

Selenoo Cas9-KO Strategy

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Project Overview

Project Name

Selenoo

Project type

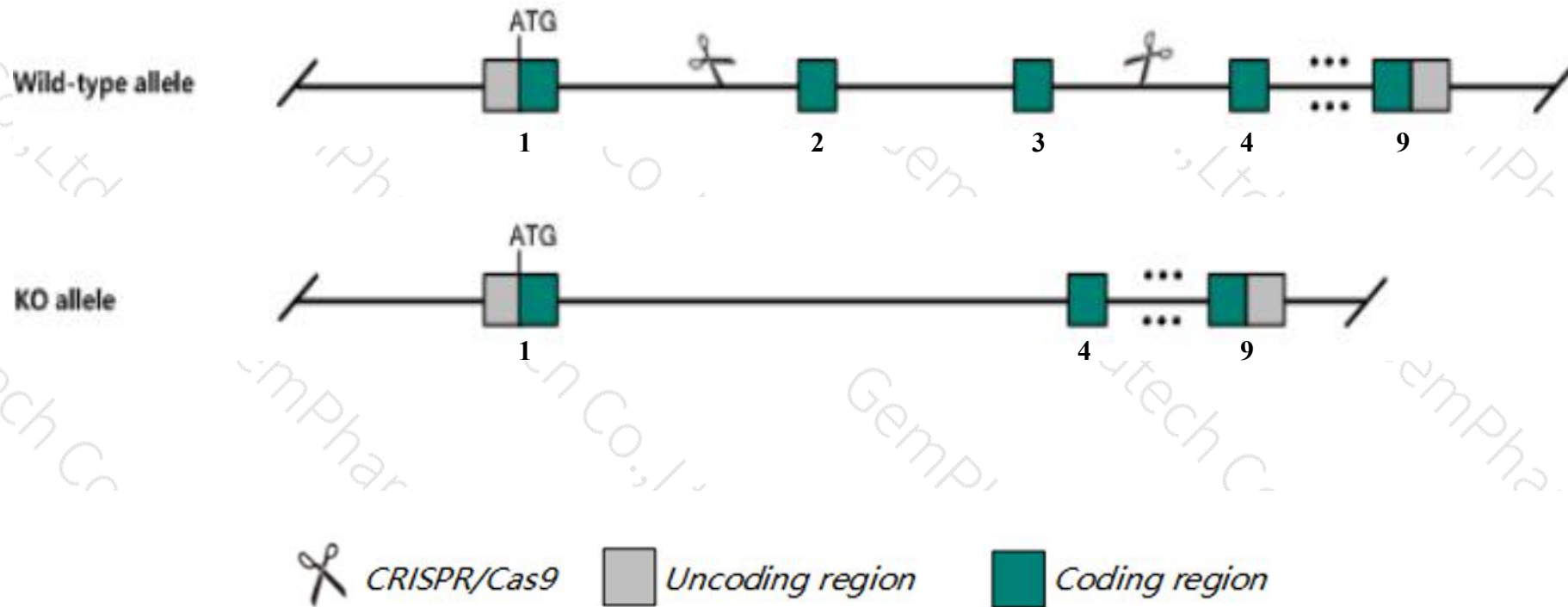
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Selenoo* gene has 2 transcripts. According to the structure of *Selenoo* gene, exon2-exon3 of *Selenoo*-201(ENSMUST00000082439.4) transcript is recommended as the knockout region. The region contains 391bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Selenoo* gene. The brief process is as follows: CRISPR/Cas9 system 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 *Selenoo* gene is located on the Chr15. 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)

Selenoo selenoprotein O [Mus musculus (house mouse)]

