SANTA CRUZ BIOTECHNOLOGY, INC.

MDR1 (G-1): sc-13131

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cells selected for resistance to a single cytotoxic drug may become cross-resistant to a broad range of drugs with different structures and cellular targets. This phenomenon is called multiple drug resistance (MDR). MDR proteins (Mdrs) are members of a highly conserved superfamily of ATP-binding cassette transport proteins. MDR1 is an apical transmembrane protein that is an integral part of the blood-brain barrier and functions as a drug-transport pump transporting a variety of drugs from the brain back into the blood. The MDR1 gene is also known as ABCB1 and is located on human chromosome 7. The mouse homolog of MDR1 is known as Mdr-3. Interestingly, a murine protein by the name of Mdr-1 exists and is encoded by the murine Abcb1b gene, but it is not homologous with human Mdr-1.

CHROMOSOMAL LOCATION

Genetic locus: ABCB1 (human) mapping to 7q21.12.

SOURCE

MDR1 (G-1) is a mouse monoclonal antibody raised against amino acids 1040-1280 of MDR1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

MDR1 (G-1) is available conjugated to agarose (sc-13131 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-13131 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-13131 PE), fluorescein (sc-13131 FITC), Alexa Fluor® 488 (sc-13131 AF488), Alexa Fluor® 546 (sc-13131 AF546), Alexa Fluor® 594 (sc-13131 AF594) or Alexa Fluor® 647 (sc-13131 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-13131 AF680) or Alexa Fluor® 790 (sc-13131 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

MDR1 (G-1) is recommended for detection of MDR1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:200-1,000), 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with Mdr-3.

Suitable for use as control antibody for MDR1 siRNA (h): sc-29395, MDR1 shRNA Plasmid (h): sc-29395-SH and MDR1 shRNA (h) Lentiviral Particles: sc-29395-V.

Molecular Weight of MDR1: 170 kDa.

Positive Controls: Caco-2 cell lysate: sc-2262, human adrenal gland extract: sc-363761 or MES-SA/Dx5 cell lysate: sc-2284.

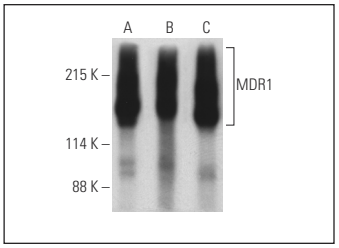
STORAGE

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

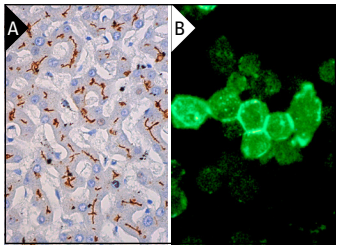
RESEARCH USE

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

DATA



MDR1 (G-1): sc-13131. Western blot analysis of MDR1 expression in MES-SA/Dx5 (**A**) and Caco-2 (**B**) whole cell lysates and human adrenal gland tissue extract (**C**). Detection reagent used: m-IgG_{2b} BP-HRP: sc-542741.



MDR1 (G-1): sc-13131. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing membrane staining of hepatocytes (**A**). Immunofluorescence staining of methanol-fixed MES-SA/Dx5 cells showing membrane localization (**B**).

SELECT PRODUCT CITATIONS

1. Worrad, D.M., et al. 1994. Reversing effect of sorcin in the drug resistance of human nasopharyngeal carcinoma. Development 120: 2347-2357.
2. Hung, T.H., et al. 2014. Wnt5A regulates ABCB1 expression in multidrug-resistant cancer cells through activation of the non-canonical PKA/β-catenin pathway. Oncotarget 5: 12273-12290.
3. Bosco, D.B., et al. 2015. Human mesenchymal stem cells are resistant to Paclitaxel by adopting a non-proliferative fibroblastic state. PLoS ONE 10: e0128511.
4. Bársony, O., et al. 2016. A single active catalytic site is sufficient to promote transport in P-glycoprotein. Sci. Rep. 6: 24810.
5. Ding, Y., et al. 2017. γ-tocotrienol reverses multidrug resistance of breast cancer cells with a mechanism distinct from that of atorvastatin. J. Steroid Biochem. Mol. Biol. 167: 67-77.
6. Du, X., et al. 2018. miR-30 decreases multidrug resistance in human gastric cancer cells by modulating cell autophagy. Exp. Ther. Med. 15: 599-605.
7. Huang, Z., et al. 2019. Mechanisms underlying the increased chemosensitivity of bortezomib-resistant multiple myeloma by silencing nuclear transcription factor Snail1. Oncol. Rep. 41: 415-426.
8. Wang, F., et al. 2020. Reversal of ABCB1-related multidrug resistance by ERK5-IN-1. J. Exp. Clin. Cancer Res. 39: 50.
9. Phatak, V., et al. 2021. Mutant p53 promotes RCP-dependent chemoresistance coinciding with increased delivery of P-glycoprotein to the plasma membrane. Cell Death Dis. 12: 207.

PROTOCOLS

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