Scarb2 Cas9-KO Strategy

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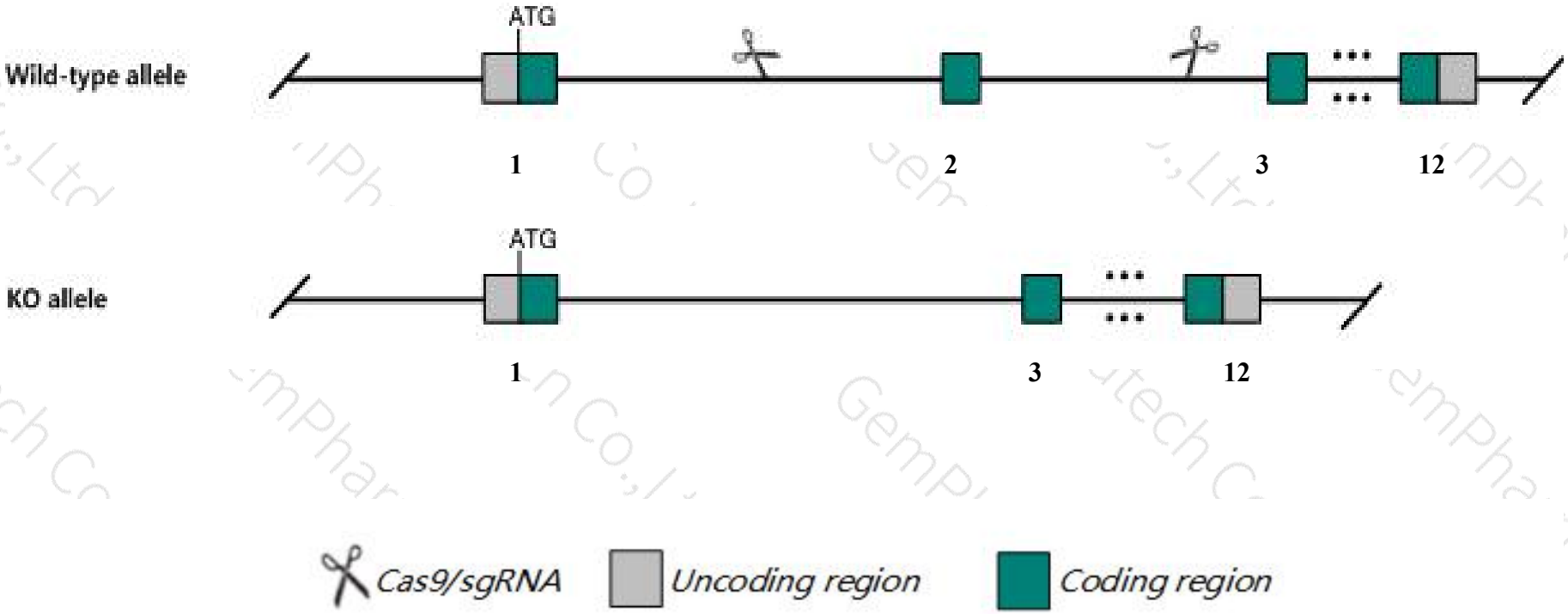
Project Overview

Project Name	***Scarb2***
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Scarb2* gene. The schematic diagram is as follows:



Technical routes

- The *Scarb2* gene has 2 transcripts. According to the structure of *Scarb2* gene, exon2 of *Scarb2-201* (ENSMUST00000031377.8) transcript is recommended as the knockout region.The region contains 158bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Scarb2* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

Notice

- According to the existing MGI data,Homozygous mutation of this gene results in renal dysfunction, progressive deafness, and progressive demylination of the peripheral nerves. Mutant animals show a 2-fold increased water consumption along with increased urine volume, and develop an enlarged, ball-like trunk with age.

