SANTA CRUZ BIOTECHNOLOGY, INC.

PHOSPHO1 (II-91): sc-100351

BACKGROUND

PHOSPHO1 (phosphatase, orphan 1), also referred to as phosphoethanolamine/phosphocholine phosphatase, is a 267 amino acid phosphatase that is a member of the haloacid dehalogenase (HAD) superfamily of magnesium-dependent hydrolases. PHOSPHO1 is highly expressed in bone and cartilage and localizes to the osteoid layer of the periosteum. PHOSPHO1 is restricted to sites of mineralization and its inhibition decreases the ability of matrix vesicles to calcify in bone, suggesting that the protein may play a role in the matrix mineralization process during skeletal development. PHOSPHO1 cleaves phosphoethanolamine and phosphocholine to generate inorganic phosphate for bone mineralization. PHOSPHO1 contains three catalytic motifs that are conserved within the haloacid dehalogenase superfamily.

REFERENCES

1. Houston, B., et al. 2002. Chromosomal localization of the chicken and mammalian orthologues of the orphan phosphatase PHOSPHO1 gene. Anim. Genet. 33: 451-454.
2. Stewart, A.J., et al. 2003. Comparative modelling of human PHOSPHO1 reveals a new group of phosphatases within the haloacid dehalogenase superfamily. Protein Eng. 16: 889-895.
3. Roberts, S.J., et al. 2004. Human PHOSPHO1 exhibits high specific phosphoethanolamine and phosphocholine phosphatase activities. Biochem. J. 382: 59-65.
4. Houston, B., et al. 2004. PHOSPHO1—A novel phosphatase specifically expressed at sites of mineralisation in bone and cartilage. Bone 34: 629-637.
5. Roberts, S.J., et al. 2005. Probing the substrate specificities of human PHOSPHO1 and PHOSPHO2. Biochim. Biophys. Acta 1752: 73-82.
6. Stewart, A.J., et al. 2006. The presence of PHOSPHO1 in matrix vesicles and its developmental expression prior to skeletal mineralization. Bone 39: 1000-1007.
7. Roberts, S., et al. 2007. Functional involvement of PHOSPHO1 in matrix vesicle-mediated skeletal mineralization. J. Bone Miner. Res. 22: 617-627.

CHROMOSOMAL LOCATION

Genetic locus: PHOSPHO1 (human) mapping to 17q21.32; Phospho1 (mouse) mapping to 11 D.

SOURCE

PHOSPHO1 (II-91) is a mouse monoclonal antibody raised against recombinant PHOSPHO1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain 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.

APPLICATIONS

PHOSPHO1 (II-91) is recommended for detection of PHOSPHO1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for PHOSPHO1 siRNA (h): sc-93674, PHOSPHO1 siRNA (m): sc-152231, PHOSPHO1 shRNA Plasmid (h): sc-93674-SH, PHOSPHO1 shRNA Plasmid (m): sc-152231-SH, PHOSPHO1 shRNA (h) Lentiviral Particles: sc-93674-V and PHOSPHO1 shRNA (m) Lentiviral Particles: sc-152231-V.

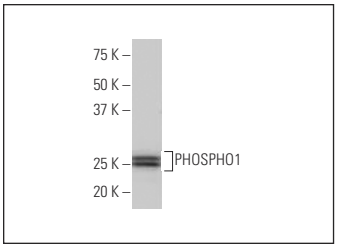
Molecular Weight of PHOSPHO1: 32 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



PHOSPHO1 (II-91): sc-100351. Western blot analysis of PHOSPHO1 expression in Jurkat whole cell lysate.

SELECT PRODUCT CITATIONS

1. Na, W., et al. 2021. Aesculetin accelerates osteoblast differentiation and matrix-vesicle-mediated mineralization. Int. J. Mol. Sci. 22: 12391.

RESEARCH USE

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

PROTOCOLS

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