SANTA CRUZ BIOTECHNOLOGY, INC.

KIR4.1 (1C11): sc-293252

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The KIR (for inwardly rectifying potassium channel) family of potassium channels possess a greater tendency to allow potassium to flow into the cell rather than out of it. KIR4.1, also known as Kir1.2, is highly expressed in brain including glial cells, astrocytes and cortical neurons. KIR4.1 is also expressed in myelin-synthesizing oligodendrocytes and is crucial to myelination in the developing nervous system. The gene encoding human KIR4.1 maps to chromosome 1q23.2. KIR4.2, also known as Kir1.3, is expressed in kidney, lung, heart, thymus and thyroid during development. The gene encoding human KIR4.2 maps to chromosome 21 in the Down syndrome chromosome region 1, and KIR4.2 may play a role in the pathogenesis of Down's syndrome. KIR5.1 forms functional channels only by coexpression with either KIR4.1 or KIR4.2 in the kidney and pancreas. The gene encoding human KIR5.1 maps to chromosome 17q24.3.

REFERENCES

1. Gosset, P., et al. 1997. A new inward rectifier potassium channel gene (KCNJ15) localized on chromosome 21 in the Down syndrome chromosome region 1 (DCR1). Genomics 44: 237-241.
2. Isomoto, S., et al. 1997. Inwardly rectifying potassium channels: their molecular heterogeneity and function. J. Physiol. 47: 11-39.
3. Shuck, M.E., et al. 1997. Cloning and characterization of two K^+ inward rectifier (Kir) 1.1 potassium channel homologs from human kidney (Kir1.2 and Kir1.3). J. Biol. Chem. 272: 586-593.
4. Thiery, E., et al. 2000. Developmentally regulated expression of the murine ortholog of the potassium channel KIR4.2 (KCNJ15). Mech. Dev. 95: 313-336.
5. Liu, Y., et al. 2000. The human inward rectifier K^+ channel subunit KIR5.1 (KCNJ16) maps to chromosome 17q25 and is expressed in kidney and pancreas. Cytogenet. Cell Genet. 90: 60-63.
6. Pessia, M., et al. 2001. Differential pH sensitivity of KIR4.1 and KIR4.2 potassium channels and their modulation by heteropolymerisation with KIR5.1. J. Physiol. 532: 359-367.
7. Li, L., et al. 2001. Identification of an inward rectifier potassium channel gene expressed in mouse cortical astrocytes. Glia 33: 57-71.
8. Neusch, C., et al. 2001. KIR4.1 potassium channel subunit is crucial for oligodendrocyte development and *in vivo* myelination. J. Neurosci. 21: 5429-5438.

CHROMOSOMAL LOCATION

Genetic locus: KCNJ10 (human) mapping to 1q23.2; Kcnj10 (mouse) mapping to 1 H3.

SOURCE

KIR4.1 (1C11) is a mouse monoclonal antibody raised against amino acids 276-379 of KIR4.1 of human origin.

RESEARCH USE

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

PRODUCT

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

APPLICATIONS

KIR4.1 (1C11) is recommended for detection of KIR4.1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

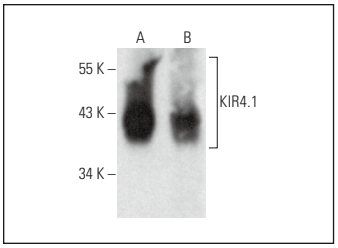
Suitable for use as control antibody for KIR4.1 siRNA (h): sc-42624, KIR4.1 siRNA (m): sc-42625, KIR4.1 siRNA (r): sc-156035, KIR4.1 shRNA Plasmid (h): sc-42624-SH, KIR4.1 shRNA Plasmid (m): sc-42625-SH, KIR4.1 shRNA Plasmid (r): sc-156035-SH, KIR4.1 shRNA (h) Lentiviral Particles: sc-42624-V, KIR4.1 shRNA (m) Lentiviral Particles: sc-42625-V and KIR4.1 shRNA (r) Lentiviral Particles: sc-156035-V.

Positive Controls: mouse brain extract: sc-2253 or rat brain extract: sc-2392.

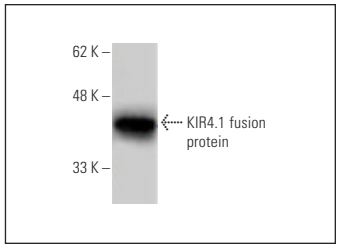
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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



KIR4.1 (1C11): sc-293252. Western blot analysis of KIR4.1 expression in mouse brain (**A**) and rat brain (**B**) tissue extracts.



KIR4.1 (1C11): sc-293252. Western blot analysis of human recombinant KIR4.1 fusion protein.

SELECT PRODUCT CITATIONS

1. Saume, A., et al. 2021. LDLR expression in the cochlea suggests a role in endolymph homeostasis and cochlear amplification. Hear. Res. 409: 108311.
2. Formaggio, F., et al. 2022. Dynamic expression of homeostatic ion channels in differentiated cortical astrocytes *in vitro*. Pflugers Arch. 474: 243-260.

STORAGE

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