

SUR-1 (3G5): sc-293436

BACKGROUND

Both sulphonylurea 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. Thomas, P.M., et al. 1996. Inactivation of the first nucleotide-binding fold of the sulfonylurea receptor, and familial persistent hyperinsulinemic hypoglycemia of infancy. *Am. J. Hum. Genet.* 59: 510-518.
2. Chutkow, W.A., et al. 1996. Cloning, tissue expression, and chromosomal localization of SUR-2, the putative drug-binding subunit of cardiac, skeletal muscle, and vascular K-ATP channels. *Diabetes* 45: 1439-1445.
3. Akao, M., et al. 1997. Myocardial ischemia induces differential regulation of K-ATP channel gene expression in rat hearts. *J. Clin. Invest.* 100: 3053-3059.
4. 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.
5. Schwanstecher, M., et al. 1998. Potassium channel openers require ATP to bind to and act through sulfonylurea receptors. *EMBO J.* 17: 5529-5535.
6. Suzuki, M., et al. 1999. Immunolocalization of sulphonylurea receptor 1 in rat pancreas. *Diabetologia* 42: 1204-1211.
7. Meissner, T., et al. 1999. Congenital hyperinsulinism: molecular basis of a heterogeneous disease. *Hum. Mutat.* 13: 351-361.

CHROMOSOMAL LOCATION

Genetic locus: ABCC8 (human) mapping to 11p15.1.

SOURCE

SUR-1 (3G5) is a mouse monoclonal antibody raised against amino acids 611-710 representing partial length SUR-1 of human origin.

PRODUCT

Each vial contains 100 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

SUR-1 (3G5) is recommended for detection of SUR-1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

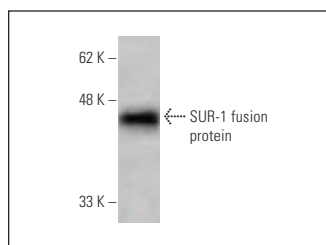
Suitable for use as control antibody for SUR-1 siRNA (h): sc-42634, SUR-1 shRNA Plasmid (h): sc-42634-SH and SUR-1 shRNA (h) Lentiviral Particles: sc-42634-V.

Molecular Weight of SUR-1: 180 kDa.

RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



SUR-1 (3G5): sc-293436. Western blot analysis of human recombinant SUR-1 fusion protein.

SELECT PRODUCT CITATIONS

1. Lockridge, A., et al. 2020. Islet O-GlcNAcylation is required for lipid potentiation of Insulin secretion through SERCA2. *Cell Rep.* 31: 107609.

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.