SANTA CRUZ BIOTECHNOLOGY, INC.

SLC2A4RG siRNA (h): sc-76506

BACKGROUND

SLC2A4RG (SLC2A4 regulator), also known as Huntington disease gene regulatory region-binding protein 1 and GLUT4 enhancer factor, is a 387 amino acid transcription factor that is involved in Glut4 and HD gene transactivation. In cooperation with MEF-2, SLC2A4RG binds to domain I of the Glut4 promoter to regulate transcription of Glut4. Interestingly, after a single bout of exercise, there is an increase in DNA binding activities of both SLC2A4RG and MEF-2, which leads to an increase in transcription of Glut4. This is significant because overexpression of Glut4 in skeletal muscle has shown to improve glucose homeostasis and enhance Insulin action. Also, by recognizing the 5'-GCCG-GCG-3' DNA sequence motif of the Huntington's disease (HD) promoter, SLC2A4RG regulates transcription of the HD gene. Ubiquitously expressed with highest expression in skeletal muscle, liver, kidney, heart and pancreas, SLC2A4RG shuttles between the cytoplasm and nucleus and contains a C_2H_2-type zinc finger that is involved in DNA binding. There are two isoforms of SLCA4RG that are produced as a result of alternative splicing.

REFERENCES

1. Thai, M.V., et al. 1998. Myocyte enhancer factor 2 (MEF2)-binding site is required for GLUT4 gene expression in transgenic mice. Regulation of MEF2 DNA binding activity in Insulin-deficient diabetes. J. Biol. Chem. 273: 14285-14292.
2. Oshel, K.M., et al. 2000. Identification of a 30-base pair regulatory element and novel DNA binding protein that regulates the human GLUT4 promoter in transgenic mice. J. Biol. Chem. 275: 23666-23673.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 609493. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Knight, J.B., et al. 2003. Regulation of the human GLUT4 gene promoter: interaction between a transcriptional activator and myocyte enhancer factor 2A. Proc. Natl. Acad. Sci. USA 100: 14725-14730.
5. Tanaka, K., et al. 2004. Novel nuclear shuttle proteins, HDBP1 and HDBP2, bind to neuronal cell-specific *cis*-regulatory element in the promoter for the human Huntington's disease gene. J. Biol. Chem. 279: 7275-7286.

CHROMOSOMAL LOCATION

Genetic locus: SLC2A4RG (human) mapping to 20q13.33.

PRODUCT

SLC2A4RG 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 SLC2A4RG shRNA Plasmid (h): sc-76506-SH and SLC2A4RG shRNA (h) Lentiviral Particles: sc-76506-V as alternate gene silencing products.

For independent verification of SLC2A4RG (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-76506A, sc-76506B and sc-76506C.

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

SLC2A4RG siRNA (h) is recommended for the inhibition of SLC2A4RG 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.

GENE EXPRESSION MONITORING

SLC2A4RG (K-41): sc-130464 is recommended as a control antibody for monitoring of SLC2A4RG 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 SLC2A4RG gene expression knockdown using RT-PCR Primer: SLC2A4RG (h)-PR: sc-76506-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.

PROTOCOLS

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