SANTA CRUZ BIOTECHNOLOGY, INC.

SUR-1 siRNA (r): sc-270007

BACKGROUND

Both suphonylurea receptor-1 (SUR-1) and sulphonylurea receptor-2 (SUR-2) belong to the ATP-binding cassette superfamily associated with KIR6.x. SUR-1 and KIR6.x proteins are required for the regulation of glucose-induced Insulin secretion by controlling K-ATP channel activity of the pancreatic β-cell membrane while SUR-2 and KIR6.x proteins reconstitute the cardiac and the vascular-smooth-muscle-type K-ATP channels. Loss-of-function mutations in the SUR-1 gene causes the disease persistent hyperinsulinemic hypoglycemia of infancy (PHHI). PHHI is characterized by increased irregular Insulin secretion, which causes disorganized formation of new islets and leads to hypoglycemia, coma and severe brain damage. The K-ATP channels controlled by SUR-2 are activated during myocardial ischemia, which suggests that mutations in the SUR-2 gene may cause channel malfunction and ischemic injury to the heart. No disease has yet been found to be associated with the SUR-2 gene.

REFERENCES

1. Chutkow, W.A., et al. 1996. Cloning, tissue expression, and chromosomal localization of SUR2, the putative drug-binding subunit of cardiac, skeletal muscle, and vascular KATP channels. Diabetes 45: 1439-1445.
2. Thomas, P.M., et al. 1996. Inactivation of the first nucleotide-binding fold of the sulfonylurea receptor, and familial persistent byperinsulinemic hypoglycemia of infancy. Am. J. Hum. Genet. 59: 510-518.
3. Akao, M., et al. 1997. Myocardial ischemia induces differential reguation of KATP channel gene expression in rat hearts. J. Clin. Invest. 100: 3053-3059.
4. Schwanstecher, M., et al. 1998. Potassium channel openers require ATP to bind to and act through sulfonylurea receptors. EMBO J. 17: 5529-5535.
5. Shindo, T., et al. 1998. SUR-2 subtype (A and B)-dependent differential activation of the cloned ATP-sensitive K^+ channels by pinacidil and nicorandil. Br. J. Pharmacol. 124: 985-991.
6. Meissner, T., et al. 1999. Congenital hyperinsulinism: molecular basis of a heteogeneous disease. Hum. Mutat. 13: 351-361.

CHROMOSOMAL LOCATION

Genetic locus: Abcc8 (rat) mapping to 1q22.

PRODUCT

SUR-1 siRNA (r) 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 SUR-1 shRNA Plasmid (r): sc-270007-SH and SUR-1 shRNA (r) Lentiviral Particles: sc-270007-V as alternate gene silencing products.

For independent verification of SUR-1 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270007A, sc-270007B and sc-270007C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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

SUR-1 siRNA (r) is recommended for the inhibition of SUR-1 expression in rat 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SUR-1 gene expression knockdown using RT-PCR Primer: SUR-1 (r)-PR: sc-270007-PR (20 µl, 591 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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