

Active Recombinant Mussel Adhesive Proteins, Tag Free

Cat. No. MAP-01M Lot. No. (See product label)

SPECIFICATION

Product Overview	Genetically engineered yeast expressing mussel adhesive protein genes.
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Species	Mussel
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Source	Yeast
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Description	Mussel adhesive proteins (MAPs) are a group of proteins derived from the adhesive secretions of mussels, particularly the blue mussel (<i>Mytilus edulis</i>). These proteins enable mussels to attach firmly to various surfaces, including rocks, ship hulls, and even other marine organisms, under water. The unique adhesive properties of MAPs have attracted significant interest for a variety of applications, particularly in biomedical and industrial fields. Mussel Adhesive Protein, meticulously developed from genetically engineered yeast expressing mussel adhesive protein genes and carefully lyophilized for optimal use. What sets our product outstanding is the presence of the critical DOPA group, the core functional element that endows the protein with its remarkable adhesive capabilities. Unlike many recombinant mussel adhesive proteins and mimetic alternatives, which often lack detectable DOPA, our product features a clear and measurable presence of DOPA, ensuring superior performance. This innovative protein stands out with its exceptional adhesive properties, making it a versatile solution for a range of applications. It is specifically designed to promote wound healing, reduce inflammation, and accelerate skin repair, all while ensuring excellent biocompatibility and non-toxicity. With high protein content and purity, our Mussel Adhesive Protein is the ideal choice for applications demanding reliable, effective, and safe adhesive solutions.
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Form	Lyophilized Powder
Molecular Mass	16.06 kDa
Endotoxin	≤ 10 EU/mg
Purity	> 90%
Applications	Mussel Adhesive Proteins have a wide range of potential applications, including: Medical Adhesives: MAPs are being explored for use in surgical adhesives and wound closures, especially in challenging environments like wet tissues or internal organs. They offer an alternative to traditional sutures and staples, potentially reducing tissue trauma and improving healing outcomes. Tissue Engineering: Due to their biocompatibility and adhesive properties, MAPs are also being investigated for use in tissue engineering, where they can help secure engineered tissues to the body or facilitate cell attachment in scaffold materials. Drug Delivery: MAPs can be employed as a carrier for drug delivery systems, ensuring targeted and sustained release of therapeutic agents. Coatings and Surface Modification: MAPs can be used to modify surfaces of medical devices, implants, and materials to improve their biocompatibility and adhesion properties. Marine and Underwater Adhesives: Due to their exceptional adhesion in wet environments, MAPs can be used for underwater repairs, marine applications, and anti-fouling coatings. Industrial Adhesives: MAPs can replace traditional adhesives in various industrial applications, including automotive, aerospace, and construction. Cosmetics: The moisturizing and skin-repairing properties of MAPs make them valuable in cosmetic formulations, such as face masks, creams, and serums. They can enhance the longevity and effectiveness of these products by adhering better to the skin.
Storage	At -20 centigrade for lyophilized powder. Mussel Adhesive Proteins is stable for short-term transportation and storage at ambient temperature. Long term storage should be

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below temperatures -20 centigrade. Shelf Life: At least 1 year when stored dry at temperatures below -20 centigrade. Protect the product from light exposure. Avoid repeated freeze-thaw cycles. Handle with care to prevent contamination.

pI	10.01
pH range	4.5-8.5
Protein Content	>95%
DL-DOPA	≥3%
Adhesive Strength	≥400N
Solubility	5.9 mg/mL
Bioburden	Microorganisms count: ≤200 cfu/g
Advantages	Natural extraction of MAPs is challenging and not scalable, leading to the development of recombinant MAPs through genetic engineering. By expressing MAP genes in yeast, Gproan can produce these proteins more efficiently and at a larger scale. ≥3% DOPA Groups: One of the most critical components of MAPs is the presence of the amino acid 3, 4-dihydroxyphenylalanine (DOPA). DOPA groups are essential for the strong adhesive capabilities of MAPs, as they can form strong bonds with both organic and inorganic surfaces, even in wet environments. Biocompatibility and Non-Toxicity: MAPs are known for their excellent biocompatibility, making them highly suitable for medical applications. They do not cause adverse immune reactions and are non-toxic, which is crucial for use in biomedical adhesives and coatings. Gproan recombinant MAPs is animal free. Water Resistance: Unlike many synthetic adhesives, MAPs maintain their adhesive properties in wet or underwater conditions, which is a

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significant advantage for applications where moisture is a factor. Versatile Adhesion: MAPs exhibit strong adhesive properties in both wet and dry environments, making them ideal for applications where adhesion in challenging conditions is required. Environmentally Friendly: Derived from sustainable and renewable sources, Gproan MAPs are eco-friendly and do not harm the environment. Customizable: Gproan Mussel adhesive proteins can be modified and tailored to meet specific application requirements. We are able to create synthetic versions of MAPs or mimetic compounds that replicate the adhesive properties of natural MAPs, potentially improving upon them for specific applications.

Dilution Buffer	Purified water
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Storage Buffer	0.5% Acetic acid
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GENE INFORMATION

Official Symbol	MAPs
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Synonyms	MAPs; Mussel Adhesion Proteins; Mytilus Edulis Adhesive Proteins
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