

Dennd1a Cas9-CKO Strategy

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Reviewer:

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Design Date:

2019-9-20

Project Overview

Project Name

Dennd1a

Project type

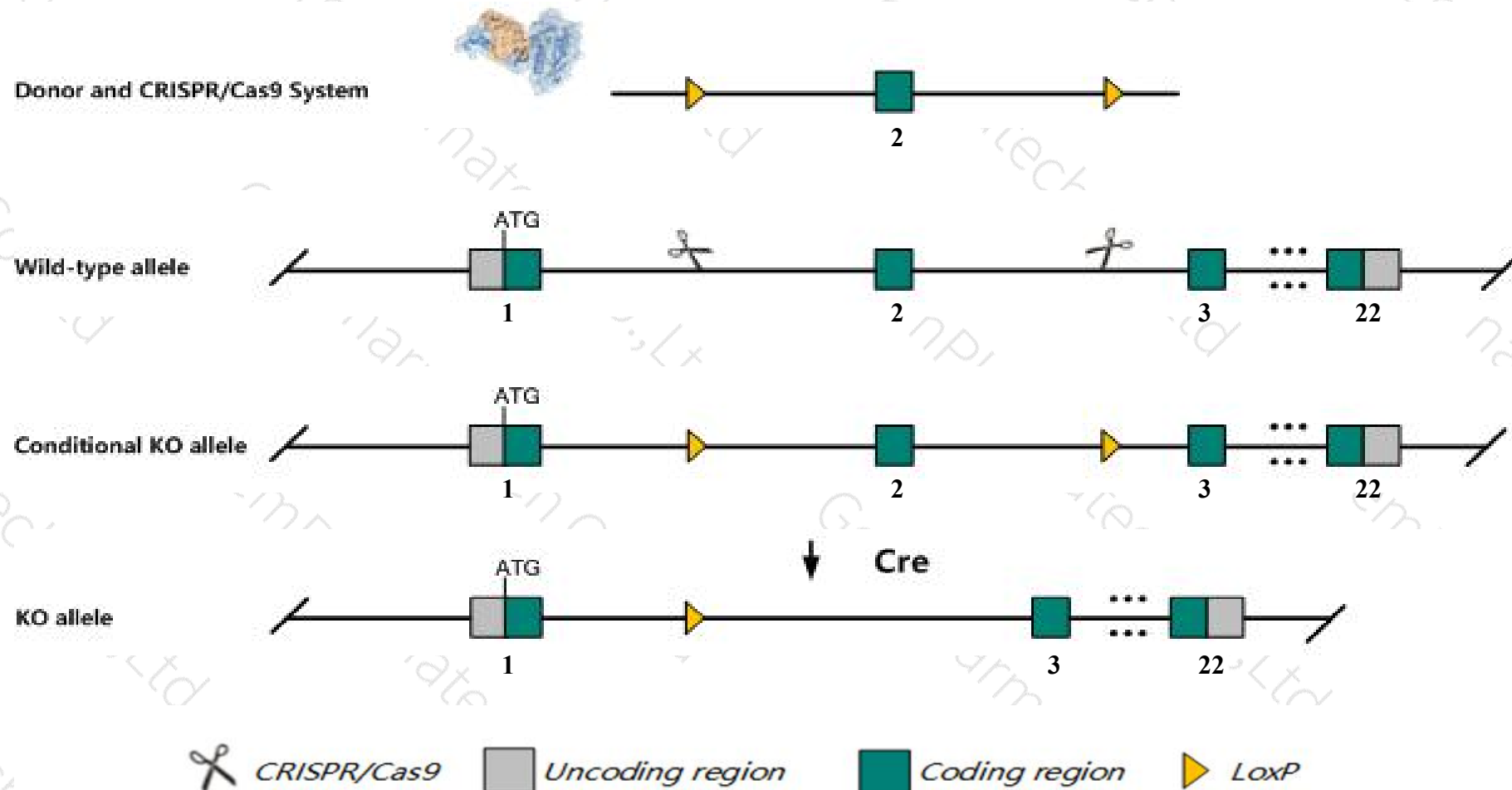
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dennd1a* gene. The schematic diagram is as follows:



Technical routes

- The *Dennd1a* gene has 11 transcripts. According to the structure of *Dennd1a* gene, exon2 of *Dennd1a-201* (ENSMUST00000102787.9) transcript is recommended as the knockout region. The region contains 71bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dennd1a* 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.

