

RGC32 siRNA (h): sc-106499

BACKGROUND

RGC32 (response gene to complement 32), also known as C13orf15, is a 137 amino acid protein that localizes to the cytoplasm, as well as to the nucleus and the centrosome. Expressed at high levels in kidney, pancreas and skeletal muscle and at lower levels in brain, heart and placenta, RGC32 functions to modulate the activity of cell cycle-specific kinases, thereby regulating cell cycle progression. Additionally, RGC32 may promote cell cycle arrest at the G₂/M phase transition and is thought to inhibit the growth of glioma cells, possibly functioning as a tumor suppressor. Conversely, overexpression of RGC32 may promote cell replication and assist in the pathogenesis of malignancies, suggesting that RGC32 also participates in tumor transformation and progression. RGC32 activity is induced by complement activation and by p53 in response to DNA damage. Multiple isoforms of RGC32 exist as a result of alternative splicing events.

REFERENCES

1. Badea, T.C., et al. 1998. Molecular cloning and characterization of RGC-32, a novel gene induced by complement activation in oligodendrocytes. *J. Biol. Chem.* 273: 26977-26981.
2. Badea, T., et al. 2002. RGC32 increases p34^{CDK2} kinase activity and entry of aortic smooth muscle cells into S-phase. *J. Biol. Chem.* 277: 502-508.
3. Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 610077. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Fosbrink, M., et al. 2005. Overexpression of RGC-32 in colon cancer and other tumors. *Exp. Mol. Pathol.* 78: 116-122.

CHROMOSOMAL LOCATION

Genetic locus: RGCC (human) mapping to 13q14.11.

PRODUCT

RGC32 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 RGC32 shRNA Plasmid (h): sc-106499-SH and RGC32 shRNA (h) Lentiviral Particles: sc-106499-V as alternate gene silencing products.

For independent verification of RGC32 (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-106499A, sc-106499B and sc-106499C.

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

RGC32 siRNA (h) is recommended for the inhibition of RGC32 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 RGC32 gene expression knockdown using RT-PCR Primer: RGC32 (h)-PR: sc-106499-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Tegla, C.A., et al. 2013. Dual role of response gene to complement-32 in multiple sclerosis. *Exp. Mol. Pathol.* 94: 17-28.
2. Califano, A. 2014. Predicting protein networks in cancer. *Nat. Genet.* 46: 1252-1253.
3. Wang, Q.J., et al. 2015. Expression of RGC32 in human normal and preeclamptic placentas and its role in trophoblast cell invasion and migration. *Placenta* 36: 350-356.
4. Zhao, P., et al. 2015. Response gene to complement 32 (RGC-32) expression on M2-polarized and tumor-associated macrophages is M-CSF-dependent and enhanced by tumor-derived IL-4. *Cell. Mol. Immunol.* 12: 692-699.
5. Vlaicu, S.I., et al. 2022. RGC-32' dual role in smooth muscle cells and atherogenesis. *Clin. Immunol.* 238: 109020.

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.