SANTA CRUZ BIOTECHNOLOGY, INC.

ASCL5 siRNA (h): sc-88312

BACKGROUND

Members of the myogenic determination family are basic helix-loop-helix (bHLH) proteins that can be separated into two classes, both of which work together to activate DNA transcription. Class A proteins include the ubiquitously expressed E-box binding factors, namely E2A, ITF-2 and HEB, while class B proteins, such as MyoD, myogenin and Neuro D (BETA2), are transiently expressed and exhibit a much more limited tissue distribution. Working in opposition to these positively acting factors are a specialized group of bHLH transcription factors that functions as dominant negative regulators and are involved in cell lineage determination and differentiation. ASCL5 (achaete-scute homolog 5), also known as hASH5 or BHLHA47 (class A basic helix-loop-helix protein 47), is a 278 amino acid protein that localizes to nucleus and contains one bHLH domain. ASCL5 is widely expressed, with higher expression in lung, kidney, spleen and skeletal muscle. The gene that encodes ASCL5 maps to human chromosome 1q32.1.

REFERENCES

1. Weintraub, H., Davis, R., Lockshon, D. and Lassar, A. 1990. MyoD binds cooperatively to two sites in a target enhancer sequence: occupancy of two sites is required for activation. Proc. Natl. Acad. Sci. USA 87: 5623-5627.
2. Skerjanc, I.S. and McBurney, M.W. 1994. The E box is essential for activity of the cardiac actin promoter in skeletal but not in cardiac muscle. Dev. Biol. 163: 125-132.
3. McLellan, A.S., Langlands, K. and Kealey, T. 2002. Exhaustive identification of human class II basic helix-loop-helix proteins by virtual library screening. Mech. Dev. 119: S285-S291.
4. Gregory, S.G., Barlow, K.F., McLay, K.E., Kaul, R., Swarbreck, D., Dunham, A., Scott, C.E., Howe, K.L., Woodfine, K., Spencer, C.C., Jones, M.C., Gillson, C., Searle, S., Zhou, Y., Kokocinski, F., McDonald, L., et al. 2006. The DNA sequence and biological annotation of human chromosome 1. Nature 441: 315-321.
5. Zhou, Y., Abidi, P., Kim, A., Chen, W., Huang, T.T., Kraemer, F.B. and Liu, J. 2007. Transcriptional activation of hepatic ACSL3 and ACSL5 by oncostatin m reduces hypertriglyceridemia through enhanced β-oxidation. Arterioscler. Thromb. Vasc. Biol. 27: 2198-2205.
6. Sugimori, M., Nagao, M., Parras, C.M., Nakatani, H., Lebel, M., Guillemot, F. and Nakafuku, M. 2008. Ascl1 is required for oligodendrocyte development in the spinal cord. Development 135: 1271-1281.
7. Teng, A.C., Adamo, K., Tesson, F. and Stewart, A.F. 2009. Functional characterization of a promoter polymorphism that drives ACSL5 gene expression in skeletal muscle and associates with diet-induced weight loss. FASEB J. 23: 1705-1709.

CHROMOSOMAL LOCATION

Genetic locus: ASCL5 (human) mapping to 1q32.1.

PROTOCOLS

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

PRODUCT

ASCL5 siRNA (h) is a pool of 2 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 ASCL5 shRNA Plasmid (h): sc-88312-SH and ASCL5 shRNA (h) Lentiviral Particles: sc-88312-V as alternate gene silencing products.

For independent verification of ASCL5 (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-88312A and sc-88312B.

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

ASCL5 siRNA (h) is recommended for the inhibition of ASCL5 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 ASCL5 gene expression knockdown using RT-PCR Primer: ASCL5 (h)-PR: sc-88312-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.