Recombinant Human MFG-E8

Catalog Number: 2767-MF

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human MFG-E8 protein Leu24-Cys387, with a C-terminal 6-His tag Accession # Q08431.2
N-terminal Sequence Analysis	Leu24
Predicted Molecular Mass	41.6 kDa

SPECIFICATIONS

SDS-PAGE	40-58 kDa, reducing conditions
Activity	Measured by the ability of the immobilized protein to support the adhesion of SVEC4-10 mouse vascular endothelial cells. When 5 x 10^4 cells/well are added to Recombinant Human MFG-E8 coated plates (10 µg/mL, 100 µL/well), approximately 45-75% will adhere after 60 minutes at 37 °C.
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in NaH_2PO_4 and NaCl. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Milk Fat Globulin Protein E8 (MFG-E8), also known as Lactadherin, MP47, breast epithelial antigen BA46, and SED1, is a 66-75 kDa pleiotropic secreted glycoprotein that promotes mammary gland morphogenesis, angiogenesis, and tumor progression. MFG-E8 also plays an important role in tissue homeostasis and the prevention of inflammation (1). Human MGF-E8 contains one N-terminal EGF-like domain and two C-terminal F5/8-type discoidin-like domains (2). It shares 63% and 61% aa sequence identity with comparable regions of mouse and rat MFG-E8, respectively. Shorter isoforms of human MFG-E8 may have N-terminal deletions (beginning near the end of the first discoidin-like domain), internal deletions (lacking either the EGF-like domain or the central region of the second discoidin-like domain), or C-terminal deletions (truncated within the second discoidin-like domain) (3). A 50 aa internal proteolytic fragment of human MFG-E8 (known as Medin) is a major component of aortic medial amyloid deposits (4). MFG-E8 is released into the milk in complex with lipid-containing milk fat globules. It is also found in multiple other cell types including endothelial cells and smooth muscle cells of the vasculature, immature dendritic cells, at the acrosomal cap of testicular and epididymal sperm, and in epithelial cells of the endometrium (1). MFG-E8 binds to the Integrins αVβ3 and αVβ5 and potentiates the angiogenic action of VEGF through VEGF R2 (5, 6). It reduces inflammation and tissue damage in a variety of settings. MFG-E8 functions as a bridge between phosphatidylserine on apoptotic cells and Integrin αVβ3 on phagocytes, leading to the clearance of apoptotic debris (7). It mediates the engulfment of apoptotic bodies in atherosclerotic plaques and prion-infected brain (8, 9) and of apoptotic B cells during germinal center reactions (10, 11). MFG-E8 also promotes the removal of excess Collagen in fibrotic lungs and the regeneration of damaged intestinal epithelia (12, 13). Its tissue-protective role impairs anti-tumor immunity and chemotherapy-induced apoptosis (14). MFG-E8 in the breastmilk blocks rotavirus infection in nursing babies (15).

References:

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