SANTA CRUZ BIOTECHNOLOGY, INC.

AMBRA1 siRNA (m): sc-141039

BACKGROUND

WD-repeats are motifs that are found in a variety of proteins and are characterized by a conserved core of 40-60 amino acids that commonly form a tertiary propeller structure. While proteins that contain WD-repeats participate in a wide range of cellular functions, they are generally involved in regulatory mechanisms concerning chromatin assembly, cell cycle control, signal transduction, RNA processing, apoptosis and vesicular trafficking. AMBRA1 (Activating molecule in BECN1-regulated autophagy protein 1), also known as WDR94 or KIAA1736, is a 1,298 amino acid protein that contains three WD repeats. Localized to cytoplasmic vesicles, AMBRA1 functions to control protein turnover, cell proliferation and cell survival during neuronal development, thereby playing an important role in autophagy and the development of the nervous system. Multiple isoforms of AMBRA1 exist due to alternative spicing events.

REFERENCES

1. Nagase, T., et al. 2000. Prediction of the coding sequences of unidentified human genes. XIX. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 7: 347-355.
2. Li, D., et al. 2001. WD-repeat proteins: structure characteristics, biological function, and their involvement in human diseases. Cell. Mol. Life Sci. 58: 2085-2097.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 611359. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Cecconi, F., et al. 2007. A novel role for autophagy in neurodevelopment. Autophagy 3: 506-508.
5. Le Bot, N. 2007. Autophagy: a new regulator of development. Nat. Cell Biol. 9: 741.
6. Fimia, G.M., et al. 2007. AMBRA1 regulates autophagy and development of the nervous system. Nature 447: 1121-1125.
7. Levine, B., et al. 2008. Bcl-2 family members: dual regulators of apoptosis and autophagy. Autophagy 4: 600-606.

CHROMOSOMAL LOCATION

Genetic locus: Ambra1 (mouse) mapping to 2 E1.

PRODUCT

AMBRA1 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 AMBRA1 shRNA Plasmid (m): sc-141039-SH and AMBRA1 shRNA (m) Lentiviral Particles: sc-141039-V as alternate gene silencing products.

For independent verification of AMBRA1 (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-141039A, sc-141039B and sc-141039C.

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

AMBRA1 siRNA (m) is recommended for the inhibition of AMBRA1 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 AMBRA1 gene expression knockdown using RT-PCR Primer: AMBRA1 (m)-PR: sc-141039-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Jagannath, C., et al. 2009. Autophagy enhances the efficacy of BCG vaccine by increasing peptide presentation in mouse dendritic cells. Nat. Med. 15: 267-276.
2. Pu, Q., et al. 2017. ATG7 deficiency intensifies inflammasome activation and pyroptosis in *Pseudomonas* sepsis. J. Immunol. 198: 3205-3213.

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.