

***Abcb11* Cas9-KO Strategy**

Designer: Xiaojing Li
Design Date: 2019-9-16
Reviewer: Jia Yu

Project Overview

Project Name

Abcb11

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Abcb11* gene. The schematic diagram is as follows:



- The *Abcb11* gene has 4 transcripts. According to the structure of *Abcb11* gene, exon4-exon6 of *Abcb11-201* (ENSMUST00000102709.7) transcript is recommended as the knockout region. The region contains 313bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Abcb11* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for targeted mutations that inactivate the gene display intrahepatic cholestasis.
- The *Abcb11* gene is located on the Chr2. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Abcb11 ATP-binding cassette, sub-family B (MDR/TAP), member 11 [Mus musculus (house mouse)]

Gene ID: 27413, updated on 3-Feb-2019

Summary



Official Symbol Abcb11 provided by [MGI](#)

Official Full Name ATP-binding cassette, sub-family B (MDR/TAP), member 11 provided by [MGI](#)

Primary source [MGI:MGI:1351619](#)

See related [Ensembl:ENSMUSG000000027048](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as ABC16, Bsep, Lith1, PFIC2, PGY4, SPGP

Summary The membrane-associated protein encoded by this gene is a member of the superfamily of ATP-binding cassette (ABC) transporters. ABC proteins transport various molecules across extra- and intra-cellular membranes. ABC genes are divided into seven distinct subfamilies (ABC1, MDR/TAP, MRP, ALD, OABP, GCN20, White). This protein is a member of the MDR/TAP subfamily. Members of the MDR/TAP subfamily are involved in multidrug resistance. The protein encoded by this gene is the major canalicular bile salt transporter in humans and mice. Mutations in the human gene cause a form of progressive familial intrahepatic cholestases which are a group of inherited disorders with severe cholestatic liver disease from early infancy. [provided by RefSeq, Jul 2008]

Expression Biased expression in liver adult (RPKM 44.5) and liver E18 (RPKM 21.7) [See more](#)

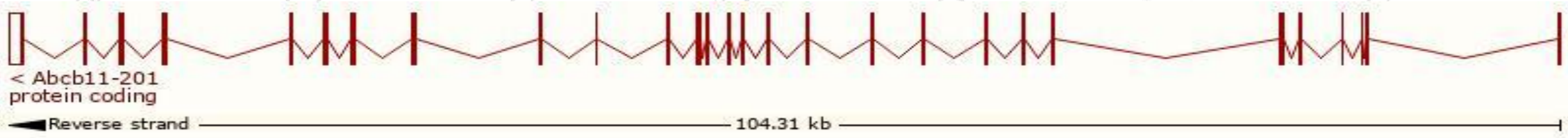
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Abcb11-201	ENSMUST00000102709.7	5025	1321aa	Protein coding	CCDS16090	Q9QY30	TSL:5 GENCODE basic APPRIS P2
Abcb11-202	ENSMUST00000102710.9	4893	1321aa	Protein coding	CCDS16090	Q9QY30	TSL:1 GENCODE basic APPRIS P2
Abcb11-204	ENSMUST00000180142.1	4963	1321aa	Protein coding	-	J3QNY6	TSL:5 GENCODE basic APPRIS ALT2
Abcb11-203	ENSMUST00000133663.1	648	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Abcb11-201* transcript,The transcription is shown below



