Recombinant Combinatorial Biomimetic Library

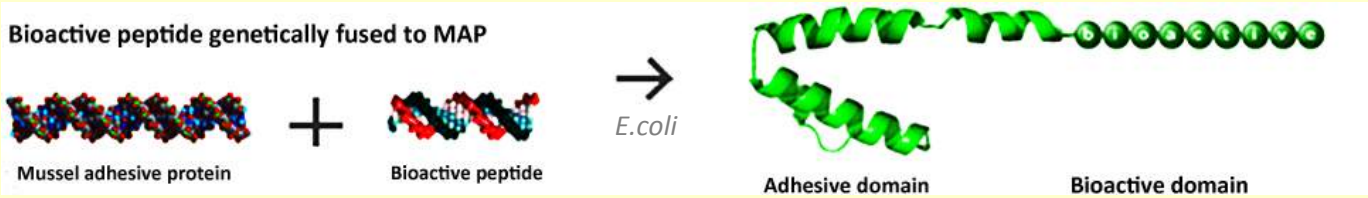
amsbio

Animal-Free Extracellular Matrix

Benefits of using MAPTrix™ ECM AMSBIO:

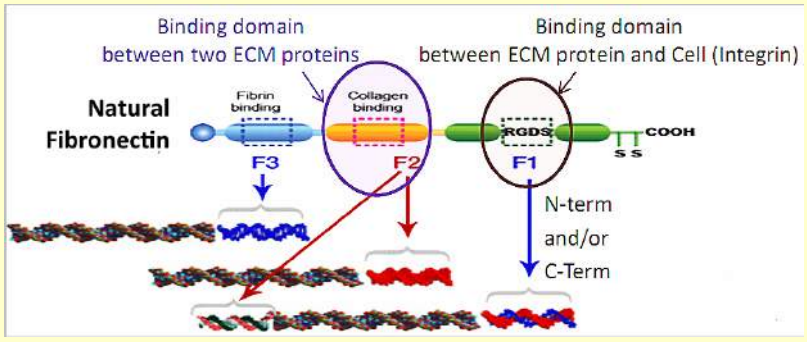
- MAPTrix™ produces a uniform ECM surface that provides a highly controlled 2D extracellular microenvironment for cell cultures and related applications.
- Helps comply with FDA recommendations for animal-free components
- Reduces risk of animal or viral infectious agents in cell cultures
- Low cost compared to traditional ECM
- Ready to use and compatible with standard coating protoc
- Reproducible & reliable coating
- Multiple of 'active motifs' available
- Have your preferred motif made for you

Easy-to-use Bifunctional Recombinant Proteins



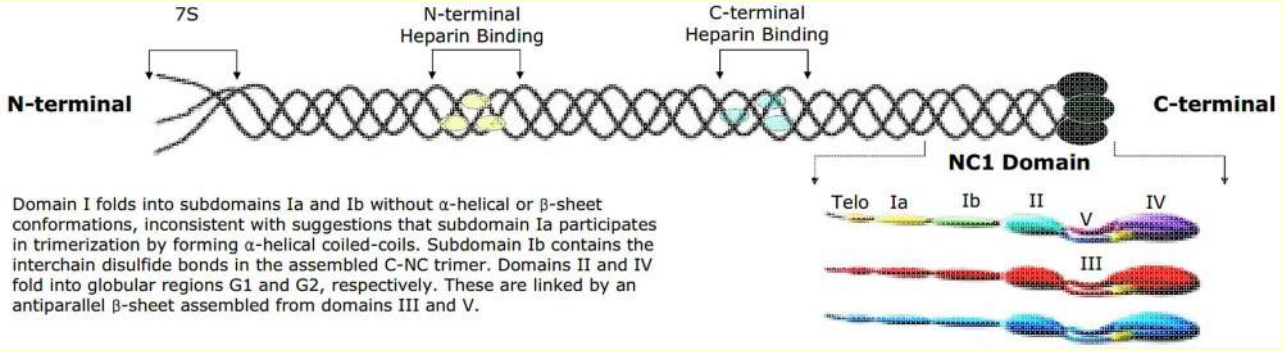
MAPTrix™ platform technology incorporates bioactive peptides into mussel adhesive protein. This allows for the production of multi-functional biomaterials for life science and medical applications.

