

***Dnah2* Cas9-CKO Strategy**

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Project Overview

Project Name

Dnah2

Project type

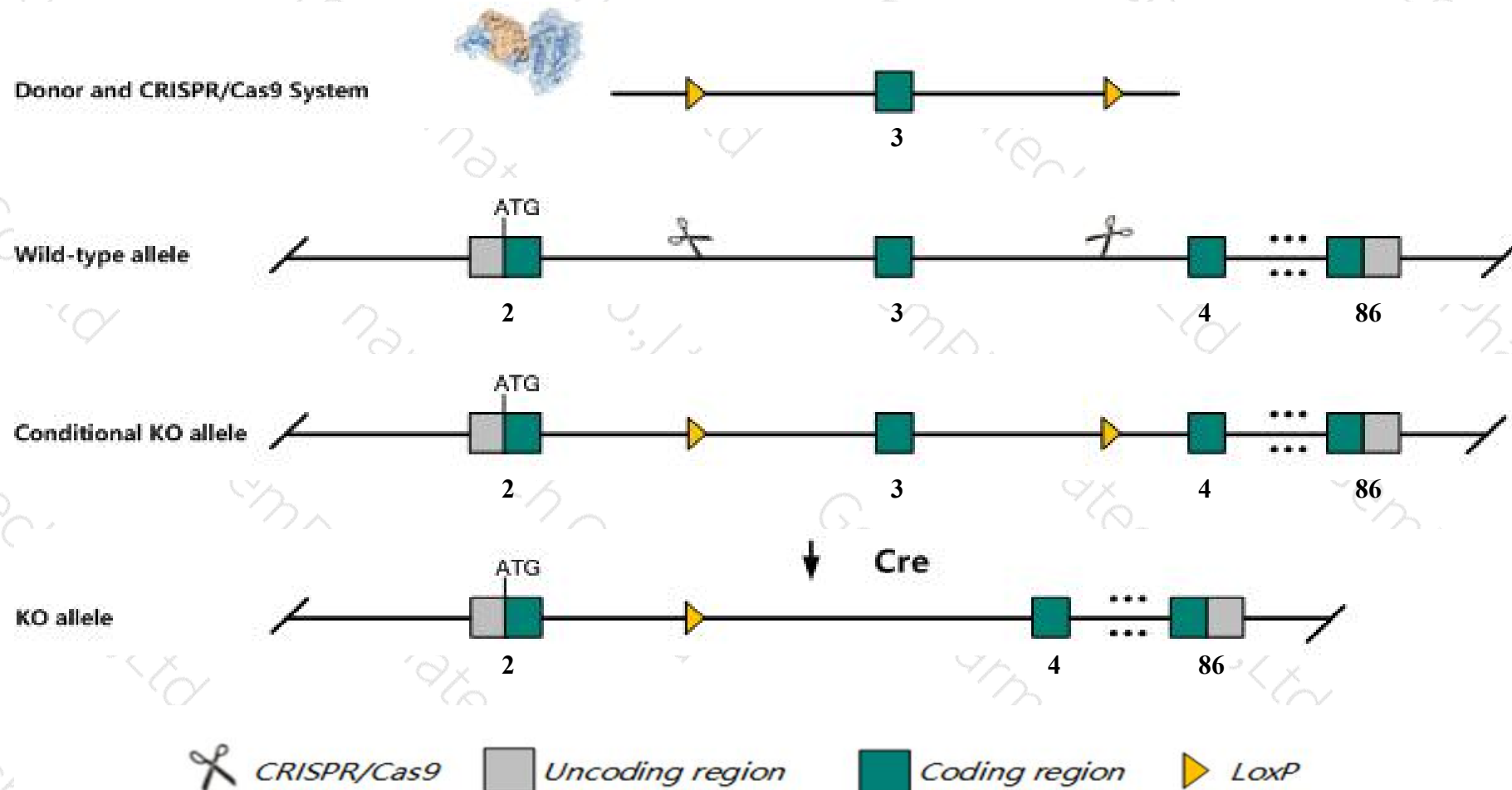
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnah2* gene. The schematic diagram is as follows:



- The *Dnah2* gene has 6 transcripts. According to the structure of *Dnah2* gene, exon3 of *Dnah2*-202 (ENSMUST00000108659.1) transcript is recommended as the knockout region. The region contains 167bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnah2* 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 *Dnah2* 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)

Dnah2 dynein, axonemal, heavy chain 2 [Mus musculus (house mouse)]

