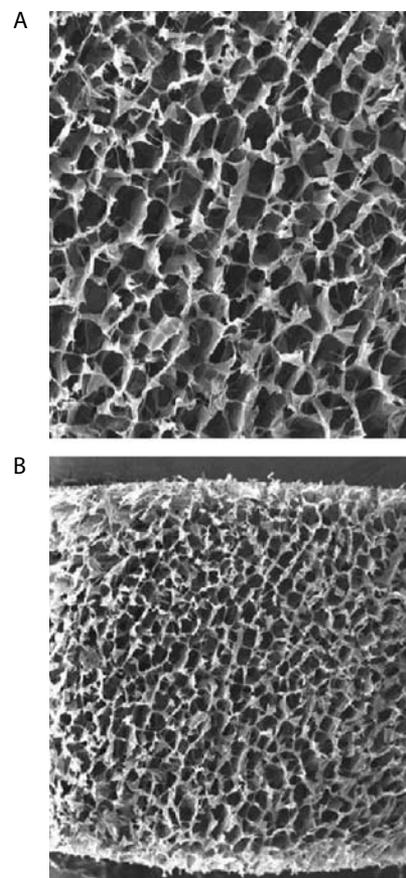


Figure 1—Magnified views of AlgiMatrix™ alginate sponge, showing its highly porous structure (A) and pore interconnectivity (B).



Cell Culture

Broad range of applications

The AlgiMatrix™ 3D Culture System is suitable for a broad range of procedures, including multicellular tumor spheroid assays (MCTS),¹ hepatocyte²⁻⁴ and cardiomyocyte organogenesis studies,⁵ co-culture studies,⁶ high-throughput drug screening assays,¹ and embryonic stem cell 3D differentiation.⁷ This broad applicability fulfills a critical need for cell-based screening, drug discovery, and *in vitro* human cell therapy research (Figure 3).

Peace of mind with each lot

The AlgiMatrix™ 3D Culture System 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. It is manufactured in compliance with the FDA's Quality System regulation (cGMP) and the current requirements of ISO 9001, and cell-based toxicity testing is performed on each lot.

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

References

1. Kunz-Schughart, L. et al. (2004) *J Biomol Screen* 9:273.
2. Dvir-Ginzberg, M. et al. (2003) *Tissue Eng* 9:757.
3. Elkayam, T. et al. (2006) *Tissue Eng* 12:1357.
4. Kedem, A. et al. (2005) *Tissue Eng* 11:715.
5. Dar, A. et al. (2002) *Biotechnol Bioeng* 80:305.
6. Kim, J. (2005) *Semin Cancer Biol* 15:365.
7. Gerecht-Nir, S. et al. (2004) *Biotechnol Bioeng* 88:313.

Ordering information

Product	Quantity	Cat. no.
AlgiMatrix™ 3D Culture System in 96-well plate	1	12684-015
	5 pack	12684-031

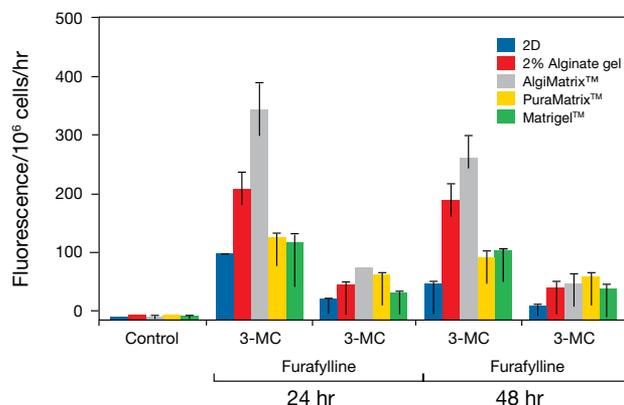


Figure 2—CYP1A2 (cytochrome P450) activity in C3A human hepatocarcinoma cells cultured using a variety of cell culture matrices. 3-MC (methylcholanthrene) induces and furafylline inhibits CYP1A2 activity.

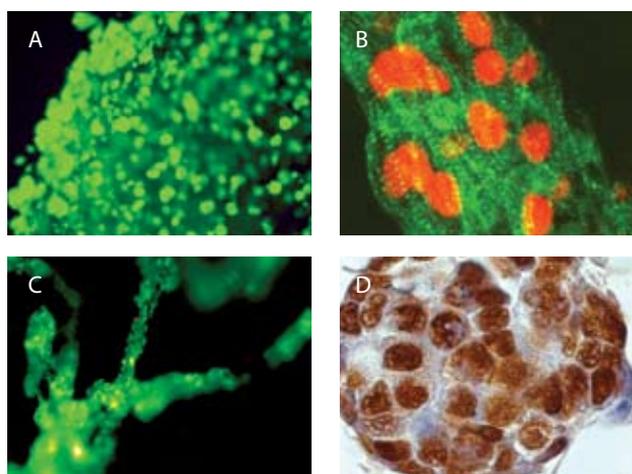


Figure 3—Visualization of various cell types grown in the AlgiMatrix™ system. A. Live hepatocytes stained with fluorescein diacetate to show the cellular organization. B. Fluorescence immunodetection of α-actinin (green fluorescence) in rat cardiomyocytes at 8 days; nuclei were stained with red-fluorescent propidium iodide. C. Bovine aorta epithelial cells organized into tube-like (vascular) networks following treatment with vascular endothelial growth factor. D. Positive PCNA immunostaining (brown deposits) of histology sections in hepatocyte spheroids formed in the alginate scaffolds.