

# **Abcc3 Cas9-CKO Strategy**

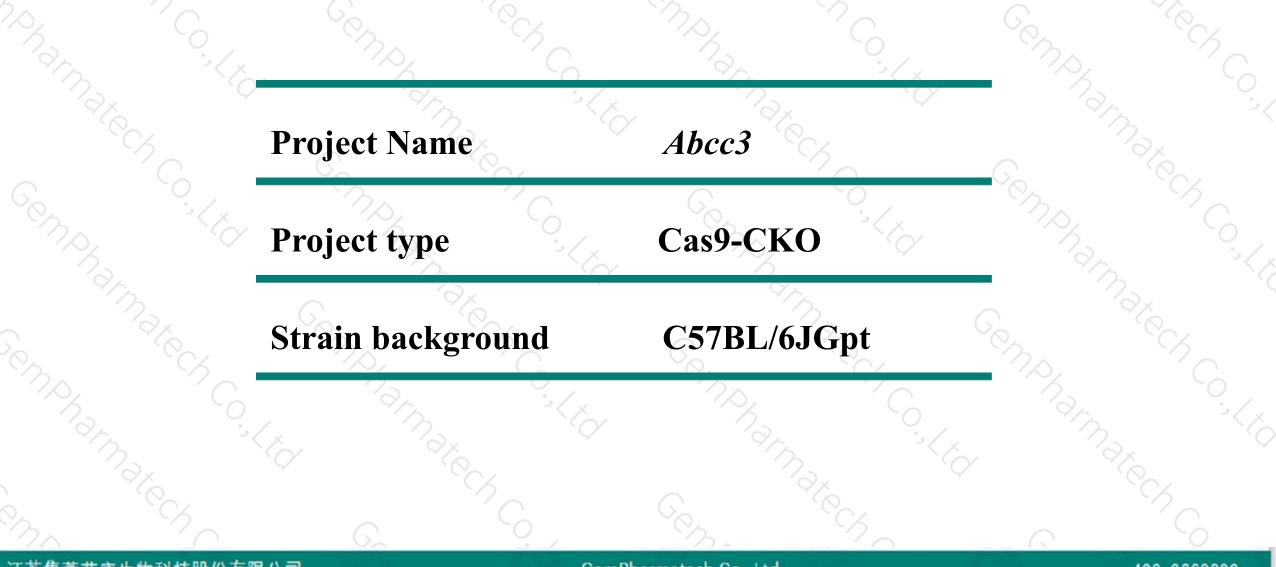
Designer: Design Date:

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Bingxuan Li 2019-10-17

# **Project Overview**





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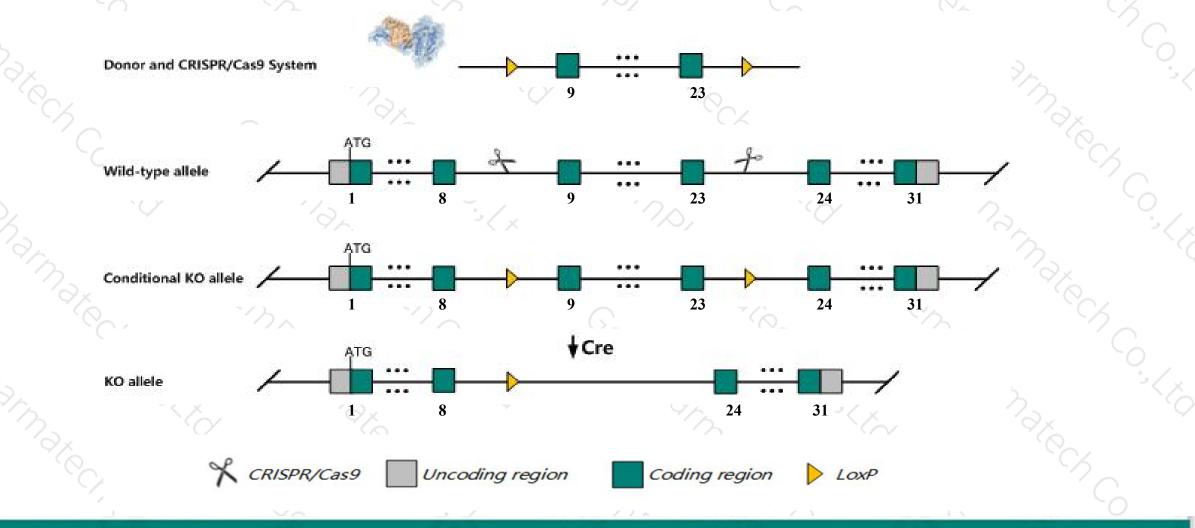
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### **Conditional Knockout strategy**



This model will use CRISPR/Cas9 technology to edit the *Abcc3* gene. The schematic diagram is as follows:



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The Abcc3 gene has 6 transcripts. According to the structure of Abcc3 gene, exon9-exon23 of Abcc3-201 (ENSMUST00000021231.7) transcript is recommended as the knockout region. The region contains 2368bp coding sequence. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Abcc3* gene. The brief process is as follows:gRNA was transcribed in vitro, donor was constructed.Cas9, gRNA and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice.Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.



