SANTA CRUZ BIOTECHNOLOGY, INC.

MRP4 (M4I-10): sc-59614

BACKGROUND

The two members of the large family of ABC transporters known to confer multidrug resistance in human cancer cells are the MDR-1 P-glycoprotein and the multidrug-resistance protein MRP1. MRP1 is an integral membrane protein that contains an MDR-like core, an N-terminal membrane-bound region and a cytoplasmic linker, and it is expressed in various cerebral cells, as well as in lung, testis and peripheral blood. The MRP gene family also includes MRP2, which is alternatively designated cMOAT (for canalicular multispecific organic anion transporter), and MRP3, which are both conjugate export pumps expressed predominantly in hepatocytes. MRP2 localizes exclusively to the apical membrane and is constitutively expressed at a high level in normal liver cells. Conversely, MRP3 localizes to the basolateral membrane where it also mediates the transport of the organic anion S-(2,4-dinitrophenyl-) glutathione toward the basolateral side of the membrane. MRP3 is normally expressed at comparatively lower levels than MRP2 and increases only when secretion across the apical membrane by MRP2 is impaired. MRP6 is highly expressed in liver and kidney, whereas MRP4 and MRP5 are detected in various tissues, yet at much lower levels of expression.

REFERENCES

1. Versantvoort, C.H., et al. 1995. Regulation by glutathione of drug transport in multidrug-resistant human lung tumour cell lines overexpressing multidrug resistance-associated protein. Br. J. Cancer 72: 82-89.
2. Keppler, D. and Konig, J. 1997. Hepatic canalicular membrane 5: expression and localization of the conjugate export pump encoded by the MRP2 (cMRP/cMOAT) gene in liver. FASEB J. 11: 509-516.
3. Kool, M., et al. 1997. Analysis of expression of cMOAT (MRP2), MRP3, MRP4, and MRP5, homologues of the multidrug resistance-associated protein gene (MRP1), in human cancer cell lines. Cancer Res. 57: 3537-3547.
4. Bakos, E., et al. 1998. Functional multidrug resistance protein (MRP1) lacking the N-terminal transmembrane domain. J. Biol. Chem. 273: 32167-32175.

CHROMOSOMAL LOCATION

Genetic locus: ABCC4 (human) mapping to 13q32.1; Abcc4 (mouse) mapping to 14 E4.

SOURCE

MRP4 (M4I-10) is a rat monoclonal antibody raised against amino acids 372-431 of MRP4 of human origin.

PRODUCT

Each vial contains 500 µl culture supernatant containing IgG_{2a} with < 0.1% sodium azide and 0.7% stabilizer protein.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

APPLICATIONS

MRP4 (M4I-10) is recommended for detection of MRP4 of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:10-1:200) and immunofluorescence (starting dilution to be determined by researcher, dilution range 1:10-1:200).

Suitable for use as control antibody for MRP4 siRNA (h): sc-40750, MRP4 siRNA (m): sc-149637, MRP4 shRNA Plasmid (h): sc-40750-SH, MRP4 shRNA Plasmid (m): sc-149637-SH, MRP4 shRNA (h) Lentiviral Particles: sc-40750-V and MRP4 shRNA (m) Lentiviral Particles: sc-149637-V.

Molecular Weight of MRP4: 150 kDa.

Positive Controls: A549 cell lysate: sc-2413.

SELECT PRODUCT CITATIONS

1. Liu, S., et al. 2009. Evaluation of ^{64}Cu(DO3A-xy-TPEP) as a potential PET radiotracer for monitoring tumor multidrug resistance. Bioconjug. Chem. 20: 790-798.
2. Skrypek, N., et al. 2013. The MUC4 mucin mediates gemcitabine resistance of human pancreatic cancer cells via the concentrative nucleoside transporter family. Oncogene 32: 1714-1723.
3. Maeng, H.J., et al. 2014. Upregulation of COX-2 in the lung cancer promotes overexpression of multidrug resistance protein 4 (MRP4) via PGE2-dependent pathway. Eur. J. Pharm. Sci. 62: 189-196.
4. Chen, S.F., et al. 2015. Meloxicam increases intracellular accumulation of doxorubicin via downregulation of multidrug resistance-associated protein 1 (MRP1) in A549 cells. Genet. Mol. Res. 14: 14548-14560.
5. Vellonen, K.S., et al. 2017. Disease-induced alterations in brain drug transporters in animal models of Alzheimer's disease. Theme: drug discovery, development and delivery in Alzheimer's disease guest editor: Davide Brambilla. Pharm. Res. 34: 2652-2662.
6. Verscheijden, L.F.M., et al. 2020. Developmental patterns in human blood-brain barrier and blood-cerebrospinal fluid barrier ABC drug transporter expression. Histochem. Cell Biol. 154: 265-273.
7. Pérez-Pineda, S.I., et al. 2021. Effect of bile acids on the MRP3 and MRP4 expression*: in vitro* study on Hep G2 cells. Ann. Hepatol. 24: 100325.
8. Jiang, Z., et al. 2022. Exercise serum regulates uric acid transporters in normal rat kidney cells. Sci. Rep. 12: 18086.
9. Liu, J., et al. 2024. Triclosan exposure causes abnormal bile acid metabolism through IL-1β-NFκB-Fxr signaling pathway. Ecotoxicol. Environ. Saf. 284: 116989.

RESEARCH USE

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