Gene ID: 223776, updated on 13-Mar-2020

Summary



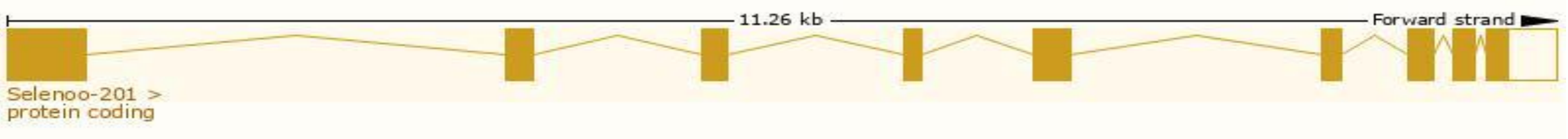
Official Symbol	Selenoo provided by MGI
Official Full Name	selenoprotein O provided by MGI
Primary source	MGI:MGI:1919007
See related	Ensembl:ENSMUSG00000035757
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1300018J18Rik, Selo
Summary	This gene encodes a selenoprotein that is localized to the mitochondria. It is the largest mammalian selenoprotein, containing the rare amino acid selenocysteine (Sec). Sec is encoded by the UGA codon, which normally signals translation termination. The 3' UTRs of selenoprotein mRNAs contain a conserved stem-loop structure, designated the Sec insertion sequence (SECIS) element, that is necessary for the recognition of UGA as a Sec codon, rather than as a stop signal. The exact function of this selenoprotein is not known, but it is thought to have redox activity. [provided by RefSeq, Jan 2017]
Expression	Ubiquitous expression in adrenal adult (RPKM 58.1), liver adult (RPKM 45.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

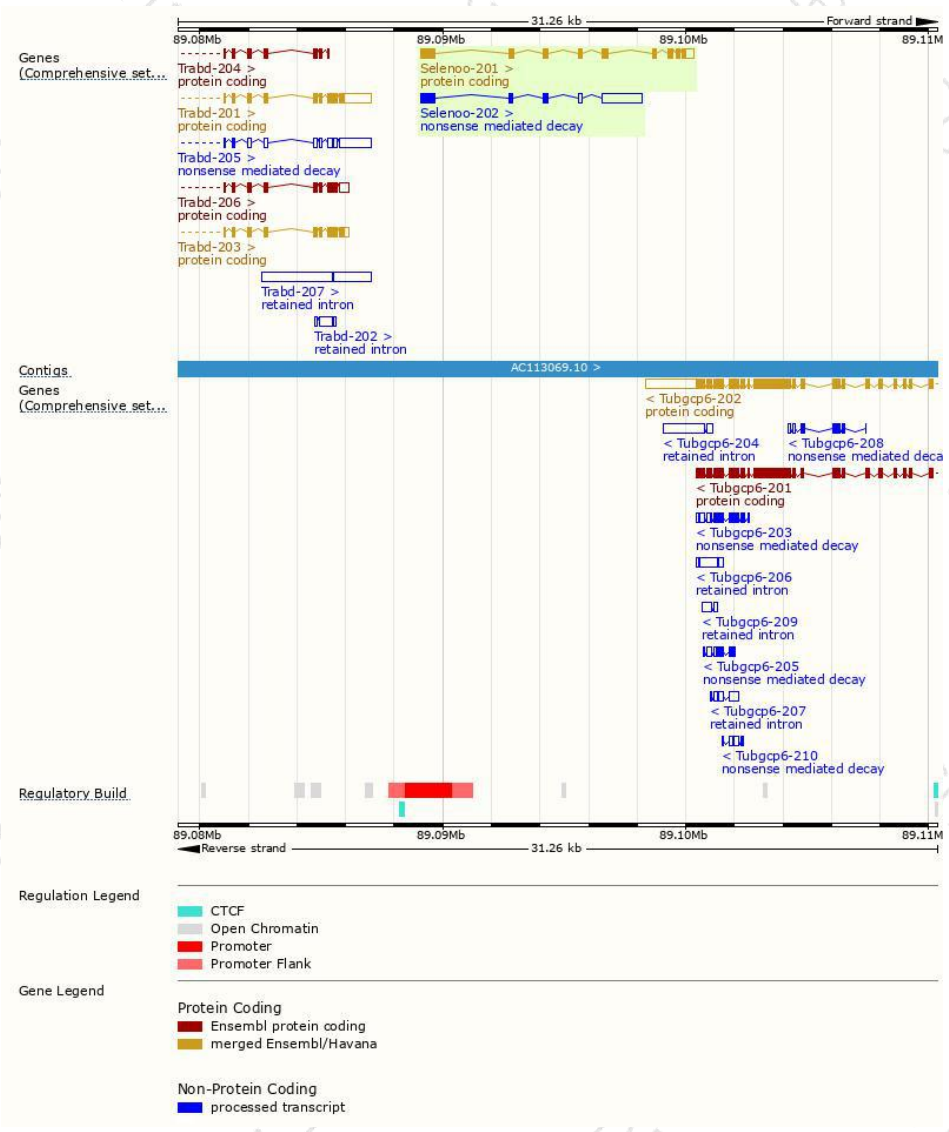
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Selenoo-201	ENSMUST00000082439.4	2383	667aa	Protein coding	CCDS27738	Q9DBC0	TSL:1 GENCODE basic APPRIS P1
Selenoo-202	ENSMUST00000130700.7	2688	297aa	Nonsense mediated decay	-	S4R1U9	TSL:1

