Slc51a Cas9-CKO Strategy

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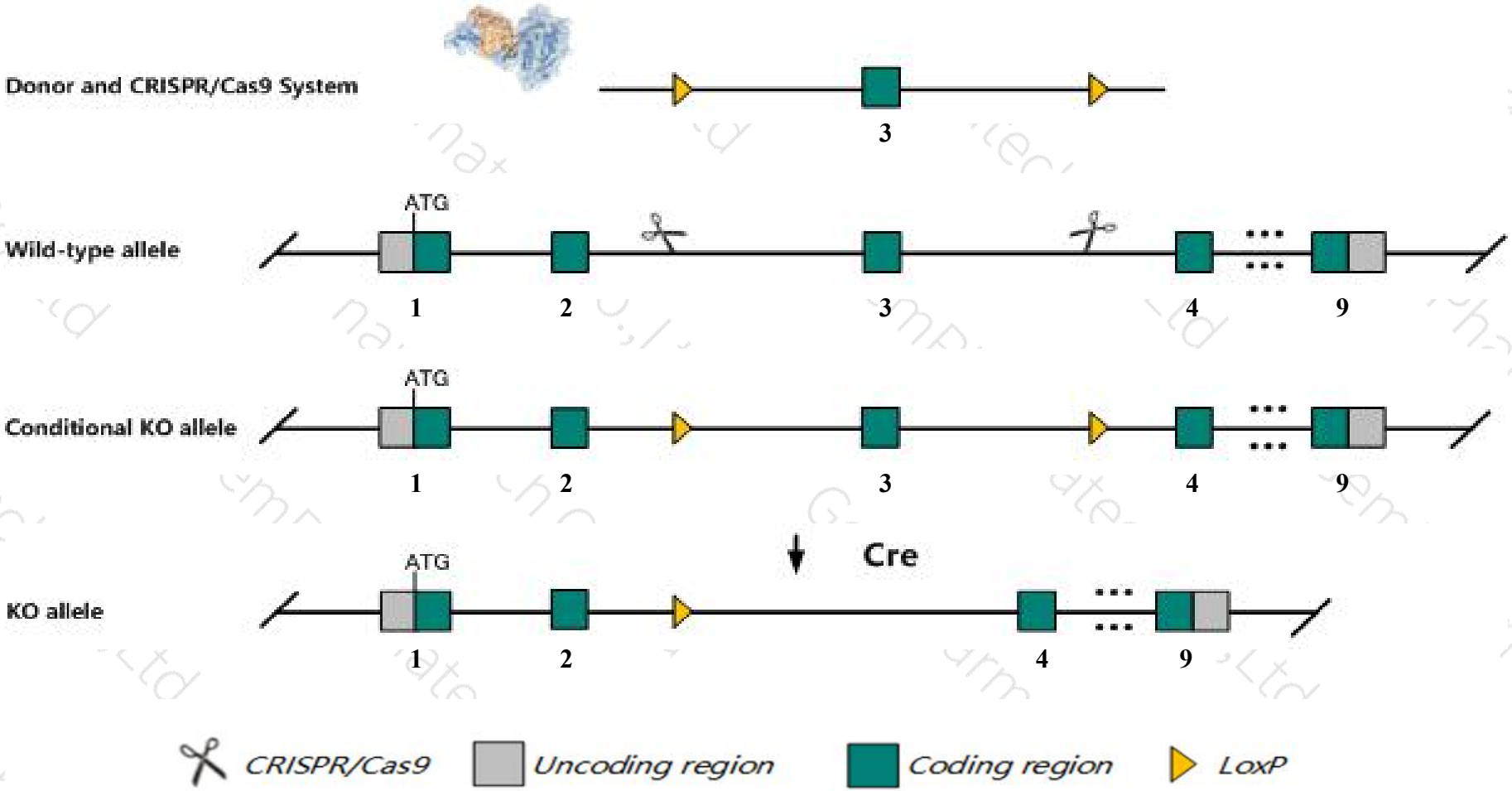
Project Overview

Project Name	***Slc51a***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc51a* gene. The schematic diagram is as follows:



Technical routes

➢ The *Slc51a* gene has 3 transcripts. According to the structure of *Slc51a* gene, exon3 of *Slc51a-201*(ENSMUST00000042042.8) transcript is recommended as the knockout region.The region contains 155bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc51a* gene. The brief process is as follows:CRISPR/Cas9 system 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.

Notice

➢ According to the existing MGI data,mice homozygous for disruptions in this gene exhibit growth retardation. In addition, one mutant exhibits impaired intestinal bile acid transport.

