

Scarb2 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Scarb2

Project type

Cas9-CKO

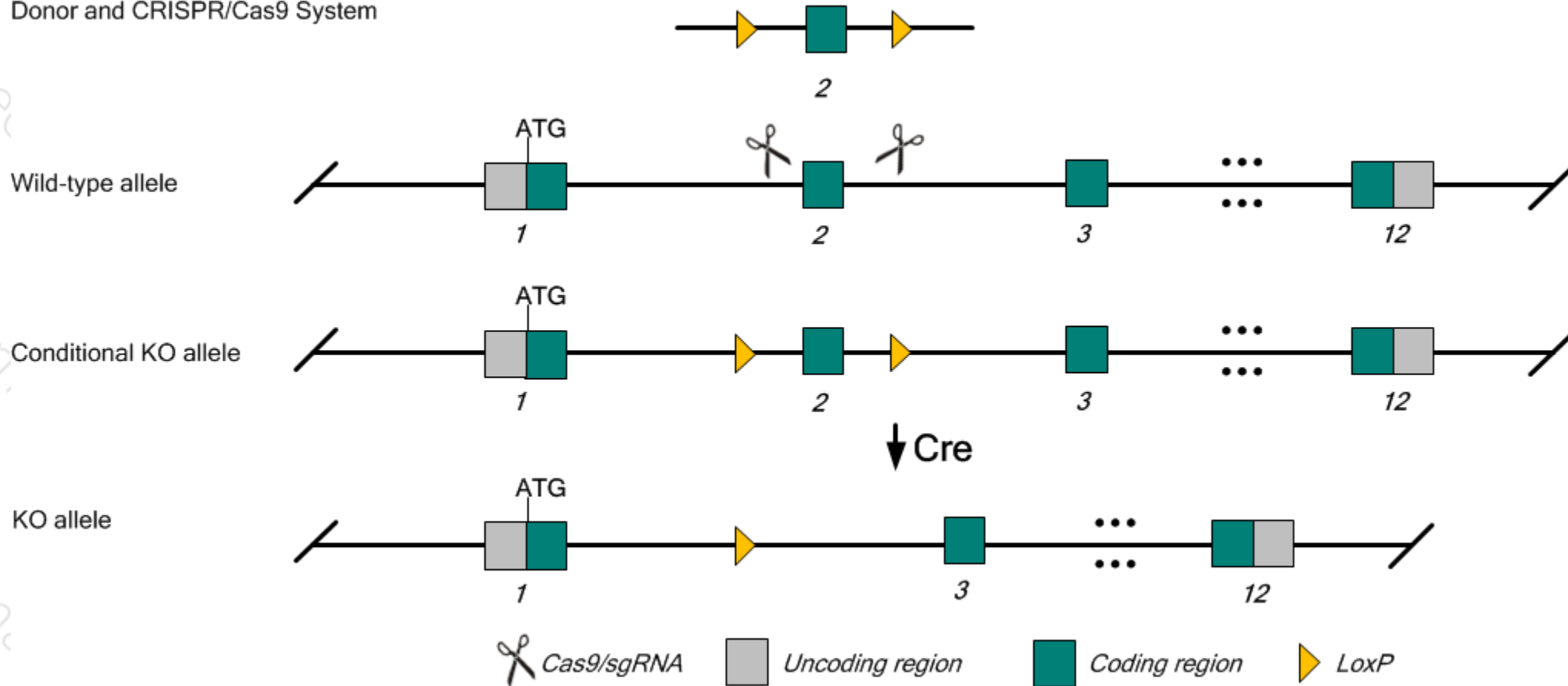
Strain background

C57BL/6JGpt

Conditional Knockout strategy

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

Donor and CRISPR/Cas9 System



- The *Scarb2* gene has 2 transcripts, According to the structure of *Scarb2* gene, exon2 of *Scarb2-201* transcript is recommended as the knockout region. The region contains the 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, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- According to the existing MGI data , Homozygous mutation of this gene results in renal dysfunction, progressive deafness, and progressive demyelination 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.
- Transcript *Scarb2-202* may not be affected.
- The *Scarb2* gene is located in 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 biological processes, all risk of the loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

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

Gene ID: 12492, updated on 8-Dec-2018

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 LGP85; Cd36l2; LIMP-2; MLGP85; LIMP II; 9330185J12Rik

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](#)

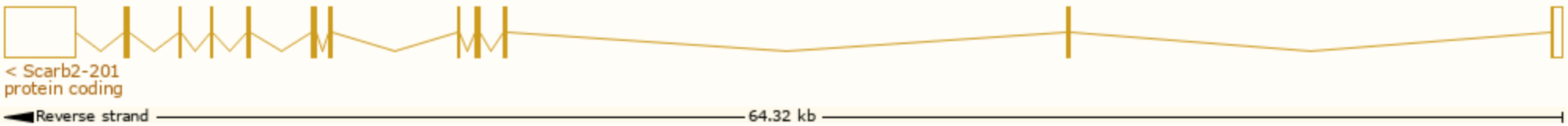
Transcript information (Ensembl)