- The *Scarb2* gene is located on the Chr5. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information（NCBI）

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Scarb2 scavenger receptor class B, member 2 [Mus musculus (house mouse)]

Gene ID: 12492, updated on 12-Feb-2019

Summary

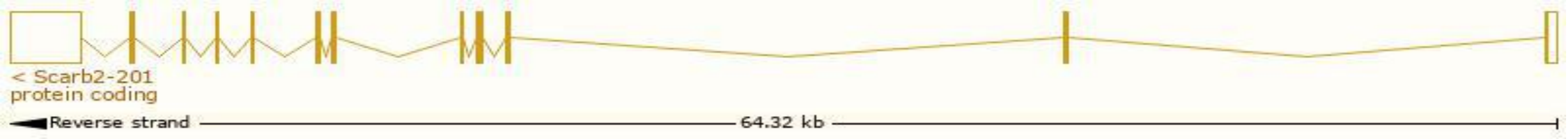
Official Symbol	Scarb2 provided by MGI
Official Full Name	scavenger receptor class B, member 2 provided by MGI
Primary source	MGI:MGI:1196458
See related	Ensembl:ENSMUSG00000029426
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9330185J12Rik, Cd36l2, LGP85, LIMP II, LIMP-2, MLGP85
Summary	This gene encodes a CD36-like type III transmembrane glycoprotein that localizes to the lysosomal membrane. Mice lacking the encoded protein exhibit an increased postnatal mortality caused by an obstruction of the ureteropelvic junction, deafness, peripheral demyelinating neuropathy and tubular proteinuria. [provided by RefSeq, Aug 2015]
Expression	Ubiquitous expression in bladder adult (RPKM 32.7), lung adult (RPKM 24.8) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

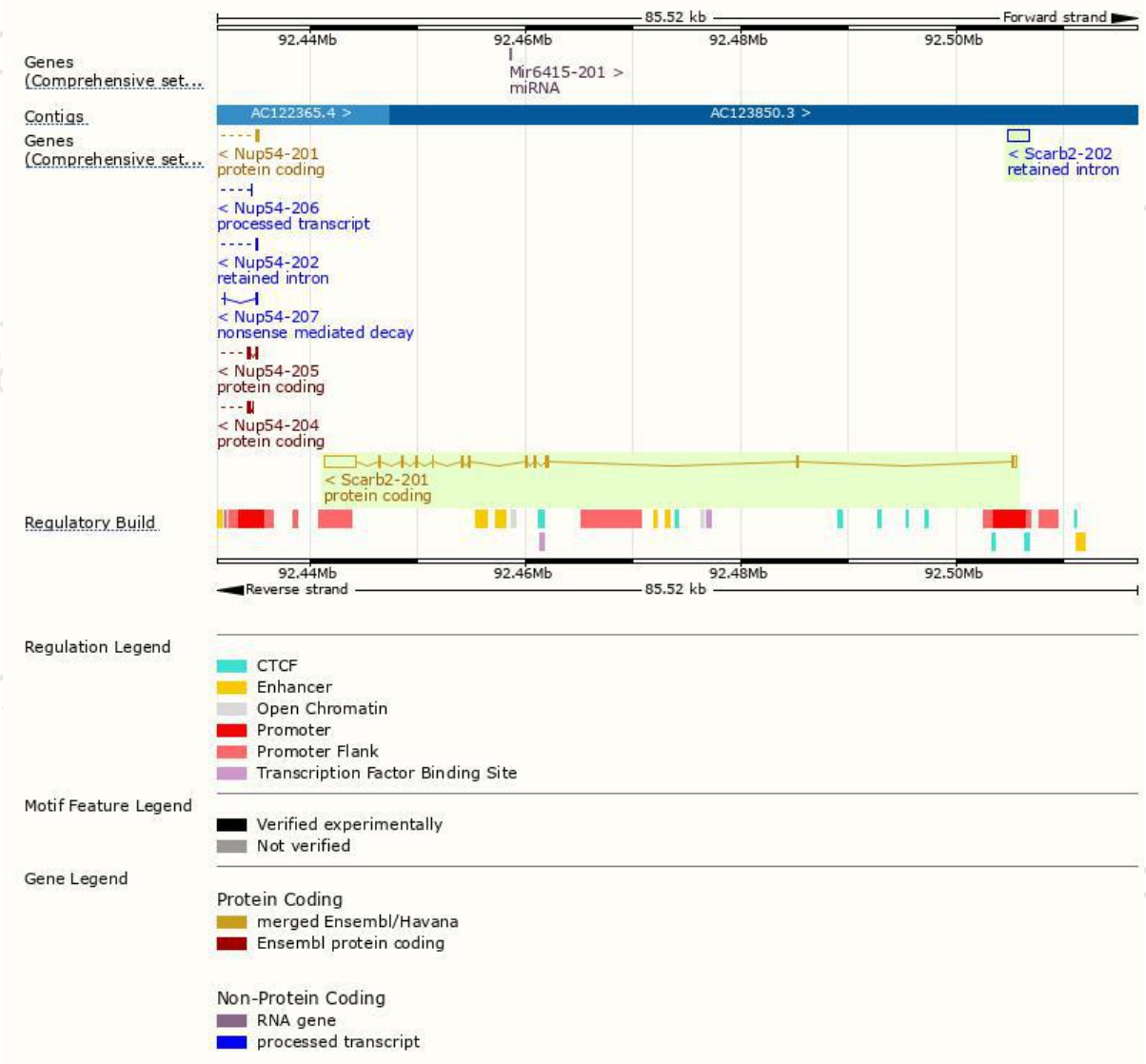
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Scarb2-201	ENSMUST00000031377.8	4698	478aa	Protein coding	CCDS19431	O35114	TSL:1 GENCODE basic APPRIS P1
Scarb2-202	ENSMUST00000201253.1	2033	No protein	Retained intron	-	-	TSL:NA

