SANTA CRUZ BIOTECHNOLOGY, INC.

KBP siRNA (m): sc-146346

BACKGROUND

KIAA1279, also known as KBP (KIF1-binding protein), is a 621 amino acid mitochondrial protein that is highly expressed in heart, brain, ovary, testis and spinal cord, with lower levels of expression found in most adult tissues. Belonging to the KIF1-binding protein family, KIAA1279 may be involved in the regulation of mitochrondial transport by modulating the motor activity of KIF1B. KIAA1279 is also required for the organization of axonal microtubules, as well as for the maintenance of axonal growth during peripheral and central nervous system development. The gene encoding KIAA1279 maps to human chromosome 10q21.3 and mouse chromosome 10 B4. Defects to the gene encoding KIAA1279 has been linked to Goldberg-Shprintzen megacolon syndrome, a neurological disorder characterized by microcephaly, mental retardation and facial dysmorphism.

REFERENCES

1. Brooks, A.S., Bertoli-Avella, A.M., Burzynski, G.M., Breedveld, G.J., Osinga, J., Boven, L.G., Hurst, J.A., Mancini, G.M., Lequin, M.H., de Coo, R.F., Matera, I., de Graaff, E., Meijers, C., Willems, P.J., Tibboel, D., et al. 2005. Homozygous nonsense mutations in KIAA1279 are associated with malformations of the central and enteric nervous systems. Am. J. Hum. Genet. 77: 120-126.
2. Wozniak, M.J., Melzer, M., Dorner, C., Haring, H.U. and Lammers, R. 2005. The novel protein KBP regulates mitochondria localization by interaction with a kinesin-like protein. BMC Cell Biol. 6: 35.
3. Murphy, H.R., Carver, M.J., Brooks, A.S., Kenny, S.E. and Ellis, I.H. 2006. Two brothers with Goldberg-Shprintzen syndrome. Clin. Dysmorphol. 15: 165-169.
4. de Wit, M.C., Lequin, M.H., de Coo, I.F., Brusse, E., Halley, D.J., van de Graaf, R., Schot, R., Verheijen, F.W. and Mancini, G.M. 2008. Cortical brain malformations: effect of clinical, neuroradiological, and modern genetic classification. Arch. Neurol. 65: 358-366.
5. Lyons, D.A., Naylor, S.G., Mercurio, S., Dominguez, C. and Talbot, W.S. 2008. KBP is essential for axonal structure, outgrowth and maintenance in zebrafish, providing insight into the cellular basis of Goldberg-Shprintzen syndrome. Development 135: 599-608.
6. Jiang, Q., Ho, Y.Y., Hao, L., Nichols Berrios, C. and Chakravarti, A. 2011. Copy number variants in candidate genes are genetic modifiers of Hirschsprung disease. PLoS ONE 6: e21219.

CHROMOSOMAL LOCATION

Genetic locus: 2510003E04Rik (mouse) mapping to 10 B4.

PRODUCT

KBP siRNA (m) is a target-specific 19-25 nt siRNA 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 KBP shRNA Plasmid (m): sc-146346-SH and KBP shRNA (m) Lentiviral Particles: sc-146346-V as alternate gene silencing 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

KBP siRNA (m) is recommended for the inhibition of KBP 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.

GENE EXPRESSION MONITORING

KBP (H-12): sc-390449 is recommended as a control antibody for monitoring of KBP 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor KBP gene expression knockdown using RT-PCR Primer: KBP (m)-PR: sc-146346-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.