Gene ID: 327954, updated on 13-Mar-2020

Summary



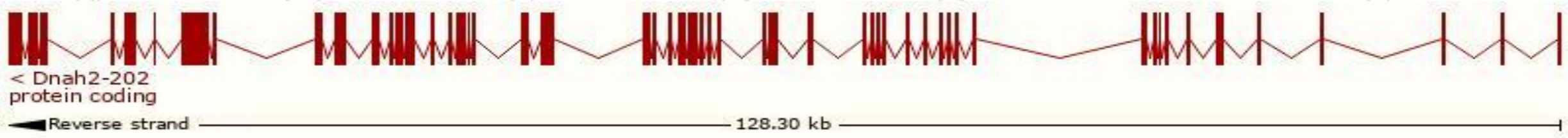
Official Symbol	Dnah2 provided by MGI
Official Full Name	dynein, axonemal, heavy chain 2 provided by MGI
Primary source	MGI:MGI:107731
See related	Ensembl:ENSMUSG00000005237
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2900022L05Rik, 4930564A01, D130094J20, D330014H01Rik, Dnahc2, Dnhd3
Expression	Biased expression in testis adult (RPKM 9.8), ovary adult (RPKM 1.9) and 5 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

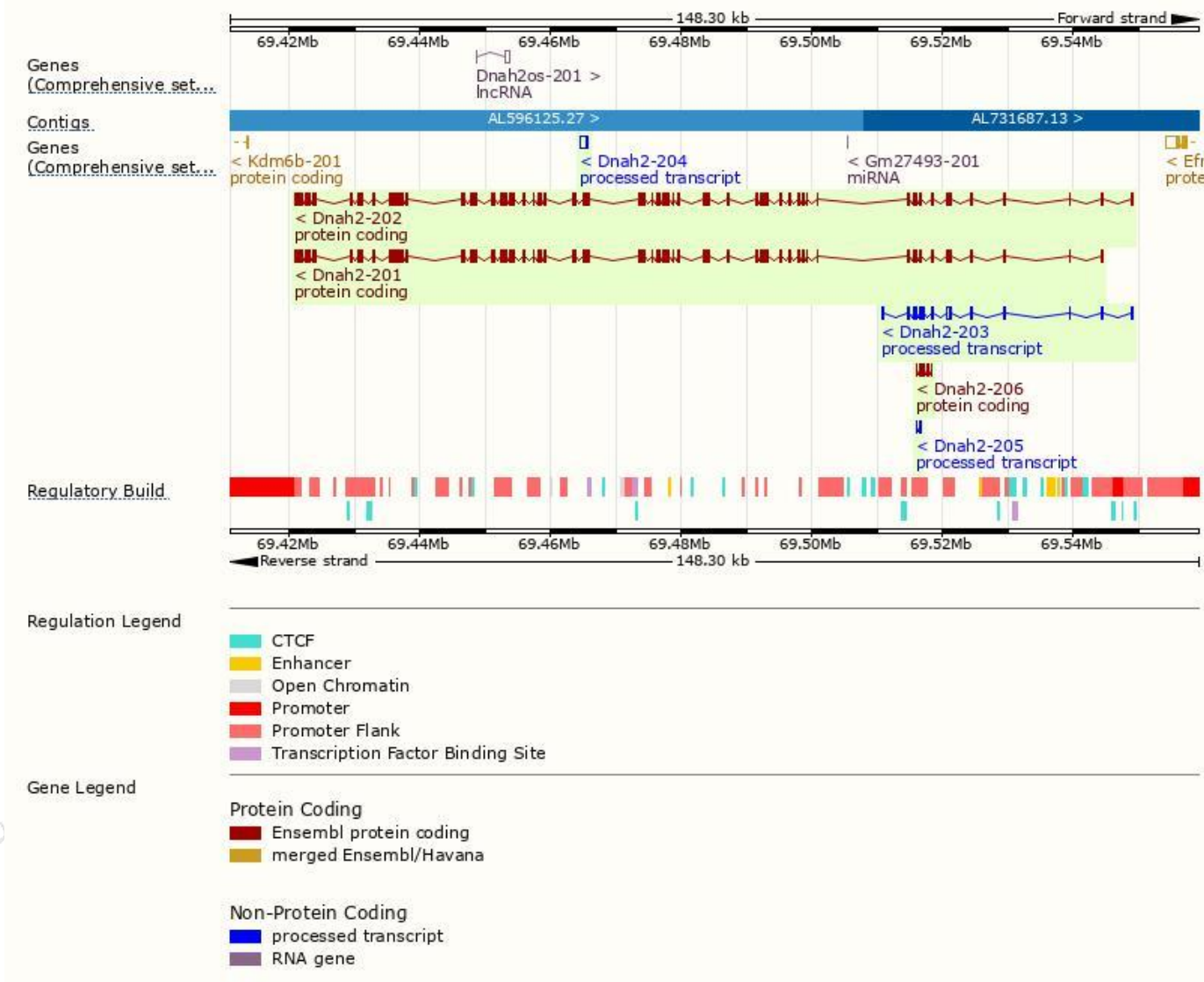
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnah2-202	ENSMUST00000108659.1	13704	4462aa	Protein coding	CCDS36192	D3Z667	TSL:5 GENCODE basic APPRIS P2
Dnah2-201	ENSMUST00000035539.11	13569	4456aa	Protein coding	-	P0C6F1 Q5F222	TSL:5 GENCODE basic APPRIS ALT2
Dnah2-206	ENSMUST00000208777.1	696	232aa	Protein coding	-	A0A140LHI3	CDS 5' and 3' incomplete TSL:5
Dnah2-203	ENSMUST00000149991.1	2616	No protein	Processed transcript	-	-	TSL:1
Dnah2-204	ENSMUST00000151811.1	924	No protein	Processed transcript	-	-	TSL:1
Dnah2-205	ENSMUST00000154985.1	386	No protein	Processed transcript	-	-	TSL:3