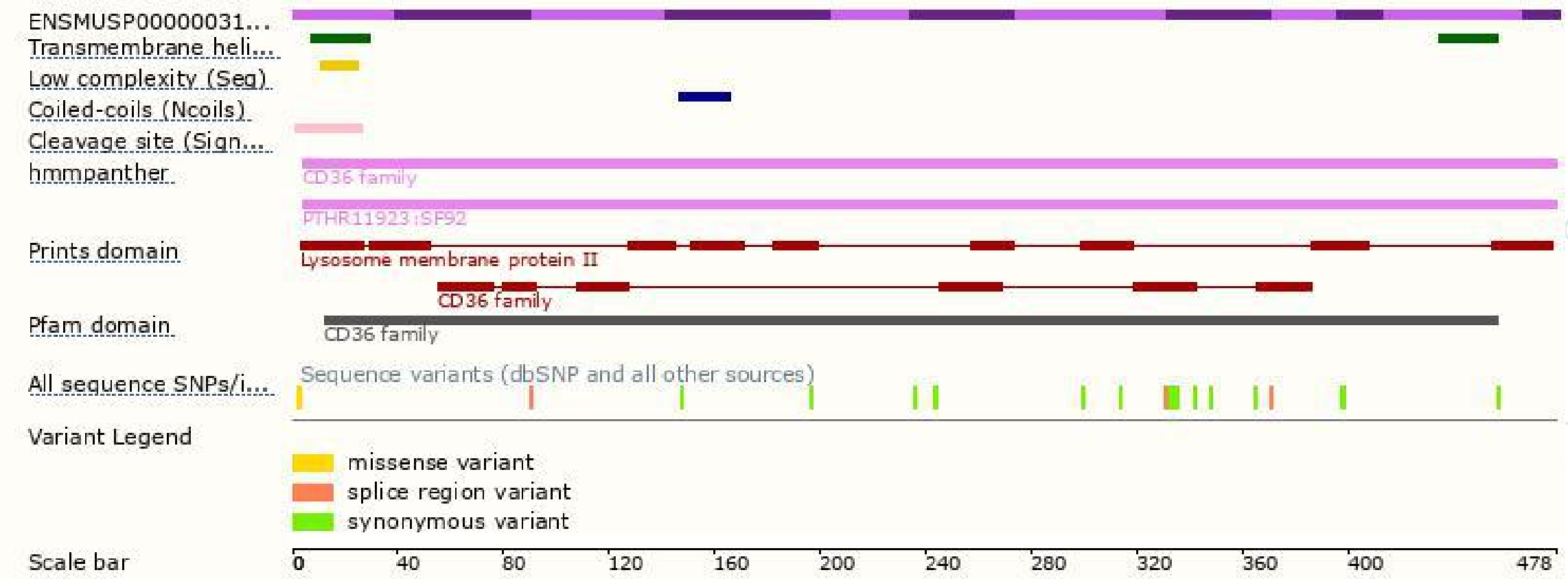
The strategy is based on the design of *Scarb2-201* transcript,The transcription is shown below



