Product Information

Fibronectin/Gelatin Coating Solution

FG001

Storage Temperature -20 °C

Product Description

Fibronectin/Gelatin Coating Solution is a ready-to-use attachment factors mix solution, that is 0.2 µm filtered. It is used to coat cell culture flasks, dishes, and multi-well plates and used to promote the attachment, spreading and proliferation of variety of cell types, especially Endothelial Cells, HL-1 Cardiac Muscle Cell Line (SCC065) and cells that require ECM-coated surface for adhesion and 2D cell-culture growth. Fibronectin/Gelatin Coating Solution prevents endothelial cell monolayer from peeling under shear stress. Fibronectin/Gelatin Coating Solution mix is suitable for use with serum-free or reduced -serum cultures.

Fibronectin is a multifunctional, extracellular matrix adhesion glycoprotein that is used as a substrate to promote attachment of cells. Multiple domains of fibronectin show binding affinities for collagen, fibrin, heparin, and specific cell membrane receptors.[1-2] The most notable domain, Arg-Gly-Asp (RGD), is recognized by integrins and mediates cell adhesion. Fibronectin is involved in widespread interactions and functions, such as the attachment and migration of many cell types, cytoskeletal assembly, tyrosine phosphorylation, and metastasis. Fibronectin is produced by a wide variety of epithelial and mesenchymal cells *in vitro* including fibroblasts, chondrocytes, myoblasts, Schwann cells, macrophages, hepatocytes, and intestinal epithelial cells.

Gelatin is a heterogeneous mixture of water-soluble proteins, present in collagen and an ideal cell-attachment substrate for cell culture.[3] Proteins are extracted by boiling the relevant skin, tendons, ligaments, bones, etc. in water. Gelatin is a hydrocolloid and is rich in glycine, proline and hydroxyproline, which imparts structural stability.

Source

Fibronectin was isolated from bovine plasma.

Gelatin was synthesized from the alkaline digestion of collagen from bovine skin and is referred as type B.

Applications

- Attachment and spreading of a variety of cell types
- Suitable for use with serum-free or reduced -serum cultures

Procedure

1. Gently mix the Fibronectin/Gelatin Coating Solution a few times to form a homogenous solution before use.
2. Coat tissue culture ware to cover the entire culture surface area, approximately 0.2-0.25 mL/cm^2.
3. Incubate at room temperature for 2-3 hours and carefully aspirate the solution.
4. Wash 3 times with sterile PBS before plating cells.
5. The coated tissue culture vessels can be used immediately or stored at 4 °C for up to one week filled with PBS and wrapped in parafilm.
6. Remove PBS only when ready to plate the cells. Do not let the coated plates dry completely.

Tested for attachment activity.

Representative Data

Figure 1

A. CHO cells (Chinese Hamster Ovary) cultured for 3 days in low serum medium on Fibronectin-Gelatin Coating Solution show a good attachment and proliferation.
B. CHO cells (Chinese Hamster Ovary) cultured for 3 days in low serum medium on TC plate without coating, do not attach well, tend to float in clumps.

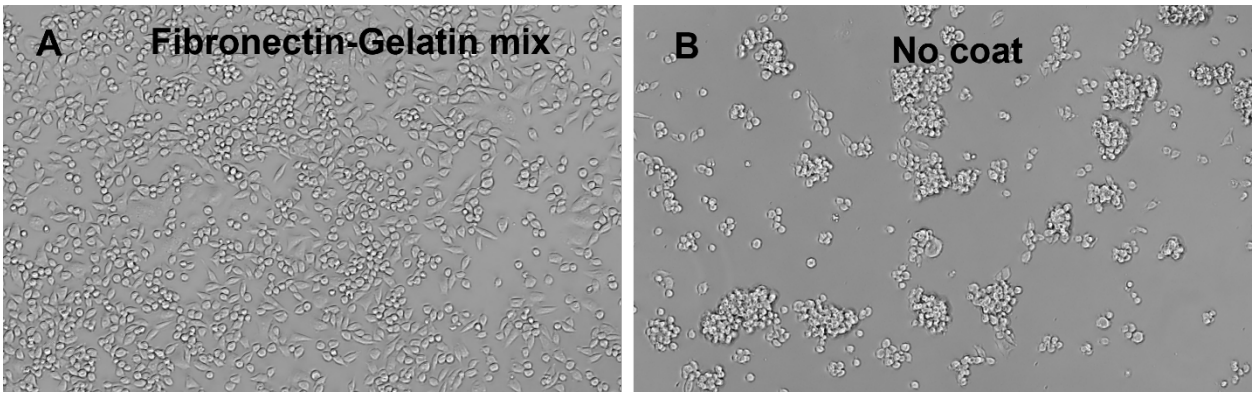


Figure 2

A. BHK21 cells (Fibroblasts from Hamster Kidney) cultured for 5 days in low serum medium on Fibronectin-Gelatin Coating Solution show a good attachment and proliferation.
B. BHK21 cells (Fibroblasts from Hamster Kidney) cultured for 5 days in low serum medium on TC plate without coating, do not attach well, tend to float in clumps, with different expected morphology.

