

# ***Denn2b* Cas9-KO Strategy**

**Designer: Xueting Zhang**

**Reviewer: Daohua Xu**

**Design Date: 2020-8-6**

# Project Overview

**Project Name**

***Denn2b***

**Project type**

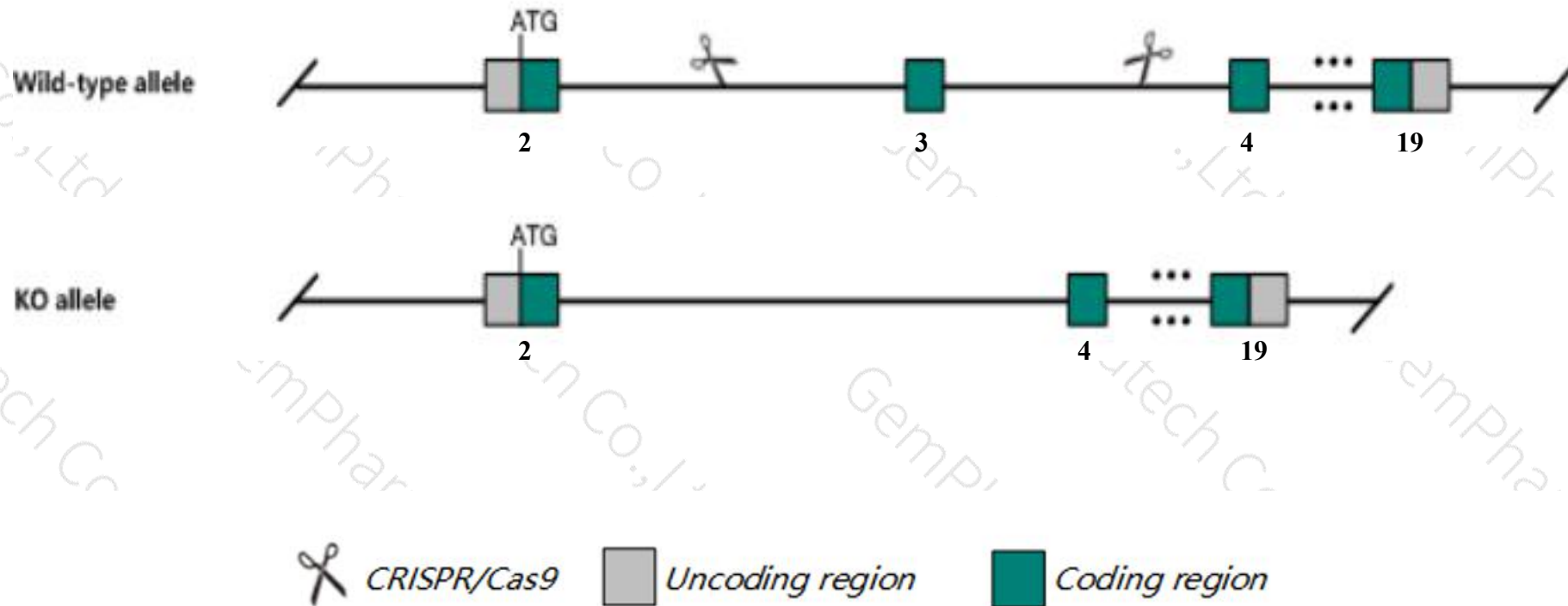
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Denn2b* gene. The schematic diagram is as follows:



- The *Denn2b* gene has 11 transcripts. According to the structure of *Denn2b* gene, exon3 of *Denn2b*-203(ENSMUST00000084738.4) transcript is recommended as the knockout region. The region contains 137bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Denn2b* 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 *Denn2b* gene is located on the Chr7. 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.
- Transcript *Denn2b*-206 may not be affected.
- The effect on transcript *Denn2b*-205&207&209&210 is unknown.
- 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)

## Denn2b DENN domain containing 2B [Mus musculus (house mouse)]

Gene ID: 76954, updated on 13-Mar-2020

### Summary



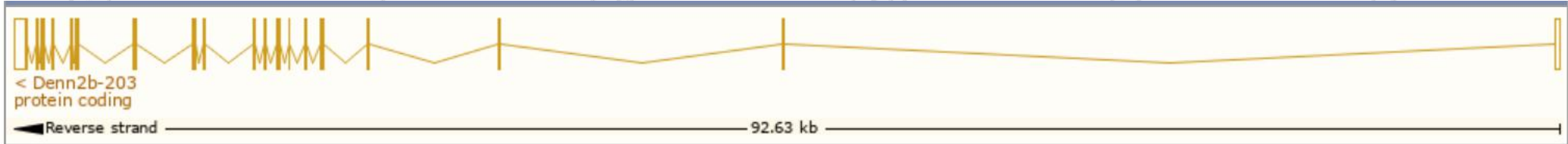
<b>Official Symbol</b>	Denn2b provided by <a href="#">MGI</a>
<b>Official Full Name</b>	DENN domain containing 2B provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:108517</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000031024</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	2010004M01Rik, 2610305K15Rik, St5
<b>Expression</b>	Ubiquitous expression in lung adult (RPKM 22.8), ovary adult (RPKM 12.9) and 28 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

