

γ C-crystallin siRNA (m): sc-40455

BACKGROUND

Crystallins, the major proteins of the vertebrate eye lens, are responsible for maintaining the transparency and the refractive index of the lens. Crystallins are divided into α , β , and γ families, all of which usually contain seven distinctive protein regions, including four homologous motifs, one connecting peptide and N- and C-terminal extensions. The γ -crystallin family is comprised of seven closely related proteins designated γ A-, γ B-, γ C-, γ D-, γ E-, γ F- and γ G-crystallin. γ C-crystallin, also known as CRYGC or CRYG3, is a 174 amino acid member of the γ -crystallin family. Functioning as a monomer that has a two-domain beta fold, γ C-crystallin, like other members of its family, plays a key role in ensuring the proper structure of the vertebrate eye lens. Defects in the gene encoding γ C-crystallin are the cause of autosomal dominant cataracts, variable zonular pulverulent cataracts and Coppock-like cataracts (CCLs), all of which are characterized by impaired vision due to abnormalities in the lens of the eye.

REFERENCES

1. Rogaeve, E.I., et al. 1996. Linkage of polymorphic congenital cataract to the γ -crystallin gene locus on human chromosome 2q33-35. *Hum. Mol. Genet.* 5: 699-703.
2. Graw, J. 1997. The crystallins: genes, proteins and diseases. *Biol. Chem.* 378: 1331-1348.
3. Stöger, T., et al. 1997. The Cryner element in the murine γ -crystallin promoters interacts with lens proteins. *Ophthalmic Res.* 29: 161-171.
4. Slingsby, C., et al. 1999. Structure of the crystallins. *Eye* 13: 395-402.
5. Santhiya, S.T., et al. 2002. Novel mutations in the γ -crystallin genes cause autosomal dominant congenital cataracts. *J. Med. Genet.* 39: 352-358.
6. Salim, A. and Zaidi, Z.H. 2003. Homology models of human γ -crystallins: structural study of the extensive charge network in γ -crystallins. *Biochem. Biophys. Res. Commun.* 300: 624-630.
7. Liang, J.J. 2004. Interactions and chaperone function of α A-crystallin with T5P γ C-crystallin mutant. *Protein Sci.* 13: 2476-2482.
8. Messina-Baas, O.M., et al. 2006. Two affected siblings with nuclear cataract associated with a novel missense mutation in the CRYGD gene. *Mol. Vis.* 12: 995-1000.
9. Gonzalez-Huerta, L.M., et al. 2007. A family with autosomal dominant primary congenital cataract associated with a CRYGC mutation: evidence of clinical heterogeneity. *Mol. Vis.* 13: 1333-1338.

CHROMOSOMAL LOCATION

Genetic locus: Crygc (mouse) mapping to 1 C2.

PRODUCT

γ C-crystallin 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see γ C-crystallin shRNA Plasmid (m): sc-40455-SH and γ C-crystallin shRNA (m) Lentiviral Particles: sc-40455-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 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

γ C-crystallin siRNA (m) is recommended for the inhibition of γ C-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 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 γ C-crystallin gene expression knockdown using RT-PCR Primer: γ C-crystallin (m)-PR: sc-40455-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.