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SANTA CRUZ BIOTECHNOLOGY, INC.

ORMDL3 siRNA (m): sc-151316

BACKGROUND

The ORMDL (ORM1-like) family of proteins consist of ORMDL1, ORMDL2 and ORMDL3, all of which are human homologs of the *S. cerevisiae* ORM1 protein. Localized to the membrane of the endoplasmic reticulum, ORMDLs are multi-pass membrane proteins that are implicated in γ-secretase (BACE) function, as well as expression of Presenilin (PSI), a protein involved in Alzheimer's disease (AD). ORMDL1 (ORM1-like protein 1), also known as Adoplin-1, is a widely expressed 153 amino acid member of the ORMDL family. Expression of ORMDL1 is downregulated in PSI mutations, suggesting a possible role as a therapeutic target for AD. ORMDL2 (ORM1-like protein 2), also known as Adoplin-2, and ORMDL3 (ORM1-like protein 3) are expressed in tissues such as heart, brain, lung, liver and kidney. ORMDL3 exists as two isoforms due to alternative splicing events and may be a determinant of susceptibility to childhood asthma.

REFERENCES

1. Hjelmqvist, L., Tuson, M., Marfany, G., Herrero, E., Balcells, S. and Gonzàlez-Duarte, R. 2002. ORMDL proteins are a conserved new family of endoplasmic reticulum membrane proteins. Genome Biol. 3: RESEARCH0027.
2. Moffatt, M.F., Kabesch, M., Liang, L., Dixon, A.L., Strachan, D., Heath, S., Depner, M., von Berg, A., Bufe, A., Rietschel, E., Heinzmann, A., Simma, B., Frischer, T., Willis-Owen, S.A., Wong, K.C., Illig, T., et al. 2007. Genetic variants regulating ORMDL3 expression contribute to the risk of childhood asthma. Nature 448: 470-473.
3. Araki, W., Takahashi-Sasaki, N., Chui, D.H., Saito, S., Takeda, K., Shirotani, K., Takahashi, K., Murayama, K.S., Kametani, F., Shiraishi, H., Komano, H. and Tabira, T. 2008. A family of membrane proteins associated with Presenilin expression and γ-secretase function. FASEB J. 22: 819-827.
4. Hirota, T., Harada, M., Sakashita, M., Doi, S., Miyatake, A., Fujita, K., Enomoto, T., Ebisawa, M., Yoshihara, S., Noguchi, E., Saito, H., Nakamura, Y. and Tamari, M. 2008. Genetic polymorphism regulating ORM1-like 3 *(Saccharomyces cerevisiae)* expression is associated with childhood atopic asthma in a Japanese population. J. Allergy Clin. Immunol. 121: 769-770.

CHROMOSOMAL LOCATION

Genetic locus: Ormdl3 (mouse) mapping to 11 D.

PRODUCT

ORMDL3 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 ORMDL3 shRNA Plasmid (m): sc-151316-SH and ORMDL3 shRNA (m) Lentiviral Particles: sc-151316-V as alternate gene silencing products.

For independent verification of ORMDL3 (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-151316A, sc-151316B and sc-151316C.

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

ORMDL3 siRNA (m) is recommended for the inhibition of ORMDL3 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ORMDL3 gene expression knockdown using RT-PCR Primer: ORMDL3 (m)-PR: sc-151316-PR (20 µl, 532 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ha, S.G., Ge, X.N., Bahaie, N.S., Kang, B.N., Rao, A., Rao, S.P. and Sriramarao, P. 2013. ORMDL3 promotes eosinophil trafficking and activation via regulation of integrins and CD48. Nat. Commun. 4: 2479.

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.