SANTA CRUZ BIOTECHNOLOGY, INC.

TWIK-1 (4D7): sc-517040

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

K^+ channels are divided into three subclasses, reflecting the number of transmembrane segments (TMS), which are designated 6TMS, 4TMS, and 2TMS. Members of the 4TMS class contain two distinct pore regions, and include TASK, TREK, TRAAK, and TWIK. TWIK-1 mRNA is expressed abundantly in brain and at lower levels in lung, kidney, and skeletal muscle. TWIK-2 shares low sequence homology with other mammalian family group members, and only 34% homology with TWIK-1. Human TWIK-2 is expressed in pancreas, placenta and heart, while mouse TWIK-2 is expressed in liver. TWIK-2 is inhibited by intracellular, but not extracellular, acidification.

REFERENCES

1. Lesage, F., et al. 1996. TWIK-1, a ubiquitous human weakly inward rectifying K^+ channel with a novel structure. EMBO J. 15: 1004-1011.
2. Fink, M., et al. 1996. Cloning, functional expression and brain localization of a novel unconventional outward rectifier K^+ channel. EMBO J. 15: 6854-6862.
3. Duprat, F., et al. 1997. TASK, a human background K^+ channel to sense external pH variations near physiological pH. EMBO J. 16: 5464-5471.
4. Lesage, F., et al. 1997. The structure, function and distribution of the mouse TWIK-1 K^+ channel. FEBS Lett. 402: 28-32.
5. Maingret, F., et al 1999. TRAAK is a mammalian neuronal mechano-gated K^+ channel. J. Biol. Chem. 274: 1381-1387.
6. Pountney, D.J., et al. 1999. Identification and cloning of TWIK-originated similarity sequence (TOSS): a novel human 2-pore K^+ channel principal subunit. FEBS Lett. 450: 191-196.
7. Chavez, R.A., et al. 1999. TWIK-2, a new weak inward rectifying member of the tandem pore domain potassium channel family. J. Biol. Chem. 274: 7887-7892.

CHROMOSOMAL LOCATION

Genetic locus: KCNK1 (human) mapping to 1q42.2; Kcnk1 (mouse) mapping to 8 E2.

SOURCE

TWIK-1 (4D7) is a mouse monoclonal antibody raised against amino acids 265-336 representing partial length TWIK-1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 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.

RESEARCH USE

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

APPLICATIONS

TWIK-1 (4D7) is recommended for detection of TWIK-1 of mouse, rat and 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 TWIK-1 siRNA (h): sc-42349, TWIK-1 siRNA (m): sc-42350, TWIK-1 shRNA Plasmid (h): sc-42349-SH, TWIK-1 shRNA Plasmid (m): sc-42350-SH, TWIK-1 shRNA (h) Lentiviral Particles: sc-42349-V and TWIK-1 shRNA (m) Lentiviral Particles: sc-42350-V.

Molecular Weight of reduced TWIK-1: 40 kDa.

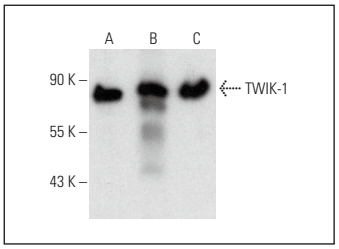
Molecular Weight of TWIK-1: 81 kDa.

Positive Controls: T98G cell lysate: sc-2294, ZR-75-1 cell lysate: sc-2241 or C6 whole cell lysate: sc-364373.

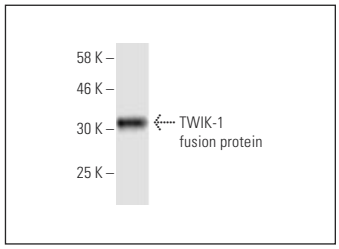
RECOMMENDED SUPPORT REAGENTS

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



TWIK-1 (4D7): sc-517040. Western blot analysis of TWIK-1 expression in T98G (**A**), ZR-75-1 (**B**) and C6 (**C**) whole cell lysates.



TWIK-1 (4D7): sc-517040. Western blot analysis of human recombinant TWIK-1 fusion protein.

SELECT PRODUCT CITATIONS

1. Bae, Y., et al. 2020. Spadin modulates astrocytic passive conductance via inhibition of TWIK-1/TREK-1 heterodimeric channels. Int. J. Mol. Sci. 21: 9639.
2. Jung, H.G., et al. 2021. AEG-1 regulates TWIK-1 expression as an RNA-binding protein in astrocytes. Brain Sci. 11: 85.

PROTOCOLS

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