

Ankyrin G (463): sc-12719

BACKGROUND

Members of the Ankyrin family of proteins mediate the attachment of integral membrane proteins to the cytoskeleton. ANK1, ANK2 and ANK3 genes encode for the proteins in this family, Ankyrin-1 (also designated Ankyrin R), Ankyrin B and Ankyrin G, respectively. The proteins are structured similarly, each composed of an N-terminal domain with multiple Ankyrin repeats, a highly conserved central spectrin binding domain and C-terminal regulatory domains which are susceptible to the most variance. Both Ankyrin B and Ankyrin G are essential for normal neuronal functions. Ankyrin G was originally identified localized to the nodes of Ranvier and axon initial segments where it was found to mediate normal neuronal sodium channel function. Ankyrin G, named for its giant size and general expression, exhibits tissue-specific alternative mRNA processing. The two largest protein isoforms are expressed only in nervous tissue, with additional smaller isoforms found in an array of other tissues including lung, kidney, spleen, liver and heart.

REFERENCES

1. Kordeli, E., et al. 1995. Ankyrin G. A new ankyrin gene with neural-specific isoforms localized at the axonal initial segment and node of Ranvier. *J. Biol. Chem.* 270: 2352-2359.
2. Zhang, X., et al. 1998. Restriction of 480/270-kD Ankyrin G to axon proximal segments requires multiple Ankyrin G-specific domains. *J. Cell Biol.* 142: 1571-1581.

CHROMOSOMAL LOCATION

Genetic locus: ANK3 (human) mapping to 10q21.2; Ank3 (mouse) mapping to 10 B5.3.

SOURCE

Ankyrin G (463) is a mouse monoclonal antibody raised against a synthetic peptide derived from the spectrin-binding domain of Ankyrin G 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.

Ankyrin G (463) is available conjugated to agarose (sc-12719 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-12719 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-12719 PE), fluorescein (sc-12719 FITC), Alexa Fluor[®] 488 (sc-12719 AF488), Alexa Fluor[®] 546 (sc-12719 AF546), Alexa Fluor[®] 594 (sc-12719 AF594) or Alexa Fluor[®] 647 (sc-12719 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-12719 AF680) or Alexa Fluor[®] 790 (sc-12719 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

Ankyrin G (463) is recommended for detection of Ankyrin G 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Ankyrin G (463) is also recommended for detection of Ankyrin G in additional species, including canine.

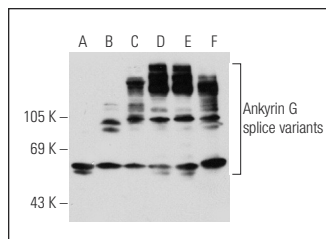
Suitable for use as control antibody for Ankyrin G siRNA (h): sc-43263, Ankyrin G siRNA (m): sc-43268, Ankyrin G shRNA Plasmid (h): sc-43263-SH, Ankyrin G shRNA Plasmid (m): sc-43268-SH, Ankyrin G shRNA (h) Lentiviral Particles: sc-43263-V and Ankyrin G shRNA (m) Lentiviral Particles: sc-43268-V.

Molecular Weight of Ankyrin G brain-specific isoforms: 480/270 kDa.

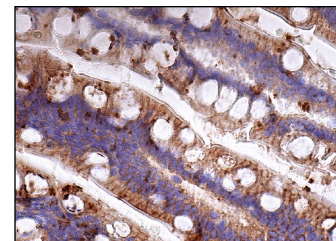
Molecular Weight of other Ankyrin G isoforms: 50-190 kDa.

Positive Controls: SK-N-MC cell lysate: sc-2237, SK-N-SH cell lysate: sc-2410 or IMR-32 cell lysate: sc-2409.

DATA



Ankyrin G (463): sc-12719. Western blot analysis of Ankyrin G expression in SK-N-MC (A), H4 (B), SK-N-SH (C), SH-SY5Y (D), IMR-32 (E) and TE671 (F) whole cell lysates.



Ankyrin G (463): sc-12719. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic and membrane staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Boiko, T., et al. 2003. Functional specialization of the axon initial segment by isoform-specific sodium channel targeting. *J. Neurosci.* 23: 2306-2313.
2. Herde, M.K., et al. 2013. GnRH neurons elaborate a long-range projection with shared axonal and dendritic functions. *J. Neurosci.* 33: 12689-12697.
3. Wang, X., et al. 2014. Thorough GABAergic innervation of the entire axon initial segment revealed by an optogenetic "laserspritzer". *J. Physiol.* 592: 4257-4276.
4. König, H.G., et al. 2017. NFκB regulates neuronal Ankyrin-G via a negative feedback loop. *Sci. Rep.* 7: 42006.
5. Valkova, C., et al. 2017. The sorting receptor Rer1 controls Purkinje cell function via voltage gated sodium channels. *Sci. Rep.* 7: 41248.

RESEARCH USE

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