SANTA CRUZ BIOTECHNOLOGY, INC.

λ-crystallin siRNA (h): sc-77031

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Crystallins are divided into two classes: taxon-specific, or enzyme, and ubiquitous. The ubiquitous crystallins constitute the major proteins of the vertebrate eye lens, where they maintain the transparency and refractive index of the lens. The taxon-specific crystallins, also designated phylogenetically-restricted crystallins, include λ-, μ-, and ω-crystallin, which all share homology to various enzymes. λ-crystallin is best described in rabbit, where it shares homology with L-3-hydroxyacyl-CoA dehydrogenase from porcine. The human μ-crystallin gene maps to chromosome 16p13, and encodes a protein that is expressed in neural tissue, muscle, and kidney. Unlike other crystallins, μ-crystallin does not perform a structural role in lens tissue, but rather it binds NADPH and thyroid hormone, which indicates that it may have other regulatory or developmental functions. ω-crystallin/quinone reductase is present at low levels in human lens tissue. It has NADPH-dependent quinone reductase activity distinct from other known quinone reductases, and may play a role as a pH response element-binding protein.

REFERENCES

1. Mulders, J.W., Hendriks, W., Blankesteijn, W.M., Bloemendal, H. and de Jong, W.W. 1988. λ-crystallin, a major rabbit lens protein, is related to hydroxyacyl-coenzyme A dehydrogenases. J. Biol. Chem. 263: 15462-15466.
2. Chen, H., Phillips, H.A., Callen, D.F., Kim, R.Y., Wistow, G.J. and Antonarakis, S.E. 1992. Localization of the human gene for μ-crystallin to chromosome 16p. Genomics 14: 1115-1116.
3. Slingsby, C. and Clout, N.J. 1999. Structure of the crystallins. Eye 13: 395-402.
4. Tang, A. and Curthoys, N.P. 2001. Identification of ζ-crystallin/NADPH: quinone reductase as a renal glutaminase mRNA pH response element-binding protein. J. Biol. Chem. 276: 21375-21380.
5. Horwitz, J. 2003. α-crystallin. Exp. Eye Res. 76: 145-153.
6. Bhat, S.P. 2004. Transparency and non-refractive functions of crystallins—a proposal. Exp. Eye Res 79: 809-816.
7. Paulin, D., et al. 2004. Desminopathies in muscle disease. J. Pathol. 204: 418-427.
8. LocusLink Report (LocusID: 1428). http://www.ncbi.nlm.nih.gov/LocusLink

CHROMOSOMAL LOCATION

Genetic locus: CRYL1 (human) mapping to 13q12.11.

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.

PRODUCT

λ-crystallin 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 λ-crystallin shRNA Plasmid (h): sc-77031-SH and λ-crystallin shRNA (h) Lentiviral Particles: sc-77031-V as alternate gene silencing products.

For independent verification of λ-crystallin (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-77031A, sc-77031B and sc-77031C.

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

λ-crystallin siRNA (h) is recommended for the inhibition of λ-crystallin 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 λ-crystallin gene expression knockdown using RT-PCR Primer: λ-crystallin (h)-PR: sc-77031-PR (20 μl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.