SANTA CRUZ BIOTECHNOLOGY, INC.

ACYP1 (2-RE16): sc-134246

BACKGROUND

Acylphophatase is a cytosolic enzyme that catalyzes the hydrolysis of the carboxyl-phosphate bond of acylphosphates. Two acylphophatase isoenzymes exist: ACYP1, also known as erythrocyte acylphosphatase, and ACYP2, also known as muscle acylphosphatase. The two isoenzymes share 60% homology and have the same substrate specificity, although ACYP1 has higher catalytic activity than ACYP2. ACYP2 has emerged as a significant model system to study protein misfolding and aggregation. It is particularly suitable for these studies because ACYP2 is a small, simple protein of only 98 amino acids consisting of a five-stranded antiparallel β-sheet and two parallel α-helices. Mutations in ACYP2 between residues 16-31 and 87-98, which includes its phosphate binding site at Arg-23, significantly increase the rate of aggregation. These mutations correlate with changes in the hydrophobicity of ACYP2 and a conversion of the α-helical structures to β-sheets. Therefore, a reduction in the net charge of a protein may be a key determinant in some forms of protein deposition diseases.

REFERENCES

1. Liguri, G., et al. 1986. A new acylphosphatase isoenzyme from human erythrocytes: purification, characterization, and primary structure. Biochemistry 25: 8089-8094.
2. Degl'Innocenti, D., et al. 1990. Immunoaffinity purification and immunoassay determination of human erythrocyte acylphosphatase. Biotechnol. Appl. Biochem. 12: 450-459.
3. Nassi, P., et al. 1991. Effects of acylphosphatase on the activity of erythrocyte membrane Ca^{2+} pump. J. Biol. Chem. 266: 10867-10871.
4. Fiaschi, T., et al. 1995. Cloning and expression of the cDNA coding for the erythrocyte isoenzyme of human acylphosphatase. FEBS Lett. 367: 145-148.
5. Fiaschi, T., et al. 1998. Assignment of the human erythrocyte acylphosphatase gene (ACYP1) to chromosome band 14q24.3. Cytogenet. Cell Genet. 81: 235-236.
6. Chiti, F., et al. 2002. Kinetic partitioning of protein folding and aggregation. Nat. Struct. Biol. 9: 137-143.
7. Chiti, F., et al. 2002. Studies of the aggregation of mutant proteins *in vitro* provide insights into the genetics of amyloid diseases. Proc. Natl. Acad. Sci. USA 99: 16419-16426.
8. Paoli, P., et al. 2003. A nucleophilic catalysis step is involved in the hydrolysis of aryl phosphate monoesters by human CT acylphosphatase. J. Biol. Chem. 278: 194-199.
9. Degl'Innocenti, D., et al. 2004. ACYP1 gene possesses two alternative splicing forms that induce apoptosis. IUBMB Life 56: 29-33.

CHROMOSOMAL LOCATION

Genetic locus: ACYP1 (human) mapping to 14q24.3.

SOURCE

ACYP1 (2-RE16) is a mouse monoclonal antibody raised against recombinant ACYP1 protein of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

ACYP1 (2-RE16) is recommended for detection of ACYP1 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for ACYP1 siRNA (h): sc-92173, ACYP1 shRNA Plasmid (h): sc-92173-SH and ACYP1 shRNA (h) Lentiviral Particles: sc-92173-V.

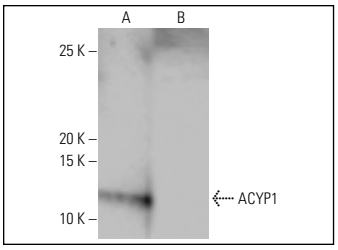
Molecular Weight of ACYP1: 11 kDa.

Positive Controls: ACYP1 transfected 293T whole cell lysate.

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).

DATA



ACYP1 (2-RE16): sc-134246. Western blot analysis of ACYP1 expression in human ACYP1 transfected (**A**) and non-transfected (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Degl'Innocenti, D., et al. 2019. Oxadiazon affects the expression and activity of aldehyde dehydrogenase and acylphosphatase in human striatal precursor cells: a possible role in neurotoxicity. Toxicology 411: 110-121.

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.