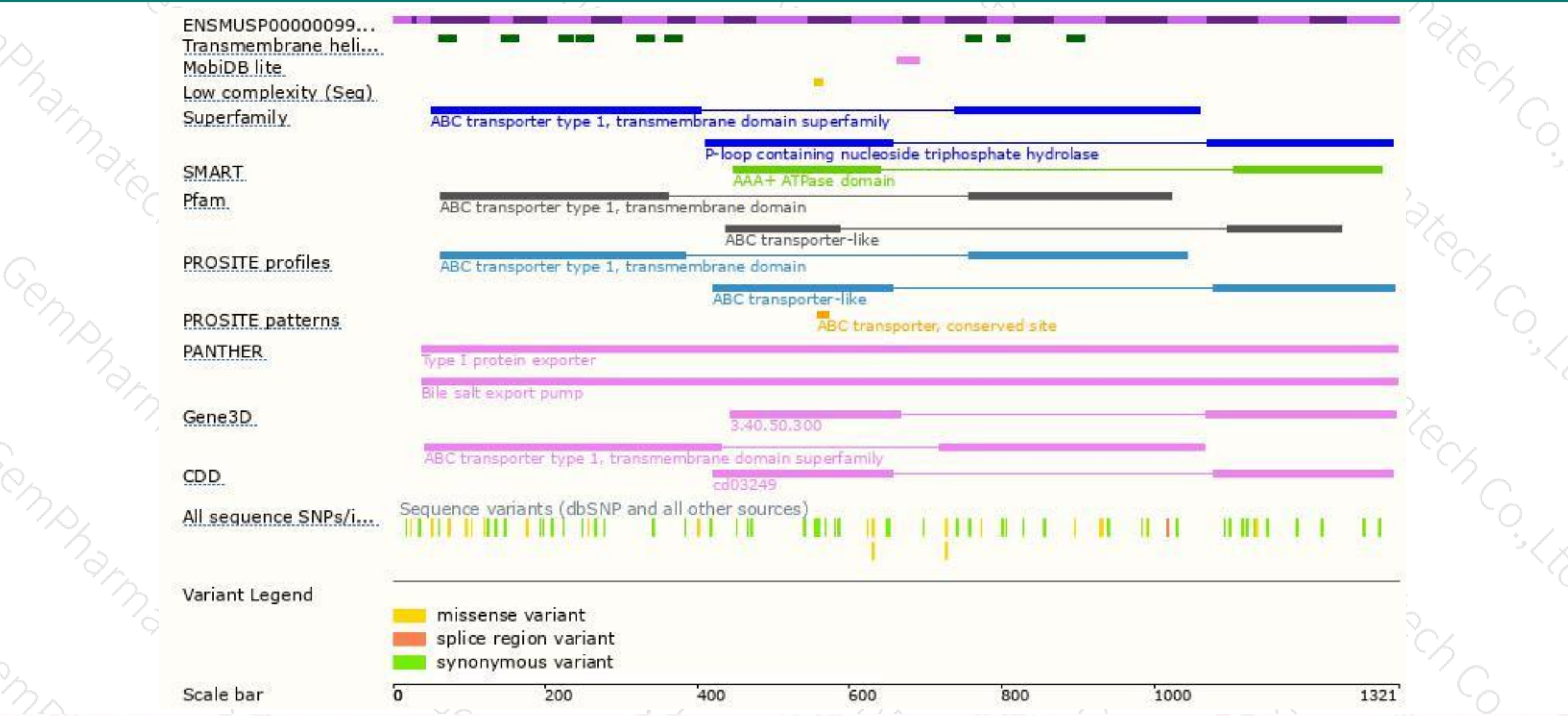
Genomic location distribution



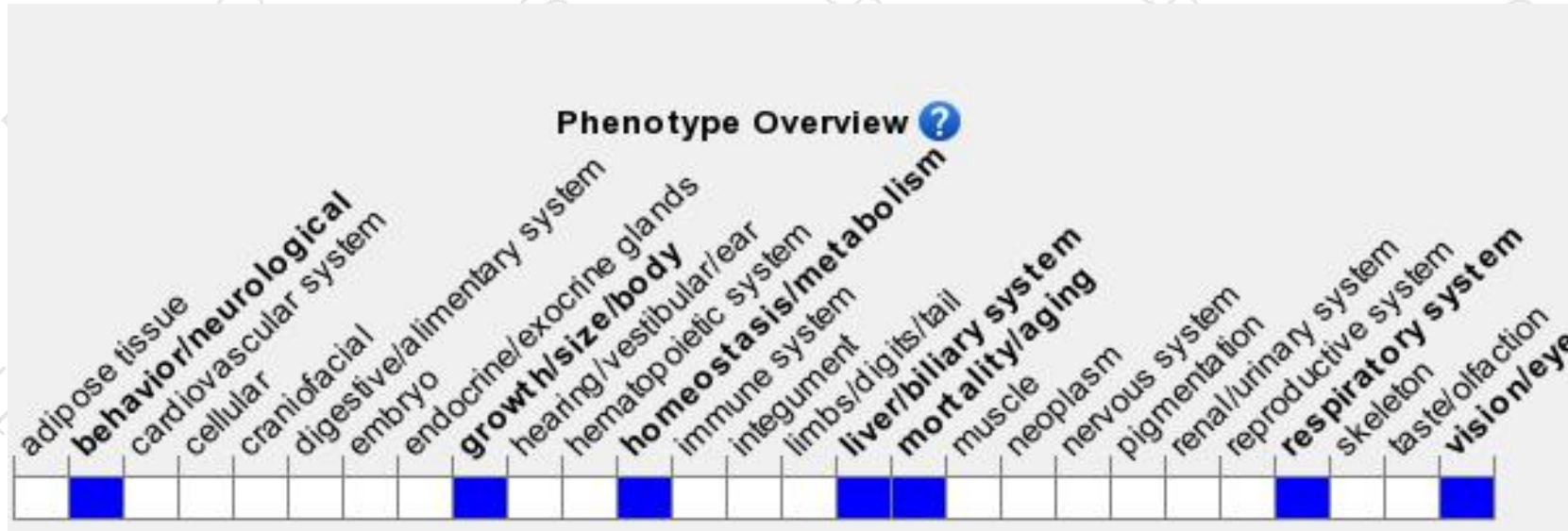
Protein domain



集萃药康
GemPharmatech



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Mice homozygous for targeted mutations that inactivate the gene display intrahepatic cholestasis.

If you have any questions, you are welcome to inquire.

Tel: 400-9660890

