

TNAP (B4-78): sc-81754

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, 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.

SOURCE

TNAP (B4-78) is a mouse monoclonal antibody raised against purified Alkaline Phosphatase from bone of human origin.

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.

TNAP (B4-78) is available conjugated to either phycoerythrin (sc-81754 PE) or fluorescein (sc-81754 FITC), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

TNAP (B4-78) 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), immunohistochemistry (including paraffin-embedded sections) (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 (h3): 293T Lysate: sc-112494 or NTERA-2 cl.D1 whole cell lysate: sc-364181.

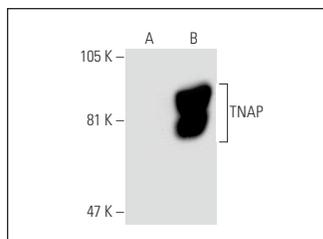
STORAGE

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

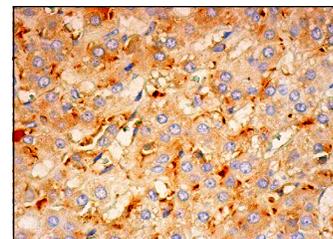
RESEARCH USE

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

DATA



TNAP (B4-78): sc-81754. Western blot analysis of TNAP expression in non-transfected: sc-117752 (A) and human TNAP transfected: sc-112494 (B) 293T whole cell lysates.



TNAP (B4-78): sc-81754. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing membrane and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

- Mentrup, B., et al. 2011. Functional characterization of a novel mutation localized in the start codon of the tissue-nonspecific alkaline phosphatase gene. *Bone* 48: 1401-1408.
- Hofmann, C., et al. 2013. Compound heterozygosity of two functional null mutations in the ALPL gene associated with deleterious neurological outcome in an infant with hypophosphatasia. *Bone* 55: 150-157.
- Hofmann, C., et al. 2014. Unexpected high intrafamilial phenotypic variability observed in hypophosphatasia. *Eur. J. Hum. Genet.* 22: 1160-1164.
- Graser, S., et al. 2015. Overexpression of tissue-nonspecific alkaline phosphatase increases the expression of neurogenic differentiation markers in the human SH-SY5Y neuroblastoma cell line. *Bone* 79: 150-161.
- Mentrup, B., et al. 2017. A homozygous intronic branch-point deletion in the ALPL gene causes infantile hypophosphatasia. *Bone* 94: 75-83.
- Shichinohe, N., et al. 2022. Sequential hydrolysis of FAD by ecto-5' nucleotidase CD73 and alkaline phosphatase is required for uptake of vitamin B₂ into cells. *J. Biol. Chem.* 298: 102640.

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, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.