

ATP binding cassette transporter

ATP-binding cassette transporters (ABC transporters) are members of a protein superfamily that is one of the largest and oldest families with representatives in all extant phyla from prokaryotes to humans.

ABC transporters are transmembrane proteins that utilize the energy of adenosine triphosphate (ATP) binding and hydrolysis to carry out certain biological processes including translocation of various substrates across membranes and non-transport-related processes such as translation of RNA and DNA repair.

They transport a wide variety of substrates across extra- and intracellular membranes, including metabolic products, lipids and sterols, and drugs. ABC transporters are classified as proteins based on the sequence and organization of their ATP-binding cassette (ABC) domain(s). ABC transporters are involved in tumor resistance, cystic fibrosis and a range of other inherited human diseases along with both prokaryotic and eukaryotic (including human) development of resistance to multiple drugs.

Overexpression of adenosine triphosphate-binding cassette (ATP-binding cassette (ABC)) transporters may contribute to intractable epilepsy (IE) by reducing brain accumulation of antiepileptic drugs (AEDs).

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