

# TNAP (TRA-2-39): sc-21708

## BACKGROUND

Alkaline phosphatases (AP) are glycosyl-phosphatidylinositol (GPI)-anchored, dimeric, Zn<sup>2+</sup> 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 mineralization 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 (TRA-2-39) is a mouse monoclonal antibody raised against 2102Ep human embryonal carcinoma cells.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TNAP (TRA-2-39) is available conjugated to agarose (sc-21708 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-21708 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either Alexa Fluor<sup>®</sup> 488 (sc-21708 AF488), Alexa Fluor<sup>®</sup> 546 (sc-21708 AF546), Alexa Fluor<sup>®</sup> 594 (sc-21708 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-21708 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-21708 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-21708 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

TNAP (TRA-2-39) 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<sup>6</sup> 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.

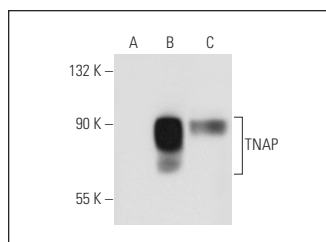
Molecular Weight of TNAP: 80 kDa.

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

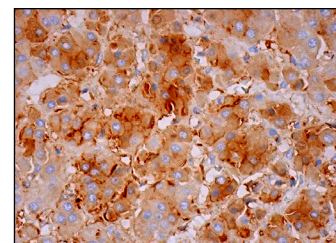
## RECOMMENDED SUPPORT REAGENTS

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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



TNAP (TRA-2-39): sc-21708. 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 (TRA-2-39): sc-21708. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing membrane and cytoplasmic staining of glandular cells.

## SELECT PRODUCT CITATIONS

- Lopez-Posadas, R., et al. 2011. Tissue-nonspecific alkaline phosphatase is activated in enterocytes by oxidative stress via changes in glycosylation. *Inflamm. Bowel Dis.* 17: 543-556.
- Sakurai, H., et al. 2013. Identification of a metabolizing enzyme in human kidney by proteomic correlation profiling. *Mol. Cell. Proteomics* 12: 2313-2323.
- Huang, H., et al. 2020. A compound heterozygous mutation of the alkaline phosphatase ALPL gene causes hypophosphatasia in a Han Chinese family. *Exp. Ther. Med.* 20: 152.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.