



## Mrp2 knockout rat

Model	Mrp2 knockout rat
Strain	HsdSage: SD- <i>Abcc2</i> <sup>tm1Sage</sup>
Location	U.S.
Availability	Cryopreserved

### Characteristics/husbandry

- + Biallelic 726 bp deletion within *Abcc2* gene
- + Homozygous knockouts display total loss of protein via Western blot
- + Decreased transport of endogenous glutathione
- + Hyperbilirubinemia
- + Background strain: Sprague Dawley

### Zygoty genotype

- + Homozygous

### Research use

- + DMPKPK/PDFormulation
- + Efflux assays
- + Efficacy Drug-drug interactions
- + Tissue distribution
- + Dubin-Johnson syndrome

### Origin

The Mrp2 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

Mrp2 null rats display compromised biliary excretion and hyperbilirubinemia. This results in accumulation of glutathione-conjugated drugs in the liver. Mrp2 is expressed in the liver and functions in biliary transport. The gene's substrates include anticancer compounds such as vinblastine, enabling it to confer multiple drug resistance to tumor cells. This model is useful for formational, efficacy, tissue distribution, and DMPK assays.

**Table 1. Glutathione level of Mrp2 (-/-) and wild type rats (nM/g)**

Tissue	Mrp2 (-/-) Mean	Wild Type Mean	Ratio of WT to KO
Liver Homogenate	1046.7	726.8	0.7
Plasma	12.1	25.0	2.1

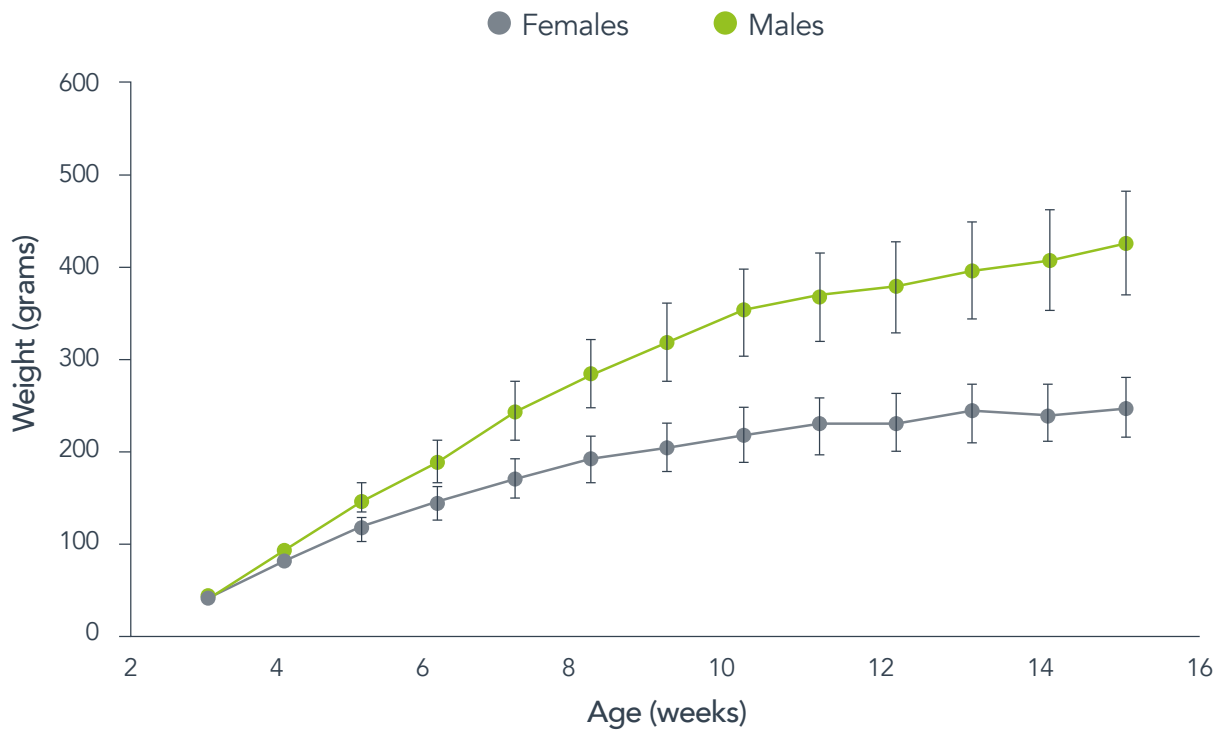
*n=3, 8 week old Mrp2 (-/-) and wild type littermates*

**Table 2. Serum chemistry for Mrp2 (-/-) and wild type rats**

Tissue	Mrp2 (-/-) Mean	Wild Type Mean	Ratio of WT to KO
Albumin (g/L)	38.6	37.1	1.0
Creatine kinase (IU/L)	1657.0	1273.3	0.8
Sodium (mmol/L)	140.3	139.7	1.0
Alkaline phosphatase (IU/L)	127.5	187.7	1.5
Glucose (mmol/L)	5.2	5.7	1.1
Potassium (mmol/L)	5.2	5.7	1.1
Alanine aminotransferase	397.0	124.0	0.3
Total bilirubin (µmol/L)	69.2	0.8	0.1
Chloride (mmol/L)	110.7	107.7	1.0
Aspartate aminotransferase	2030.5	561.0	0.3
Triglycerides (mmol/L)	2.0	3.3	1.7
Urea nitrogen (mmol/L)	5.4	6.4	1.2
Total protein (g/L)	65.8	65.1	1.0
Cholesterol (mmol/L)	2.9	2.0	1.0

*n=3, 8 week old Mrp2 (-/-) and wild type littermates*

**Figure 1: Weight and age comparison chart**



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