ENVIGO

Genetically engineered models (GEMS)

Mrp1 knockout rat

Model	Mrp1 knockout rat
Strain	HsdSage: SD-*Abcc1a*^{tm1Sage}
Location	U.S.
Availability	Cryopreserved

Characteristics/husbandry

+ Homozygous knockouts display total loss of protein via Western blot
+ Decreased transport of glutatione-conjugated substrates
+ Increased bioavailability of specific substrate Fluorescein
+ Background strain: Sprague Dawley

Zygosity genotype

+ Cryopreserved as heterozygous embryos

Research use

+ Drug transport
+ Drug resistance studies
+ Studying excretion pathways in cancer

Origin

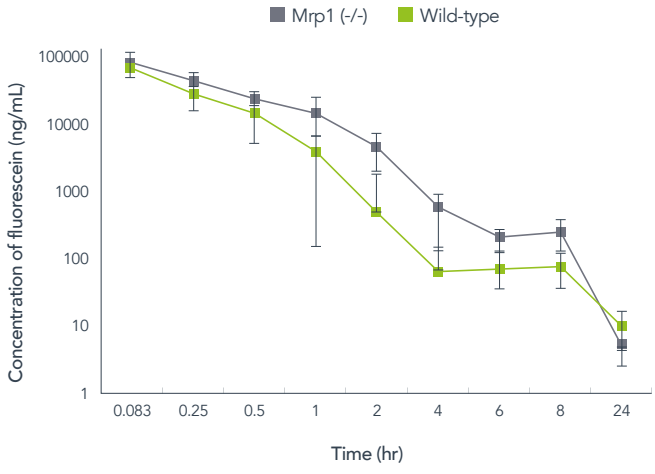
The Mrp1 KO rat model was originally created at SAGE Labs, Inc. in St. Louis, MO and distributed out of the Boyertown, PA facility. The line continues to be maintained through the original SAGE Labs animal inventory acquired by Envigo.

Description

This model contains a 43 base pair bi-allelic deletion within the Mrp1 gene, synonym Abcc1a (ATP-binding cassette, sub-family C [CFTR/MRP], member 1a), encoding an ATP-dependent drug transporter.

Mrp1 is a multispecific organic anion transporter that extrudes glutathione-, glucouronide- or sulfate-conjugated substrates (steroids, leukotrienes, etc.), as well as xenobiotic drugs out of cells. Mrp1 can confer multiple drug resistance to tumor cells. Absence of Mrp1 creates a functional deficiency in the cellular transport of some substrates and results in compromised inflammatory response, making this model useful for studying drug transport in inflammatory stimulus response and chemotherapeutic agents. Mrp1 is cryopreserved. For more information on cryorecovery, please follow the link below.

Figure 1: Increased bioavailability of specific substrate Fluorescein over time(hrs) in Mrp1 homozygous knockout rats versus wild type SD rats.



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