

KIR2.3 (S-22): sc-23632

BACKGROUND

The KIR (for inwardly rectifying potassium channel) family of potassium channels possesses a greater tendency to allow potassium to flow into the cell rather than out of it. The KIR2 subunit family includes 2.1, 2.2, 2.3 and 2.4. Unlike G protein-coupled KIR3 subunits, KIR2.1 requires both phosphorylation by PKA and ATP hydrolysis for functional activity. KIR2.1 is expressed in the superior and inferior collicula and the pontine region of the brain, where it moderates synaptic transmission, like many other potassium channels. In the placenta, KIR2.1 is expressed throughout gestation in cytotrophoblast cells. In the kidney, KIR2.1 colocalizes with KIR5.1 in the proximal tubule. KIR2.1, 2.2 and 2.3 associate with the membrane-associated guanylate kinase synapse-associated protein 97 in the cerebellum and heart. Phosphorylation of KIR2.2 by protein kinase A inhibits the associates with SAP97. Arachidonic acid increases current amplitude in KIR2.3 activity but does not affect the activity of KIR2.1, 2.2 or 2.4. KIR2.4 is abundantly expressed in the neuronal retina and is sensitive to changes in extracellular pH.

REFERENCES

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- Isomoto, S., et al. 1997. Inwardly rectifying potassium channels: their molecular heterogeneity and function. *Jpn. J. Physiol.* 47: 11-39.
- Mylona, P., et al. 1998. Expression of the KIR2.1 (inwardly rectifying potassium channel) gene in the human placenta and in cultured cytotrophoblast cells at different stages of differentiation. *Mol. Hum. Reprod.* 4: 195-200.
- Hughes, B.A., et al. 2000. Cloning and functional expression of human retinal KIR2.4, a pH-sensitive inwardly rectifying K⁺ channel. *Am. J. Physiol. Cell. Physiol.* 279: 771-784.
- Liu, Y., et al. 2001. Direct activation of an inwardly rectifying potassium channel by arachidonic acid. *Mol. Pharmacol.* 59: 1061-1068.
- Leonoudakis, D., et al. 2001. Inward rectifier potassium channel KIR2.2 is associated with synapse-associated protein SAP97. *J. Cell Sci.* 114: 987-998.
- Derst, C., et al. 2001. Genetic and functional linkage of KIR5.1 and KIR2.1 channel subunits. *FEBS Lett.* 491: 305-311.

CHROMOSOMAL LOCATION

Genetic locus: KCNJ4 (human) mapping to 22q13.1; Kcnj4 (mouse) mapping to 15 E1.

SOURCE

KIR2.3 (S-22) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of KIR2.3 of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-23632 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

KIR2.3 (S-22) is recommended for detection of KIR2.3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

KIR2.3 (S-22) is also recommended for detection of KIR2.3 in additional species, including canine, porcine and avian.

Suitable for use as control antibody for KIR2.3 siRNA (h): sc-42614, KIR2.3 siRNA (m): sc-42615, KIR2.3 shRNA Plasmid (h): sc-42614-SH, KIR2.3 shRNA Plasmid (m): sc-42615-SH, KIR2.3 shRNA (h) Lentiviral Particles: sc-42614-V and KIR2.3 shRNA (m) Lentiviral Particles: sc-42615-V.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

- Park, W.S., et al. 2005. Activation of inward rectifier K⁺ channels by hypoxia in rabbit coronary arterial smooth muscle cells. *Am. J. Physiol. Heart Circ. Physiol.* 289: H2461-H2467.
- Park, W.S., et al. 2005. Endothelin-1 inhibits inward rectifier K⁺ channels in rabbit coronary arterial smooth muscle cells through protein kinase C. *J. Cardiovasc. Pharmacol.* 46: 681-689.
- Liu, A., et al. 2010. Functional characterization of inward rectifier potassium ion channel in murine fetal ventricular cardiomyocytes. *Cell. Physiol. Biochem.* 26: 413-420.

RESEARCH USE

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

PROTOCOLS

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