SANTA CRUZ BIOTECHNOLOGY, INC.

Alkaline Phosphatase (H-300): sc-30203

BACKGROUND

Alkaline phosphatases (AP) are glycosyl-phosphatidylinositol (GPI)-anchored, dimeric, Zn2+ metallated glycoproteins that catalyze the hydrolysis of phosphomonoesters into an inorganic phosphate and an alcohol. They are most effective in an alkaline environment and specifically function to remove phosphate groups in the 5- and 3- positions from many types of molecules, including nucleotides, proteins and alkaloids. 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. Alkaline phosphatases have become useful tools in molecular biology laboratories, removing the phosphate groups on the 5' end of DNA. Removal of these phosphates prevents the DNA from ligating, thereby preventing DNA degradation. In addition, alkaline phosphatases can also be used as a label for enzyme immunoassays.

REFERENCES

1. Shao, J.S., et al. 2000. Effect of tissue non-specific alkaline phosphatase in maintenance of structure of murine colon and stomach. Microsci. Res. Tech. 51: 121-128.
2. Johnson, K.A., et al. 2000. Osteoblast tissue-nonspecific alkaline phosphatase antagonizes and regulates PC-1. Am. J. Physiol. Regul. Integr. Comp. Physiol. 279: R1365-1377.
3. 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.
4. Harada, T., et al. 2002. Heat shock induces intestinal-type alkaline phosphatase in rat IEC-18 cells. Am. J. Physiol. Gastrointest. Liver Physiol. 284: G255-262.
5. 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.

SOURCE

Alkaline Phosphatase (H-300) is a rabbit polyclonal antibody raised against amino acids 18-317 mapping near the N-terminus of TNAP of human origin.

PRODUCT

Each vial contains 200 µg IgG 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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

APPLICATIONS

Alkaline Phosphatase (H-300) is recommended for detection of TNAP of mouse, rat and human origin and, to a lesser extent, PLAP, ALPPL2 and IAP of human origin and Akp-3, Akp-5 and Akp-6 of mouse and rat 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Alkaline Phosphatase (H-300) is also recommended for detection of TNAP in additional species, including equine, canine and bovine.

Molecular Weight of TNAP: 80 kDa.

Molecular Weight of PLAP: 70 kDa.

Molecular Weight of GCAP: 23 kDa.

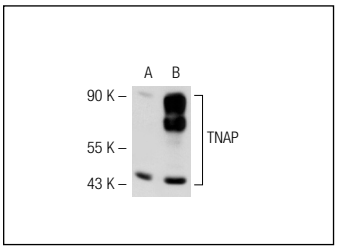
Molecular Weight of IAP: 57 kDa.

Positive Controls: TNAP (h): 293T Lysate: sc-112494, mouse heart extract: sc-2254 or JAR cell lysate: sc-2276.

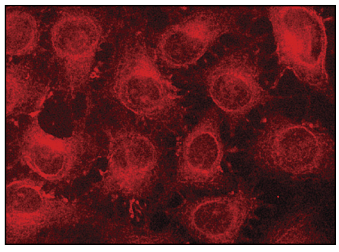
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Alkaline Phosphatase (H-300): sc-30203. Western blot analysis of TNAP expression in non-transfected: sc-117752 (**A**) and human TNAP transfected: sc-112494 (**B**) 293T whole cell lysates.



Alkaline Phosphatase (H-300): sc-30203. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Inoue, Y., et al. 2011. Menin interacts with β-catenin in osteoblast differentiation. Horm. Metab. Res. 43: 183-187.

RESEARCH USE

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