

UMPS (A-13): sc-103312

BACKGROUND

Uridine 5'-monophosphate synthase (UMPS) catalyzes the last two steps of the pyrimidine biosynthetic pathway. Unlike prokaryotes, UMPS in eukaryotes combines the orotate phosphoribosyltransferase and the orotidine-5'-monophosphate (OMP) decarboxylase activities into a single protein. The union of these two enzymes is thought to stabilize the catalytic centers due to the low molar concentration of the protein in mammalian cells. Loss of either enzymatic activity results in hereditary orotic aciduria, a rare autosomal recessive disorder characterized by retarded growth, anemia and excessive urinary excretion of orotic acid. Two isoforms of UMPS exist as a result of alternative splicing events.

REFERENCES

1. Yablonski, M.J., et al. 1996. Intrinsic activity and stability of bifunctional human UMP synthase and its two separate catalytic domains, orotate phosphoribosyltransferase and orotidine-5'-phosphate decarboxylase. *J. Biol. Chem.* 271: 10704-10708.
2. Suchi, M., et al. 1997. Molecular cloning of the human UMP synthase gene and characterization of point mutations in two hereditary orotic aciduria families. *Am. J. Hum. Genet.* 60: 525-539.
3. Reisner, M., et al. 2004. The cyanobacterial toxin cylindrospermopsin inhibits pyrimidine nucleotide synthesis and alters cholesterol distribution in mice. *Toxicol. Sci.* 82: 620-627.
4. Wittmann, J.G. and Rudolph, M.G. 2007. Pseudo-merohedral twinning in monoclinic crystals of human orotidine-5'-monophosphate decarboxylase. *Acta Crystallogr. D Biol. Crystallogr.* 63: 744-749.
5. Brosnan, M.E. and Brosnan, J.T. 2007. Orotic acid excretion and arginine metabolism. *J. Nutr.* 137: 1656S-1661S.
6. Wittmann, J.G., et al. 2008. Structures of the human orotidine-5'-monophosphate decarboxylase support a covalent mechanism and provide a framework for drug design. *Structure* 16: 82-92.

CHROMOSOMAL LOCATION

Genetic locus: UMPS (human) mapping to 3q21.2.

SOURCE

UMPS (A-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of UMPS 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-103312 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

UMPS (A-13) is recommended for detection of UMPS 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)], 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).

UMPS (A-13) is also recommended for detection of UMPS in additional species, including canine and porcine.

Suitable for use as control antibody for UMPS siRNA (h): sc-78096, UMPS shRNA Plasmid (h): sc-78096-SH and UMPS shRNA (h) Lentiviral Particles: sc-78096-V.

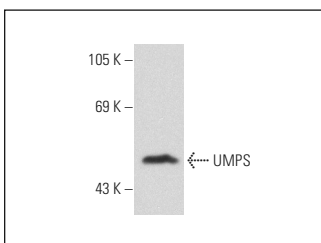
Molecular Weight of UMPS: 52/33 kDa.

Positive Controls: MOLT-4 cell lysate: sc-2233 or IMR-32 cell lysate: sc-2409.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



UMPS (A-13): sc-103312. Western blot analysis of UMPS expression in MOLT-4 whole cell lysate.

RESEARCH USE

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

MONOS
Satisfaction
Guaranteed

Try **UMPS (A-9): sc-398086** or **UMPS (3H6): sc-135596**, our highly recommended monoclonal alternatives to UMPS (A-13).