SANTA CRUZ BIOTECHNOLOGY, INC.

TIP47 (E-5): sc-393461

BACKGROUND

Tail-interacting 47kDa protein (TIP47), known also as human placental tissue protein 17b (PP17b), binds to cytoplasmic domains of the cation-dependent (CD) and cation-independent (CI) mannose 6-phosphate receptors (MPRs) and facilitates their transport from endosomes to the Golgi complex. The inability of TIP47 to bind several proteins also transported from endosomes to the *trans* Golgi network indicates that TIP47 associates with a very select set of cargo molecules. In CD-MPR, TIP47 recognizes a phenylalanine/tryptophan signal sequence essential for proper sorting within the endosomal pathway. For CI-MPR binding, TIP47 requires cytoplasmic residues 48-74 of CI-MPR for high-affinity binding while residues 75-163 of CI-MPR aid in the presentation of the higher-affinity residues. Additionally, TIP47 competes with AP-2 clathrin adaptor for binding residues 24-29 of CI-MPR. In tissue extracts of cervical carcinoma patients, TIP47 is overexpressed. Dysplastic cells in high grade dysplasias express more TIP47 than dysplastic cells in low grade dysplasias, and both cytoplasmic types of dysplasias express more TIP47 than normal cervical epithelial cells. The gene encoding human TIP47 maps to chromosome 19p13.3.

REFERENCES

1. Diaz, E. and Pfeffer, S.R. 1998. TIP47: a cargo selection device for mannose 6-phosphate receptor trafficking. Cell 93: 433-443.
2. Than, N.G., et al. 1998. Cloning and sequence analysis of cDNAs encoding human placental tissue protein 17 (PP17) variants. Eur. J. Biochem. 258: 752-757.
3. Orsel, J.G., et al. 2000. Recognition of the 300-kDa mannose 6-phosphate receptor cytoplasmic domain by 47-kDa tail-interacting protein. Proc. Natl. Acad. Sci. USA 97: 9047-9051.
4. Krise, J.P., et al. 2000. Quantitative analysis of TIP47-receptor cytoplasmic domain interactions: implications for endosome-to-*trans* Golgi network trafficking. J. Biol. Chem. 275: 25188-25193.
5. Than, G.N., et al. 2001. Overexpression of placental tissue protein 17b/TIP47 in cervical dysplasias and cervical carcinoma. Anticancer Res. 21: 639-642.

CHROMOSOMAL LOCATION

Genetic locus: PLIN3 (human) mapping to 19p13.3; Plin3 (mouse) mapping to 17 D.

SOURCE

TIP47 (E-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 380-419 near the C-terminus of TIP47 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-393461 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

TIP47 (E-5) is recommended for detection of TIP47 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

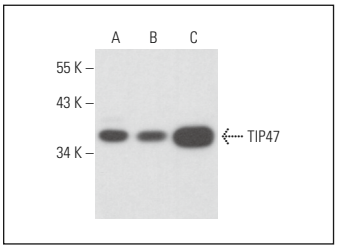
Suitable for use as control antibody for TIP47 siRNA (h): sc-44157, TIP47 siRNA (m): sc-154282, TIP47 shRNA Plasmid (h): sc-44157-SH, TIP47 shRNA Plasmid (m): sc-154282-SH, TIP47 shRNA (h) Lentiviral Particles: sc-44157-V and TIP47 shRNA (m) Lentiviral Particles: sc-154282-V.

Positive Controls: NAMALWA cell lysate: sc-2234, Raji whole cell lysate: sc-364236 or HeLa whole cell lysate: sc-2200.

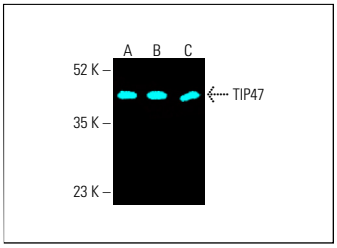
RECOMMENDED SUPPORT REAGENTS

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, UltraCruz® 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® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



TIP47 (E-5): sc-393461. Western blot analysis of TIP47 expression in NIH/3T3 (**A**), HeLa (**B**) and Raji (**C**) whole cell lysates.



TIP47 (E-5): sc-393461. Fluorescent western blot analysis of TIP47 expression in Raji (**A**), HeLa (**B**) and Ramos (**C**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG_{2a} BP-CFL 647: sc-542738.

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 for detailed protocols and support products.