



Genorise® Recombinant Canine MMP-2 Protein

Catalog Number: GR122013

Background

Matrix metalloproteinase-2 (MMP-2) is known as 72 kDa type IV collagenase, and gelatinase A is an enzyme that is encoded by the *MMP2* gene.(1) Proteins of the MMP family are involved in the breakdown of extracellular matrix in normal physiological processes, such as embryonic development, reproduction, and tissue remodeling, as well as in disease processes, such as arthritis and metastasis. Most MMP's are secreted as inactive proproteins which are activated when cleaved by extracellular proteinases. This gene encodes an enzyme which degrades type IV collagen, the major structural component of basement membranes. The enzyme plays a role in endometrial menstrual breakdown, regulation of vascularization and the inflammatory response.

Activation of MMP-2 requires a proteolytic processing. A complex of membrane type 1 MMP (MT1-MMP/MMP14) and tissue inhibitor of metalloproteinase 2 recruits pro-MMP 2 from extracellular milieu to the cell surface. Activation then requires active molecule of MT1-MMP and auto catalytic cleavage. Clustering of integrin chain promotes activation of MMP-2. Another factor that will support the activation of MMP-2 is cell-cell clustering. A wild-type activated leukocyte cell adhesion molecule (ALCAM) also required to activate MMP-2. Mutations in the *MMP2* gene are associated with Torg-Winchester syndrome, multicentric osteolysis and arthritis syndrome.(2) *MMP2* has been shown to interact with THBS2,(3) TIMP2,(4-7) Thrombospondin 1,(4) CCL7 (8) and TIMP4.(6, 7)

Reference

1. Devarajan P, et al. *J. Biol. Chem.* **267** (35): 25228–32.
2. Martignetti JA, et al. *Nat. Genet.* **28** (3): 261–5.
3. Bein K, Simons M. *J. Biol. Chem.* **275** (41): 32167–73.
4. Morgunova E, et al. *Proc. Natl. Acad. Sci. U.S.A.* **99** (11): 7414–9.
5. Overall CM, et al. *J. Biol. Chem.* **275** (50): 39497–506.
6. Bigg HF, et al. *J. Biol. Chem.* **272** (24): 15496–500.
7. Kai HS, et al. *J. Biol. Chem.* **277** (50): 48696–707.
8. McQuibban GA, et al. *Science* **289** (5482): 1202–6.

Related products

1. GR238016 50 ml Reagent Reservoir, 100/case, 5 packs/case (pack of 20)
2. GR238004 Tissue Culture 96-well Microplate, individually packed, Case of 50
3. GR238019 1.5 ml Microcentrifuge tube with screw cap and free-standing, pack of 500
4. GR238007 125 ml leak-resistant HDPE bottle, colorless, pack of 24
5. GR238002 Microplate 12x8-Well Strip High Binding, Case of 50
6. GR238003 Microplate 12x8-Well Strip Medium Binding, Case of 50
7. GR238032 42592 Costar Stripwell Microplate 1 x 8 Flat Bottom, High Binding, Case of 100
8. GR238001 468667 Thermo Microplate 12x8-Well Strip Nunc Maxisorp F8, Case of 60
9. GR238031 96-well microplate sealer plastic, pack of 100



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Description

Source: E. coli derived
Amino acid sequence; Tyr34-Cys584
Accession # XP_013964882.1
N-terminal Sequence Analysis: Tyr34
Structure/Form: Pro-form
Predicted Molecular Mass: 61 kDa

Specifications

SDS-PAGE: 61 kDa, reducing conditions
Activity Measured by its ability to cleave the fluorogenic peptide, Mca-PLGL-Dpa-AR-NH₂ (Catalog # ES001). The specific activity is >1.000 pmol/min/μg as measured under the described conditions.
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 with BSA as a carrier protein.

Preparation and Storage

Reconstitution: Reconstitute at 20 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.

- 6 months from date of receipt, -20 to -70°C as supplied.
- 1 month, -20 to -70°C under sterile conditions after reconstitution.

DECLARATION

THIS REAGENT IS FOR IN VITRO LABORATORY TESTING AND RESEARCH USE ONLY. DO NOT USE IT FOR CLINICAL DIAGNOSTICS. DO NOT USE OR INJECT IT IN HUMANS AND ANIMALS.

**FOR LABORATORY RESEARCH USE ONLY
NOT FOR USE IN HUMANS AND ANIMALS**