SANTA CRUZ BIOTECHNOLOGY, INC.

KLF7 siRNA (h): sc-106721

BACKGROUND

KLF7 (Krüppel-like factor 7) is a transcriptional activator that belongs to the Krüppel C_2H_2-type zinc finger protein family. KLF7 targets promotor regions bearing CACCC elements in order to regulate transcription. It is believed that KLF7 is an important element for regulation of differentiation and the development of nervous systems. Specifically, increased expression of KLF7 is associated with neuronal precursors exiting the cell cycle and beginning to differentiate. Overexpression of KLF7 can lead to cell cycle arrest and a decrease in DNA synthesis. Also, KLF7 is thought to regulate the expression of Trk A, the receptor for nerve growth factor, which is required for the normal growth and maturation of neurons. KLF7 is a widely expressed protein with highest expression found in brain and nervous tissue.

REFERENCES

1. Laub, F., et al. 2005. Transcription factor KLF7 is important for neuronal morphogenesis in selected regions of the nervous system. Mol. Cell. Biol. 25: 5699-5711.
2. Laub, F., et al. 2006. Mice without transcription factor KLF7 provide new insight into olfactory bulb development. Brain Res. 1103: 108-113.
3. Kawamura, Y., et al. 2006. Overexpression of Krüppel-like factor 7 regulates adipocytokine gene expressions in human adipocytes and inhibits glucose-induced Insulin secretion in pancreatic β-cell line. Mol. Endocrinol. 20: 844-856.
4. Smaldone, S. and Ramirez, F. 2006. Multiple pathways regulate intracellular shuttling of MoKA, a co-activator of transcription factor KLF7. Nucleic Acids Res. 34: 5060-5068.
5. Kingsbury, T.J. and Krueger, B.K. 2007. Ca^{2+}, CREB and Krüppel: a novel KLF7-binding element conserved in mouse and human Trk B promoters is required for CREB-dependent transcription. Mol. Cell. Neurosci. 35: 447-455.
6. Cho, S.Y., et al. 2007. (–)-Catechin suppresses expression of Krüppel-like factor 7 and increases expression and secretion of adiponectin protein in 3T3-L1 cells. Am. J. Physiol. Endocrinol. Metab. 292: E1166-E1172.
7. Kajimura, D., et al. 2007. Identification of genes regulated by transcription factor KLF7 in differentiating olfactory sensory neurons. Gene 388: 34-42.

CHROMOSOMAL LOCATION

Genetic locus: KLF7 (human) mapping to 2q33.3.

PRODUCT

KLF7 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 KLF7 shRNA Plasmid (h): sc-106721-SH and KLF7 shRNA (h) Lentiviral Particles: sc-106721-V as alternate gene silencing products.

For independent verification of KLF7 (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-106721A, sc-106721B and sc-106721C.

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

KLF7 siRNA (h) is recommended for the inhibition of KLF7 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

KLF7 (83-RT): sc-101034 is recommended as a control antibody for monitoring of KLF7 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 (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (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 goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor KLF7 gene expression knockdown using RT-PCR Primer: KLF7 (h)-PR: sc-106721-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.