Dennd6a Cas9-CKO Strategy

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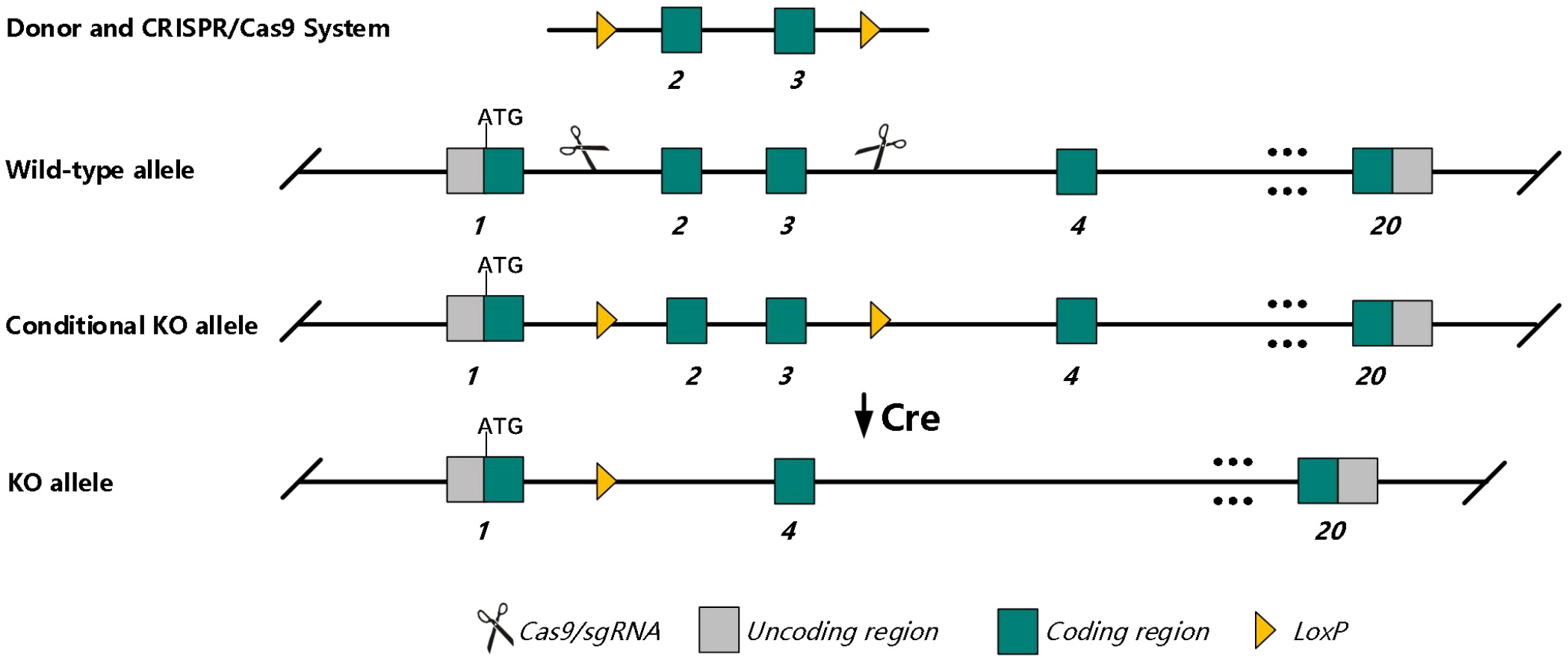
Project Overview

Project Name	***Dennd6a***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dennd6a* gene. The schematic diagram is as follows:



Technical routes

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- The *Dennd6a* gene has 6 transcripts. According to the structure of *Dennd6a* gene, exon2-exon3 of *Dennd6a-201* (ENSMUST00000037585.8) transcript is recommended as the knockout region.The region contains 82bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Dennd6a* 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 *Dennd6a* gene is located on the Chr14. 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）

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Dennd6a DENN/MADD domain containing 6A [*Mus musculus* (house mouse)]

Gene ID: 211922, updated on 13-Mar-2020

Summary

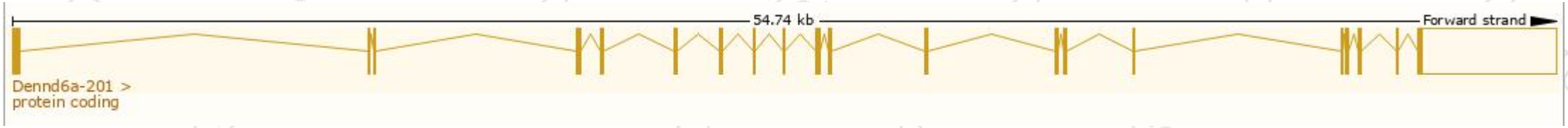
Official Symbol	Dennd6a provided by MGI
Official Full Name	DENN/MADD domain containing 6A provided by MGI
Primary source	MGI:MGI:2442980
See related	Ensembl:ENSMUSG00000040818
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Fam116a
Expression	Ubiquitous expression in placenta adult (RPKM 4.7), bladder adult (RPKM 4.3) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

