

**DESCRIPTION**

**Source** Mouse myeloma cell line, NS0-derived  
Ala23-Cys463, with a C-terminal 6-His tag  
Accession # P21956

**N-terminal Sequence Analysis** Ala23

**Predicted Molecular Mass** 49.8 kDa

**SPECIFICATIONS**

**SDS-PAGE** 64-72 kDa, reducing conditions

**Activity** Measured by the ability of the immobilized protein to support the adhesion of SVEC4-10 mouse vascular endothelial cells.  
The ED<sub>50</sub> for this effect is 10-50 ng/mL.

**Endotoxin Level** <1.0 EU per 1 µg of the protein by the LAL method.

**Purity** >95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

**Formulation** Lyophilized from a 0.2 µm filtered solution in PBS with BSA as a carrier protein. 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). Mouse MGF-E8 contains two N-terminal EGF-like domains, a Pro/Thr-rich segment, and two C-terminal F5/8-type discoidin-like domains (2). It MFG-E8 shares 63% and 94% aa sequence identity with comparable regions of human and rat MFG-E8, respectively. Alternative splicing of mouse MFG-E8 generates a short isoform lacking the Pro/Thr-rich region which contains sites for O-linked glycosylation and tyrosine sulfation (3). 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 (4, 5). 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 (6). It mediates the engulfment of apoptotic bodies in atherosclerotic plaques and prion-infected brain (7, 8) and of apoptotic B cells during germinal center reactions (9, 10). MFG-E8 also promotes the removal of excess Collagen in fibrotic lungs and the regeneration of damaged intestinal epithelia (11, 12). Its tissue-protective role impairs anti-tumor immunity and chemotherapy-induced apoptosis (13). MFG-E8 in the breastmilk blocks rotavirus infection in nursing babies (14).

**References:**

1. Raymond, A. *et al.* (2009) *J. Cell. Biochem.* **106**:957.
2. Stubbs, J.D. *et al.* (1990) *Proc. Natl. Acad. Sci. USA* **87**:8417.
3. Hoffhines, A.J. *et al.* (2008) *J. Biol. Chem.* **284**:3096.
4. Silvestre, J.-S. *et al.* (2005) *Nat. Med.* **11**:499.
5. Borges, E. *et al.* (2000) *J. Biol. Chem.* **275**:39867.
6. Hanayama, R. *et al.* (2002) *Nature* **417**:182.
7. Ait-Oufella, H. *et al.* (2007) *Circulation* **115**:2168.
8. Kranich, J. *et al.* (2010) *J. Exp. Med.* **207**:2271.
9. Hanayama, R. *et al.* (2004) *Science* **304**:1147.
10. Kranich, J. *et al.* (2010) *J. Exp. Med.* **205**:1293.
11. Atabai, K. *et al.* (2009) *J. Clin. Invest.* **119**:3713.
12. Bu, H.-F. *et al.* (2007) *J. Clin. Invest.* **117**:3673.
13. Jinushi, M. *et al.* (2009) *J. Exp. Med.* **206**:1317.
14. Kvistgaard, A.S. *et al.* (2004) *J. Dairy Sci.* **87**:4088.