SANTA CRUZ BIOTECHNOLOGY, INC.

CDK5RAP2 siRNA (h): sc-72847

BACKGROUND

Cyclin dependent kinase 5 (Cdk5) is a key regulator of cell cycle progression in neuronal differentiation that physically associates with and is activated by the neuron-specific protein p35. CDK5RAP1 (CDK5 regulatory subunit-associated protein 1) specifically inhibits Cdk5 activation by p35 through formation of a dimer that inhibits kinase activity. CDK5RAP2, also known as centrosome-associated protein 215, is a 1,893 amino acid centrosomal protein that regulates activity of CDK5 through complex formation with CDK5RAP1. Expressed in placenta, liver, pancreas, heart, skeletal muscle, lung, brain and kidney, CDK5RAP2 associates with centrosomes throughout the cell cycle. Mutations in the gene encoding CDK5RAP2 results in primary microencephaly autosomal recessive type 3, which is characterized by markedly reduced head size, brain weight and significant neurological deficits. There are four isoforms of CDK5RAP2 that are produced as a result of alternative splicing events.

REFERENCES

1. Tang, B.L. 2006. Molecular genetic determinants of human brain size. Biochem. Biophys. Res. Commun. 345: 911-916.
2. Evans, P.D., et al. 2006. Molecular evolution of the brain size regulator genes CDK5RAP2 and CENPJ. Gene 375: 75-79.
3. Walz, C., et al. 2006. Transient response to imatinib in a chronic eosinophilic leukemia associated with ins(9;4)(q33; q12q25) and a CDK5RAP2-PDGFRA fusion gene. Genes Chromosomes Cancer 45: 950-956.
4. Cox, J., et al. 2006. What primary microcephaly can tell us about brain growth. Trends Mol. Med. 12: 358-366.
5. Graser, S., et al. 2007. Cep68 and Cep215 (Cdk5rap2) are required for centrosome cohesion. J. Cell Sci. 120: 4321-4331.
6. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 608201. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: CDK5RAP2 (human) mapping to 9q33.2.

PRODUCT

CDK5RAP2 siRNA (h) 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 CDK5RAP2 shRNA Plasmid (h): sc-72847-SH and CDK5RAP2 shRNA (h) Lentiviral Particles: sc-72847-V as alternate gene silencing products.

For independent verification of CDK5RAP2 (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-72847A, sc-72847B and sc-72847C.

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

CDK5RAP2 siRNA (h) is recommended for the inhibition of CDK5RAP2 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.

GENE EXPRESSION MONITORING

CDK5RAP2 (527CT22.9.2): sc-517321 is recommended as a control antibody for monitoring of CDK5RAP2 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CDK5RAP2 gene expression knockdown using RT-PCR Primer: CDK5RAP2 (h)-PR: sc-72847-PR (20 µl, 509 bp). 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.