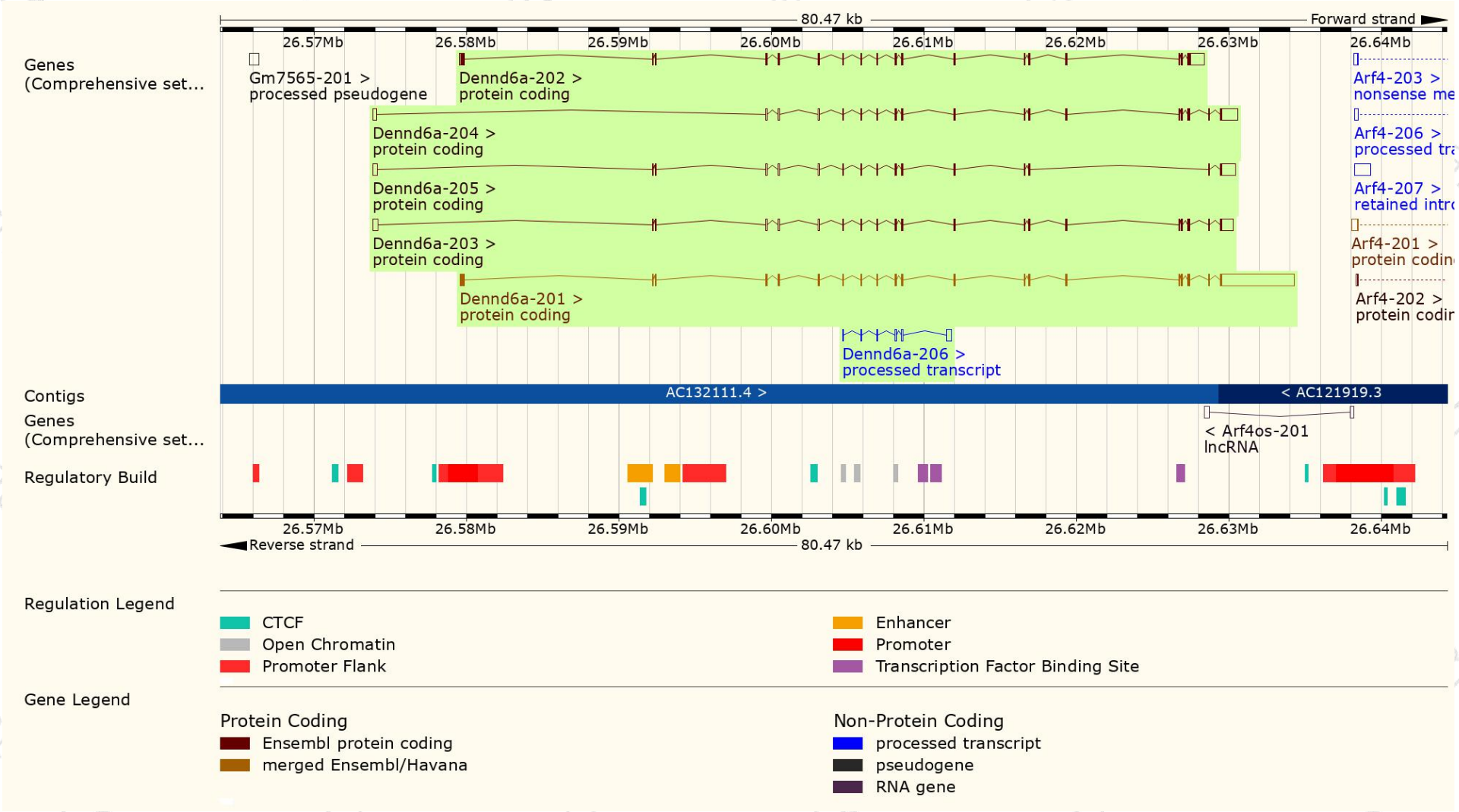
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dennd6a-201	ENSMUST00000037585.8	6638	605aa	Protein coding	CCDS49430	Q8BH65	TSL:1 GENCODE basic APPRIS P1
Dennd6a-202	ENSMUST00000203874.2	2677	559aa	Protein coding	CCDS84101	Q8BH65	TSL:1 GENCODE basic
Dennd6a-203	ENSMUST00000224111.1	2692	381aa	Protein coding	-	Q8BH65	GENCODE basic
Dennd6a-204	ENSMUST00000224248.1	2775	381aa	Protein coding	-	Q8BH65	GENCODE basic
Dennd6a-205	ENSMUST00000224378.1	2424	255aa	Protein coding	-	A0A286YDD5	GENCODE basic
Dennd6a-206	ENSMUST00000225206.1	738	No protein	Processed transcript	-	-	-

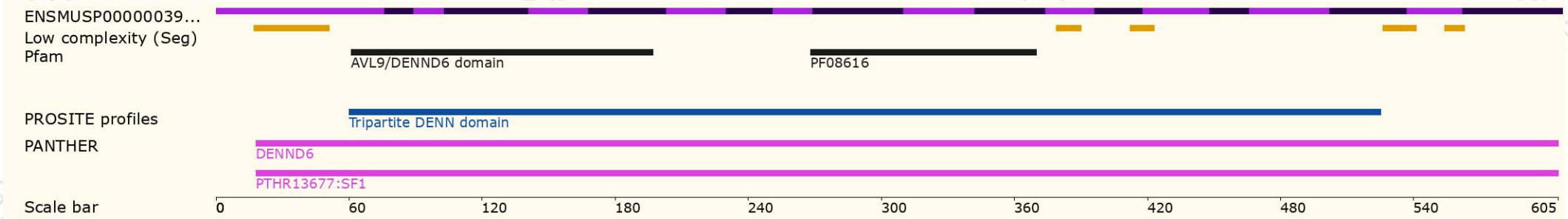
The strategy is based on the design of *Dennd6a-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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