**DESCRIPTION**

**Source**
E. coli-derived
Met1-Glu92
Accession # P80511

**N-terminal Sequence Analysis**
Met1

**Predicted Molecular Mass**
10.6 kDa

**SPECIFICATIONS**

**SDS-PAGE**
8 kDa, reducing conditions

**Activity**
Measured by its binding ability in a functional ELISA.
When rhRAGE/Fc Chimeras (Catalog # 1145-RG) is coated at 2 µg/mL (100 µL/well), rhS100A12 binds with an apparent Kₐ <30 nM.

This protein also enhances integrin activation on neutrophils as measured by flow cytometric analysis using β2 integrin activation reporter antibody mAb 24.

Optimal dilutions should be determined by each laboratory for each application.

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

**Purity**
>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.

**Formulation**
Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

**Reconstitution**
Reconstitute at 200 µg/mL in 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**

EN-RAGE, also known as S100A12 and Calgranulin C, is a 10 kDa member of the S100 (soluble in 100% saturated ammonium sulfate) family of EF-hand calcium-binding proteins. Like other S100 proteins, S100A12 is small and generally acidic (1-3). EN-RAGE forms noncovalent homodimers in the absence of divalent cations (4-6); calcium and zinc promote the formation of higher order assemblies including tetramers and hexamers (4, 7, 8). The ability of S100A12 to chelate zinc enables it to inhibit the zinc-dependent metalloproteases MMP-2, -3, and -9 (8). S100A12 also forms heterodimers with S100A9 and binds to RAGE (Receptor for Advanced Glycation End-products), Annexin V, and several cytosolic enzymes involved in energy metabolism (9, 10).

The hexameric form of EN-RAGE in particular binds RAGE with high affinity (7). EN-RAGE induces a variety of inflammatory responses including the in vivo recruitment of neutrophils, monocytes, and mast cells and the activation of mast cells and vascular endothelial cells (9, 11-14). EN-RAGE is found at elevated levels under inflammatory conditions such as asthma, gout, rheumatoid arthritis synovial fluid, and atherosclerosis (8, 12, 14). S100A12 also promotes neurite outgrowth in isolated hippocampal neurons (15). An ortholog of S100A12 has not been identified in rodents, but the human protein is functional in mice and rats (11-15).

**References:**