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KDEL receptor 1 siRNA (h): sc-44736

BACKGROUND

Soluble proteins in the endoplasmic reticulum (ER) contain a specific carboxy terminal sequence KDEL (Lys-Asp-Glu-Leu) and include the coat proteins required for vesicle budding from the ER, proteins that form retrograde vesicles on post-ER compartments and integral membrane proteins that target vesicles to their correct destination. The retention of these soluble proteins in the ER depends on the interaction of the KDEL sequence with the corresponding KDEL receptor, also designated ERD2, in the Golgi apparatus. When KDEL proteins reach the Golgi complex, they are recognized by the KDEL receptor and transported retrograde in COPI-coated vesicles back to the ER. The small GTPase ADP-ribosylation factor 1 (ARF1), a regulator of vesicle transport, interacts with the KDEL receptor. Subsequently, this interaction allows the KDEL receptor to recruit a GTPase-activating protein (GAP) from the cytosol to membranes, which inactivates ARF1.

REFERENCES

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2. Aoe, T., et al. 1997. The KDEL receptor, ERD2, regulates intracellular traffic by recruiting a GTPase-activating protein for ARF1. *EMBO J.* 16: 7305-7316.
3. Aoe, T., et al. 1998. Modulation of intracellular transport by transported proteins: insight from regulation of COPI-mediated transport. *Proc. Natl. Acad. Sci. USA* 95: 1624-1629.
4. Scheel, A.A., et al. 1998. Identification of amino acids in the binding pocket of the human KDEL receptor. *J. Biol. Chem.* 273: 2467-2472.
5. Aoe, T., et al. 1999. The KDEL receptor regulates a GTPase-activating protein for ADP-ribosylation factor 1 by interacting with its non-catalytic domain. *J. Biol. Chem.* 274: 20545-20549.
6. Kimata, Y., et al. 2000. Identification of a novel mammalian endoplasmic reticulum-resident KDEL protein using an EST database motif search. *Gene* 261: 321-327.

CHROMOSOMAL LOCATION

Genetic locus: KDEL1 (human) mapping to 19q13.33.

PRODUCT

KDEL receptor 1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see KDEL receptor 1 shRNA Plasmid (h): sc-44736-SH and KDEL receptor 1 shRNA (h) Lentiviral Particles: sc-44736-V as alternate gene silencing products.

For independent verification of KDEL receptor 1 (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-44736A, sc-44736B and sc-44736C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

KDEL receptor 1 siRNA (h) is recommended for the inhibition of KDEL receptor 1 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 μ M in 66 μ l. 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 KDEL receptor 1 gene expression knockdown using RT-PCR Primer: KDEL receptor 1 (h)-PR: sc-44736-PR (20 μ l). 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.