



Technical Data Sheet

MAPTrix[®]-F Fibronectin peptide containing mussel adhesive protein

Product Information

Catalog Number 316111, 316121, 316131

Introduction Cell adhesion to the extracellular matrix is essential to the development and maintenance of cells. Cell adhesion to extracellular matrix ligands is primarily mediated by integrins. The Arg-Gly-Asp (RGD) recognition motif is present in many extracellular matrix proteins including fibronectin, laminin, and osteopontin.

Biomimetic approaches have sought to convey biofunctionality to synthetic materials by presenting a cell adhesion motif like RGD. Immobilizing short peptides onto synthetic or natural materials may produce biofunctional surfaces that bind adhesion receptors and promote cell adhesion. However, simple presentation of RGD on a variety of surfaces does not guarantee desirable effects, presumably due to non-specific adsorption of plasma proteins and interactions with components that drown out the engineered RGD signals.

Recent studies have demonstrated that substrate compliance and ligand-clustering and patterning as well as combinations of bioligands and microstructured substrata modulate cell adhesion, spreading, and migration. MAPTrix[®] provides a way to control ligand density and patterning as well as microstructured substrata to precisely modulate cell adhesion, spreading, and migration.

Description and Applications MAPTrix[®]-F is a recombinant mussel adhesive protein based coating kit for cell culture or for use as a modifier of a variety of substrates for biological applications. The mussel adhesive protein contains fibronectin-derived peptides such as RGD, GRGDSP or REDV motifs at the N-terminal, which has demonstrated similar bioactivity to natural fibronectin in primary cell cultures and human-derived mesenchymal stem cell expansion.

This coating kit is designed for simple surface modification and/or biofunctionalization with increased cell attachment & growth efficacy for a variety of cell lines.

This product can be used in combination with other MAPTrix[®] products where combinations of bioligands are required. Simple mixtures of MAPTrix[®] products can generate a combination of bioligands for synergistic cell adhesion and spreading.

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Features

- Ready-to-use formula
- Control of surface density & spatial distribution of a peptide motif on the surface of a substrate with high reproducibility & reliability
- Fully compatible with existing cell culture protocols
- Easy surface coating/modification with a combination of bioligands

Quality Control

- Quality control in accordance with ISO & USP guidelines
- Purity > 90% by SDS PAGE
- Sterility & endotoxin testing strictly adheres to USP guidelines
- Animal protein-free & *E.coli*-protein free

Cell Culture Assay

1. Cell attachment assay

a) MAPTrix[®]

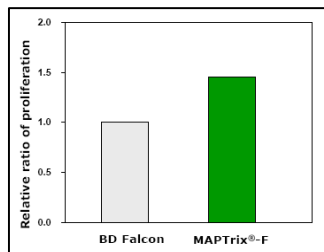


b) BD Falcon



Cell attachment of human cord blood derived mesenchymal stem cells on MAPTrix[®]-F and BD Falcon as a positive control. The MAPTrix[®]-F coated plate demonstrated excellent cell attachment activity as compared to the leading product.

2. Cell growth assay



MTT assay showed self-expansion of MSC is more efficient on MAPTrix[®]-F coated plates after 14 days of cell culture.

Storage

- Stable for a minimum of 6 months from day of shipment when stored at 2-8°C
- The remaining material is recommended to be used within 1 month after the vial has been opened.

Related Products

- For laminin, MAPTrix[®]-L (Cat. #: 316211, 316221)
- For collagen, MAPTrix[®]-C (Cat. #: 316311, 316321)
- For vitronectin, MAPTrix[®]-V (Cat. #: 316411)

References

- Hwang, DS et al., *Biomaterials*, 2007, 28, 4039–4046
- Hwang, DS et al., *Biomaterials*, 2007, 28, 3560-3568

Technical Assistance

Contact the Kollodis technical support via:

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