SANTA CRUZ BIOTECHNOLOGY, INC.

Nek8 siRNA (m): sc-61177

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine (Ser/Thr) protein kinases. Nek8 [NIMA (never in mitosis gene a)-related kinase 8], also known as serine/threonine-protein kinase Nek8, NPHP9, NEK12A, MGC138445, Jck or NEK12A, is a mitotic regulator that plays a significant role in maintaining renal tubular integrity. Nek8 localizes to cytoplasm and is abundant in thyroid, adrenal gland and skin, with overexpression in breast tumors and infiltrating ductal carcinomas. Moderate levels of Nek8 has been found in mucinous adenocarcinoma. Nek8 contains one protein kinase domain and five RCC1 repeats. Nek8 mutations correlate to juvenile autosomal recessive polycystic kidney disease in humans.

REFERENCES

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3. Bowers, A.J., et al. 2004. Nek8, a NIMA family kinase member, is overexpressed in primary human breast tumors. Gene 328: 135-142.
4. Mahjoub, M.R., et al. 2005. NIMA-related kinases defective in murine models of polycystic kidney diseases localize to primary cilia and centrosomes. J. Am. Soc. Nephrol. 16: 3485-3489.
5. Quarmby, L.M., et al. 2005. Caught Nek-ing: cilia and centrioles. J. Cell Sci. 118: 5161-5169.
6. Valkova, N., et al. 2005. Nek8 mutation causes overexpression of galectin-1, sorcin, and vimentin and accumulation of the major urinary protein in renal cysts of jck mice. Mol. Cell. Proteomics 4: 1009-1018.
7. Smith, L.A., et al. 2006. Development of polycystic kidney disease in juvenile cystic kidney mice: insights into pathogenesis, ciliary abnormalities, and common features with human disease. J. Am. Soc. Nephrol. 17: 2821-2831.
8. Otto, E.A., et al. 2008. NEK8 mutations affect ciliary and centrosomal localization and may cause nephronophthisis. J. Am. Soc. Nephrol. 19: 587-592.
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CHROMOSOMAL LOCATION

Genetic locus: Nek8 (mouse) mapping to 11 B5.

PROTOCOLS

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

PRODUCT

Nek8 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 Nek8 shRNA Plasmid (m): sc-61177-SH and Nek8 shRNA (m) Lentiviral Particles: sc-61177-V as alternate gene silencing products.

For independent verification of Nek8 (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-61177A, sc-61177B and sc-61177C.

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

Nek8 siRNA (m) is recommended for the inhibition of Nek8 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 Nek8 gene expression knockdown using RT-PCR Primer: Nek8 (m)-PR: sc-61177-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. Jun, J.H., et al. 2022. Reduced expression of TAZ inhibits primary cilium formation in renal glomeruli. Exp. Mol. Med. 54: 169-179.

RESEARCH USE

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