SANTA CRUZ BIOTECHNOLOGY, INC.

CMAS (E-15): sc-167497

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

CMAS (cytidine monophosphate N-acetylneuraminic acid synthetase), also known as CMP-NeuNAc synthetase or CMP-sialic acid sythetase, is a ubiquitously expressed 434 amino acid protein involved in sialic acid metabolism. Localizing to the nucleus, the evolutionarily conserved enzyme CMAS functions as a homotetramer and catalyzes the production of cytidine 5'-monophosphate N-acetylneuraminic acid (CMP-NeuNAc) from N-acetylneuraminic acid and CTP. The generation of CMP-NeuNAc is an important reaction because CMP-NeuNAc is an essential donor substrate used by sialyltransferases for the addition of sialic acid to hydroxyl groups at the terminal end of glycoproteins, polysaccharides and glycolipids. Proteins with this post-translational modification play an important role in the development, structure and function of animal tissues.

REFERENCES

1. Münster, A.K., Eckhardt, M., Potvin, B., Mühlenhoff, M., Stanley, P. and Gerardy-Schahn, R. 1998. Mammalian cytidine 5'-monophosphate N-acetylneuraminic acid synthetase: a nuclear protein with evolutionarily conserved structural motifs. Proc. Natl. Acad. Sci. USA 95: 9140-9145.
2. Karwaski, M.F., Wakarchuk, W.W. and Gilbert, M. 2002. High-level expression of recombinant Neisseria CMP-sialic acid synthetase in *Escherichia coli*. Protein Expr. Purif. 25: 237-240.
3. Munster, A.K., Weinhold, B., Gotza, B., Muhlenhoff, M., Frosch, M. and Gerardy-Schahn, R. 2002. Nuclear localization signal of murine CMP-Neu5Ac synthetase includes residues required for both nuclear targeting and enzymatic activity. J. Biol. Chem. 277: 19688-19696.
4. Online Mendelian Inheritance in Man, OMIM™. 2002 Johns Hopkins University, Baltimore, MD. MIM Number: 603316. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Viswanathan, K., Tomiya, N., Park, J., Singh, S., Lee, Y.C., Palter, K. and Betenbaugh, M.J. 2006. Expression of a functional *Drosophila melanogaster* CMP-sialic acid synthetase. Differential localization of the *Drosophila* and human enzymes. J. Biol. Chem. 281: 15929-15940.
6. Mizanur, R.M. and Pohl, N.L. 2007. Cloning and characterization of a heat-stable CMP-N-acylneuraminic acid synthetase from *Clostridium thermocellum*. Appl. Microbiol. Biotechnol. 76: 827-834.
7. Tiralongo, J., Fujita, A., Sato, C., Kitajima, K., Lehmann, F., Oschlies, M., Gerardy-Schahn, R. and Münster-Kühnel, A.K. 2007. The rainbow trout CMP-sialic acid synthetase utilises a nuclear localization signal different from that identified in the mouse enzyme. Glycobiology 17: 945-954.
8. Castilho, A., Pabst, M., Leonard, R., Veit, C., Altmann, F., Mach, L., Glossl, J., Strasser, R. and Steinkellner, H. 2008. Construction of a functional CMP-sialic acid (CMP-Neu5Ac) biosynthesis pathway in *Arabidopsis thaliana*. Plant Physiol. 147: 331-339.

CHROMOSOMAL LOCATION

Genetic locus: CMAS (human) mapping to 12p12.1; Cmas (mouse) mapping to 6 G3.

SOURCE

CMAS (E-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of CMAS 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-167497 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CMAS (E-15) is recommended for detection of CMAS 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).

CMAS (E-15) is also recommended for detection of CMAS in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for CMAS siRNA (h): sc-95844, CMAS siRNA (m): sc-142409, CMAS shRNA Plasmid (h): sc-95844-SH, CMAS shRNA Plasmid (m): sc-142409-SH, CMAS shRNA (h) Lentiviral Particles: sc-95844-V and CMAS shRNA (m) Lentiviral Particles: sc-142409-V.

Molecular Weight of CMAS: 48 kDa.

Positive Controls: HeLa nuclear extract: sc-2120 or HeLa whole cell lysate: sc-2200.

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.