

Dhrs13 Cas9-CKO Strategy

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Project Overview

Project Name

Dhrs13

Project type

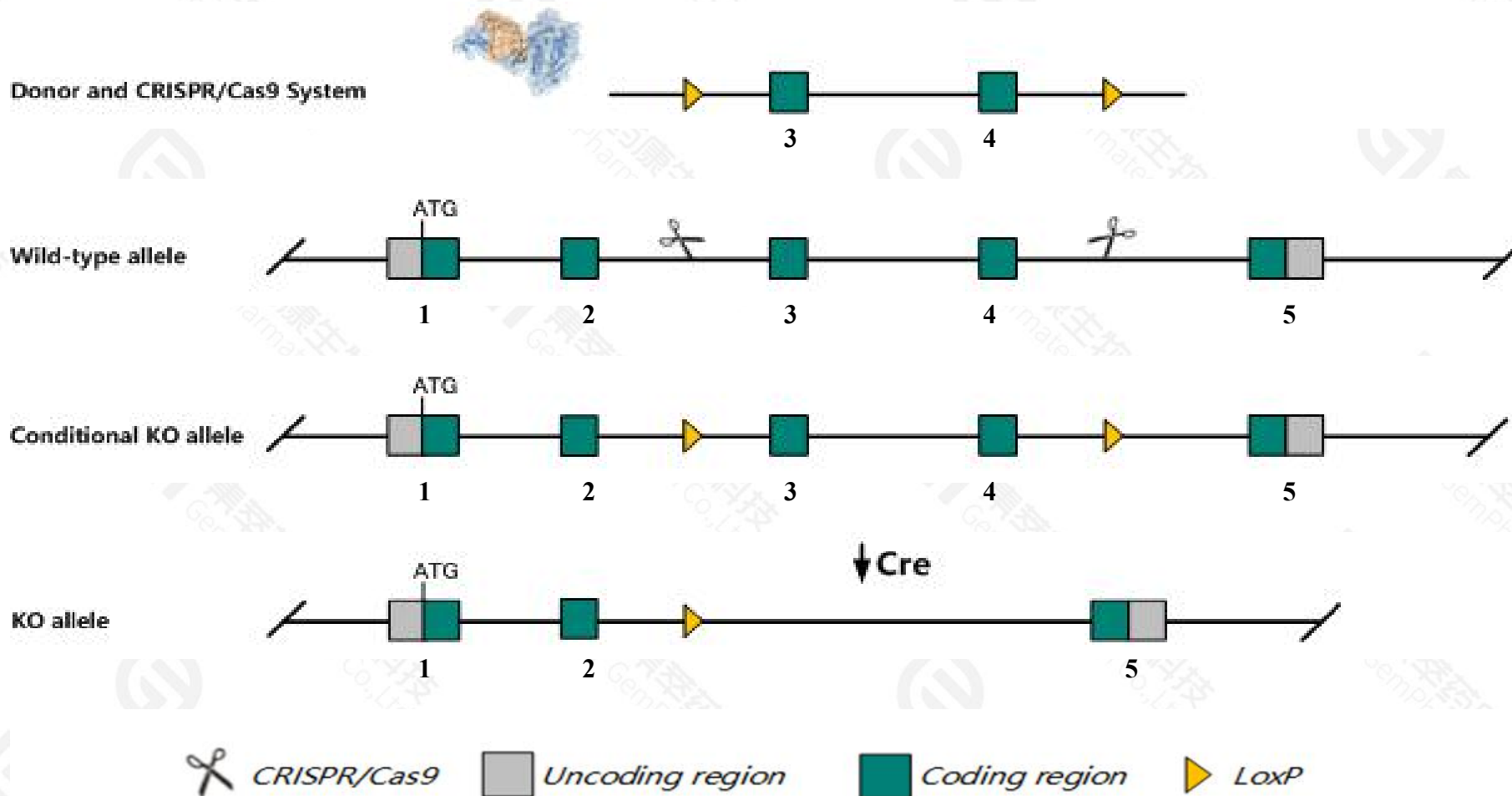
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dhrs13* gene. The schematic diagram is as follows:



- The *Dhrs13* gene has 4 transcripts. According to the structure of *Dhrs13* gene, exon3-exon4 of *Dhrs13-201*(ENSMUST00000021187.12) transcript is recommended as the knockout region. The region contains 436bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dhrs13* 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.