Notice

- The *Dennd1a* 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.
- Transcript *Dennd1a-206* may not be affected.
- 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)

Dennd1a DENN/MADD domain containing 1A [*Mus musculus* (house mouse)]

Gene ID: 227801, updated on 3-Sep-2019

Summary

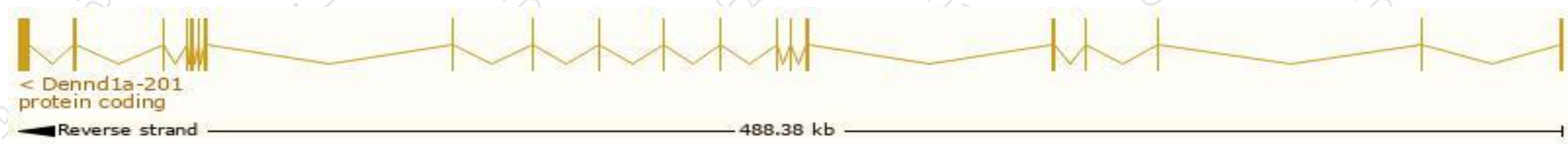
Official Symbol	Dennd1a provided by MGI
Official Full Name	DENN/MADD domain containing 1A provided by MGI
Primary source	MGI:MGI:2442794
See related	Ensembl:ENSMUSG000000035392
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	connecdenn; 6030446I19Rik
Expression	Ubiquitous expression in kidney adult (RPKM 10.2), adrenal adult (RPKM 9.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

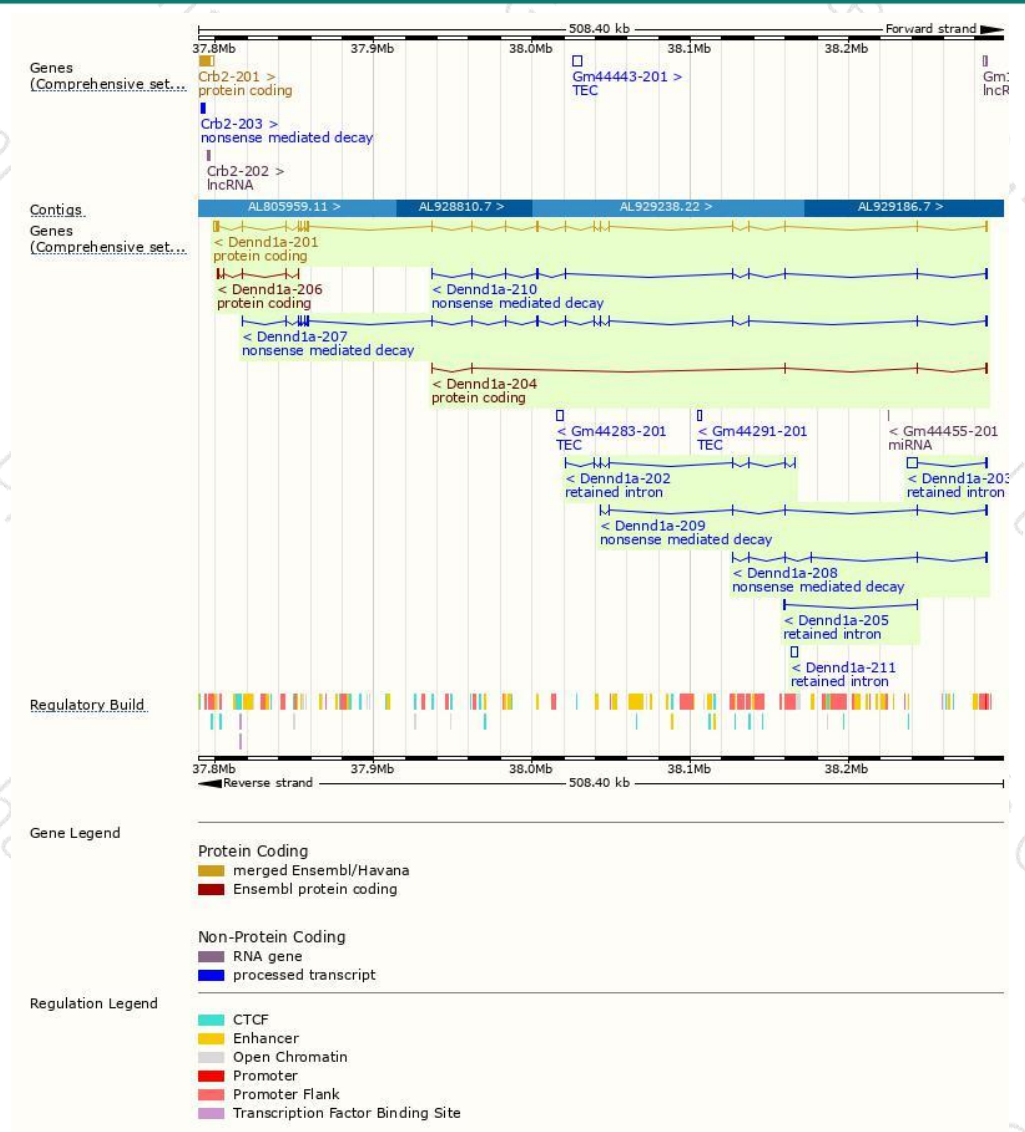
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dennd1a-201	ENSMUST00000102787.9	4342	1016aa	Protein coding	CCDS16007	Q8K382	TSL:1 GENCODE basic APPRIS P1
Dennd1a-206	ENSMUST00000136460.1	833	277aa	Protein coding	-	A2ALU3	CDS 5' and 3' incomplete TSL:5
Dennd1a-204	ENSMUST00000130472.7	374	105aa	Protein coding	-	A2AUP6	CDS 3' incomplete TSL:2
Dennd1a-207	ENSMUST00000140552.7	1794	49aa	Nonsense mediated decay	-	D6RHL0	TSL:5
Dennd1a-210	ENSMUST00000150896.7	1036	103aa	Nonsense mediated decay	-	D6RH88	TSL:3
Dennd1a-209	ENSMUST00000143095.7	625	47aa	Nonsense mediated decay	-	D6RI65	TSL:3
Dennd1a-208	ENSMUST00000142813.1	408	80aa	Nonsense mediated decay	-	D6RHP6	TSL:3
Dennd1a-203	ENSMUST00000128492.2	6212	No protein	Retained intron	-	-	TSL:1
Dennd1a-211	ENSMUST00000205218.1	4082	No protein	Retained intron	-	-	TSL:NA
Dennd1a-205	ENSMUST00000136116.1	668	No protein	Retained intron	-	-	TSL:3
Dennd1a-202	ENSMUST00000126889.7	652	No protein	Retained intron	-	-	TSL:3

