SANTA CRUZ BIOTECHNOLOGY, INC.

TNAP (B4-78): sc-81754

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, 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.

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 IgG_1 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 IF, IHC(P) and FCM.

STORAGE

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

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 10^6 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.

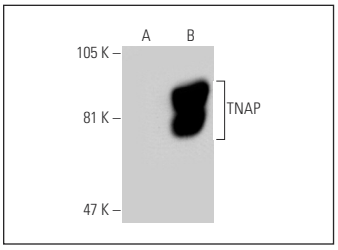
Molecular Weight of TNAP: 80 kDa.

Positive Controls: TNAP (h3): 293T Lysate: sc-112494 or NTERA-2 cl.D1 whole cell lysate: sc-364181.

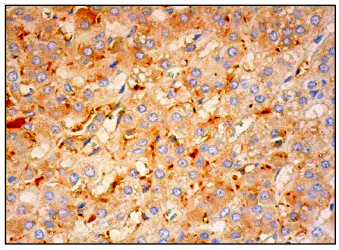
RECOMMENDED SUPPORT REAGENTS

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 (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

1. 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.
2. 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.
3. Hofmann, C., et al. 2014. Unexpected high intrafamilial phenotypic variability observed in hypophosphatasia. Eur. J. Hum. Genet. 22: 1160-1164.
4. 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.
5. Mentrup, B., et al. 2017. A homozygous intronic branch-point deletion in the ALPL gene causes infantile hypophosphatasia. Bone 94: 75-83.

RESEARCH USE

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

CONJUGATES

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