

# Mitochondrial ABC Transporters and Iron Metabolism

Alexandra Seguin and Diane McVey Ward<sup>†</sup>

Division of Microbiology and Immunology, Department of Pathology, University of Utah School of Medicine, Salt Lake City, Utah 84132, United States

**Corresponding author:** Diane McVey Ward, PhD, Department of Pathology, University of Utah School of Medicine, Salt Lake City, Utah 84132, United States. Email: diane.ward@hsc.utah.edu

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**Abstract**

ATP-binding cassette (ABC) transporters belong to a large family of membrane proteins that are found in all kingdoms of life and require ATP hydrolysis to transport substrates across membranes [1,2]. They are involved in a large spectrum of biological processes such as

**Keywords:** ABC transporters; Mitochondria; Iron; Heme

## Introduction

ATP-binding cassette (ABC) transporters belong to a large family of membrane proteins that are found in all kingdoms of life and require ATP hydrolysis to transport substrates across membranes [1,2]. They are involved in a large spectrum of biological processes such as





16. Paterson JK, Shukla S, Black CM, Tachiwada T, ; Uf YXS, et al. (2007) Human ABCB6 localizes to both the outer mitochondrial membrane and the plasma membrane. *Biochemistry* 46: 9443-9452.
17. Tsuchida M, Emi Y, Kida Y, Sakaguchi M (2008) Human ABC transporter isoform B6 (ABCB6) localizes primarily in the Golgi apparatus. *Biochem Biophys Res Commun* 369: 369-375.
18. Fukuda Y, Aguilar-Bryan L, Vaxillaire M, Dechaume A, Wang Y, et al. (2011) Conserved intramolecular X<sub>g</sub> ` XY bond is critical to hU W|b| and fate of ATP-binding cassette (ABC) transporters ABCB6 and sulfonyleurea receptor 1 (SUR1)/ABCC8. *JBiol Chem* 286: 8481-8492.
19. Kiss K, Brozik A, Kucsma N, Toth, A, Gera M, et al. (2012) G\ ]b| the paradigm: the putative mitochondrial protein ABCB6 resides in the lysosomes of cells and in the plasma membrane of erythrocytes. *PLoS One* 7: e37378.
20. Kiss K, Kucsma N, Brozik A, Tusnady GE, Bergam P, et al. (2015) Role of the N-terminal transmembrane domain in the endo-lysosomal targeting and function of the human ABCB6 protein. *Biochem J* 467: 127-139.
21. Ulrich DL, Lynch J, Wang Y, Fukuda Y, Nachagari D, et al. (2012) ATP-dependent mitochondrial porphyrin importer ABCB6 protects against phenylhydrazine toxicity. *JBiol Chem* 287: 12679-1269.
22. Helias V, Saison C, Ballif BA, Peyrard T, Takahashi J, et al. (2012) ABCB6 is dispensable for erythropoiesis and g|WY`g the new blood group system. *Langereis Nat Genet* 44: 170-173.
23. Matsumoto K, Hagiya Y, Endo Y, Nakajima M, Ishizuka M, et al. (2015)

associated with modulation of a