Create multi-motif molecules from MAPTrix™ ECM mimetics



- Biological activity comparable with its corresponding natural ECM protein (evidenced in primary and human derived mesenchymal stem cell cultures).
- Used in cell culture application alone or in combination with other products.

Collagen Derived Peptides

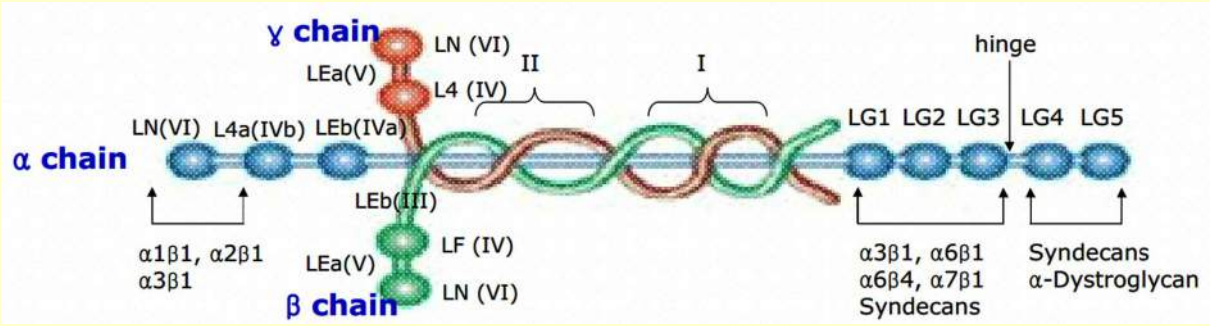


Collagens serve as scaffolds for the attachment of cells and matrix proteins; but are also highly biologically active, with many other ligands. For example, collagens provide integrin- and heparin-binding motifs. α2β1 integrin recognizes GXO/SGER such as GFPGER or GFOGER for endothelial cell binding / activation and angiogenesis. Integrin binding sites for αvβ3 have antitumor activity, and may inhibit the activation of human neutrophil or the proliferation of capillary endothelial cells. Integrin binding sites in the NC1 domains have anti-angiogeneic properties mediated by the α1β1 or αvβ3 integrin binding.

Domain	Peptide Motif	Cat. # *
Type I alpha1	GLPGER	16501x
Type I alpha1	KGHRGF	16502x
Type I alpha1	GFPGER	16504x
Type I alpha1	DGEA	16506x
Type I alpha1	GPAGKDGEAGAQG	16507x
Type I alpha1	GTPGPQGIAGQRGVV	16512x

Domain	Peptide Motif	Cat. # *
Type IV alpha1	TAGSCLRKFSTM	16621x
Type IV alpha1	GEFYFDLRLKGDK	16623x
Type IV alpha3	TAIPSCPEGTVPLYS	16631x
Type IV alpha3	TDIPPCPHGWISLWK	16632x
Type IV alpha3	ISRCQVCMKKRH	16635x