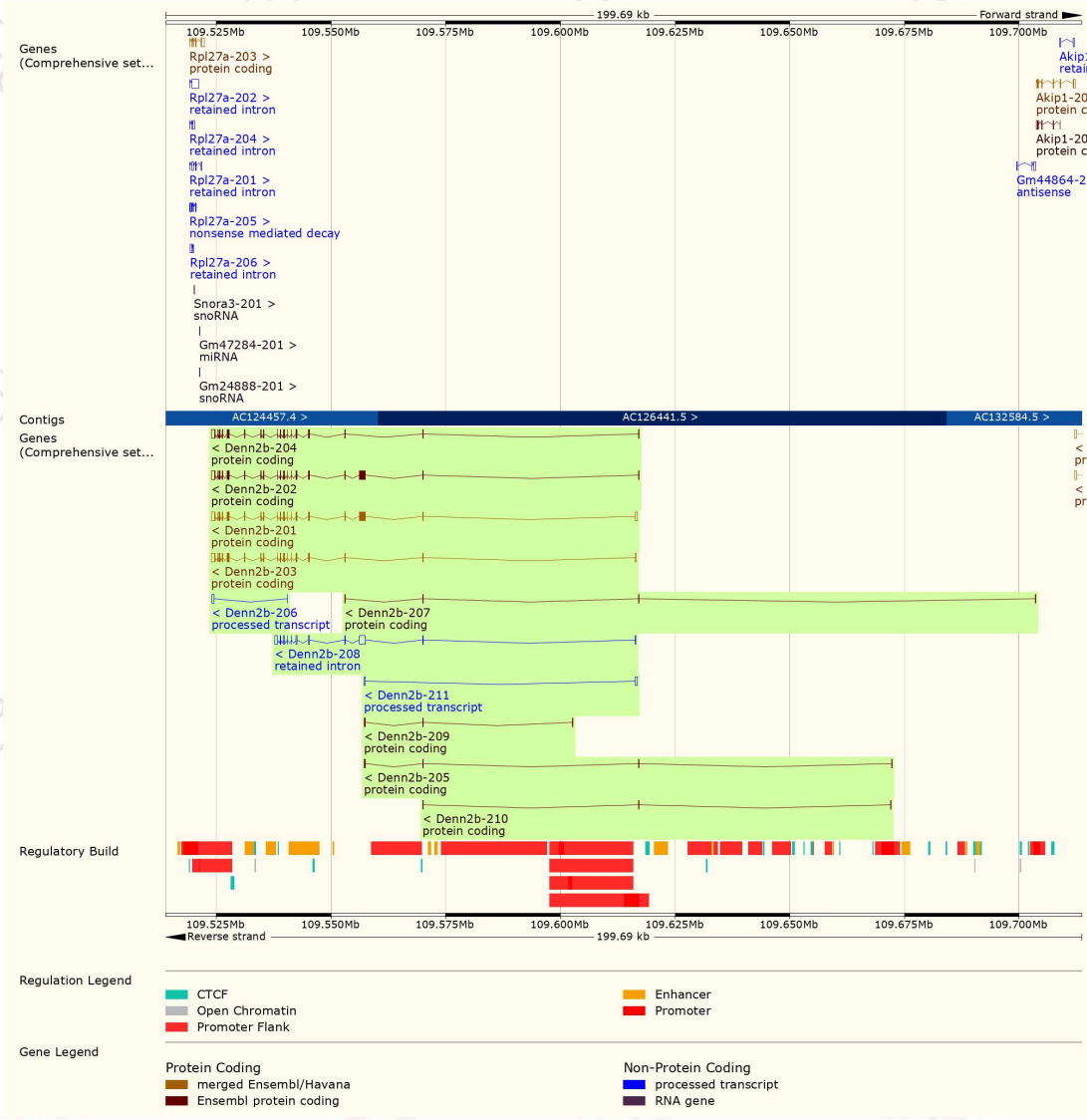
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Denn2b-201	<a href="#">ENSMUST00000077909.8</a>	4612	<a href="#">1134aa</a>	Protein coding	<a href="#">CCDS21734</a>	<a href="#">Q924W7</a>	TSL:1 GENCODE basic APPRIS P4
Denn2b-202	<a href="#">ENSMUST00000079282.7</a>	4255	<a href="#">1134aa</a>	Protein coding	<a href="#">CCDS21734</a>	<a href="#">Q924W7</a>	TSL:5 GENCODE basic APPRIS P4
Denn2b-203	<a href="#">ENSMUST00000084738.4</a>	3161	<a href="#">717aa</a>	Protein coding	<a href="#">CCDS21735</a>	<a href="#">Q924W7</a>	TSL:5 GENCODE basic APPRIS ALT2
Denn2b-204	<a href="#">ENSMUST00000168005.7</a>	3004	<a href="#">717aa</a>	Protein coding	<a href="#">CCDS21735</a>	<a href="#">Q924W7</a>	TSL:5 GENCODE basic APPRIS ALT2
Denn2b-205	<a href="#">ENSMUST00000207394.1</a>	553	<a href="#">95aa</a>	Protein coding	-	<a href="#">A0A140LHU4</a>	CDS 3' incomplete TSL:2
Denn2b-209	<a href="#">ENSMUST00000208583.1</a>	439	<a href="#">101aa</a>	Protein coding	-	<a href="#">A0A140LIB1</a>	CDS 3' incomplete TSL:3
Denn2b-207	<a href="#">ENSMUST00000207745.1</a>	362	<a href="#">59aa</a>	Protein coding	-	<a href="#">A0A140LIS1</a>	CDS 3' incomplete TSL:3
Denn2b-210	<a href="#">ENSMUST00000208734.1</a>	362	<a href="#">26aa</a>	Protein coding	-	<a href="#">A0A140LII1</a>	CDS 3' incomplete TSL:2
Denn2b-211	<a href="#">ENSMUST00000208981.1</a>	737	No protein	Processed transcript	-	-	TSL:2
Denn2b-206	<a href="#">ENSMUST00000207664.1</a>	514	No protein	Processed transcript	-	-	TSL:3
Denn2b-208	<a href="#">ENSMUST00000208557.1</a>	2991	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Denn2b-203* transcript,the transcription is shown below:

