SANTA CRUZ BIOTECHNOLOGY, INC.

NPP4 siRNA (h): sc-95266

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The Power to Question

BACKGROUND

NPP4, also known as ENPP4 (ectonucleotide pyrophosphatase/phosphodiesterase family member 4), is a 453 amino acid single-pass type I membrane protein that belongs to the nucleotide pyrophosphatase/phosphodiesterase family. The gene that encodes NPP4 consists of approximately 16,736 bases and maps to human chromosome 6p21.1. Making up nearly 6% of the human genome, chromosome 6 contains around 1,200 genes within 170 million base pairs of sequence. Deletion of a portion of the q arm of chromosome 6 is associated with early onset intestinal cancer suggesting the presence of a cancer susceptibility locus. Porphyria cutanea tarda is associated with chromosome 6 through the HFE gene, and Stickler syndrome, 21-hydroxylase deficiency and maple syrup urine disease are also associated with genes on chromosome 6. Notably, the PARK2 gene, which is associated with Parkinson's disease, and the genes encoding the major histocompatiblity complex proteins are also located on chromosome 6. A bipolar disorder susceptibility locus has been identified on the q arm of chromosome 6.

REFERENCES

1. Brunner, H.G., van Beersum, S.E., Warman, M.L., Olsen, B.R., Ropers, H.H. and Mariman, E.C. 1994. A Stickler syndrome gene is linked to chromosome 6 near the COL11A2 gene. Hum. Mol. Genet. 3: 1561-1564.
2. Gijsbers, R., Ceulemans, H., Stalmans, W. and Bollen, M. 2001. Structural and catalytic similarities between nucleotide pyrophosphatases/phosphodiesterases and alkaline phosphatases. J. Biol. Chem. 276: 1361-1368.
3. Cesari, R., Martin, E.S., Calin, G.A., Pentimalli, F., Bichi, R., McAdams, H., Trapasso, F., Drusco, A., Shimizu, M., Masciullo, V., D'Andrilli, G., Scambia, G., Picchio, M.C., Alder, H., Godwin, A.K. and Croce, C.M. 2003. Parkin, a gene implicated in autosomal recessive juvenile parkinsonism, is a candidate tumor suppressor gene on chromosome 6q25-q27. Proc. Natl. Acad. Sci. USA 100: 5956-5961.
4. Harel, T., Rabinowitz, R., Hendler, N., Galil, A., Flusser, H., Chemke, J., Gradstein, L., Lifshitz, T., Ofir, R., Elbedour, K. and Birk, O.S. 2005. COL11A2 mutation associated with autosomal recessive Weissenbacher-Zweymuller syndrome: molecular and clinical overlap with otospondylomegaepiphyseal dysplasia (OSMED). Am. J. Med. Genet. A 132A: 33-35.
5. Bläker, H., Mechtersheimer, G., Sutter, C., Hertkorn, C., Kern, M.A., Rieker, R.J., Penzel, R., Schirmacher, P. and Kloor, M. 2008. Recurrent deletions at 6q in early age of onset non-HNPCC- and non-FAP-associated intestinal carcinomas. Evidence for a novel cancer susceptibility locus at 6q14-q22. Genes Chromosomes Cancer 47: 159-164.
6. Fan, J., Ionita-Laza, I., McQueen, M.B., Devlin, B., Purcell, S., Faraone, S.V., Allen, M.H., Bowden, C.L., Calabrese, J.R., Fossey, M.D., Friedman, E.S., Gyulai, L., Hauser, P., Ketter, T.B., Marangell, L.B., et al. 2010. Linkage disequilibrium mapping of the chromosome 6q21-22.31 bipolar I disorder susceptibility locus. Am. J. Med. Genet. B Neuropsychiatr. Genet. 153B: 29-37.
7. Jalil, S., Grady, J.J., Lee, C. and Anderson, K.E. 2010. Associations among behavior-related susceptibility factors in porphyria cutanea tarda. Clin. Gastroenterol. Hepatol. 8: 297-302, 302.e1.

CHROMOSOMAL LOCATION

Genetic locus: ENPP4 (human) mapping to 6p21.1.

PRODUCT

NPP4 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 NPP4 shRNA Plasmid (h): sc-95266-SH and NPP4 shRNA (h) Lentiviral Particles: sc-95266-V as alternate gene silencing products.

For independent verification of NPP4 (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-95266A, sc-95266B and sc-95266C.

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

NPP4 siRNA (h) is recommended for the inhibition of NPP4 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NPP4 gene expression knockdown using RT-PCR Primer: NPP4 (h)-PR: sc-95266-PR (20 µl). 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.

PROTOCOLS

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