Hsd17b12 Cas9-KO Strategy

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Reviewer: Xiaojing Li

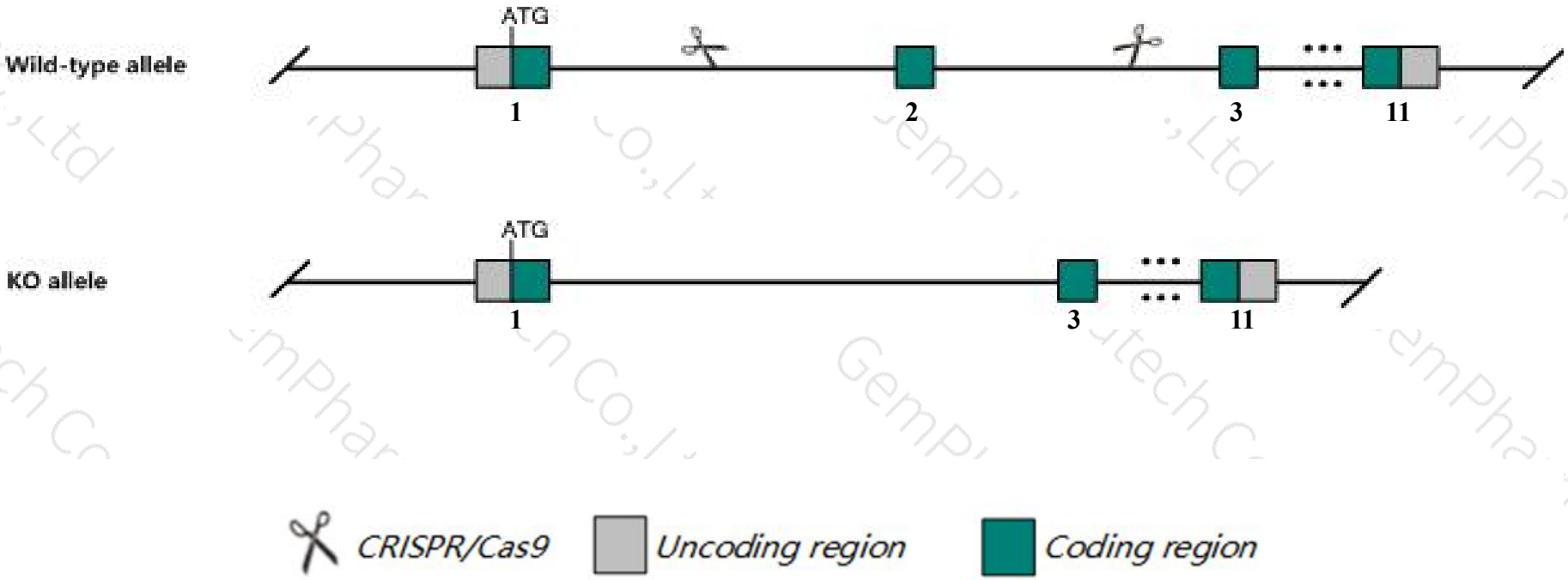
Design Date: 2019-8-30

Project Overview

Project Name	***Hsd17b12***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Hsd17b12* gene. The schematic diagram is as follows:



Technical routes

➢ The *Hsd17b12* gene has 5 transcripts. According to the structure of *Hsd17b12* gene, exon2 of *Hsd17b12-201* (ENSMUST00000028619.4) transcript is recommended as the knockout region.The region contains 47bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Hsd17b12* gene. The brief process is as follows: CRISPR/Cas9 sys

Notice

- According to the existing MGI data,Mice homozygous for a gene trap allele exhibit die around E8.5 with abnormal embryonic and extraembryonic tissue development. ES cells heterozygous for this allele exhibit reduced arachidonic acid levels.

- The *Hsd17b12* gene is located on the Chr2. 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）

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Hsd17b12 hydroxysteroid (17-beta) dehydrogenase 12 [*Mus musculus* (house mouse)]

Gene ID: 56348, updated on 12-Aug-2019

Summary

Official Symbol	Hsd17b12 provided by MGI
Official Full Name	hydroxysteroid (17-beta) dehydrogenase 12 provided by MGI
Primary source	MGI:MGI:1926967
See related	Ensembl:ENSMUSG00000027195
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	Kik1; KIK-I; AI172963; 2610510O05Rik
Expression	Ubiquitous expression in placenta adult (RPKM 41.7), liver E18 (RPKM 29.6) and 28 other tissues See more
Orthologs	human all

