SANTA CRUZ BIOTECHNOLOGY, INC.

KIR7.1 (C-12): sc-398810

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

G protein-coupled inwardly rectifying potassium channels (KIR3.1 through KIR3.4) are coupled to numerous neurotransmitter receptors in the brain and are abundantly expressed in the olfactory bulb, hippocampus, neocortex, dentate gyrus, cerebellar cortex and thalamus regions of the brain. Also known as GIRK, Kir3 potassium channels localize to the soma and dendrites as well as axons of neurons. Liberated $G_{\beta\gamma}$ subunits from G protein heterotrimers bind to and regulate Kir3 channel activity. $G_{\beta 3}$- and $G_{\beta 4}$-containing $G_{\beta\gamma}$ dimers bind directly to cytoplasmic domains of Kir3 proteins and increase the K^+ current while $G_{\beta 5}$-containing $G_{\beta\gamma}$ dimers inhibit Kir3 K^+ current. Kir3 activity is also inhibited by tyrosine phosphorylation. Brain-derived neurotrophic factor activates receptor tyrosine kinase B, which then phosphorylates Kir3 tyrosine residues, effectively inactivating the Kir3 channels.

CHROMOSOMAL LOCATION

Genetic locus: KCNJ13 (human) mapping to 2q37.1; Kcnj13 (mouse) mapping to 1 D.

SOURCE

KIR7.1 (C-12) is a mouse monoclonal antibody raised against amino acids 287-360 mapping at the C-terminus of KIR7.1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

KIR7.1 (C-12) is available conjugated to agarose (sc-398810 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-398810 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398810 PE), fluorescein (sc-398810 FITC), Alexa Fluor® 488 (sc-398810 AF488), Alexa Fluor® 546 (sc-398810 AF546), Alexa Fluor® 594 (sc-398810 AF594) or Alexa Fluor® 647 (sc-398810 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398810 AF680) or Alexa Fluor® 790 (sc-398810 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

KIR7.1 (C-12) is recommended for detection of KIR7.1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for KIR7.1 siRNA (h): sc-42630, KIR7.1 siRNA (m): sc-155912, KIR7.1 shRNA Plasmid (h): sc-42630-SH, KIR7.1 shRNA Plasmid (m): sc-155912-SH, KIR7.1 shRNA (h) Lentiviral Particles: sc-42630-V and KIR7.1 shRNA (m) Lentiviral Particles: sc-155912-V.

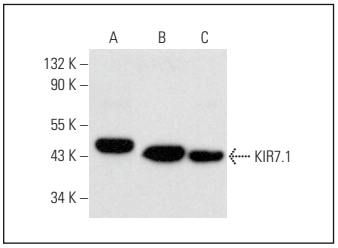
Molecular Weight of KIR7.1: 67 kDa.

Positive Controls: mouse cerebellum extract: sc-2403, human brain extract: sc-364375 or rat eye extract: sc-364805.

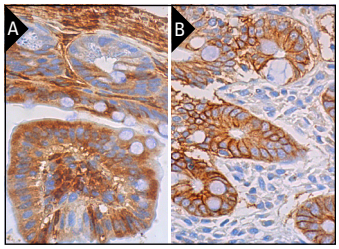
RECOMMENDED SUPPORT REAGENTS

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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



KIR7.1 (C-12): sc-398810. Western blot analysis of KIR7.1 expression in mouse cerebellum (**A**), human brain (**B**) and rat eye (**C**) tissue extracts.



KIR7.1 (C-12): sc-398810. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse small intestine tissue showing cytoplasmic staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing membrane and cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Shannon, M.L., et al. 2018. Mice expressing Myc in neural precursors develop choroid plexus and ciliary body tumors. Am. J. Pathol. 188: 1334-1344.
2. Jiao, X., et al. 2022. Retinal development and pathophysiology in Kcnj13 knockout mice. Front. Cell Dev. Biol. 9: 810020.
3. Robert, S.M., et al. 2023. The choroid plexus links innate immunity to CSF dysregulation in hydrocephalus. Cell 186: 764-785.e21.

STORAGE

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

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.

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