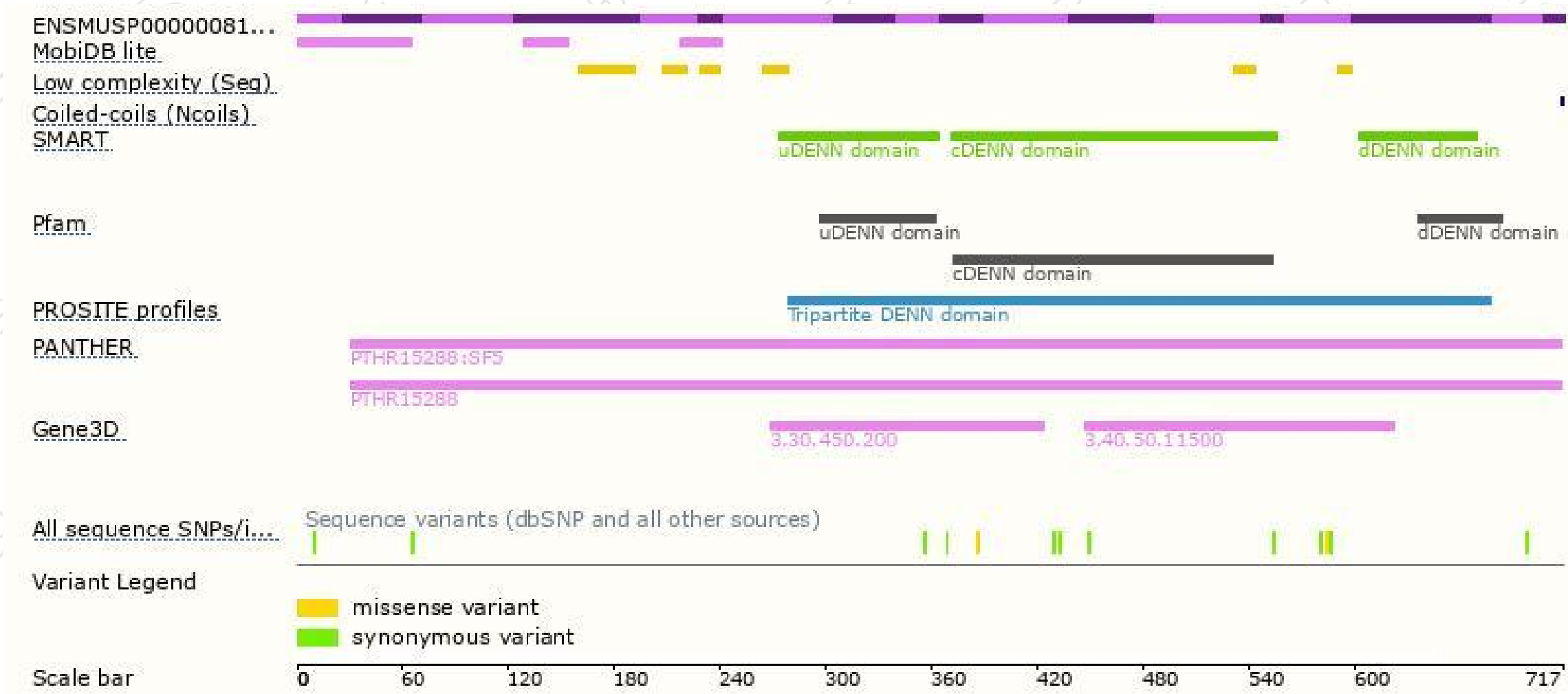


# Genomic location distribution





# Protein domain



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

Tel: 400-9660890