➢ The *Slc51a* gene is located on the Chr16. 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）

集萃药康 GemPharmatech

Slc51a solute carrier family 51, alpha subunit [Mus musculus (house mouse)]

Gene ID: 106407, updated on 13-Mar-2020

Summary

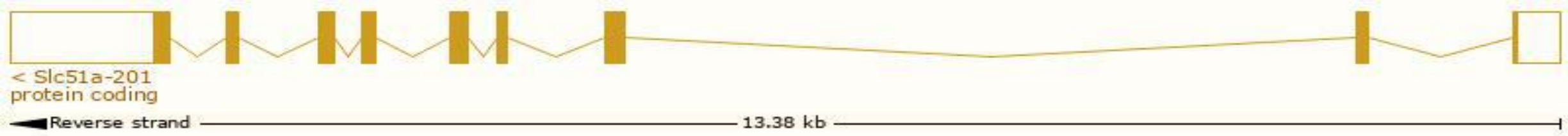
Official Symbol	Slc51a provided by MGI
Official Full Name	solute carrier family 51, alpha subunit provided byMGI
Primary source	MGI:MGI:2146634
See related	Ensembl:ENSMUSG00000035699
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AV001382, AW261577, D630035O19Rik, OSTalpha, Osta
Expression	Biased expression in large intestine adult (RPKM 385.9), duodenum adult (RPKM 99.3) and 2 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

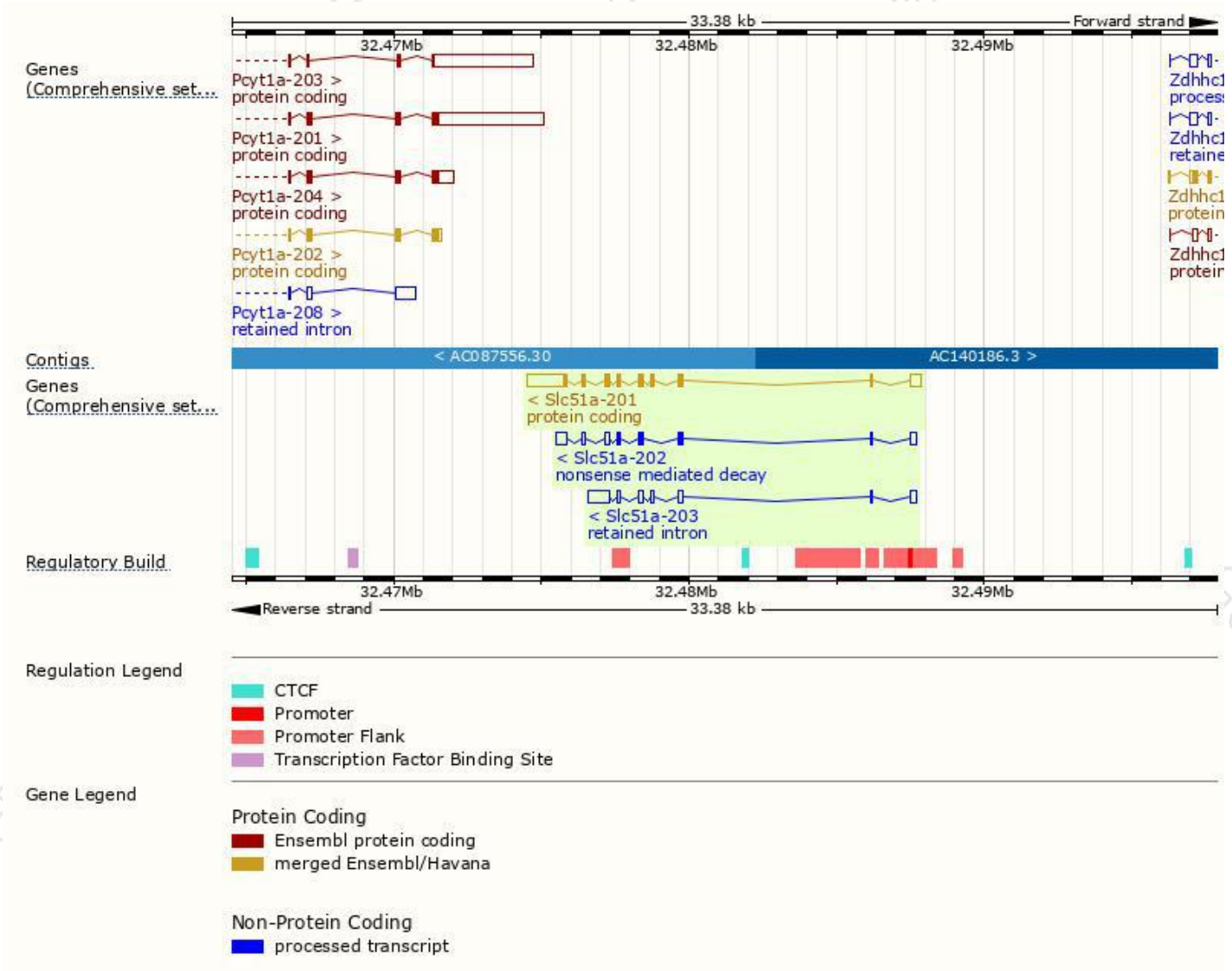
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc51a-201	ENSMUST00000042042.8	2618	340aa	Protein coding	CCDS28121	Q8R000	TSL:1 GENCODE basic APPRIS P1
Slc51a-202	ENSMUST00000231690.1	1349	178aa	Nonsense mediated decay	-	A0A338P6E4	
Slc51a-203	ENSMUST00000232418.1	1541	No protein	Retained intron	-	-	

