

Product Specification Sheet

Product: Anti-Human Osteopontin (Rabbit)

Code: 100-401-404

Lot #: 10019

Size: 200 μ l

Physical State: Liquid (sterile filtered)

Protein Concentration: 85 mg/ml (by Refractometry)

Buffer: 0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2

Stabilizer: None

Preservative: 0.1% (w/v) Sodium Azide

Storage Conditions: Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use. Expiration date is one (1) year from date of opening.

Background Information: Osteopontin (OPN) is an arginine-glycine-aspartic acid (RGD)-containing glycoprotein that interacts with integrins and CD44 as major receptors. OPN is multifunctional, with activities in cell migration, cell survival, inhibition of calcification, regulation of immune cell function, and control of tumor cell phenotype. The gene encoding OPN is called *spp1*. Targeting this gene has revealed that while OPN is not necessary for normal embryonic development, fertility, and health under pathogen-free conditions, loss of the protein has significant consequences in several models of injury/disease as diverse as renal injury, viral and bacterial infection, bone remodeling, and tumor growth. The fact that no other proteins seem to share a redundant activity with OPN under these conditions suggests that OPN has a unique functional role during tissue injury and stress. Interestingly, several members of the matrix metalloproteinase (MMP) family are also induced during injury/disease processes in patterns overlapping that of OPN. OPN has recently been shown to be a novel substrate for two MMPs, MMP-3 (stromelysin-1) and MMP-7 (matrilysin). There are three cleavage sites for MMP-3 in human OPN, two of which are also cleaved by MMP-7 (see cleavage diagram). Biological assays demonstrate that the MMP-cleaved OPN has increased activity in promoting both cell adhesion and migration compared with full-length OPN. In addition, inhibitory reagents were used to show that the same receptors that interact with OPN also mediate interaction of MMP-cleaved OPN with tumor cells. It is suggested that active forms of OPN at sites of tissue injury may be regulated by the activity of proteases including MMPs and that the differences in activity of modified OPN may be explained by differences in binding affinity of integrins or distinct downstream signaling events.

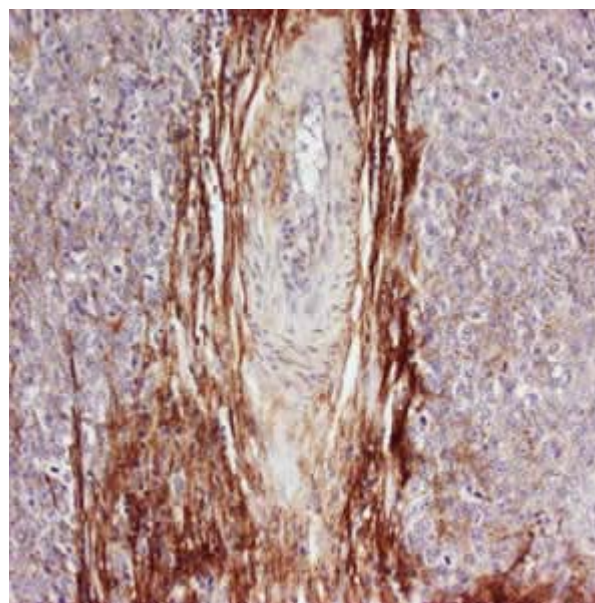
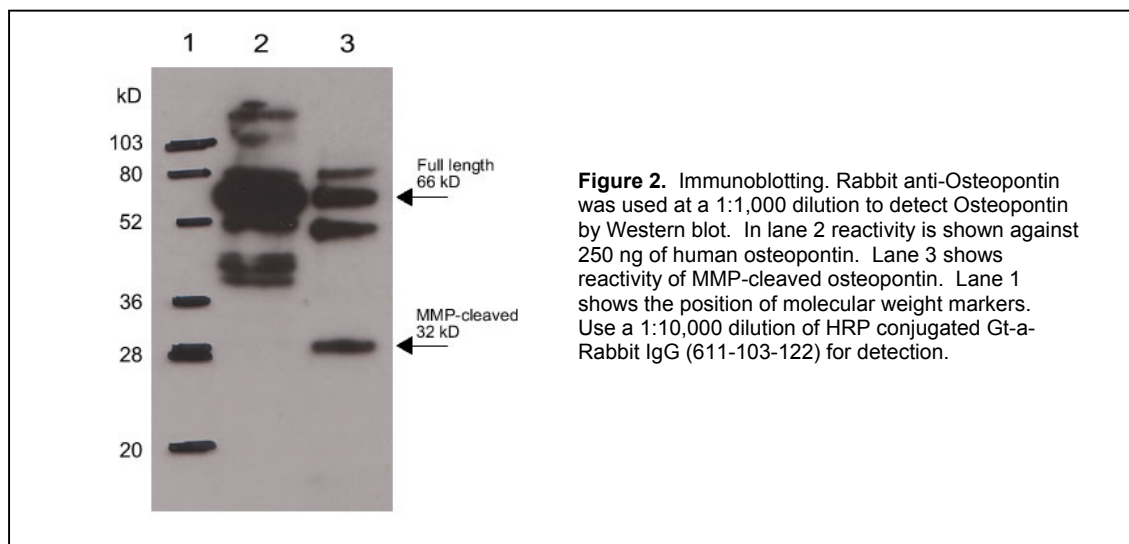