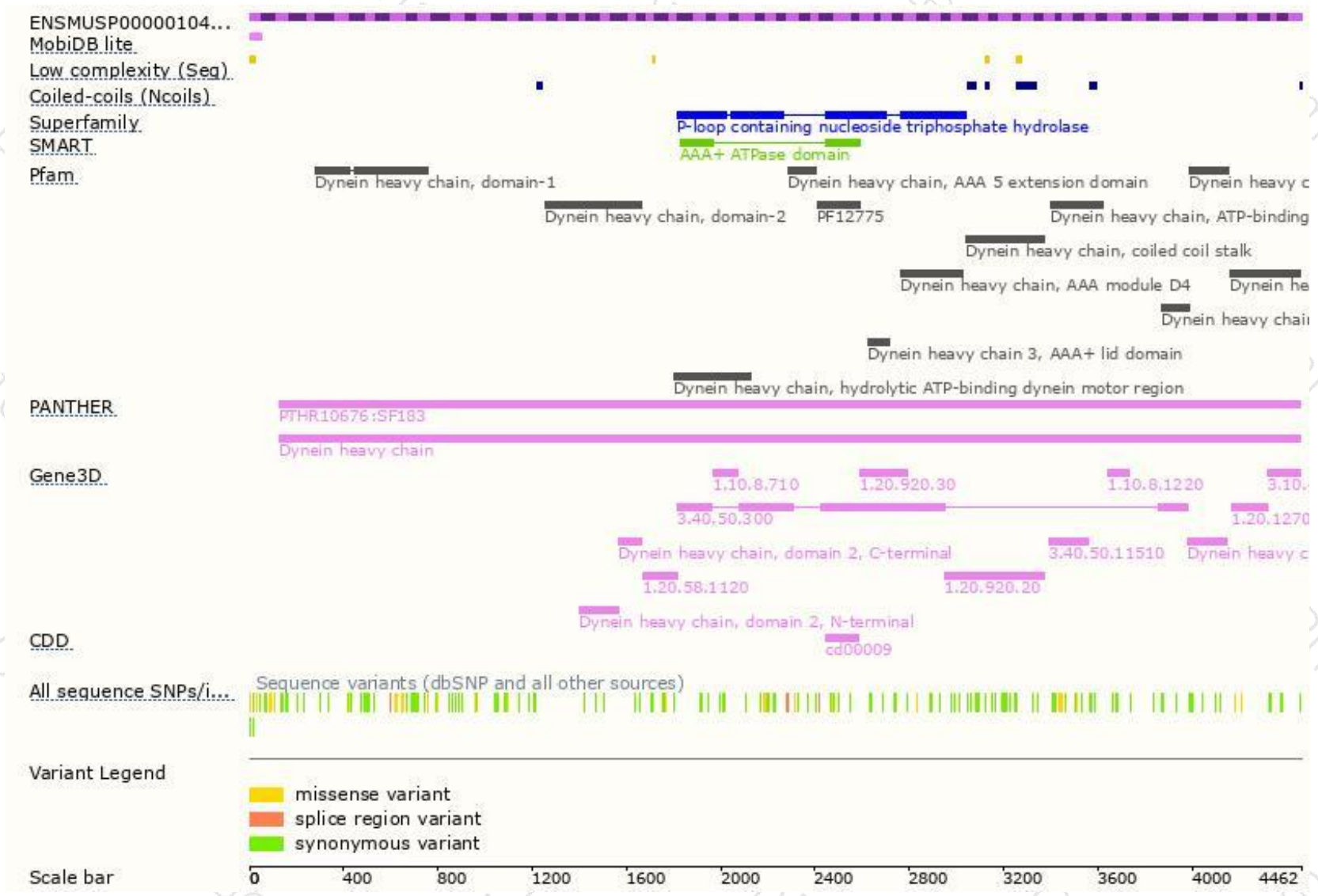
The strategy is based on the design of *Dnah2-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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