

PHOSPHO1 (I-14): sc-165229

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

- Houston, B., et al. 2002. Chromosomal localization of the chicken and mammalian orthologues of the orphan phosphatase PHOSPHO1 gene. *Anim. Genet.* 33: 451-454.
- 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.
- Roberts, S.J., et al. 2004. Human PHOSPHO1 exhibits high specific phosphoethanolamine and phosphocholine phosphatase activities. *Biochem. J.* 382: 59-65.
- Houston, B., et al. 2004. PHOSPHO1-A novel phosphatase specifically expressed at sites of mineralisation in bone and cartilage. *Bone* 34: 629-637.
- Roberts, S.J., et al. 2005. Probing the substrate specificities of human PHOSPHO1 and PHOSPHO2. *Biochim. Biophys. Acta* 1752: 73-82.
- 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.
- 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 (I-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PHOSPHO1 of human origin.

STORAGE

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

PROTOCOLS

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

PRODUCT

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

Blocking peptide available for competition studies, sc-165229 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PHOSPHO1 (I-14) 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), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with PHOSPHO2.

PHOSPHO1 (I-14) is also recommended for detection of PHOSPHO1 in additional species, including equine, canine, bovine and porcine.

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.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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