

Background

Osteopontin (OPN), also known as bone sialoprotein I (BSP-1 or BNSP), early T-lymphocyte activation (ETA-1), secreted phosphoprotein 1 (SPP1), 2ar and Rickettsia resistance (Ric),^[1] is a protein that in humans is encoded by the *SPP1* gene (secreted phosphoprotein 1). The murine ortholog is *Spp1*. Osteopontin is a SIBLING (glycoprotein) that was first identified in 1986 in osteoblasts. It is expressed in bone, but also in other tissues such as monocytes and macrophages.^[2] Like its name, osteopontin functions as a linking protein and is involved in various cellular processes such as cell activation and apoptosis and various diseases such as cancer, heart disease and inflammatory diseases. Osteopontin is an extracellular structural protein and therefore an organic component of bone. Synonyms for this protein include sialoprotein I and 44K BPP (bone phosphoprotein). Full-length OPN (OPN-FL) can be modified by thrombin cleavage, which exposes a cryptic sequence, SVVYGLR on the cleaved form of the protein known as OPN-R (Fig. 1). This thrombin-cleaved OPN (OPN-R) exposes an epitope for integrin receptors of $\alpha 4\beta 1$, $\alpha 9\beta 1$, and $\alpha 9\beta 4$.^[3] OPN-R can be further cleaved by Carboxypeptidase B (CPB) by removal of C-terminal arginine and become OPN-L. It appears an intracellular variant of OPN (iOPN) is involved in a number of cellular processes including migration, fusion and motility.^[4] Various human cancers, including breast cancer, have been observed to express splice variants of OPN.^[5] The cancer-specific splice variants are osteopontin-a, osteopontin-b, and osteopontin-c. Exon 5 is lacking from osteopontin-b, whereas osteopontin-c lacks exon 4.^[5] Osteopontin-c has been suggested to facilitate the anchorage-independent phenotype of some human breast cancer cells due to its inability to associate with the extracellular matrix.^[5]

References

1. Rangaswami H, et al. (2006). *Trends Cell Biol.* 16 (2): 79–87.
2. Sodek J, et al. (2006). *J. Dent. Res.* 85 (5): 404–15.
3. Laffón A, et al. (1991). *J. Clin. Invest.* 88 (2): 546–52.
4. Zohar R, et al. (2000). *J Cell Physiol* 184 (1): 118–130.
5. He B, et al. (2006). *Oncogene* 25 (1): 2192–2202.



Recombinant Rabbit Osteopontin Protein

Catalog Number: GR150011

Description

Source: E. coli derived

Leu17 –Asn314

Accession # NP_001075663.1

Predicted Molecular Mass: 33 kDa (monomer)

Specifications

Activity Measured by its ability to the immobilized protein to support the adhesion of HEK293 human embryonic kidney cells. Agnihotri R et al. (2001) *J Bio Chem* 276:28261.

Endotoxin Level: <0.1 EU per 1 µg of the protein by the LAL method.

Purity: >97%, by SDSPAGE under reducing conditions and visualized by silver stain.

Formulation: Lyophilized from a 0.2 µm filtered solution in sterile PBS with BSA as a carrier protein.

Preparation and Storage

Reconstitution: Reconstitute at 50-100 µg/mL in sterile PBS containing 1 mg/ml of human or bovine serum albumin.

Shipping The product is shipped at ambient temperature or with wet ice. 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, -20 °C.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70°C under sterile conditions after reconstitution.

Related products

1. GR239031 96-well microplate sealer plastic, pack of 100
2. GR238016 50 ml Reagent Reservoir, 100/case, 5 packs/case (pack of 20)
3. GR238004 Tissue Culture 96-well Microplate, individually packed, Case of 50
4. GR238002 Microplate 12x8-Well Strip High Binding, Case of 50
5. GR238003 Microplate 12x8-Well Strip Medium Binding, Case of 50
6. GR238032 42592 Costar Stripwell Microplate 1 x 8 Flat Bottom, High Binding, Case of 100
7. GR238001 468667 Thermo Microplate 12x8-Well Strip Nunc Maxisorp F8, Case of 60
8. GR238019 1.5 ml Microcentrifuge tube with screw cap and free-standing, pack of 500

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.

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