SANTA CRUZ BIOTECHNOLOGY, INC.

CRBN siRNA (m): sc-142562

BACKGROUND

CRBN (cereblon) is also known as ORF, and is a 442 amino acid protein which is highly concentrated in human brain tissue. CRBN functions are thought to be related to energy metabolism, learning and memory. Localized to the cytoplasm, CRBN acts as a protease in mitochondria and is thought to regulate the assembly of KCNT1, as well as the surface expression of KCNT1 in brain regions known to affect memory and learning, such as the hippocampus. The gene encoding CRBN belongs to a family of ATP-dependent lon proteases that play a role in membrane trafficking and proteolysis. Defects in the CRBN gene are associated with mild mental retardation.

REFERENCES

1. Higgins, J.J., et al. 2004. A mutation in a novel ATP-dependent Lon protease gene in a kindred with mild mental retardation. Neurology 63: 1927-1931.
2. Jo, S., et al. 2005. Identification and functional characterization of cereblon as a binding protein for large-conductance calcium-activated potassium channel in rat brain. J. Neurochem. 94: 1212-1224.
3. Dijkhuizen, T., et al. 2006. FISH and array-CGH analysis of a complex chromosome 3 aberration suggests that loss of CNTN4 and CRBN contributes to mental retardation in 3pter deletions. Am. J. Med. Genet. A 140: 2482-2487.
4. Basel-Vanagaite, L. 2007. Genetics of autosomal recessive non-syndromic mental retardation: recent advances. Clin. Genet. 72: 167-174.
5. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 609262. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Xin, W., et al. 2008. Primary function analysis of human mental retardation related gene CRBN. Mol. Biol. Rep. 35: 251-256.
7. Higgins, J.J., et al. 2008. Dysregulation of large-conductance Ca^{2+}-activated K^+ channel expression in nonsyndromal mental retardation due to a cereblon p.R419X mutation. Neurogenetics 9: 219-223.

CHROMOSOMAL LOCATION

Genetic locus: Crbn (mouse) mapping to 6 E1.

PRODUCT

CRBN 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 CRBN shRNA Plasmid (m): sc-142562-SH and CRBN shRNA (m) Lentiviral Particles: sc-142562-V as alternate gene silencing products.

For independent verification of CRBN (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-142562A, sc-142562B and sc-142562C.

PROTOCOLS

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

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

CRBN siRNA (m) is recommended for the inhibition of CRBN 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 CRBN gene expression knockdown using RT-PCR Primer: CRBN (m)-PR: sc-142562-PR (20 µl, 568 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chang, H.W., et al. 2023. Thalidomide attenuates mast cell activation by upregulating SHP-1 signaling and interfering with the action of CRBN. Cells 12: 469.

RESEARCH USE

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