SANTA CRUZ BIOTECHNOLOGY, INC.

KIR3.4 (8D2): sc-293378

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 hetero-trimers 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 neuro-trophic 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.
5. Rogalski, S.L., et al. 2000. TrkB activation by brain-derived neurotrophic factor inhibits the G protein-gated inward rectifier KIR3 by tyrosine phosphorylation of the channel. J. Biol. Chem. 275: 25082-25088.

CHROMOSOMAL LOCATION

Genetic locus: KCNJ5 (human) mapping to 11q24.3.

SOURCE

KIR3.4 (8D2) is a mouse monoclonal antibody raised against amino acids 321-419 of KIR3.4 of human origin.

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.

STORAGE

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

PROTOCOLS

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

APPLICATIONS

KIR3.4 (8D2) is recommended for detection of KIR3.4 of 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 KIR3.4 siRNA (h): sc-42622, KIR3.4 shRNA Plasmid (h): sc-42622-SH and KIR3.4 shRNA (h) Lentiviral Particles: sc-42622-V.

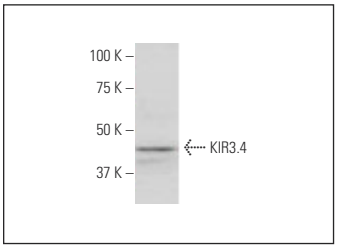
Molecular Weight of KIR3.4: 48 kDa.

Positive Control: K-562 whole cell lysate: sc-2203.

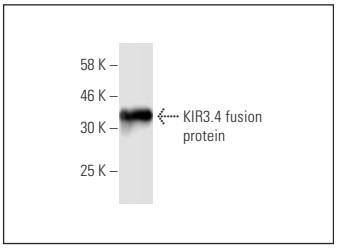
RECOMMENDED SUPPORT REAGENTS

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



KIR3.4 (8D2): sc-293378. Western blot analysis of KIR3.4 expression in K-562 whole cell lysate.



KIR3.4 (8D2): sc-293378. Western blot analysis of human recombinant KIR3.4 fusion protein.

RESEARCH USE

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