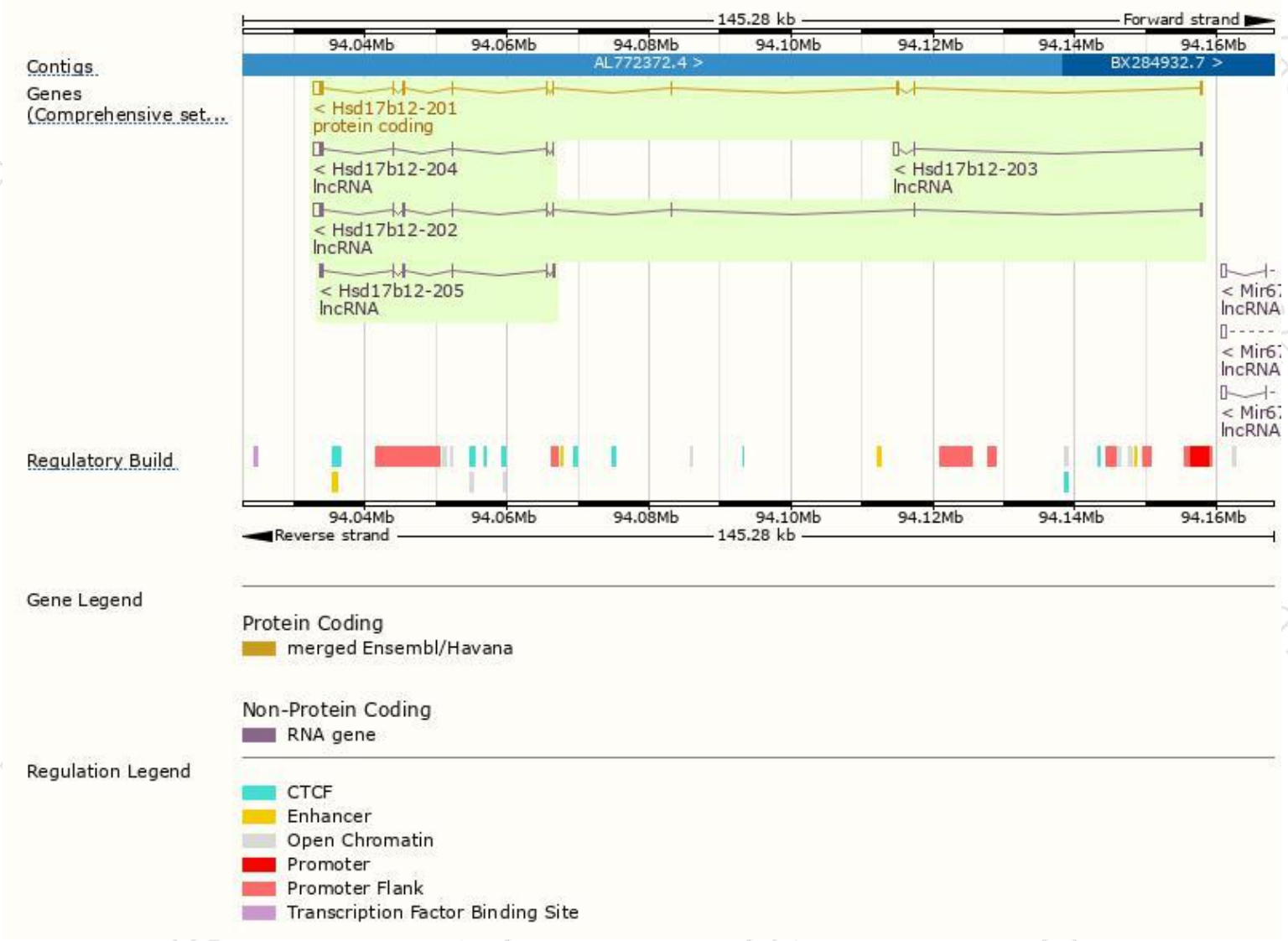
Transcript information（Ensembl）

The gene has 5 transcripts,all transcripts are shown below:

