

# OPN (AKm2A1): sc-21742

## BACKGROUND

Osteopontin (OPN), also designated bone sialoprotein 1, urinary stone protein, spp-1,  $\eta$ -1, nephropontin and uropontin, is an extracellular matrix cell adhesion phosphoglycoprotein. OPN is deposited into unmineralized matrix prior to calcification leading to localization at various tissue interfaces including cement lines, lamina limitans and between collagen fibrils of fully matured hard tissues. While OPN is a major product of osteoblasts, it is also synthesized by brain and kidney cells. OPN isolated from or secreted by various tissues ranges in molecular weight due to posttranslational modifications. OPN functions as a substrate for transglutaminase and is involved in cell adhesion, chemoattraction and immunomodulation.

## CHROMOSOMAL LOCATION

Genetic locus: SPP1 (human) mapping to 4q22.1; Spp1 (mouse) mapping to 5 E5.

## SOURCE

OPN (AKm2A1) is a mouse monoclonal antibody raised against recombinant OPN of mouse origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

OPN (AKm2A1) is available conjugated to agarose (sc-21742 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-21742 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-21742 PE), fluorescein (sc-21742 FITC), Alexa Fluor<sup>®</sup> 488 (sc-21742 AF488), Alexa Fluor<sup>®</sup> 546 (sc-21742 AF546), Alexa Fluor<sup>®</sup> 594 (sc-21742 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-21742 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-21742 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-21742 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

OPN (AKm2A1) is recommended for detection of OPN of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for OPN siRNA (h): sc-36129, OPN siRNA (m): sc-36130, OPN siRNA (r): sc-270052, OPN shRNA Plasmid (h): sc-36129-SH, OPN shRNA Plasmid (m): sc-36130-SH, OPN shRNA Plasmid (r): sc-270052-SH, OPN shRNA (h) Lentiviral Particles: sc-36129-V, OPN shRNA (m) Lentiviral Particles: sc-36130-V and OPN shRNA (r) Lentiviral Particles: sc-270052-V.

Molecular Weight of OPN precursor: 66 kDa.

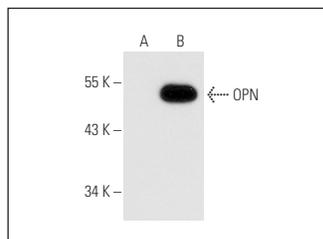
Molecular Weight of OPN cleavage product: 25-55 kDa.

Positive Controls: OPN (m): 293T Lysate: sc-122246, Caki-1 cell lysate: sc-2224 or U-87 MG cell lysate: sc-2411.

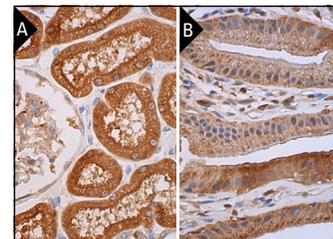
## STORAGE

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

## DATA



OPN (AKm2A1): sc-21742. Western blot analysis of OPN expression in non-transfected: sc-117752 (A) and mouse OPN transfected: sc-122246 (B) 293T whole cell lysates.



OPN (AKm2A1): sc-21742. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in glomeruli and cytoplasmic and faint nuclear staining of cells in tubules (A) and human gall bladder tissue showing cytoplasmic and faint nuclear staining of glandular cells (B).

## SELECT PRODUCT CITATIONS

- Wilson, A., et al. 2004. c-Myc controls the balance between hematopoietic stem cell self-renewal and differentiation. *Genes Dev.* 18: 2747-2763.
- Jang, M.A., et al. 2017.  $\alpha$ -Iso-cubebene inhibits PDGF-induced vascular smooth muscle cell proliferation by suppressing osteopontin expression. *PLoS ONE* 12: e0170699.
- Liu, Q., et al. 2018. miR-98-5p promotes osteoblast differentiation in MC3T3-E1 cells by targeting CKIP-1. *Mol. Med. Rep.* 17: 4797-4802.
- Chen, P., et al. 2019. Symbiotic macrophage-glioma cell interactions reveal synthetic lethality in PTEN-Null glioma. *Cancer Cell* 35: 868-884.e6.
- Narula, S., et al. 2020. Human kidney stone matrix proteins alleviate hyperoxaluria induced renal stress by targeting cell-crystal interactions. *Life Sci.* 262: 118498.
- Almubarak, A., et al. 2021. Loss of Foxc1 and Foxc2 function in chondroprogenitor cells disrupts endochondral ossification. *J. Biol. Chem.* 297: 101020.
- Shi, D., et al. 2022. Myocardin/microRNA-30a/Beclin1 signaling controls the phenotypic modulation of vascular smooth muscle cells by regulating autophagy. *Cell Death Dis.* 13: 121.
- Lee, H.Y., et al. 2023. *Ixeris dentata* and *Lactobacillus gasseri* media protect against periodontitis through Nrf2-HO-1 signalling pathway. *Sci. Rep.* 13: 12861.
- Xie, F., et al. 2024. Smooth muscle NF90 deficiency ameliorates diabetic atherosclerotic calcification in male mice via FBXW7-AGER1-AGEs axis. *Nat. Commun.* 15: 4985.

## RESEARCH USE

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

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