

MAPTrix™-E Cadherin mimetic mussel adhesive protein

Overview

Cadherins (E, N, and VE) are calcium dependent cell adhesion molecules which primarily mediate cell-cell adhesion in epithelial cells. Cadherins play an important mechanistic role in the growth and development of cells, particularly the control of tissue architecture and the maintenance of tissue integrity¹.

Cadherins typically consist of a large extracellular domain containing DXD and DXNDN repeats which are responsible for calcium-dependent adhesion^{1, 2}.

The extracellular section of E-cadherin contains of five tandemly repeated domains, EC-1 to EC-5. The active conformation of these domains is dependent upon the presence of Ca²⁺ ions. E-cadherins protrude from the same cell surface as a parallel cis-dimer. Additionally, they form an antiparallel trans-dimer with E-cadherins from opposing cells³.

Product Description

The EC-1 domain is important for the selectivity of E-cadherin in binding with another E-cadherin but not for N- or P-cadherins.

The EC-1 domain is critical in formation of the trans-dimer structure. The HAV sequence in EC-1 is important for trans-dimer interactions. The HAV sequence of the EC-1 domain of E-cadherin from one cell may interact with a different sequence in the EC-1, EC-2, EC-3, EC-4 or EC-5 domains of E-cadherin from the opposing cell.

MAPTrix™-E provides two core motifs (HAV, ADT) from the EC-1 domain for cell adhesion and EC-2. The calcium binding motif (DXD or DXNDN) is also available.

Characteristics

MAPTrix™-E is produced in Kollodis' proprietary *E.coli* expression system and purified using an ISO compliant manufacturing process.

Molecular Weight:

- ~24,000 daltons

Formula:

- The product is supplied as an aqueous solution (1.0, 2.5, 5.0 and 10.0mg in vial) in pure water.
- Lyophilized powder is also available upon request

Solubility:

- Soluble in a variety of buffers, including water, under a wide range of pH conditions (pH=2-9.0)
- Note: Buffers of media containing Ca²⁺ or Mg²⁺ added to MAPTrix™ may result in the formation of insoluble aggregates. This will not occur if the buffering capacity of the diluent brings the pH to 9.0 or lower.

Quality Control

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|-----------------|---|
| • Purity | 93% by SDS PAGE |
| • pH | 6.0 ~ 7.5 |
| • Endotoxin | Less than 20 EU/mL per LAL assay |
| • Sterility | Tested and found negative for the presence of bacteria, fungi and mycoplasma |
| • Functionality | The biological activity of cadherin peptide is determined in a cell culture assay under serum free conditions |

Coating Procedure:

- Transfer the desired volume of MAPTrix™-E solution from the vial to a dilution vessel as required.
- Dilute to the desired concentration using sodium bicarbonate buffer solution (NaHCO₃: 500mM at final concentration) for uniform & even coated surfaces. A recommended working concentration is 0.1mg/mL. (*Note: Use the recommendation as a guideline in determining the optimal coating conditions for your culture system.*)
- Add an appropriate amount of diluted MAPTrix™-E solution to the culture surface
- Incubate at room temperature or 37°C, covered, for 1-3 hours. Best uniform coated surfaces are obtained with 1-2 hour incubation.
- Rinse the coated surfaces carefully with a sterile medium or PBS. Avoid scratching the coated surface.
- Refer to the Standard Coating Protocol for details, which can be downloaded at www.kollodis.com



Products

Cat. No	Peptide Motif	Receptor	Cat. No	Peptide Motif	Receptor
167011~4	SHAVSS	EC1 domain	167021~4	HAVDI	EC1 domain
167021~4	LFSHAVSSNG	EC1 domain	167021~4	LRAHAVDING (human N-cad)	EC1 domain
167031~4	ADTPPV	EC1 domain	167021~4	LRAHAVDVNG (murine N-cad)	EC1 domain
167061~4	DQNDN	Ca ²⁺ binding			

Storage Conditions:

- Stable for a minimum of 6 months from day of shipment when stored at 2-8°C
- Remaining, unused solution of MAPTrix™ ECM can be stored at 2-8°C with appropriate sealing for 6 months. **DO NOT FREEZE** the remaining solution. However, the remaining material is recommended to be used within 1 month after the vial has been opened.

References

1. Wheelock MJ, et al., Cadherins as modulators of cellular phenotype. Annu Rev Cell Dev Biol. 2003; 19:207-35.
2. Yang W, et al., Peptide analogs from E-cadherin with different calcium-binding affinities. J Pept Res. 2000; 55(3):203-15.
3. Pötter E, et al., The cadherin-catenin system: implications for growth and differentiation of endocrine tissues. Endocr Rev. 1999; 20(2):207-39.



Ordering Information

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For volume ordering or bulk pricing, please contact Kollodis BioSciences or your local distributor.