Laminin Derived Peptides

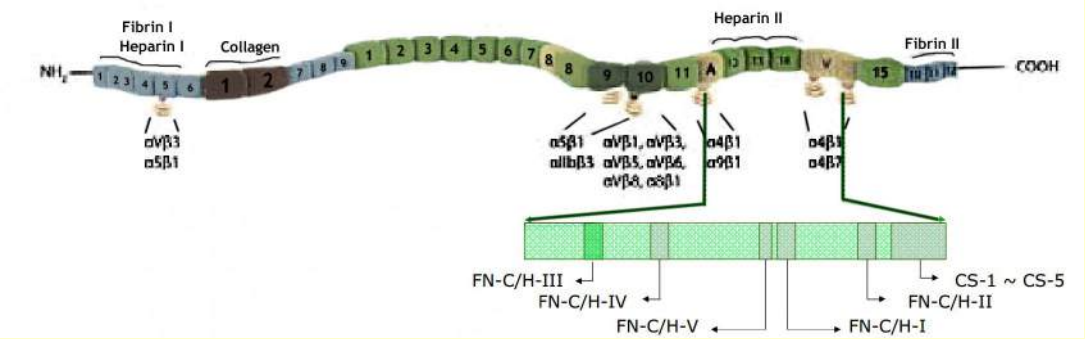


Laminins (heterotrimers composed of α, β, and γ chains), are multifunctional glycoproteins present in basement membranes. Integrins, dystroglycan, syndecans, and several other cell surface molecules are cellular receptors for laminins. The globular domains located in the N- and C-terminus of the laminin α chains are critical for interactions with the cellular receptors. Integrin α6β1 binds to most of the laminin isoforms. Integrin α3β1 interacts with laminin-5 and -10/11 more specifically than the other isoforms. Integrins α1β1, α2β1, and α7β1 show binding activity to laminin-1 and -2. Interaction of integrin α6β4 with laminin-5 forms hemidesmosomes in the skin. α-dystroglycan strongly binds to the laminin α1 and α2 chains and moderately interacts with the α5 chain.

Domain	Peptide Motif	Cat. # *
alpha1 chain	RQVFQVAYIIIKA	16204x
alpha1 chain	IKVAV	16224x
alpha1 chain	AASIKVAVSADR	16225x
alpha1 chain	NRWHSIYITRFG	16226x
alpha1 chain	TWYKIAFQRNRK	16229x
alpha1 chain	RKRLQVQLSIRT	16232x
alpha3 chain	PPFLMLLKGSTR	16288x
alpha3 chain	KNSFMALYLSKGRLVFALG	16293x

Domain	Peptide Motif	Cat. # *
alpha5 chain	GIIFFL	16369x
beta1 chain	RYVVLPR	16411x
beta1 chain	YIGSR	16414x
beta1 chain	LGTIPG	16421x
gamma1 chain	KAFDITYVRLKF	16442x
	SETTVKYIFRLHE	16452x
gamma1 chain	RNIAEIIKDI	16460x

Fibronectin Derived Peptides



Fibronectin naturally exists as a dimer, consisting of two nearly identical monomers. Two regions in each fibronectin subunit possess cell binding activity: III9-10 and III14-V (refer to the modular structure of fibronectin below). The primary receptor for adhesion to fibronectin commonly involves the RGD motif of repeat III10 through integrins such as α5β1; however, this integrin-ligand interaction is only sufficient for cell attachment and spreading. Additional signaling through the cell surface proteoglycan such as syndecan-4 is required for focal adhesion formation and rearrangement of the actin cytoskeleton into bundled stress fibers. This binding occurs primarily via the HepII domain (containing the FN type III repeats 12-14) in the C-terminal region of fibronectin.

Domain	Peptide Motif	Cat. # *
Type III-5	KLDAPT	16103x
Type III CS-1	PHSRN	16104x
Type III-10	RGD	16105x
Type III-10	GRGDSP	16107x
FN-C/H-III	YRVRVTPKEKTGPMKE	16109x
FN-C/H-1V	SPPRRARVT	16110x

Domain	Peptide Motif	Cat. # *
Type III-13	ATETTITIS	16111x
FN-C/H-V	WQPPRARI	16116x
FN-C/H-II	KNNQKSEPLIGRKKT	16119x
Type III CS-1	EILDVPST	16120x
Type III CS-5	REDV	16124x
	PHSRN-RGDSP	16125x

Additional ECM-derived peptides

Cadherins are calcium-dependent cell adhesion proteins which are involved in many morphoregulatory processes including the establishment of tissue boundaries, tissue rearrangement, cell differentiation, and metastasis. The extracellular domain of E-cadherin tends to bind in a homophilic manner; although heterophilic binding does occur under certain conditions. The binding of extracellular cadherin is the basis for cell-cell adhesion, tends to be prevalent at adherin junctions and is structurally associated with actin bundles.

Other sets of extracellular matrix components - for example, **vitronectin**, **nidogen** or **Tenascin**, and **SIBLING**s (small integrin-binding ligand, N-linked glycoprotein) such as **bone sialoprotein (BSP)** or osteonpontin derived ligand - can also influence the cellular behavior by regulating cell signaling (directly or indirectly). Unlike the main extracellular matrix components such as collagen or fibronectin, these other proteins are adhesion-modulatory extracellular matrix proteins which interact with the main ECM components or integrins.

