SANTA CRUZ BIOTECHNOLOGY, INC.

ARL3 siRNA (h): sc-61990

BACKGROUND

ADP-ribosylation factors (ARFs) are highly conserved guanine nucleotide-binding proteins that enhance the ADP-ribosyltransferase activity of cholera toxin. ARF's are important in eukaryotic vesicular trafficking pathways and activating phospholipase D. ARL3 (ADP-ribosylation factor-like protein 3), also known as ARFL3, is a member of the ARF-like protein (ARL) subfamily of small GTPases. Unlike ARFs, ARL3 does not activate the cholera toxin ADP-ribosyltranferase. ARL3 is ubiquitously expressed. It binds to PDE6D and interacts with RP2 (retinitis pigmentosa 2 protein) in the presence of GTP-γ-S. ARL3 may play a role in maintaining rod photoreceptor cells and regulating microtubule-dependent processes. Knockdown of ARL3 leads to altered cell morphology, failure of cytokinesis, acetylation of α Tubulin and an increase in binucleated cells.

REFERENCES

1. Linari, M., et al. 1999. The δ subunit of rod specific cyclic GMP phosphodiesterase, PDE δ, interacts with the ARF-like protein ARL3 in a GTP specific manner. FEBS Lett. 458: 55-59.
2. Hillig, R.C., et al. 2001. Structural and biochemical properties show ARL3-GDP as a distinct GTP binding protein. Structure 8: 1239-1245.
3. Bartolini, F., et al. 2002. Functional overlap between retinitis pigmentosa 2 protein and the tubulin-specific chaperone cofactor C. J. Biol. Chem. 277: 14629-14634.
4. Grayson, C., et al. 2002. Localization in the human retina of the X-linked retinitis pigmentosa protein RP2, its homologue cofactor C and the RP2 interacting protein ARL3. Hum. Mol. Genet. 11: 3065-3074.
5. Hanzal-Bayer, M., et al. 2005. Properties of the interaction of ARF-like protein 2 with PDEδ. J. Mol. Biol. 350: 1074-1082.
6. Schrick, J.J., et al. 2006. ADP-ribosylation factor-like 3 is involved in kidney and photoreceptor development. Am. J. Pathol. 168: 1288-1298.
7. Evans, R.J., et al. 2006. Assay and functional analysis of the ARL3 effector RP2 involved in X-linked retinitis pigmentosa. Methods Enzymol. 404: 468-480.
8. Zhou, C., et al. 2006. ARL2 and ARL3 regulate different microtubule-dependent processes. Mol. Biol. Cell 17: 2476-2487.

CHROMOSOMAL LOCATION

Genetic locus: ARL3 (human) mapping to 10q24.32.

PRODUCT

ARL3 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 ARL3 shRNA Plasmid (h): sc-61990-SH and ARL3 shRNA (h) Lentiviral Particles: sc-61990-V as alternate gene silencing products.

For independent verification of ARL3 (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-61990A, sc-61990B and sc-61990C.

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

ARL3 siRNA (h) is recommended for the inhibition of ARL3 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 ARL3 gene expression knockdown using RT-PCR Primer: ARL3 (h)-PR: sc-61990-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.