- The KO region contains functional region of the *Dhrs13os* gene. Knockout the region may affect the function of *Dhrs13os* gene.
- The *Dhrs13* 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)

Dhrs13 dehydrogenase/reductase (SDR family) member 13 [Mus musculus (house mouse)]

Gene ID: 70451, updated on 14-Jan-2021

Summary



Official Symbol Dhrs13 provided by [MGI](#)

Official Full Name dehydrogenase/reductase (SDR family) member 13 provided by [MGI](#)

Primary source [MGI:MGI:1917701](#)

See related [Ensembl:ENSMUSG00000020834](#)

Gene type protein coding

RefSeq status VALIDATED

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as 2610209N15Rik

Expression Ubiquitous expression in CNS E18 (RPKM 9.9), adrenal adult (RPKM 9.8) and 28 other tissues [See more](#)

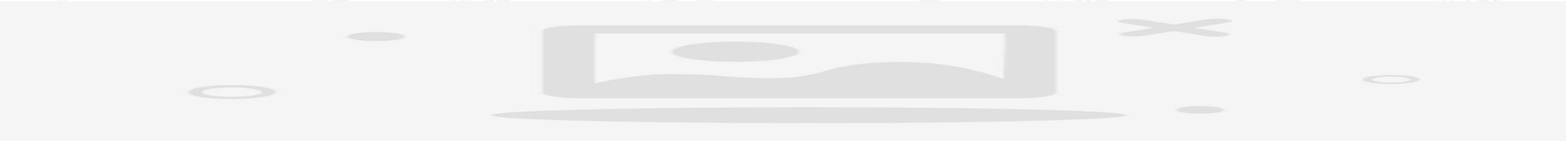
Orthologs [human](#) [all](#)

Transcript information （Ensembl）

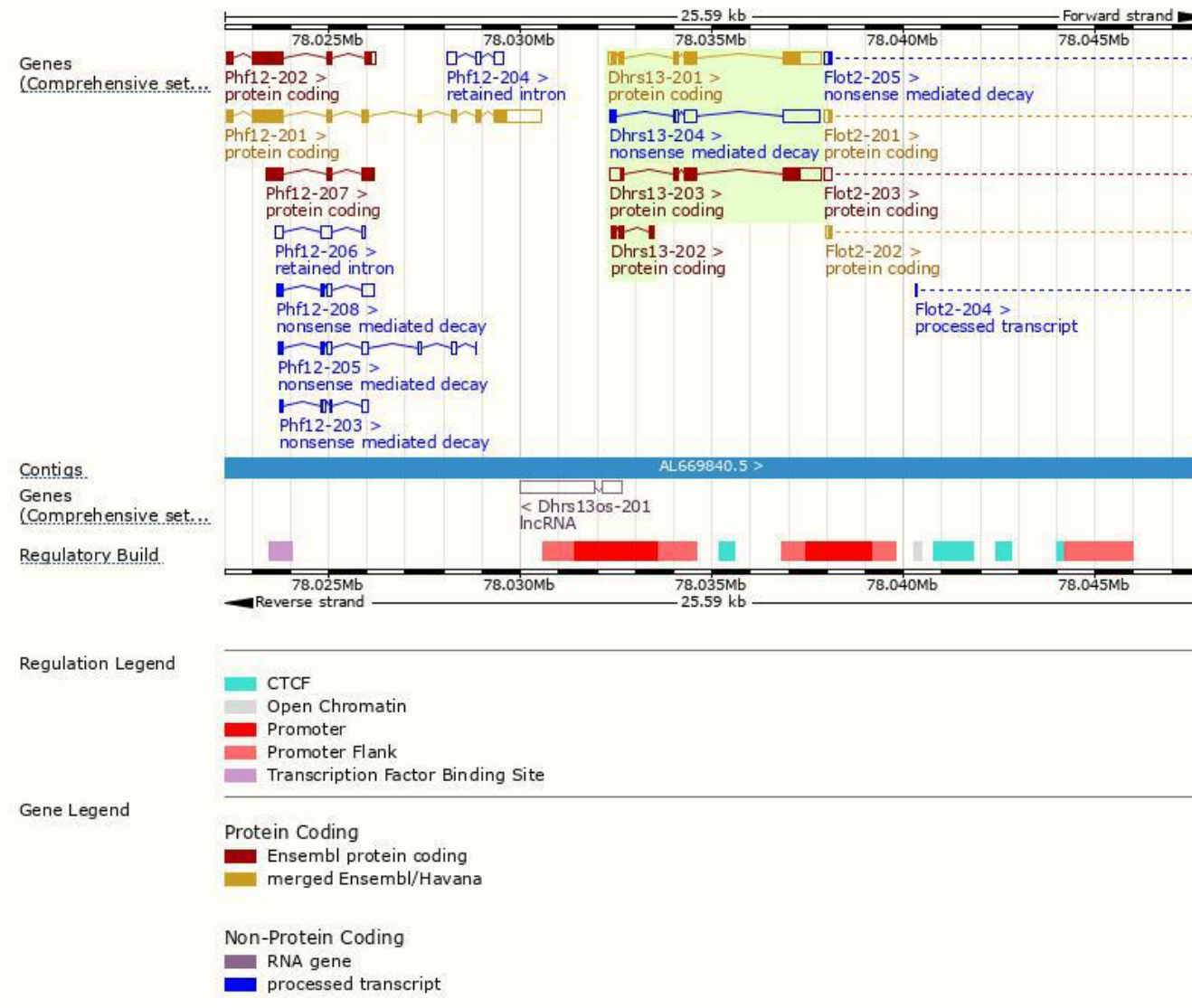
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dhrs13-201	ENSMUST00000021187.12	1779	376aa	Protein coding	CCDS36236		TSL:1 , GENCODE basic , APPRIS P1 ,
Dhrs13-203	ENSMUST00000122342.2	1791	326aa	Protein coding	-		TSL:1 , GENCODE basic ,
Dhrs13-202	ENSMUST00000092881.4	361	116aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Dhrs13-204	ENSMUST00000144028.2	1516	47aa	Nonsense mediated decay	-		TSL:1 ,