Domain	Peptide Motif	Cat. # *
Cadherin		
E-cadherin ECD1	SHAVSS	16701x
E-cadherin ECD1	LFSHAVSSNG	16702x
E-cadherin ECD1	ADTPPV	16703x
E-cadherin, Ca^{2+} binding	DQNDN	16706x
N-cadherin, ECD1	HAVDI	16707x
N-cadherin ECD1	LRAHAVDING	16708x
N-cadherin ECD1	LRAHAVDVNG	16709x
Vitronectin		
HVP	FRHRNRKGY	16801x
HVP	KKQRFRHRNRKGYRSQ	16802x
Somatomedin B	RGDV	16803x

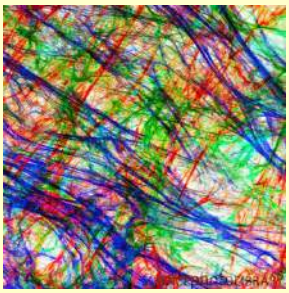
Domain	Peptide Motif	Cat. # *
Nidogen G2	LNRQELFPFG	16811x
Nidogen G2	SIGFRGDGQTC	16812x
Tenascin-C	VAEIDGIEL	16831x
Tenascin-C	VFDNFVLK	16832x
Elastin	VGVAPG	16851x
Bone Sialoprotein (BSP)	KRSR	16901x
Bone Sialoprotein (BSP)	FHRRIKA	16902x
CCN (connective growth factor)	TTSWSQCSKS	16931x
Fibrinogen	HHLGGAKQAGDV	16953x

KEY TO CATALOG NUMBERING

Cat. No. ending with X=	Pack size+
1	1 mg protein, aqueous solution at 0.2mg/mL
2	2.5 mg protein, aqueous solution at 0.5mg/mL
3	5 mg protein, aqueous solution at 0.5mg/mL
4	10 mg protein, aqueous solution at 1mg/mL

Mimic

Extracellular Matrix:



Fibronectin	Cadherin	Tenascin-C
Laminin	Vitronectin	Bone Sialoprotein
Collagen	Nidogen	CCN1
Elastin	Fibronogen	

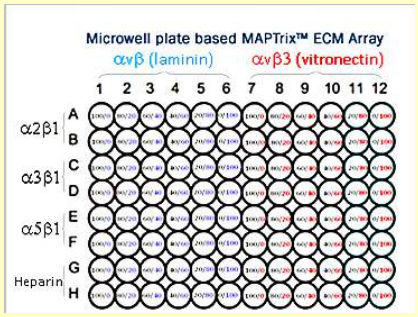
AND

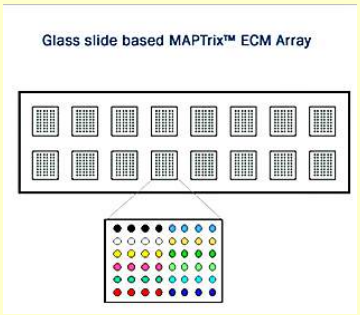
Growth Factor Ligands:

FGF	IGF I	NGF
TGF-a	VEGF	PDGF
TGF-b	EGF	

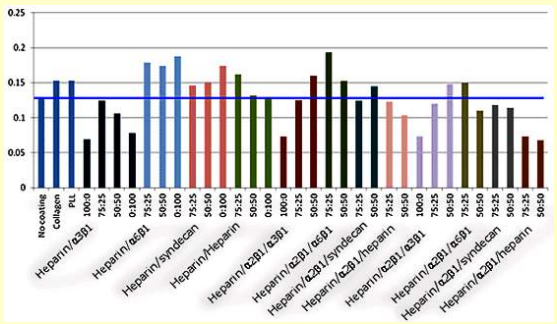
Huge choice and custom manufacture possible

MAPTrix™ screen arrays





MAPTrix™ screen arrays offer an extensive line of ECM-derived ligands for high throughput cell adhesion assays to identify a cellular adhesion profile against receptor binding peptide motifs.



Case study 1:

Customised MAPTrix™ array for HUVEC binding assays

Case study

MAPTrix™ mediated adipocyte differentiation