



# Glucagon Receptor siRNA (h): sc-45765

## 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. The 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

1. Iwanij, V., et al. 1990. Characterization of the glucagon receptor and its functional domains using monoclonal antibodies. *J. Biol. Chem.* 265: 21302-21308.
2. 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.
3. 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.
4. Bollen, M., et al. 1998. Specific features of glycogen metabolism in the liver. *Biochem. J.* 336: 19-31.
5. Jiang, G., et al. 2003. Glucagon and regulation of glucose metabolism. *Am. J. Physiol. Endocrinol. Metab.* 284: 671-678.
6. Qureshi, S.A., et al. 2004. A novel glucagon receptor antagonist inhibits glucagon-mediated biological effects. *Diabetes* 53: 3267-3273.
7. Gromada, J., et al. 2004. Glucagon-like peptide-1: regulation of Insulin secretion and therapeutic potential. *Basic. Clin. Pharmacol. Toxicol.* 95: 252-262.
8. Alvarez, E., et al. 2005. The expression of GLP-1 receptor mRNA and protein allows the effect of GLP-1 on glucose metabolism in the human hypothalamus and brainstem. *J. Neurochem.* 92: 798-806.

## CHROMOSOMAL LOCATION

Genetic locus: GCGR (human) mapping to 17q25.3.

## PRODUCT

Glucagon Receptor 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Glucagon Receptor shRNA Plasmid (h): sc-45765-SH and Glucagon Receptor shRNA (h) Lentiviral Particles: sc-45765-V as alternate gene silencing products.

For independent verification of Glucagon Receptor (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-45765A, sc-45765B and sc-45765C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

Glucagon Receptor shRNA Plasmid (h) is recommended for the inhibition of Glucagon Receptor 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  $\mu$ M in 66  $\mu$ 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 Glucagon Receptor gene expression knockdown using RT-PCR Primer: Glucagon Receptor (h)-PR: sc-45765-PR (20  $\mu$ 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](http://www.scbt.com) for detailed protocols and support products.