

KIR3.1 (A-4): sc-365457

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.

REFERENCES

1. Braun, A.P., et al. 1992. Activation of α_1 -adrenoceptors modulates the inwardly rectifying potassium currents of mammalian atrial myocytes. *Pflugers Arch.* 421: 431-439.
2. Ponce, A., et al. 1996. G protein-gated inward rectifier K^+ channel proteins (GIRK1) are present in the soma and dendrites as well as in nerve terminals of specific neurons in the brain. *J. Neurosci.* 16: 1990-2001.
3. Farkas, R.H., et al. 1997. Neurotensin and dopamine D2 activation oppositely regulate the same K^+ conductance in rat midbrain dopaminergic neurons. *Neurosci. Lett.* 231: 21-24.
4. Lei, Q., et al. 2000. Activation and inhibition of G protein-coupled inwardly rectifying potassium (KIR3) channels by G protein by subunits. *Proc. Natl. Acad. Sci. USA* 97: 9771-9776.

CHROMOSOMAL LOCATION

Genetic locus: KCNJ3 (human) mapping to 2q24.1; Kcnj3 (mouse) mapping to 2 C1.1.

SOURCE

KIR3.1 (A-4) is a mouse monoclonal antibody raised against amino acids 356-500 mapping within a C-terminal cytoplasmic domain of KIR3.1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG $_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

KIR3.1 (A-4) is available conjugated to agarose (sc-365457 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365457 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365457 PE), fluorescein (sc-365457 FITC), Alexa Fluor[®] 488 (sc-365457 AF488), Alexa Fluor[®] 546 (sc-365457 AF546), Alexa Fluor[®] 594 (sc-365457 AF594) or Alexa Fluor[®] 647 (sc-365457 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-365457 AF680) or Alexa Fluor[®] 790 (sc-365457 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

KIR3.1 (A-4) is recommended for detection of KIR3.1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], 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).

Suitable for use as control antibody for KIR3.1 siRNA (h): sc-42616, KIR3.1 siRNA (m): sc-42617, KIR3.1 shRNA Plasmid (h): sc-42616-SH, KIR3.1 shRNA Plasmid (m): sc-42617-SH, KIR3.1 shRNA (h) Lentiviral Particles: sc-42616-V and KIR3.1 shRNA (m) Lentiviral Particles: sc-42617-V.

Molecular Weight of KIR3.1: 56 kDa.

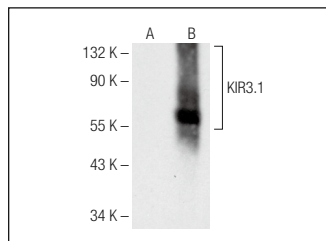
Positive Controls: KIR3.1 (h2): 293T Lysate: sc-159579, mouse brain extract: sc-2253 or mouse cerebellum extract: sc-2403.

RECOMMENDED SUPPORT REAGENTS

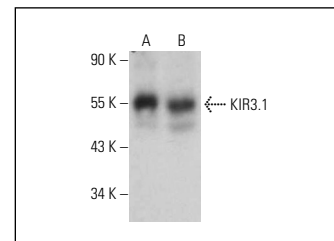
To ensure optimal results, the following support reagents are recommended:

- 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).
- 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

DATA



KIR3.1 (A-4): sc-365457. Western blot analysis of KIR3.1 expression in non-transfected: sc-117752 (A) and human KIR3.1 transfected: sc-159579 (B) 293T whole cell lysates.



KIR3.1 (A-4): sc-365457. Western blot analysis of KIR3.1 expression in mouse brain (A) and mouse cerebellum (B) tissue extracts.

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.