

MGP (FL-103): sc-66965

BACKGROUND

Matrix Gla protein, or MGP, is a protein involved in regulating calcification in the extracellular matrix, in particular in cartilage and arteries. MGP is a vitamin K⁺-dependent protein, and contains five to six residues of γ -carboxy-glutamic acid (Gla), a Ca²⁺ binding amino acid requiring vitamin K⁺-dependent γ carboxylase for its formation. In humans MGP is an 84 residue protein along with a 19 amino acid transmembrane signal peptide. A shortened 77 residue form of MGP is found in human bone extracts, likely formed by COOH-terminal processing by carboxypeptidase B-like enzymatic activity. High levels of expression occur in the heart, kidney and lung, and overexpression of MGP occurs in the breast cancer cell line 600 PEI. Retinoic acid induces MGP expression in chondrocytes, fibroblasts and osteoblasts. Mutations in the gene coding for MGP can cause Keutel syndrome (KS), associated with abnormal cartilage calcification, substantiating the role of MGP in extracellular matrix calcification regulation. MGP can bind vitronectin and fibronectin via its carboxy-terminus, and phosphorylation of MGP occurs near the N-terminus at three serine residues, which are part of a tandemly repeated Ser-X-Glu sequence.

REFERENCES

- Price, P.A., et al. 1983. Matrix Gla protein, a new γ -carboxyglutamic acid-containing protein which is associated with the organic matrix of bone. *Biochem. Biophys. Res. Commun.* 117: 765-771.
- Cancela, L., et al. 1990. Molecular structure, chromosome assignment, and promoter organization of the human matrix Gla protein gene. *J. Biol. Chem.* 265: 15040-15048.
- Chen, L., et al. 1990. Overexpression of matrix Gla protein mRNA in malignant human breast cells: isolation by differential cDNA hybridization. *Oncogene* 5: 1391-1395.
- Hale, J.E., et al. 1991. Carboxyl-terminal proteolytic processing of matrix Gla protein. *J. Biol. Chem.* 266: 21145-21149.

CHROMOSOMAL LOCATION

Genetic locus: MGP (human) mapping to 12p12.3; Mgp (mouse) mapping to 6 G1.

SOURCE

MGP (FL-103) is a rabbit polyclonal antibody raised against amino acids 1-103 representing full length MGP of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

MGP (FL-103) is recommended for detection of MGP of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

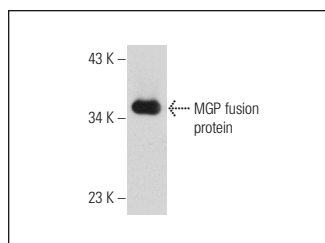
MGP (FL-103) is also recommended for detection of MGP in additional species, including canine.

Suitable for use as control antibody for MGP siRNA (h): sc-44626, MGP siRNA (m): sc-44627, MGP siRNA (r): sc-270356, MGP shRNA Plasmid (h): sc-44626-SH, MGP shRNA Plasmid (m): sc-44627-SH, MGP shRNA Plasmid (r): sc-270356-SH, MGP shRNA (h) Lentiviral Particles: sc-44626-V, MGP shRNA (m) Lentiviral Particles: sc-44627-V and MGP shRNA (r) Lentiviral Particles: sc-270356-V.

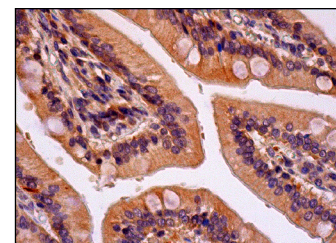
Molecular Weight of MGP: 10 kDa.

Positive Controls: SHP-77 whole cell lysate: sc-364258.

DATA



MGP (FL-103): sc-66965. Western blot analysis of full length human MGP fusion protein.



MGP (FL-103): sc-66965. Immunoperoxidase staining of formalin fixed, paraffin-embedded human duodenum tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

- Li, R., et al. 2012. Quantitative determination of matrix Gla protein (MGP) and BMP-2 during the osteogenic differentiation of human periodontal ligament cells. *Arch. Oral Biol.* 57: 1408-1417.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **MGP (A-11): sc-271906** or **MGP (H-4): sc-271907**, our highly recommended monoclonal alternatives to MGP (FL-103).