SANTA CRUZ BIOTECHNOLOGY, INC.

AICAR transformylase siRNA (m): sc-60140

BACKGROUND

The bifunctional purine biosynthesis protein ATIC (also designated PURH) contains AICAR transformylase and IMP cyclohydrolase activities. AICAR (5-aminoimidazole-4-carboxamide ribonucleotide) transformylase catalyzes the second to last step in purine biosynthesis, playing an important role in the production of nucleotides and IMP. Defects in the ATIC transformylase gene can cause AICA-rebsuria, also designated AICA-ribosiduria, an inborn error in purine biosynthesis that is neurologically cataclysmic. Individuals with AICA-rebosuria accumulate AICA-riboside, also designated ZMP, and its derivatives in erythrocytes and fibroblasts. Patients also excrete very large amounts of AICA-riboside in the urine. Mental retardation, epilepsy, dysmorphic features and congenital blindness are all symptoms of this disease.

REFERENCES

1. Marie, S., et al. 2004. AICA-ribosiduria: a novel, neurologically devastating inborn error of purine biosynthesis caused by mutation of ATIC. Am. J. Hum. Genet. 74: 1276-1281.
2. Sekizaki, T., et al. 2005. Different foreign genes incidentally integrated into the same locus of the *Streptococcus suis* genome. J. Bacteriol. 187: 872-883.
3. Du, J.H., et al. 2005. AICAR stimulates IL-6 production via p38 MAPK in cardiac fibroblasts in adult mice: a possible role for AMPK. Biochem. Biophys. Res. Commun. 337: 1139-1144.
4. Costanzi, S., et al. 2005. Ring opening reactions: synthesis of AICAR analogs as potential antimetabolite agents. Nucleosides Nucleotides Nucleic Acids 24: 415-418.
5. Terai, K., et al. 2005. AMP-activated protein kinase protects cardiomyocytes against hypoxic injury through attenuation of endoplasmic reticulum stress. Mol. Cell. Biol. 25: 9554-9575.
6. Hu, Z., et al. 2005. A Role for Hypothalamic Malonyl-CoA in the Control of Food Intake. J. Biol. Chem. 280: 39681-39683.

CHROMOSOMAL LOCATION

Genetic locus: Atic (mouse) mapping to 1 C3.

PRODUCT

AICAR transformylase siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see AICAR transformylase shRNA Plasmid (m): sc-60140-SH and AICAR transformylase shRNA (m) Lentiviral Particles: sc-60140-V as alternate gene silencing products.

For independent verification of AICAR transformylase (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-60140A, sc-60140B and sc-60140C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

AICAR transformylase siRNA (m) is recommended for the inhibition of AICAR transformylase expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

AICAR transformylase (F38 P7 H9): sc-53612 is recommended as a control antibody for monitoring of AICAR transformylase gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor AICAR transformylase gene expression knockdown using RT-PCR Primer: AICAR transformylase (m)-PR: sc-60140-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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