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Preface

The ATP-binding cassette (ABC) transporter superfamily contains membrane proteins that utilize the energy of ATP hydrolysis to transport a variety of substrates such as ions, sugars, glycans, cholesterol, peptides, proteins, toxins, antibiotics, and amphipathic natural product anticancer drugs. This superfamily, which includes ~1100 currently known members, is defined by the homology within the ABC region, which includes the Walker A and B motifs found in all ATP-binding proteins, plus a dodecapeptide motif known as the ABC signature region or the linker region. The functional unit is comprised of two ABCs and 12 membrane-spanning domains, which are formed either as a single polypeptide chain or as homo- or heterodimers. The genetic variation in ABC transporter genes is the cause or contributor to a wide variety of human diseases such as cancer, cystic fibrosis, Stargardt disease, age-related macular degeneration, adrenoleukodystrophy, rheumatoid arthritis, insulin-dependent diabetes, Dubin–Johnson syndrome, Tangier disease, familial high-density lipoprotein deficiency, progressive familial intrahepatic cholestasis, and Pseudoxanthoma elasticum.

The review papers in this special issue are based on presentations at the workshop on "ABC transporters and human diseases" held at the National Institutes of Health, Bethesda, Maryland during September 12–14, 1999. This workshop was sponsored by The Center for Cancer Research, National Cancer Institute, NIH. The majority of the articles in this issue discuss the role of ABC transporters in human diseases such as multidrug resistance in cancer, cystic fibrosis, and Stargardt disease. One article catalogs ABC proteins of a protozoan parasite, *Leishmania*, while another one discusses the bacterial arsenite efflux pump, which is similar to an ABC protein. In addition, two articles provide overviews and a complete listing of human ABC transporters. Thus, we believe that this issue will provide the reader with the current status of this rapidly growing and medically important superfamily of membrane transport proteins.

Michael M. Gottesman
Suresh V. Ambudkar

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