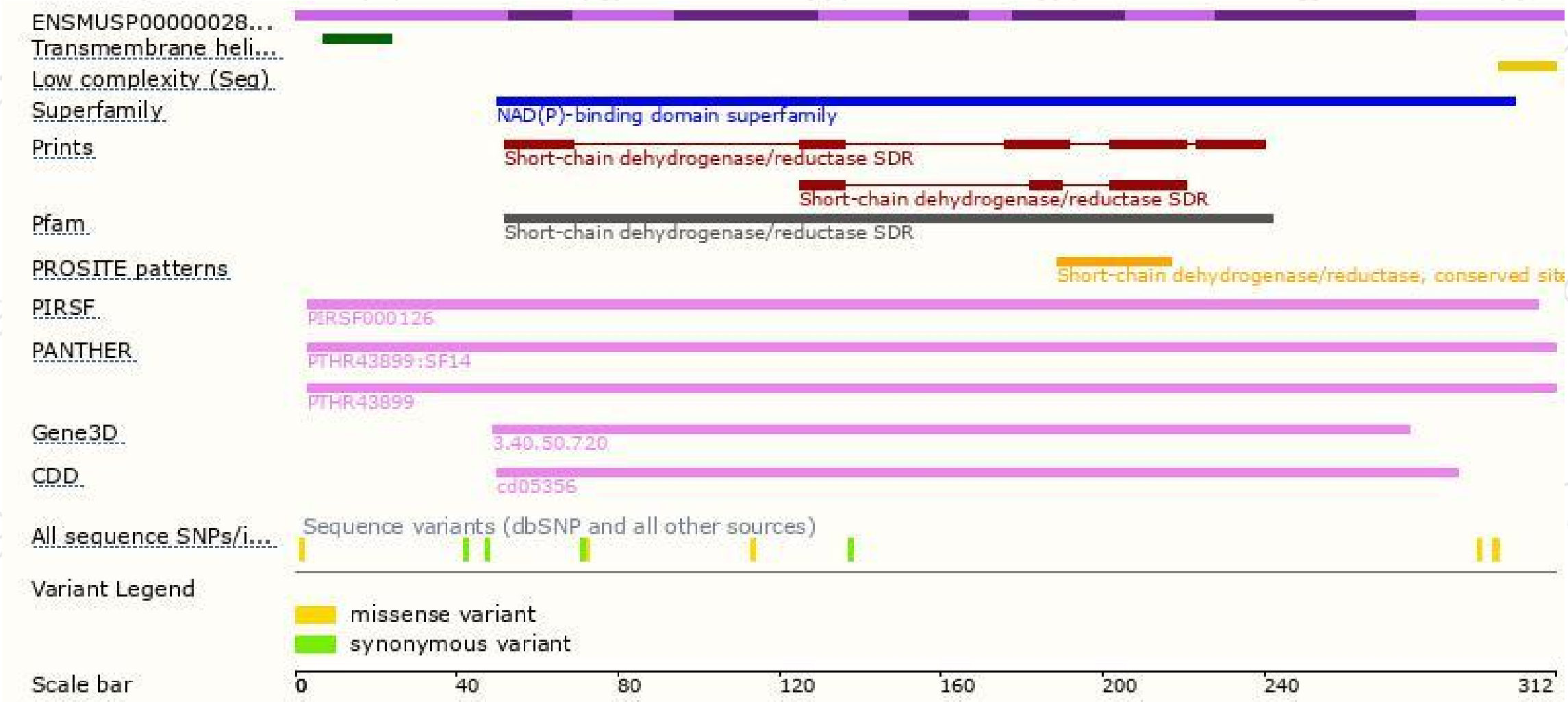
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Hsd17b12-201	ENSMUST00000028619.4	1902	312aa	Protein coding	CCDS16458	O70503 Q0VGQ1	TSL:1 GENCODE basic APPRIS P1
Hsd17b12-202	ENSMUST00000127084.7	1758	No protein	lncRNA	-	-	TSL:5
Hsd17b12-204	ENSMUST00000145967.7	1330	No protein	lncRNA	-	-	TSL:2
Hsd17b12-203	ENSMUST00000141955.1	727	No protein	lncRNA	-	-	TSL:5
Hsd17b12-205	ENSMUST00000146580.1	668	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Hsd17b12-201* transcript,The transcription is shown below

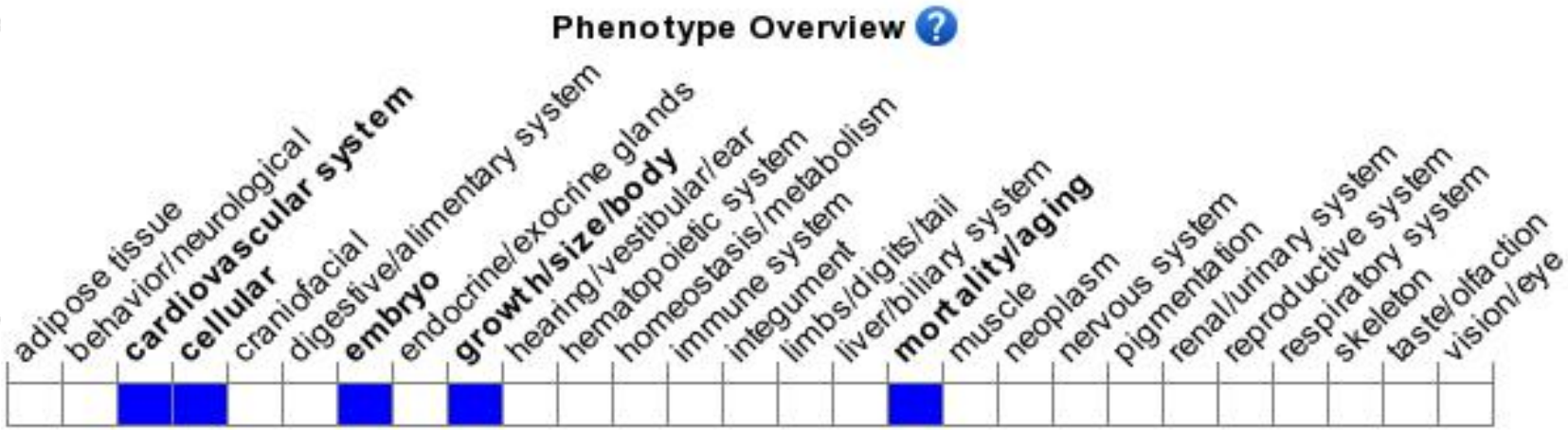
Genomic location distribution



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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