SANTA CRUZ BIOTECHNOLOGY, INC.

PHACS (E-16): sc-68713

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

PHACS (putative human ACS), also known as ACC or ACS (1-aminocyclopropane-1-carboxylate synthase homolog), is a 501 amino acid protein that belongs to the α family of pyridoxal-5-prime-phosphate enzymes. PHACS is expressed in a wide range of tissues and shares structural similarity with AAT (aspartate aminotransferase), TAT (tyrosine aminotransferase) and enzymes that catalyze β-elimination reactions on amino acids. PHACS consists of overlapping aminotransferase I and β-eliminating lyase domains and is involved in the deamination of L-vinylglycine. The plant homolog ACS is the key metabolic intermediate in the biosynthesis of phytohormone ethylene, which is essential for the growth and development of plants. Unlike ACS, PHACS does not catalyze the synthesis of 1-aminocyclopropane-1-carboxylate.

REFERENCES

1. Penrose, D.M. and Glick, B.R. 1997. Enzymes that regulate ethylene levels—1-aminocyclopropane-1-carboxylic acid (ACC) deaminase, ACC synthase and ACC oxidase. Indian J. Exp. Biol. 35: 1-17.
2. Capitani, G., Hohenester, E., Feng, L., Storici, P., Kirsch, J.F. and Jansonius, J.N. 1999. Structure of 1-aminocyclopropane-1-carboxylate synthase, a key enzyme in the biosynthesis of the plant hormone ethylene. J. Mol. Biol. 294: 745-756.
3. Feng, L. and Kirsch, J.F. 2000. L-Vinylglycine is an alternative substrate as well as a mechanism-based inhibitor of 1-aminocyclopropane-1-carboxylate synthase. Biochemistry 39: 2436-2444.
4. Feng, L., Geck, M.K., Eliot, A.C. and Kirsch, J.F. 2000. Aminotransferase activity and bioinformatic analysis of 1-aminocyclopropane-1-carboxylate synthase. Biochemistry 39: 15242-15249.
5. Peixoto, B.R., Mikawa, Y. and Brenner, S. 2000. Characterization of the recombinase activating gene-1 and 2 locus in the Japanese pufferfish, *Fugu rubripes*. Gene 246: 275-283.
6. Koch, K.A., Capitani, G., Gruetter, M.G. and Kirsch, J.F. 2001. The human cDNA for a homologue of the plant enzyme 1-aminocyclopropane-1-carboxylate synthase encodes a protein lacking that activity. Gene 272: 75-84.
7. Online Mendelian Inheritance in Man, OMIM™. 2004. Johns Hopkins University, Baltimore, MD. MIM Number: 608405. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
8. Capitani, G., Tschopp, M., Eliot, A.C., Kirsch, J.F. and Grütter, M.G. 2005. Structure of ACC synthase inactivated by the mechanism-based inhibitor L-vinylglycine. FEBS Lett. 579: 2458-2462.
9. Barnes, J.R., Lorenz, W.W. and Dean, J.F. 2008. Characterization of a 1-aminocyclopropane-1-carboxylate synthase gene from loblolly pine (*Pinus taeda* L.). Gene 413: 18-31.

CHROMOSOMAL LOCATION

Genetic locus: ACCS (human) mapping to 11p11.2; Accs (mouse) mapping to 2 E1.

SOURCE

PHACS (E-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of PHACS 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.

Blocking peptide available for competition studies, sc-68713 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

PHACS (E-16) is recommended for detection of PHACS of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

PHACS (E-16) is also recommended for detection of PHACS in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for PHACS siRNA (h): sc-62792, PHACS siRNA (m): sc-62793, PHACS shRNA Plasmid (h): sc-62792-SH, PHACS shRNA Plasmid (m): sc-62793-SH, PHACS shRNA (h) Lentiviral Particles: sc-62792-V and PHACS shRNA (m) Lentiviral Particles: sc-62793-V.

Molecular Weight of PHACS: 57 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 or our catalog for detailed protocols and support products.