SANTA CRUZ BIOTECHNOLOGY, INC.

CCDC109A (E-9): sc-515930

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

CCDC109A (coiled-coil domain containing 109A), also known as MCU (mitochondrial calcium uniporter), is a 351 amino acid mitochondrial multi-pass membrane protein that belongs to the MCU family. Functioning as a calcium transporter, CCDC109A exists as a homooligomer that interacts with CBARA1 (calcium binding atopy-related autoantigen 1). CCDC109A exists as 3 alternatively spliced isoforms and is encoded by a gene that maps to human chromosome 10, which contains over 800 genes and 135 million nucleotides, making up nearly 4.5% of the human genome. PTEN is an important tumor suppressor gene located on chromosome 10 and, when defective, causes a genetic predisposition to cancer development known as Cowden syndrome. The chromosome 10 encoded gene ERCC6 is important for DNA repair and is linked to Cockayne syndrome which is characterized by extreme photosensitivity and premature aging. Tetrahydrobiopterin deficiency and a number of syndromes involving defective skull and facial bone fusion are also linked to chromosome 10. As with most trisomies, trisomy 10 is rare and is deleterious.

REFERENCES

1. Troelstra, C., et al. 1992. Localization of the nucleotide excision repair gene ERCC6 to human chromosome 10q11-q21. Genomics 12: 745-749.
2. Jabs, E.W., et al. 1994. Jackson-Weiss and Crouzon syndromes are allelic with mutations in fibroblast growth factor receptor 2. Nat. Genet. 8: 275-279.

CHROMOSOMAL LOCATION

Genetic locus: MCU (human) mapping to 10q22.1; Mcu (mouse) mapping to 10 B4.

SOURCE

CCDC109A (E-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 110-129 within an internal region of CCDC109A 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.

CCDC109A (E-9) is available conjugated to agarose (sc-515930 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515930 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515930 PE), fluorescein (sc-515930 FITC), Alexa Fluor® 488 (sc-515930 AF488), Alexa Fluor® 546 (sc-515930 AF546), Alexa Fluor® 594 (sc-515930 AF594) or Alexa Fluor® 647 (sc-515930 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515930 AF680) or Alexa Fluor® 790 (sc-515930 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

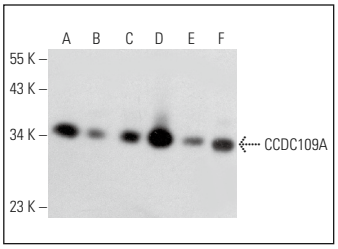
CCDC109A (E-9) is recommended for detection of CCDC109A of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CCDC109A siRNA (h): sc-90666, CCDC109A siRNA (m): sc-142052, CCDC109A shRNA Plasmid (h): sc-90666-SH, CCDC109A shRNA Plasmid (m): sc-142052-SH, CCDC109A shRNA (h) Lentiviral Particles: sc-90666-V and CCDC109A shRNA (m) Lentiviral Particles: sc-142052-V.

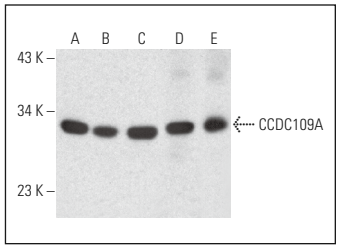
Molecular Weight of CCDC109A: 35 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, SCC-4 whole cell lysate: sc-364363 or human testis extract: sc-363781.

DATA



CCDC109A (E-9): sc-515930. Western blot analysis of CCDC109A expression in HeLa (**A**), SW480 (**B**), FHs 74 Int (**C**) and SCC-4 (**D**) whole cell lysates and human skeletal muscle (**E**) and human testis (**F**) tissue extracts.



CCDC109A (E-9): sc-515930. Western blot analysis of CCDC109A expression in Sol8 (**A**), L8 (**B**) and WEHI-3 (**C**) whole cell lysates and mouse large intestine (**D**) and mouse skeletal muscle (**E**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Assali, E.A., et al. 2020. NCLX prevents cell death during adrenergic activation of the brown adipose tissue. Nat. Commun. 11: 3347.
2. Wang, X., et al. 2020. The regulatory mechanism and biological significance of mitochondrial calcium uniporter in the migration, invasion, angiogenesis and growth of gastric cancer. Onco Targets Ther. 13: 11781-11794.
3. Nakamura, T., et al. 2021. The mitochondrial Ca^{2+} uptake regulator, MICU1, is involved in cold stress-induced ferroptosis. EMBO Rep. 22: e51532.
4. Liu, Z., et al. 2023. IP3R-dependent mitochondrial dysfunction mediates C5b-9-induced ferroptosis in trichloroethylene-caused immune kidney injury. Front. Immunol. 14: 1106693.
5. Taha, M., et al. 2024. NCLX controls hepatic mitochondrial Ca^{2+} extrusion and couples hormone-mediated mitochondrial Ca^{2+} oscillations with gluconeogenesis. Mol. Metab. 87: 101982.

RESEARCH USE

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