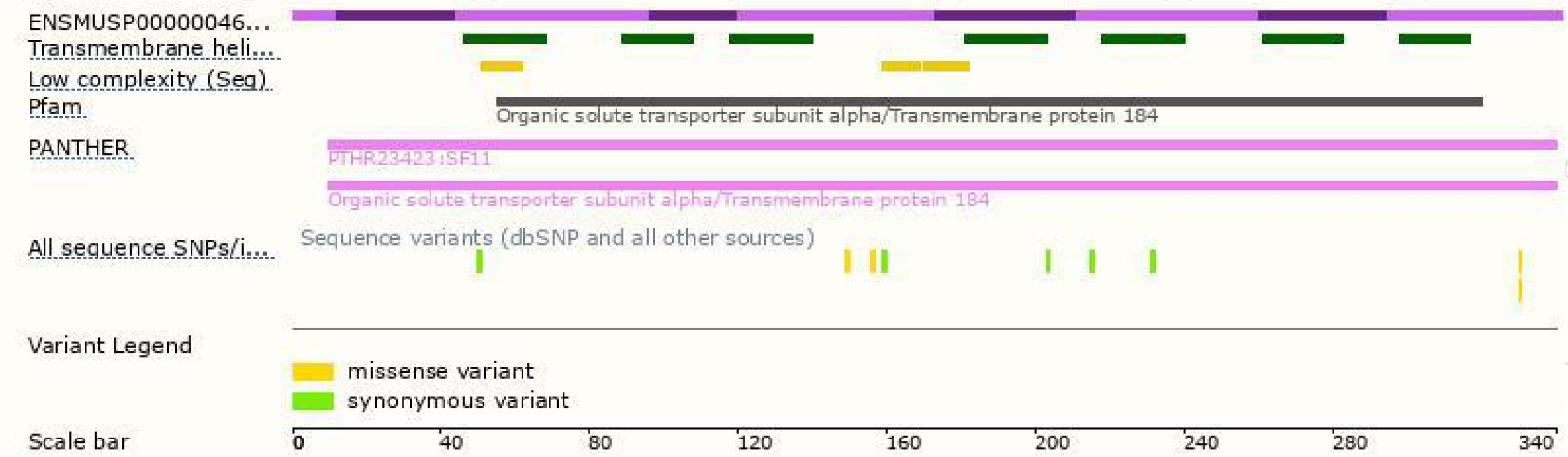
The strategy is based on the design of *Slc51a-201* transcript,the transcription is shown below:



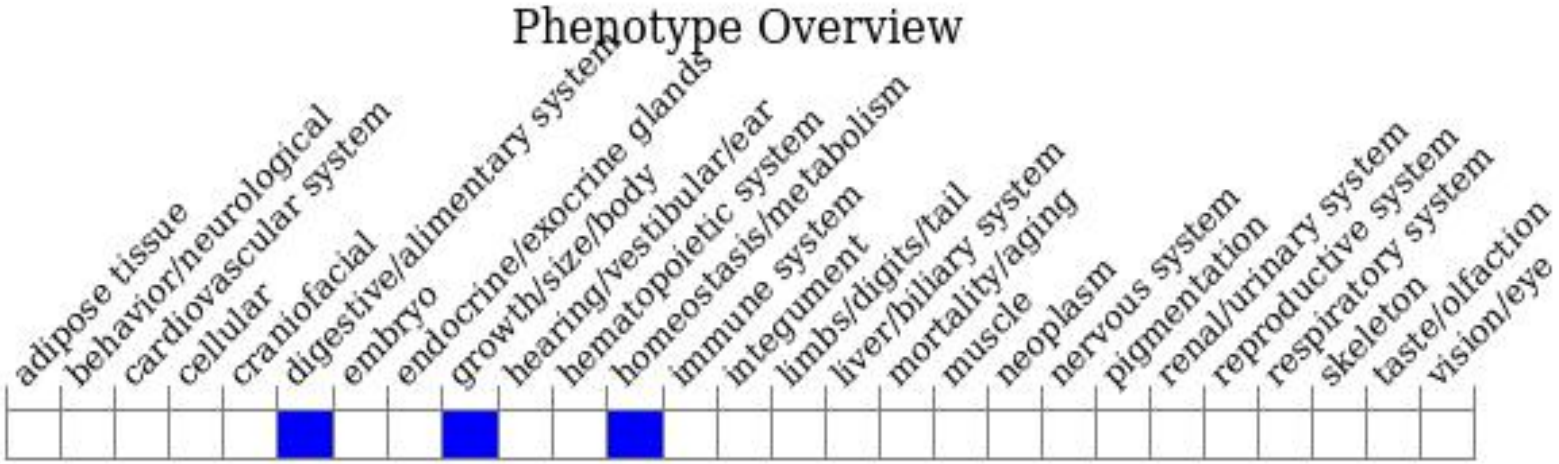
Genomic location distribution



Protein domain



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 disruptions in this gene exhibit growth retardation. In addition, one mutant exhibits impaired intestinal bile acid transport.

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

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