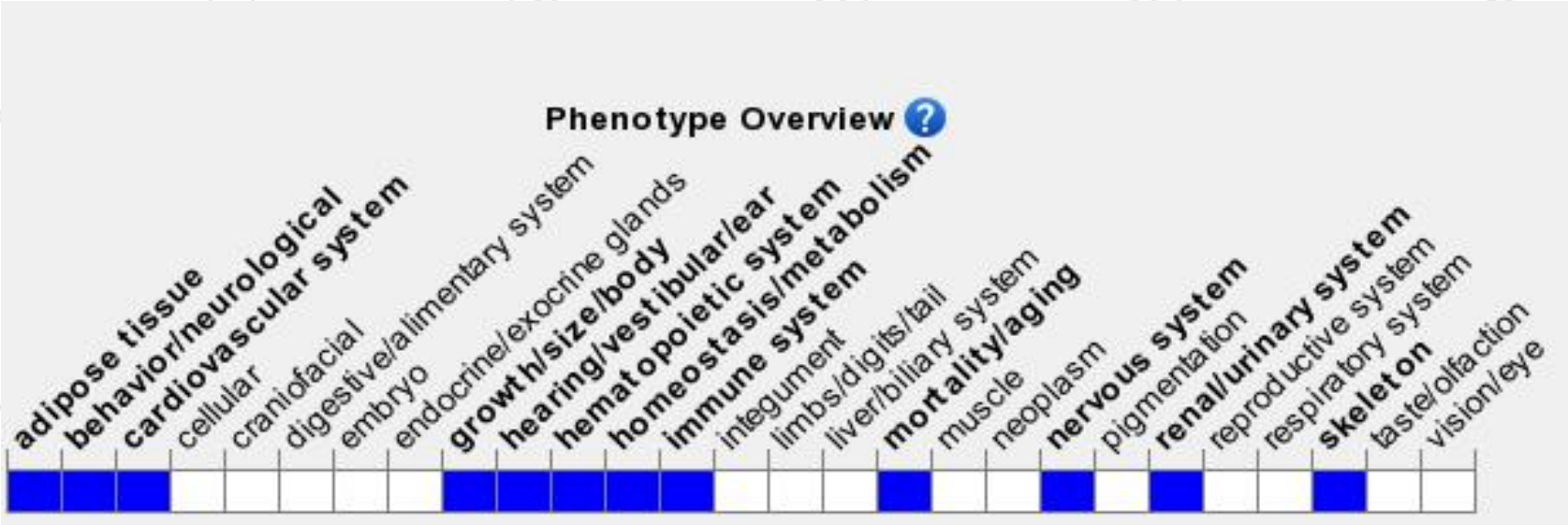
Genomic location distribution



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/).

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

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