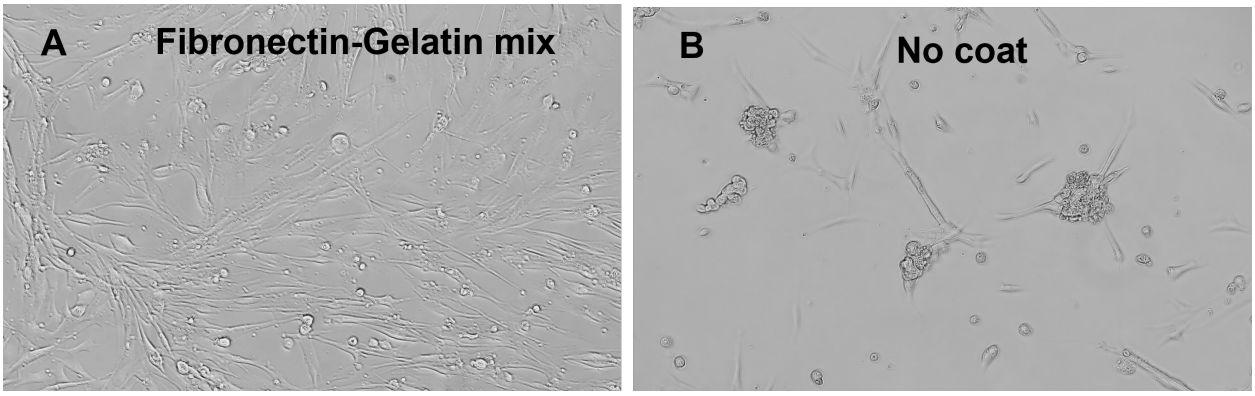
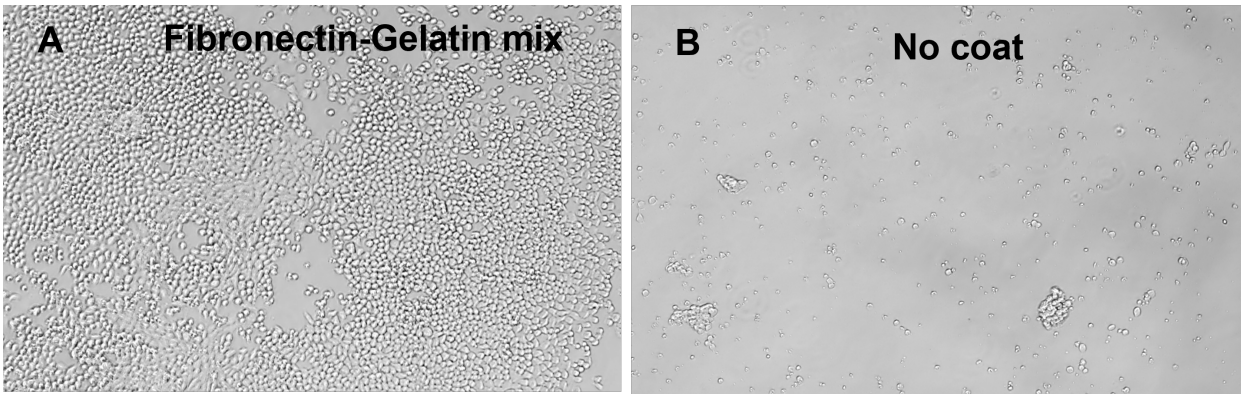


Figure 3

A. F9 Cells (Mouse Testis Embryonal Carcinoma) cultured for 7 days in low serum medium on Fibronectin-Gelatin Coating Solution show a good attachment and proliferation.
B. F9 Cells (Mouse Testis Embryonal Carcinoma) cultured for 7 days in low serum medium on TC plate without coating, do not attach well, and tend to float in clumps.



Storage/Stability

The recommended storage temperature is −20 °C, and under these conditions the product is stable for at least 2 years. It is advisable to avoid repeated thawing and freezing.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

References

1. Akiyama, S., et al. "Fibronectin and fibronectin fragments in Extracellular Matrix: A Practical Approach." *New York* (1985): 183.
2. Humphries, Martin J., et al. "Role of fibronectin in adhesion, migration, and metastasis." *Cancer investigation* 7.4 (1989): 373-393.
3. Bello, Alvin Bacero, et al. "Engineering and functionalization of gelatin biomaterials: From cell culture to medical applications." *Tissue Engineering Part B: Reviews* 26.2 (2020): 164-180.

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