Figure 1. Immunohistochemistry. Rabbit anti-Osteopontin was used at a 1:100-1:300 dilution to detect osteopontin by immunohistochemistry. Osteopontin is a normal component of elastic fibers in the breast (shown heavily stained in this section of human breast tumor cells). There is also weak staining of the extracellular matrix. Osteopontin is not expressed in breast tumor cells, and there is no staining of the breast cells in this section. No antigen retrieval is required.

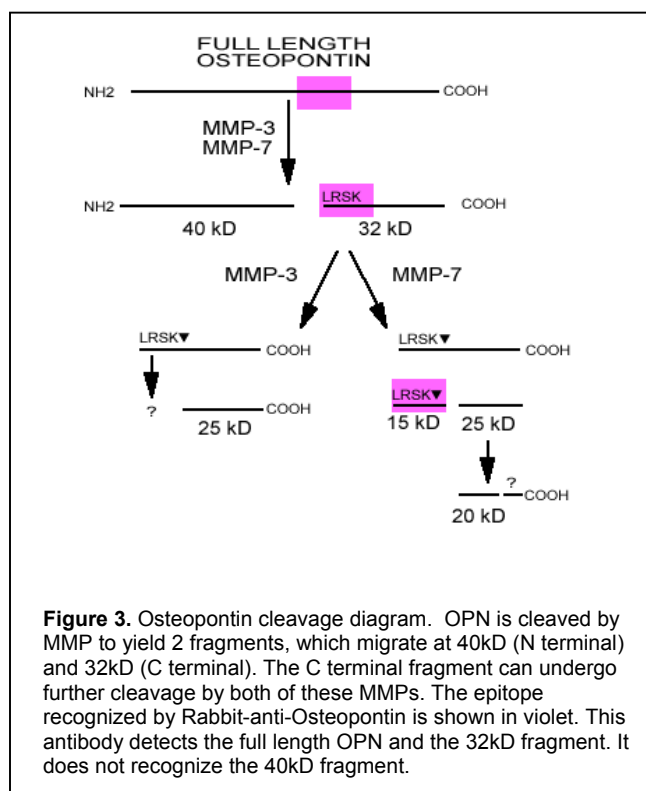
Application Note(s): This antibody is suitable for western blotting, immunohistochemistry (formalin-fixed paraffin-embedded sections) and ELISA.



Recommended Dilutions: This product was assayed by immunoblot against recombinant human osteopontin. The antibody exclusively recognizes C-terminal fragments of both thrombin and MMP-cleaved OPN. A 1:1000 dilution will detect strongly approximately 250 ng of OPN protein on a blot. For IHC (formalin-fixed paraffin-embedded) a 1:100 to 1:300 dilution is recommended. No pretreatment is required. Researchers should determine optimal titers for other applications. Researchers should determine optimal titers for other applications.

Purity and Specificity: This antiserum is directed against human osteopontin. The antibody recognizes the full length osteopontin protein (which runs at 66 kD on westerns), as well as the C-terminal fragments of both thrombin and MMP-cleaved OPN. The 32 kD MMP-cleaved C-fragment is recognized, but not the 40 kD N-terminal fragment. Cross reactivity occurs with osteopontin from swine and dog. Reactivity with osteopontin from other sources has not been determined.

Immunogen: This whole rabbit serum was prepared by repeated immunizations with a synthetic peptide C-K-S-K-K-F-R-R-P-D-I-Q-Y-P-D corresponding to human osteopontin proteins conjugated to KLH using maleimide. A residue of cysteine was added to the amino terminal end to facilitate coupling.



Related Product(s):

#000-000-404 CONTROL PEPTIDE For Anti-OSTEOPONTIN (Human)
#611-103-122 HRP Anti-Rabbit IgG [H&L] MX10 (GOAT)
#611-132-122 IRDye800 Anti-Rabbit IgG [H&L] MX10 (GOAT)

General References:

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Note: This product is for research use only and is not intended for therapeutic or diagnostic applications. Please contact a technical service representative for more information.