SANTA CRUZ BIOTECHNOLOGY, INC.

FGAM Synthase siRNA (h): sc-93608

BACKGROUND

Purines are critical for energy metabolism, cell signaling and cell reproduction and also function as precursors for coenzymes, energy transfer molecules, regulatory factors and proteins involved in RNA and DNA synthesis. The *de novo* synthesis of purines requires ten enzymatic steps for the production of inosine monophosphate (IMP). Phosphoribosylformylglycinamidine synthase (FGAM Synthase), also designated formylglycinamide ribotide amidotransferase (FGARAT), is a 1,338 amino acid protein that catalyzes the conversion of formylglycinamide ribonucleotide (FGAR), glutamine, and ATP to FGAM, ADP, glutamate, and Pi, which is the fourth step of this pathway. The FGAM Synthase protein contains one glutamine amidotransferase type-1 domain and localizes within the cytoplasm.

REFERENCES

1. Becker, M.A. and Seegmiller, J.E. 1975. Recent advances in the identification of enzyme abnormalities underlying excessive purine synthesis in man. Arthritis Rheum. 18: 687-694.
2. Feldman, R.I. and Taylor, M.W. 1975. Purine mutants of mammalian cell lines. II. Identification of a phosphoribosylpyrophosphate amidotransferase-deficient mutant of Chinese hamster lung cells. Biochem. Genet. 13: 227-234.
3. Schendel, F.J. and Stubbe, J. 1986. Substrate specificity of formylglycinamidine synthetase. Biochemistry 25: 2256-2264.
4. Beardsley, S., Kunjara, S. and Greenbaum, A.L. 1988. Enzymes of the pathway of purine synthesis in the rat mammary gland. Changes in the lactation cycle and the effects of diabetes. Biochem. J. 250: 395-399.
5. Tsuchiya, M., Yoshikawa, H., Itakura, M. and Yamashita, K. 1990. Increased *de novo* purine synthesis by Insulin through selective enzyme induction in primary cultured rat hepatocytes. Am. J. Physiol. 258: C841-C848.
6. Page, T. and Coleman, M. 1998. *De novo* purine synthesis is increased in the fibroblasts of purine autism patients. Adv. Exp. Med. Biol. 431: 793-796.
7. Patterson, D., Bleskan, J., Gardiner, K. and Bowersox, J. 1999. Human phosphoribosylformylglycineamide amidotransferase (FGARAT): regional mapping, complete coding sequence, isolation of a functional genomic clone, and DNA sequence analysis. Gene 239: 381-391.

CHROMOSOMAL LOCATION

Genetic locus: PFAS (human) mapping to 17p13.1.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

FGAM Synthase siRNA (h) 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 FGAM Synthase shRNA Plasmid (h): sc-93608-SH and FGAM Synthase shRNA (h) Lentiviral Particles: sc-93608-V as alternate gene silencing products.

For independent verification of FGAM Synthase (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-93608A, sc-93608B and sc-93608C.

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

FGAM Synthase siRNA (h) is recommended for the inhibition of FGAM Synthase expression in human 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor FGAM Synthase gene expression knockdown using RT-PCR Primer: FGAM Synthase (h)-PR: sc-93608-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.