

ζ-crystallin siRNA (m): sc-155980

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 ζ-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 16p12.2, 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. ζ-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., Blankesteyn, 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., Huet, A., Khanamirian, L. and Xue, Z. 2004. Desminopathies in muscle disease. *J. Pathol.* 204: 418-427.

CHROMOSOMAL LOCATION

Genetic locus: Cryz (mouse) mapping to 3 H4.

PRODUCT

ζ-crystallin 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 ζ-crystallin shRNA Plasmid (m): sc-155980-SH and ζ-crystallin shRNA (m) Lentiviral Particles: sc-155980-V as alternate gene silencing products.

For independent verification of ζ-crystallin (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-155980A, sc-155980B and sc-155980C.

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

ζ-crystallin siRNA (m) is recommended for the inhibition of ζ-crystallin 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 ζ-crystallin gene expression knockdown using RT-PCR Primer: ζ-crystallin (m)-PR: sc-155980-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.