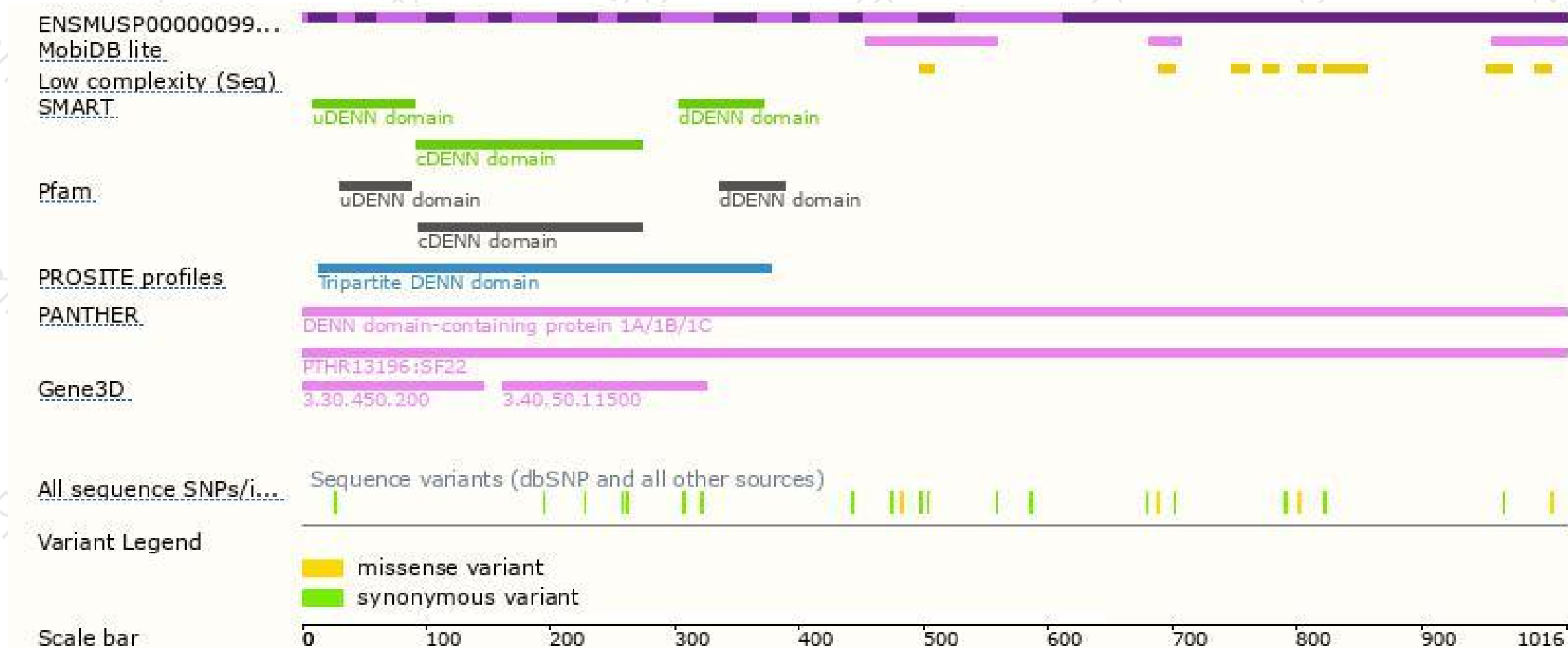
The strategy is based on the design of *Dennd1a-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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