

KIR3.1 (h2): 293T Lysate: sc-159579

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., Fedida, D. and Giles, W.R. 1992. Activation of $\alpha 1$ -adrenoceptors modulates the inwardly rectifying potassium currents of mammalian atrial myocytes. *Pflugers Arch.* 421: 431-439.
2. Ponce, A., Bueno, E., Kentros, C., Vega-Saenz de Miera, E., Chow, A., Hillman, D., Chen, S., Zhu, L., Wu, M.B., Wu, X., Rudy, B. and Thornhill, W.B. 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., Chien, P.Y., Nakajima, S. and Nakajima, Y. 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., Jones, M.B., Talley, E.M., Schrier, A.D., McIntire, W.E., Garrison, J.C. and Bayliss, D.A. 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., Appleyard, S.M., Pattillo, A., Terman, G.W. and Chavkin, C. 2000. Trk B 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: KCNJ3 (human) mapping to 2q24.1.

PRODUCT

KIR3.1 (h2): 293T Lysate represents a lysate of human KIR3.1 transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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

APPLICATIONS

KIR3.1 (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive KIR3.1 antibodies. Recommended use: 10-20 μ l per lane.

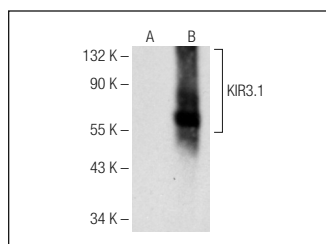
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

KIR3.1 (A-4): sc-365457 is recommended as a positive control antibody for Western Blot analysis of enhanced human KIR3.1 expression in KIR3.1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

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.

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.

RESEARCH USE

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