

KVβ (F-7): sc-377099

BACKGROUND

Voltage-gated K⁺ channels in the plasma membrane control the repolarization and the frequency of action potentials in neurons, muscles and other excitable cells. The KV gene family encodes more than 30 proteins that comprise the subunits of the K⁺ channels, and they vary in their gating and permeation properties, subcellular distribution and expression patterns. Functional KV channels assemble as tetramers consisting of pore-forming α subunits (KV), which include the KV1, KV2, KV3 and KV4 proteins, and accessory or KV-subunits that modify the gating properties of the coexpressed KV subunits. KVβ, also known as KCNAB1 (potassium voltage-gated channel, shaker-related subfamily, β member 1), is a 419 amino acid accessory K⁺ channel protein that exists as three alternatively spliced isoforms and regulates the activity of the pore-forming α subunit. It is expressed in brain, with highest levels detected in caudate nucleus, hippocampus and thalamus.

REFERENCES

1. Majumder, K., et al. 1995. Molecular cloning and functional expression of a novel potassium channel β subunit from human atrium. *FEBS Lett.* 361: 13-16.
2. Morales, M.J., et al. 1995. A novel β subunit increase potassium channel α subunits. *J. Biol. Chem.* 270: 6272-6277.
3. England, S.K., et al. 1995. Characterization of a voltage-gated K⁺ channel β subunit expressed in human heart. *Proc. Natl. Acad. Sci. USA* 92: 6309-6313.
4. McCormack, K., et al. 1995. Alternative splicing of the human expression of the β 2 gene product. *FEBS Lett.* 370: 32-36.
5. England, S.K., et al. 1995. A novel K⁺ channel β-subunit (hKVβ 1.3) is produced via alternative mRNA splicing. *J. Biol. Chem.* 270: 28531-28534.

CHROMOSOMAL LOCATION

Genetic locus: KCNAB1 (human) mapping to 3q25.31, KCNAB2 (human) mapping to 1p36.31; Kcnab1 (mouse) mapping to 3 E1, Kcnab2 (mouse) mapping to 4 E2.

SOURCE

KVβ (F-7) is a mouse monoclonal antibody against amino acids 120-419 mapping at the C-terminus of KVβ.1 of human origin.

PRODUCT

Each vial contains 200 μg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

KVβ (F-7) is available conjugated to agarose (sc-377099 AC), 500 μg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-377099 HRP), 200 μg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-377099 PE), fluorescein (sc-377099 FITC), Alexa Fluor® 488 (sc-377099 AF488), Alexa Fluor® 546 (sc-377099 AF546), Alexa Fluor® 594 (sc-377099 AF594) or Alexa Fluor® 647 (sc-377099 AF647), 200 μg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-377099 AF680) or Alexa Fluor® 790 (sc-377099 AF790), 200 μg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

KVβ (F-7) is recommended for detection of KVβ.1 and KVβ.2 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross react with KVβ.3.

KVβ (F-7) is also recommended for detection of KVβ.1 and KVβ.2 in additional species, including equine, canine, bovine and porcine.

Molecular Weight of KVβ: 47 kDa.

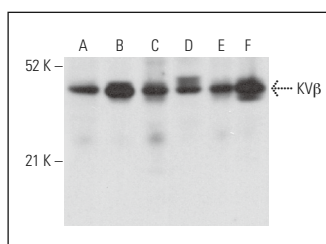
Positive Controls: mouse cerebellum extract: sc-2403, human brain extract: sc-364375 or mouse brain extract: sc-2253.

RECOMMENDED SUPPORT REAGENTS

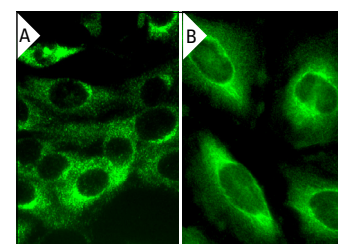
To ensure optimal results, the following support reagents are recommended:

- 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.

DATA



KVβ (F-7): sc-377099. Western blot analysis of KVβ expression in mouse brain (A), human brain (B), mouse spinal cord (C), mouse cerebellum (D), rat hippocampus (E) and human cerebellum (F) tissue extracts.



KVβ (F-7): sc-377099. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization (A). Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (B).

SELECT PRODUCT CITATIONS

1. Liu, T.T., et al. 2022. Atypical E3 ligase ZFP91 promotes small-molecule-induced E2F2 transcription factor degradation for cancer therapy. *EBioMedicine* 86: 104353.

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.

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