SANTA CRUZ BIOTECHNOLOGY, INC.

TNAP (D-3): sc-137213

BACKGROUND

Alkaline phosphatases (AP) are glycosyl-phosphatidylinositol (GPI)-anchored, dimeric, Zn^{2+} metallated glycoproteins that catalyze the hydrolysis of phosphomonoesters into an inorganic phosphate and an alcohol. There are at least four distinct but related alkaline phosphatases: intestinal (IAP), placental (PLAP), placental-like (ALP-1 or GCAP) and tissue non-specific (TNAP). The first three are located together on chromosome 2 while the tissue non-specific form is located on chromosome 1. TNAP is widely expressed in liver, kidney, bone, stomach and colon, and is therefore referred to as the tissue non-specific form of AP. TNAP, in conjuntion with plasma cell membrane glycoprotein-1, function in bone mineralization; however, mice that lack a functional form of TNAP show normal skeletal development. This enzyme has been linked directly to a disorder known as hypophosphatasia, a rare inborn disorder that is characterized by defective bone mineraliation and includes skeletal defects. Human gene encoding TNAP maps to chromosome 1p36.12.

CHROMOSOMAL LOCATION

Genetic locus: ALPL (human) mapping to 1p36.12; Alpl (mouse) mapping to 4 D3.

SOURCE

TNAP (D-3) is a mouse monoclonal antibody raised against amino acids 18-317 mapping near the N-terminus of TNAP of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

TNAP (D-3) is recommended for detection of TNAP of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

Suitable for use as control antibody for TNAP siRNA (h): sc-38921, TNAP siRNA (m): sc-38922, TNAP shRNA Plasmid (h): sc-38921-SH, TNAP shRNA Plasmid (m): sc-38922-SH, TNAP shRNA (h) Lentiviral Particles: sc-38921-V and TNAP shRNA (m) Lentiviral Particles: sc-38922-V.

Molecular Weight of TNAP: 80 kDa.

Molecular Weight of PLAP: 70 kDa.

Molecular Weight of GCAP: 23 kDa.

Molecular Weight of IAP: 57 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, Jurkat whole cell lysate: sc-2204 or HeLa whole cell lysate: sc-2200.

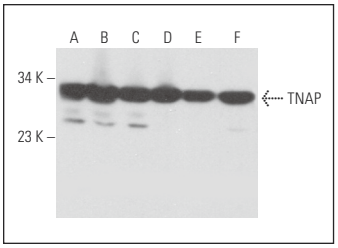
STORAGE

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

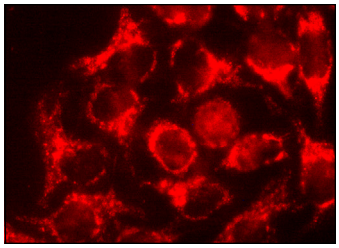
RESEARCH USE

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

DATA



TNAP (D-3): sc-137213. Western blot analysis of TNAP expression in Hep G2 (**A**), HeLa (**B**), A-431 (**C**), MCF7 (**D**), Saos-2 (**E**) and Jurkat (**F**) whole cell lysates.



TNAP (D-3): sc-137213. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

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3. Yosef, N. and Ubogu, E.E. 2013. An immortalized human blood-nerve barrier endothelial cell line for *in vitro* permeability studies. Cell. Mol. Neurobiol. 33: 175-186.
4. Wong, M.Y., et al. 2014. 11 kGy γ irradiated demineralized bone matrix enhances osteoclast activity. Eur. J. Orthop. Surg. Traumatol. 24: 655-661.
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9. Wilson, K.M., et al. 2018. Glycans modify mesenchymal stem cell differentiation to impact on the function of resulting osteoblasts. J. Cell Sci. 131: jcs209452.
10. Hoshikawa, S., et al. 2020. Phosphorylation-dependent osterix degradation negatively regulates osteoblast differentiation. FASEB J. 34: 14930-14945.