- According to the existing MGI data, Mice homozygous for disruptions in this gene exhibit increased liver bile acid levels after bile duct ligation
- The *Abcc3* gene is located on the Chr11. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

# **Gene information (NCBI)**



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Abcc3 ATP-binding cassette, sub-family C (CFTR/MRP), member 3 [ Mus musculus (house mouse) ]

Gene ID: 76408, updated on 10-Oct-2019

Summary

Official Symbol	Abcc3 provided by MGI							
<b>Official Full Name</b>	ATP-binding cassette, sub-family C (CFTR/MRP), member 3 provided by MGI							
Primary source	MGI:MGI:1923658							
See related	Ensembl:ENSMUSG0000020865							
Gene type	protein coding							
RefSeq status	VALIDATED							
Organism	Mus musculus							
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha;							
	Muroidea; Murinae; Mus; Mus							
Also known as	MLP2; MRP3; ABC31; MOAT-D; 1700019L09Rik							
Expression	Biased expression in liver adult (RPKM 63.1), colon adult (RPKM 54.5) and 14 other tissues See more							
Orthologs	human all							

## **Transcript information (Ensembl)**



The gene has 6 transcripts, all transcripts are shown below:

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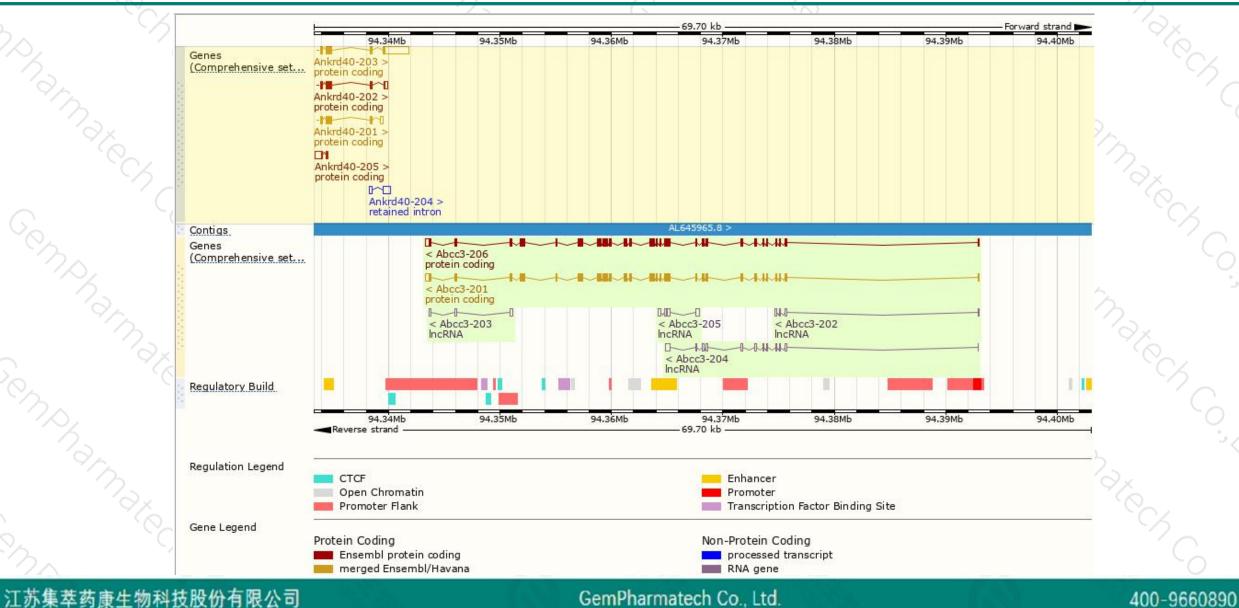
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Show/hid	le columns (1 hidden)						Filter
Name 🖕	Transcript ID 💧	bp 👙	Protein 🖕	Biotype	CCDS 🖕	UniProt 💧	Flags
Abcc3-201	ENSMUST0000021231.7	4999	<u>1522aa</u>	Protein coding	CCDS25254	<u>A0A0R4J015</u> &	TSL:1 GENCODE basic APPRIS P2
Abcc3-206	ENSMUST00000178136.7	5005	<u>1523aa</u>	Protein coding	5	<u>J3QML2</u> &	TSL:1 GENCODE basic APPRIS ALT:
Abcc3-204	ENSMUST00000151124.7	1808	No protein	IncRNA	5	5	TSL:5
Abcc3-205	ENSMUST00000155253.1	915	No protein	IncRNA		<b>.</b>	TSL:3
Abcc3-202	ENSMUST00000126566.1	667	No protein	IncRNA	×		TSL:3
Abcc3-203	ENSMUST00000140985.1	567	No protein	IncRNA	*	-	TSL:3

The strategy is based on the design of Abcc3-201 transcript, The transcription is shown below

Abcc3-206 protein coding
49.68 kb

### **Genomic location distribution**



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### **Protein domain**

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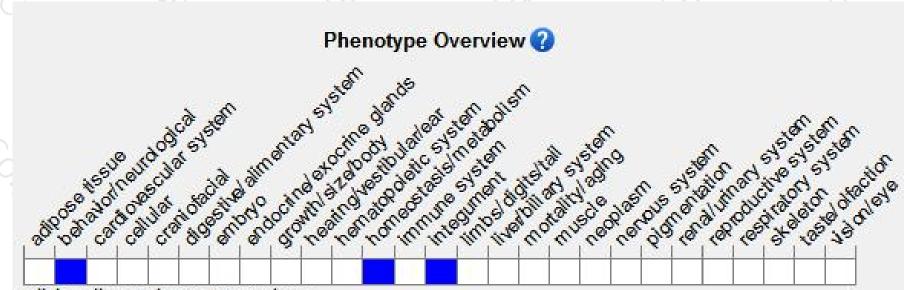


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	Gene3D									
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### Mouse phenotype description(MGI)





Click cells to view annotations.

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 disruptions in this gene exhibit increased liver bile acid levels after bile duct ligation

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If you have any questions, you are welcome to inquire. Tel: 400-9660890



