SANTA CRUZ BIOTECHNOLOGY, INC.

Rootletin (E-5): sc-390720

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Rootletin, also known as CROCC (ciliary rootlet coiled-coil protein), is a 2,017 amino acid protein that forms centriole-associated fibrous structures and is an essential component of the ciliary rootlet. Localized to basal bodies and centrosomes in ciliated and nonciliated cells, respectively, Rootletin associates with the proximal ends of basal bodies and, in photoreceptors, functions to form elongated polymers between them. Rootletin is required for centrosome cohesion and, through interaction with C-Nap1 (a centrosomal protein present at the ends of the centrioles), can regulate the linkage of centrioles to basal bodies. Rootletin exists as a homopolymer whose association with centrosomes can be regulated via phosphorylation by Nek2 (NIMA-related kinase 2). Two isoforms exist due to alternative splicing events.

REFERENCES

1. Yang, J., et al. 2002. Rootletin, a novel coiled-coil protein, is a structural component of the ciliary rootlet. J. Cell Biol. 159: 431-440.
2. Yang, J., et al. 2005. The ciliary rootlet maintains long-term stability of sensory cilia. Mol. Cell. Biol. 25: 4129-4137.
3. Bahe, S., et al. 2005. Rootletin forms centriole-associated filaments and functions in centrosome cohesion. J. Cell Biol. 171: 27-33.
4. Yang, J., et al. 2006. Focus on molecules: rootletin. Exp. Eye Res. 83: 1-2.
5. Yang, J., et al. 2006. Rootletin interacts with C-Nap1 and may function as a physical linker between the pair of centrioles/basal bodies in cells. Mol. Biol. Cell 17: 1033-1040.
6. Mi, J., et al. 2007. Protein phosphatase-1α regulates centrosome splitting through Nek2. Cancer Res. 67: 1082-1089.
7. Graser, S., et al. 2007. Cep68 and Cep215 (Cdk5rap2) are required for centrosome cohesion. J. Cell Sci. 120: 4321-4331.
8. Bahmanyar, S., et al. 2008. β-Catenin is a Nek2 substrate involved in centrosome separation. Genes Dev. 22: 91-105.

CHROMOSOMAL LOCATION

Genetic locus: CROCC (human) mapping to 1p36.13.

SOURCE

Rootletin (E-5) is a mouse monoclonal antibody raised against amino acids 1207-1290 mapping within an internal region of Rootletin of human origin.

PRODUCT

Each vial contains 200 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

Rootletin (E-5) is recommended for detection of Rootletin 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 Rootletin siRNA (h): sc-62960, Rootletin shRNA Plasmid (h): sc-62960-SH and Rootletin shRNA (h) Lentiviral Particles: sc-62960-V.

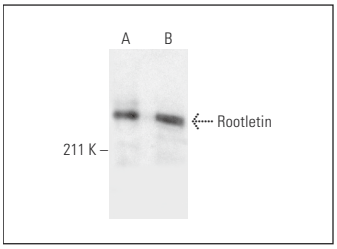
Molecular Weight of Rootletin: 228 kDa.

Positive Controls: Y79 nuclear extract: sc-2126 or Daoy whole cell lysate: sc-364381.

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



Rootletin (E-5): sc-390720. Western blot analysis of Rootletin expression in Y79 nuclear extract (**A**) and Daoy whole cell lysate (**B**).

PROTOCOLS

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