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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

GLP-1R siRNA (h): sc-45760

BACKGROUND

Glucagon, a pancreatic hormone, functions as an antagonist to Insulin, stimulating the conversion of glycogen to glucose and increasing blood sugar levels. GLP-1 functions as a transmitter in the central nervous system, inhibiting feeding and drinking behavior. Both Glucagon and GLP-1 function through their specific binding to the Glucagon receptor or GLP-1R, respectively. The Glucagon receptor shows expression in liver, kidney and adipose tissue. GLP-1R expression primarily localizes to areas of the hypothalamus involved in feeding behavior. Both receptors and their ligands serve as potential targets for the therapeutic treatment of diabetes.

REFERENCES

- Iwanij, V. and Vincent, A.C. 1990. Characterization of the Glucagon receptor and its functional domains using monoclonal antibodies. *J. Biol. Chem.* 265: 21302-21308.
- Rouille, Y., et al. 1995. Differential processing of Proglucagon by the subtilisin-like prohormone convertases PC2 and PC3 to generate either Glucagon or Glucagon-like peptide. *J. Biol. Chem.* 270: 26488-26496.
- Scrocchi, L.A., et al. 1996. Glucose intolerance but normal satiety in mice with a null mutation in the Glucagon-like peptide 1 receptor gene. *Nat. Med.* 2: 1254-1258.
- Bollen, M., et al. 1998. Specific features of glycogen metabolism in the liver. *Biochem. J.* 336: 19-31.
- Jiang, G. and Zhang, B.B. 2003. Glucagon and regulation of glucose metabolism. *Am. J. Physiol. Endocrinol. Metab.* 284: E671-678.

CHROMOSOMAL LOCATION

Genetic locus: GLP1R (human) mapping to 6p21.2.

PRODUCT

GLP-1R 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 GLP-1R shRNA Plasmid (h): sc-45760-SH and GLP-1R shRNA (h) Lentiviral Particles: sc-45760-V as alternate gene silencing products.

For independent verification of GLP-1R (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-45760A, sc-45760B and sc-45760C.

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

GLP-1R siRNA (h) is recommended for the inhibition of GLP-1R 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.

GENE EXPRESSION MONITORING

GLP-1R (D-6): sc-390774 is recommended as a control antibody for monitoring of GLP-1R gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GLP-1R gene expression knockdown using RT-PCR Primer: GLP-1R (h)-PR: sc-45760-PR (20 μ l, 446 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Shiraishi, D., et al. 2012. Glucagon-like peptide-1 (GLP-1) induces M2 polarization of human macrophages via STAT3 activation. *Biochem. Biophys. Res. Commun.* 425: 304-308.
- Tang, S.T., et al. 2019. Glucagon-like peptide-1 attenuates endothelial barrier injury in diabetes via cAMP/PKA mediated down-regulation of MLC phosphorylation. *Biomed. Pharmacother.* 113: 108667.

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.