

TNAP (3H414): sc-73525

BACKGROUND

Alkaline phosphatases (AP) are glycosyl-phosphatidylinositol (GPI)-anchored, dimeric, Zn²⁺ metallated glycoproteins that catalyze the hydrolysis of phospho-monoesters 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 conjunction with plasma cell membrane glycoprotein-1, functions 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 mineralization and includes skeletal defects. The gene encoding human TNAP maps to chromosome 1p36.12.

REFERENCES

- Shao, J.S., et al. 2000. Effect of tissue non-specific alkaline phosphatase in maintenance of structure of murine colon and stomach. *Microsc. Res. Tech.* 51: 121-128.
- Johnson, K.A., et al. 2000. Osteoblast tissue-nonspecific alkaline phosphatase antagonizes and regulates PC-1. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 279: 1365-1377.
- Mornet, E., et al. 2001. Structural evidence for a functional role of human tissue nonspecific alkaline phosphatase in bone mineralization. *J. Biol. Chem.* 276: 31171-31178.
- Le Du, M.H. and Millan, J.L. 2002. Structural evidence of functional divergence in human alkaline phosphatases. *J. Biol. Chem.* 277: 49808-49814.
- Harada, T., et al. 2002. Heat shock induces intestinal-type alkaline phosphatase in rat IEC-18 cells. *Am. J. Physiol. Gastrointest. Liver Physiol.* 284: 255-262.
- Hessle, L., et al. 2002. Tissue-nonspecific alkaline phosphatase and plasma cell membrane glycoprotein-1 are central antagonistic regulators of bone mineralization. *Proc. Natl. Acad. Sci. USA* 99: 9445-9449.

CHROMOSOMAL LOCATION

Genetic locus: ALPL (human) mapping to 1p36.12.

SOURCE

TNAP (3H414) is a mouse monoclonal antibody raised against 2102Ep human embryonal carcinoma cells.

PRODUCT

Each vial contains 200 µg IgG₁ 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

TNAP (3H414) is recommended for detection of TNAP of 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10⁶ cells).

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

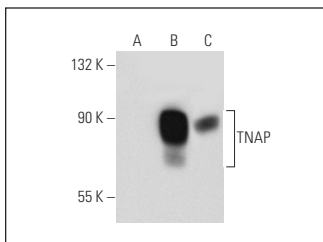
Molecular Weight of TNAP: 80 kDa.

Positive Controls: TNAP (h): 293T Lysate: sc-112384, Saos-2 cell lysate: sc-2235 or NTERA-2 cl.D1 whole cell lysate: sc-364181.

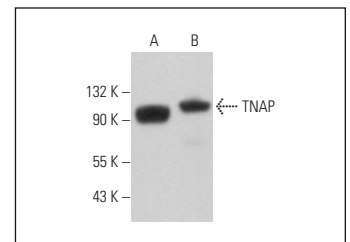
RECOMMENDED SUPPORT REAGENTS

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, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



TNAP (3H414): sc-73525. Western blot analysis of TNAP expression in non-transfected 293T: sc-117752 (A), human TNAP transfected 293T: sc-112384 (B) and NTERA-2 cl.D1 (C) whole cell lysates.



TNAP (3H414): sc-73525. Western blot analysis of TNAP expression in Saos-2 whole cell lysate (A) and human adrenal gland tissue extract (B).

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.



See **TNAP (F-4): sc-166261** for TNAP antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.