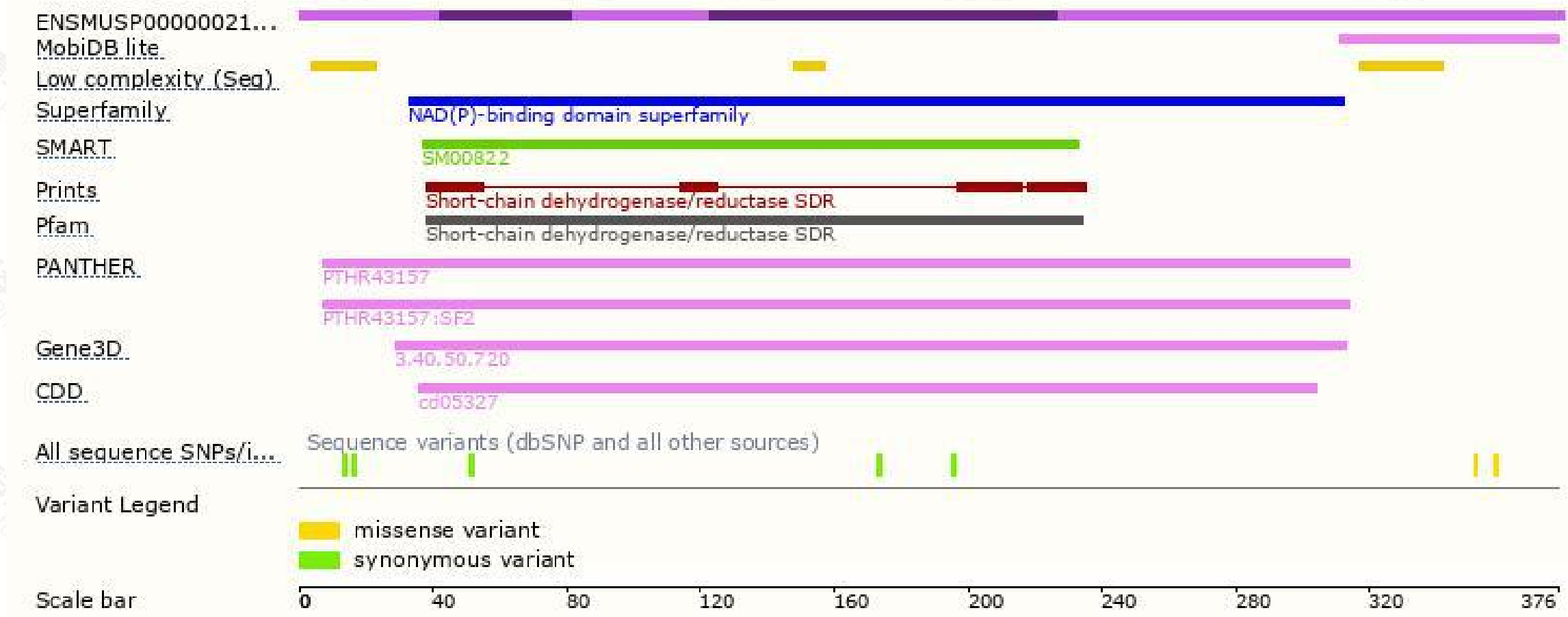
The strategy is based on the design of *Dhrs13-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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