SANTA CRUZ BIOTECHNOLOGY, INC.

ATP7B (A-11): sc-373964

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The copper efflux transporters ATP7A and ATP7B sequester intracellular copper into the vesicular secretory pathway for export from the cell. ATP7A functions as a transmembrane copper-translocating P-type ATPase and plays a vital role in systemic copper absorption in the gut and copper reabsorption in the kidney. Polarized epithelial cells such as Madin-Darby canine kidney cells are a physiologically relevant model for systemic copper absorption and reabsorption *in vivo*. Although ATP7A is not detectable in most normal tissues, it is expressed in a considerable fraction of many common tumor types. Increased expression of ATP7A renders cells resistant to cisplatin and carboplatin. Mutations in the ATP7A gene result in Menkes disease, which is fatal in early childhood. Mutations in the ATP7B gene lead to the autosomal recessive disorder, Wilson disease, characterized by neurological symptoms and hepatic damage.

CHROMOSOMAL LOCATION

Genetic locus: ATP7B (human) mapping to 13q14.3; Atp7b (mouse) mapping to 8 A2.

SOURCE

ATP7B (A-11) is a mouse monoclonal antibody raised against amino acids 1372-1465 mapping within a C-terminal cytoplasmic domain of ATP7B 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.

ATP7B (A-11) is available conjugated to agarose (sc-373964 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-373964 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373964 PE), fluorescein (sc-373964 FITC), Alexa Fluor® 488 (sc-373964 AF488), Alexa Fluor® 546 (sc-373964 AF546), Alexa Fluor® 594 (sc-373964 AF594) or Alexa Fluor® 647 (sc-373964 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-373964 AF680) or Alexa Fluor® 790 (sc-373964 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

ATP7B (A-11) is recommended for detection of ATP7B isoforms a and b 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 ATP7B siRNA (h): sc-44491, ATP7B siRNA (m): sc-44492, ATP7B shRNA Plasmid (h): sc-44491-SH, ATP7B shRNA Plasmid (m): sc-44492-SH, ATP7B shRNA (h) Lentiviral Particles: sc-44491-V and ATP7B shRNA (m) Lentiviral Particles: sc-44492-V.

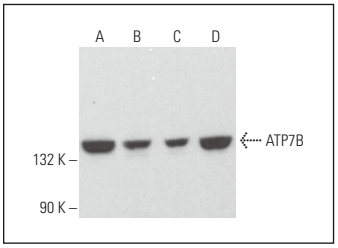
Molecular Weight of ATP7B: 165 kDa.

Positive Controls: c4 whole cell lysate: sc-364186, HEL 92.1.7 cell lysate: sc-2270 or NIH/3T3 whole cell lysate: sc-2210.

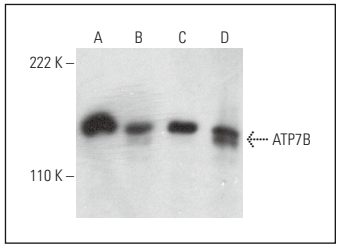
STORAGE

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

DATA



ATP7B (A-11): sc-373964. Western blot analysis of ATP7B expression in U-251-MG (**A**), HEL 92.1.7 (**B**), C2C12 (**C**) and c4 (**D**) whole cell lysates.



ATP7B (A-11): sc-373964. Western blot analysis of ATP7B expression in A-431 (**A**), Hep G2 (**B**), U-251-MG (**C**) and NIH/3T3 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zhang, Y., et al. 2019. Cx32 mediates cisplatin resistance in human ovarian cancer cells by affecting drug efflux transporter expression and activating the EGFR-Akt pathway. Mol. Med. Rep. 19: 2287-2296.
2. Li, X., et al. 2019. Complex ATP7B mutation patterns in Wilson disease and evaluation of a yeast model for functional analysis of variants. Hum. Mutat. 40: 552-565.
3. Liao, Y., et al. 2020. Inflammation mobilizes copper metabolism to promote colon tumorigenesis via an IL-17-STEAP4-XIAP axis. Nat. Commun. 11: 900.
4. Kondo, M., et al. 2021. 6-hydroxydopamine disrupts cellular copper homeostasis in human neuroblastoma SH-SY5Y cells. Metallomics 13: mfab041.
5. Santini, S.J., et al. 2022. Copper-catalyzed dicarbonyl stress in NAFLD mice: protective effects of oleuropein treatment on liver damage. Nutr. Metab. 19: 9.
6. Vitaliti, A., et al. 2023. Akt-driven epithelial-mesenchymal transition is affected by copper bioavailability in HER2 negative breast cancer cells via a LOXL2-independent mechanism. Cell. Oncol. 46: 93-115.
7. Solier, S., et al. 2023. A druggable copper-signalling pathway that drives inflammation. Nature 617: 386-394.
8. Filippone, A., et al. 2023. Inhibition of LRRK2 attenuates depression-related symptoms in mice with moderate traumatic brain injury. Cells 12: 1040.
9. Ogawa, T., et al. 2024. Novel mechanism of cisplatin resistance in head and neck squamous cell carcinoma involving extracellular vesicles and a copper transporter system. Head Neck 46: 636-650.

RESEARCH USE

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