SANTA CRUZ BIOTECHNOLOGY, INC.

ASCL1 siRNA (m): sc-37693

BACKGROUND

The mammalian homolog of the *Drosophila* protein achaete-scute, ASCL1 (also known as ASH1) is a basic helix-loop-helix transcription factor that is required for early development of the nervous system. Expressed in fetal brain, ASCL1 is essential for the proper development of autonomic neurons and for the survival of subsets of autonomic neurons. ASCL1 interaction with MEF-2A may regulate the expression of specific genes that are critical for the formation of distinct neuronal circuits within the central nervous system. The high level of ASCL1 expression in neuroendocrine tumors, such as medullary thyroid cancer, small cell lung cancer and lung cancer with neuroendocrine features may provide a useful marker for cancers with neuroendocrine features. Mapping to human chromosome 12q23.2, the ASCL1 gene contains a trinucleotide repeat region, making this locus a candidate for inherited disease.

REFERENCES

1. Lo, L.C., et al. 1991. Mammalian achaete-scute homolog 1 is transiently expressed by spatially restricted subsets of early neuroepithelial and neural crest cells. Genes Dev. 5: 1524-1537.
2. Ball, D.W., et al. 1993. Identification of a human achaete-scute homolog highly expressed in neuroendocrine tumors. Proc. Natl. Acad. Sci. USA 90: 5648-5652.
3. Clark, M.S., et al. 1995. Induction of a serotonergic and neuronal phenotype in thyroid C cells. J. Neurosci. 15: 6167-6178.
4. Mao, Z., et al. 1996. Functional and physical interactions between mammalian achaete-scute homolog 1 and myocyte enhancer factor 2A. J. Biol. Chem. 271: 14371-14375.
5. Chen, H., et al. 1996. Differentiation of medullary throid cancer by C-Raf-1 silences expression of the neural transcription factor human achaete-scute homolog-1. Surgery 120: 168-172.
6. Chen, H., et al. 1997. Conservation of the *Drosophila* lateral inhibition pathway in human lung cancer: a hairy-related protein (HES-1) directly represses achaete-scute homolog-1 expression. Proc. Natl. Acad. Sci. USA 94: 5355-5360.

CHROMOSOMAL LOCATION

Genetic locus: Ascl1 (mouse) mapping to 10 C1.

PRODUCT

ASCL1 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 ASCL1 shRNA Plasmid (m): sc-37693-SH and ASCL1 shRNA (m) Lentiviral Particles: sc-37693-V as alternate gene silencing products.

For independent verification of ASCL1 (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-37693A, sc-37693B and sc-37693C.

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

ASCL1 siRNA (m) is recommended for the inhibition of ASCL1 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

ASCL1 (G-7): sc-390794 is recommended as a control antibody for monitoring of ASCL1 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 ASCL1 gene expression knockdown using RT-PCR Primer: ASCL1 (m)-PR: sc-37693-PR (20 µl, 477 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Dong, Z.Y., et al. 2019. ASCL1 regulates electric field-induced neuronal differentiation through PI3K/Akt pathway. Neuroscience 404: 141-152.

RESEARCH USE

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