SANTA CRUZ BIOTECHNOLOGY, INC.

Proglucagon siRNA (m): sc-39529

BACKGROUND

Glucagon is a pancreatic hormone that functions as an antagonist to Insulin, stimulating the conversion of glycogen to glucose and increasing blood sugar levels. Glucagon-like peptide-1 (GLP-1) and Glucagon-like peptide-2 (GLP-2) are members of the Glucagon family of hormones that are formed through posttranslational modification of the Glucagon precursor, proglucagon. Glucagon functions as a transmitter in the central nervous system, inhibiting eating and drinking behavior by suppressing gastric emptying, thus creating the sensation of being full. In addition to regulating blood glucose levels, Glucagon plays important roles in maintaining nutrient homeostasis, promoting intestinal epithelial growth and inhibiting β cell apoptosis. In response to Insulin-induced hypoglycemia, Glucagon raises glucose levels in the blood, thereby initiating a hyperglycemic environment. Glucagon is pharmaceutically available to treat hypoglycemia in diabetics.

REFERENCES

1. 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.
2. Moens, K., et al. 1996. Expression and functional activity of Glucagon, Glucagon-like peptide I, and Glucose-dependent Insulinotropic peptide receptors in rat pancreatic islet cells. Diabetes 45: 257-261.
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. Jiang, S., et al. 1997. Vasoactive intestinal peptide (VIP) stimulates *in vitro* growth of VIP-1 receptor-bearing human pancreatic adenocarcinoma-derived cells. Cancer Res. 57: 1475-1480.
5. Bollen, M., et al. 1998. Specific features of glycogen metabolism in the liver. Biochem. J. 336: 19-31.
6. Martinez-Fuentas, A.J., et al. 1998. Pituitary adenylate cyclase-activating polypeptide (PACAP) 38 and PACAP27 activate common and distinct intracellular signaling pathways to stimulate growth hormone secretion from porcine somatotropes. Endocrinology 139: 5116-5124.
7. Burcelin, R., et al. 2007. Glucagon-like peptide-1 and energy homeostasis. J. Nutr. 137: 2534S-2538S.
8. Ma, X., et al. 2007. Glucagon-like peptide 1 stimulates hypothalamic proopiomelanocortin neurons. J. Neurosci. 27: 7125-7129.
9. Dube, P.E., et al. 2008. Glucagon-like peptide-2 activates β-catenin signaling in the mouse intestinal crypt: role of Insulin-like growth factor-1. Endocrinology 149: 291-301.

CHROMOSOMAL LOCATION

Genetic locus: Gcg (mouse) mapping to 2 C1.3.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

Proglucagon 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 Proglucagon shRNA Plasmid (m): sc-39529-SH and Proglucagon shRNA (m) Lentiviral Particles: sc-39529-V as alternate gene silencing products.

For independent verification of Proglucagon (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-39529A, sc-39529B and sc-39529C.

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

Proglucagon siRNA (m) is recommended for the inhibition of Proglucagon 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.

GENE EXPRESSION MONITORING

Glucagon (K79bB10): sc-57171 is recommended as a control antibody for monitoring of Proglucagon 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Proglucagon gene expression knockdown using RT-PCR Primer: Proglucagon (m)-PR: sc-39529-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.