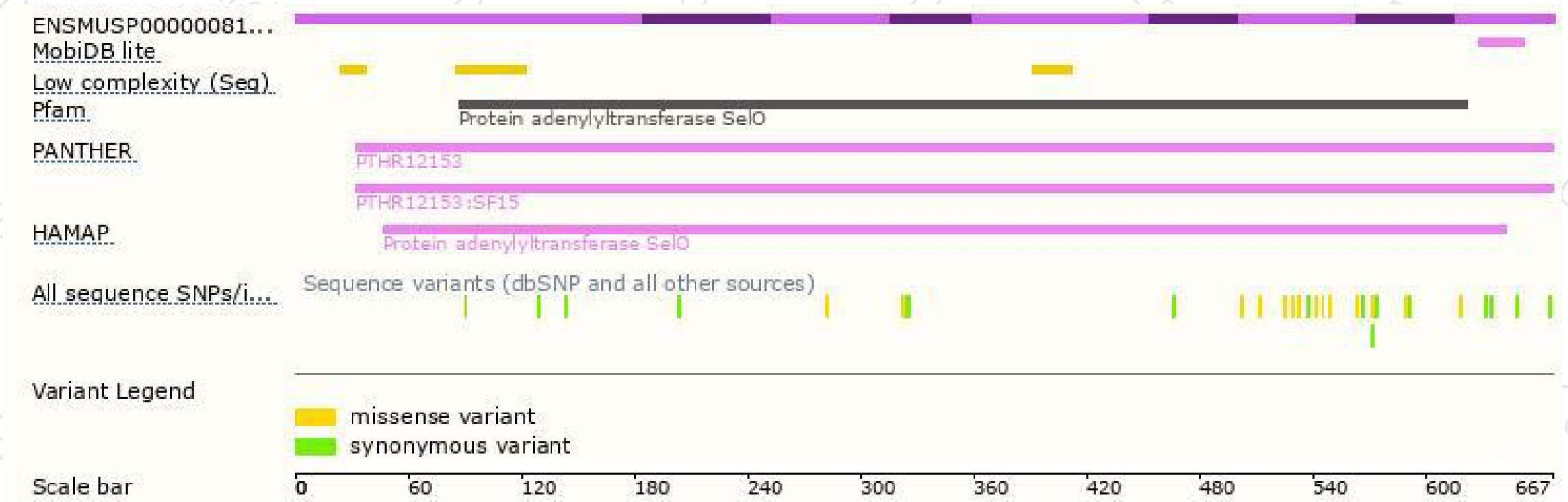
The strategy is based on the design of *Selenoo-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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