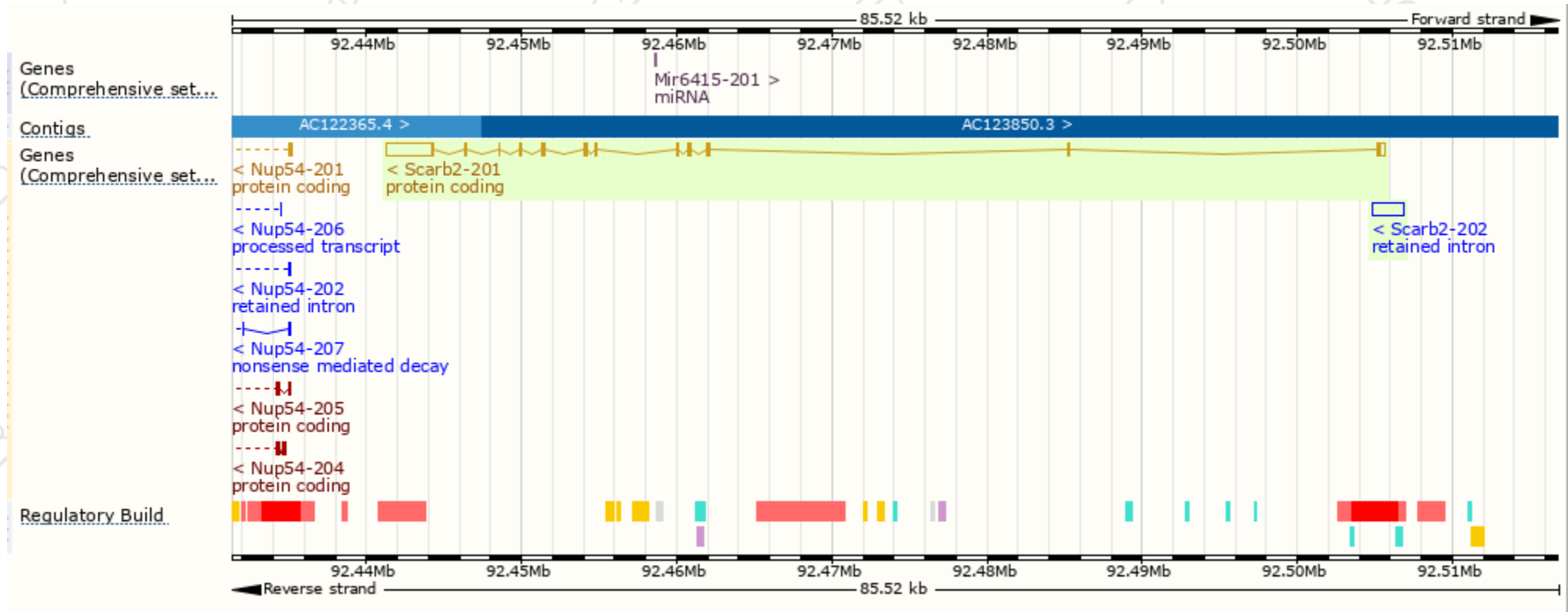
The gene has 2 transcripts, and all transcripts are shown below :

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Scarb2-201	ENSMUST00000031377.8	4698	478aa	Protein coding	CCDS19431	O35114	NM_007644 NP_031670	TSL:1 Gencode basic APPRIS P1
Scarb2-202	ENSMUST000000201253.1	2033	No protein	Retained intron	-	-	-	TSL:NA

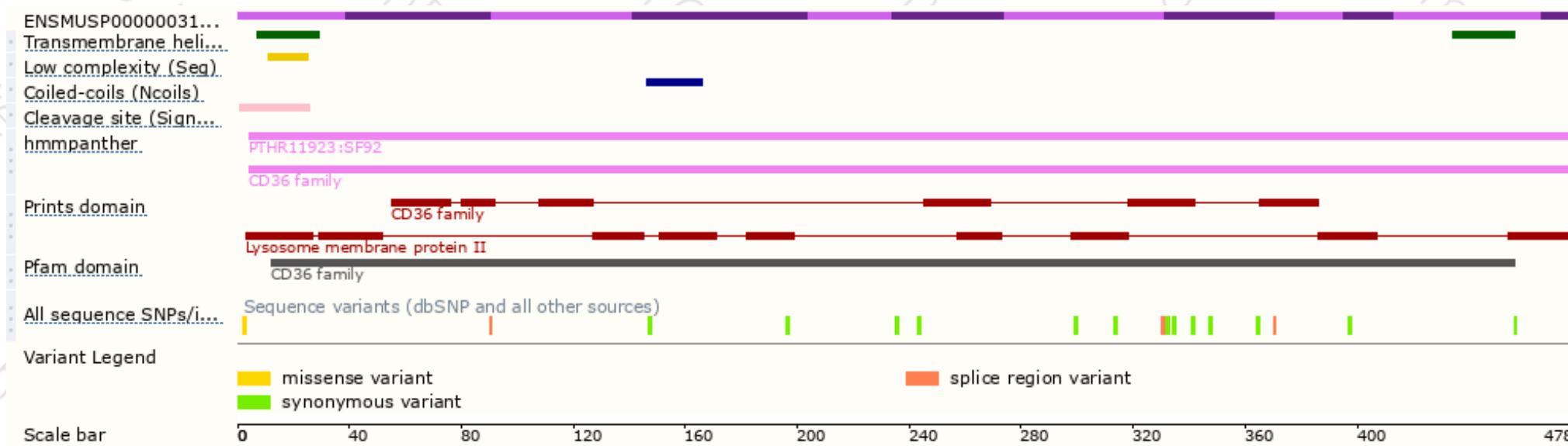
The strategy is based on the design of *Scarb2-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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