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Multidrug Resistance Gene

National Cancer Institute

Source

National Cancer Institute. *Multidrug Resistance Gene*. NCI Thesaurus. Code C17967.

Mammalian P-glycoproteins are encoded by the MDR gene family and belong to the ATP-binding cassette vectorial transport protein class; the CFTR chloride channel is also a family member. The human multidrug resistance 1 (MDR1) gene responds to environmental stress, including various anticancer agents. It is a major determinant in the development of resistance to a large number of cancer chemotherapeutic agents. MDR1 and MDR2 P-glycoproteins are large apical cell membrane proteins overproduced in multidrug-resistant (MDR) cancer cells resistant to diverse hydrophobic drugs. P-glycoproteins act as pumps able to extrude drugs from cells at the cost of ATP hydrolysis. MDR is primarily due to increased drug extrusion from the resistant cell. Defense against xenobiotics may be a natural function of these P-glycoproteins.