SANTA CRUZ BIOTECHNOLOGY, INC.

4.1R (D-11): sc-514096

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The 4.1 gene family encodes a group of multifunctional cytoskeletal proteins (4.1R, 4.1G, 4.1N and 4.1B), which are predominantly expressed in the nervous system. 4.1G is a protein that stabilizes spectrin-actin interactions and is associated with hereditary elliptocytosis. Red blood cell 4.1, designated 4.1R, is a multifunctional protein that is essential for maintaining erythrocyte shape and membrane mechanical properties. Both 4.1R and 4.1G are distributed in a unique pattern in the cerebellum and are believed to modulate the membrane mechanical properties of neuronal cells by promoting fodrin/actin association. 4.1N and 4.1B, designated EPB41L1 and EPB41L3, respectively, are strongly expressed in the brain. Antibodies to 4.1N have been reported to detect mulitple forms, each enriched in postsynaptic density preparations relative to brain homogenate. Antibodies to 4.1B have been reported to detect two forms.

REFERENCES

1. Peters, L.L., et al. 1998. Four paralogous protein 4.1 genes map to distinct chromosomes in mouse and human. Genomics 54: 348-350.
2. Takakuwa, Y. 2000. Protein 4.1, a multifunctional protein of the erythrocyte membrane skeleton: structure and functions in erythrocytes and nonerythroid cells. Int. J. Hematol. 72: 298-309.
3. Ohara, R., et al. 2000. Type II brain 4.1 (4.1B/KIAA0987), a member of the protein 4.1 family, is localized to neuronal paranodes. Brain Res. Mol. Brain Res. 85: 41-52.
4. Kontrogianni-Konstantopoulos, A., et al. 2001. The prototypical 4.1R-10 kDa domain and the 4.1G-10 kDa paralog mediate fodrin-Actin complex formation. J. Biol. Chem. 276: 20679-20687.
5. Scott, C., et al. 2001. Protein 4.1 in forebrain postsynaptic density preparations: enrichment of 4.1 gene products and detection of 4.1R binding proteins. Eur. J. Biochem. 268: 1084-1094.
6. LocusLink Report (LocusID: 2036). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: EPB41 (human) mapping to 1p35.3.

SOURCE

4.1R (D-11) is a mouse monoclonal antibody raised against amino acids 81-180 mapping within an internal region of 4.1R of human origin.

PRODUCT

Each vial contains 200 µg IgA 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

4.1R (D-11) is recommended for detection of 4.1R of 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).

Suitable for use as control antibody for 4.1R siRNA (h): sc-40295, 4.1R shRNA Plasmid (h): sc-40295-SH and 4.1R shRNA (h) Lentiviral Particles: sc-40295-V.

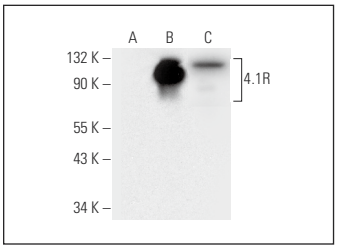
Molecular Weight of 4.1R isoforms: 80/135 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, 4.1R (h): 293T Lysate: sc-114567 or MOLT-4 cell lysate: sc-2233.

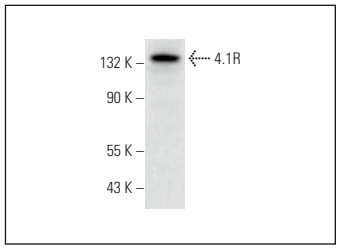
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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



4.1R (D-11): sc-514096. Western blot analysis of 4.1R expression in non-transfected 293T: sc-117752 (**A**), human 4.1R transfected 293T: sc-114567 (**B**) and MOLT-4 (**C**) whole cell lysates.



4.1R (D-11): sc-514096. Western blot analysis of 4.1R expression in CCRF-CEM whole cell lysate.

RESEARCH USE

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