



Breast Cancer Resistance protein (BCRP), a Novel Member of the ATP-Binding Cassette Family of Transport Proteins

Summary

The ATP binding cassette (ABC) transporters are the largest family of transmembrane proteins and involved in conferring multidrug resistance (MDR) to cancers, often causing the failure of cancer treatments. The discovery of Breast Cancer Resistance Protein (BCRP)/ATP-binding cassette subfamily G member 2 (ABCG2) by Dr. Douglas Ross in 1997 was a major breakthrough in understanding the mechanisms behind MDR and has aided in the discovery of related structures and transporters. This technology is related to the cDNA and protein product of BCRP.

Investigators

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Field

Oncology

Description

Drug discovery target,
methods & antibodies

Technology Status

Licensed; however, licensing
opportunities remain available
– *please inquire*

Patent Status

US Patent 6,313,277 Issued
Foreign Patents Issued in IL,
AU, CA, EU, JP, FR, DE, IT,
ES, UK
DIV Issued in US, AU, IL
CON Issued in US

UMB Docket#

DR-97-047

References

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[Chin J Cancer. 2012
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[Proc Natl Acad Sci U S A. 1998
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Market

There is an increasing prevalence of drug resistance to traditional cancer therapies conferring tremendous economic burden to patients, healthcare practitioners and providers. Common mechanisms of drug resistance entail drug inactivation, drug target alteration, drug efflux, enzymatic deactivation, and defects in apoptosis, senescence, and repair mechanisms. BCRP is involved in drug efflux and the overexpression of BCRP has been demonstrated in cancers of breast, colon, gastric, fibrosarcoma, and myeloma origins. BCRP reagents and products are of considerable interest for drug development and research use. The University of Maryland, Baltimore has licensed this technology to several partners for the purpose of conducting drug development R&D, as well as for the sale of research products related to BCRP.

Technology

BCRP is a 655 amino-acid polypeptide and a member of the ABC superfamily of drug efflux membrane transporters. This technology encompasses the cDNA for BCRP, its nucleotide sequence, and products related to BCRP. Since its discovery, the function and clinical significance of BCRP have expanded to include roles in the regulation of intestinal absorption, biliary and renal secretion and protection of the fetus and brain from toxins.

