

***Elmod2* Cas9-CKO Strategy**

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Project Overview

Project Name

Elmod2

Project type

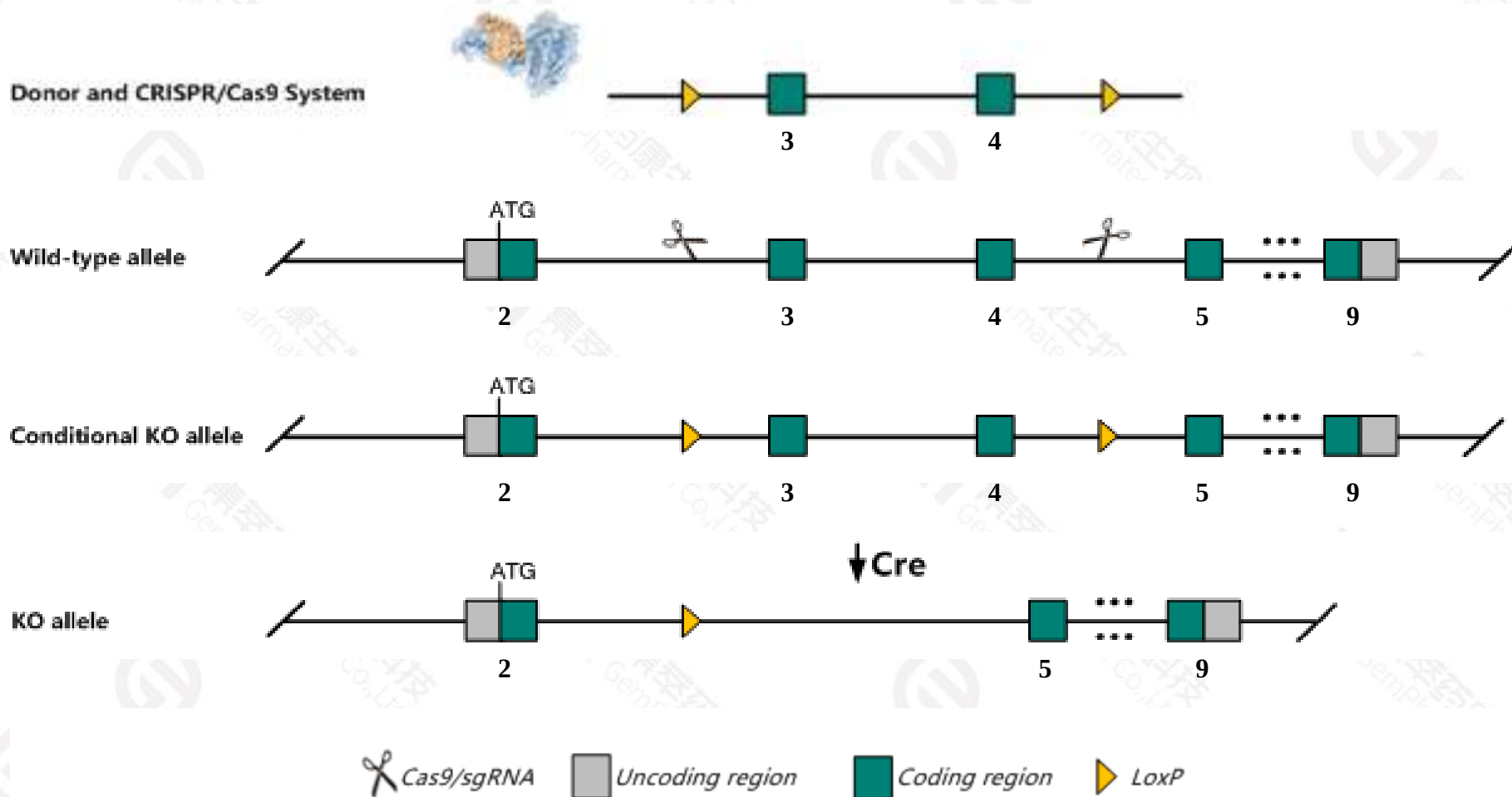
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Elmod2* gene. The schematic diagram is as follows:



- The *Elmod2* gene has 6 transcripts. According to the structure of *Elmod2* gene, exon3-exon4 of *Elmod2*-206(ENSMUST00000177594.8) transcript is recommended as the knockout region. The region contains 127bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Elmod2* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor was constructed. Cas9, sgRNA 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 was 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.

- The *Elmod2* gene is located on the Chr8. 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)

Elmod2 ELMO/CED-12 domain containing 2 [Mus musculus (house mouse)]

Gene ID: 244548, updated on 3-Oct-2020

Summary



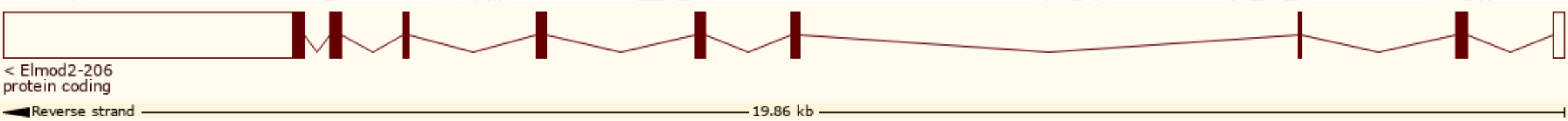
Official Symbol	Elmod2 provided by MGI
Official Full Name	ELMO/CED-12 domain containing 2 provided by MGI
Primary source	MGI:MGI:2445165
See related	Ensembl:ENSMUSG00000035151
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9830169G11Rik
Expression	Ubiquitous expression in whole brain E14.5 (RPKM 5.0), CNS E18 (RPKM 5.0) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

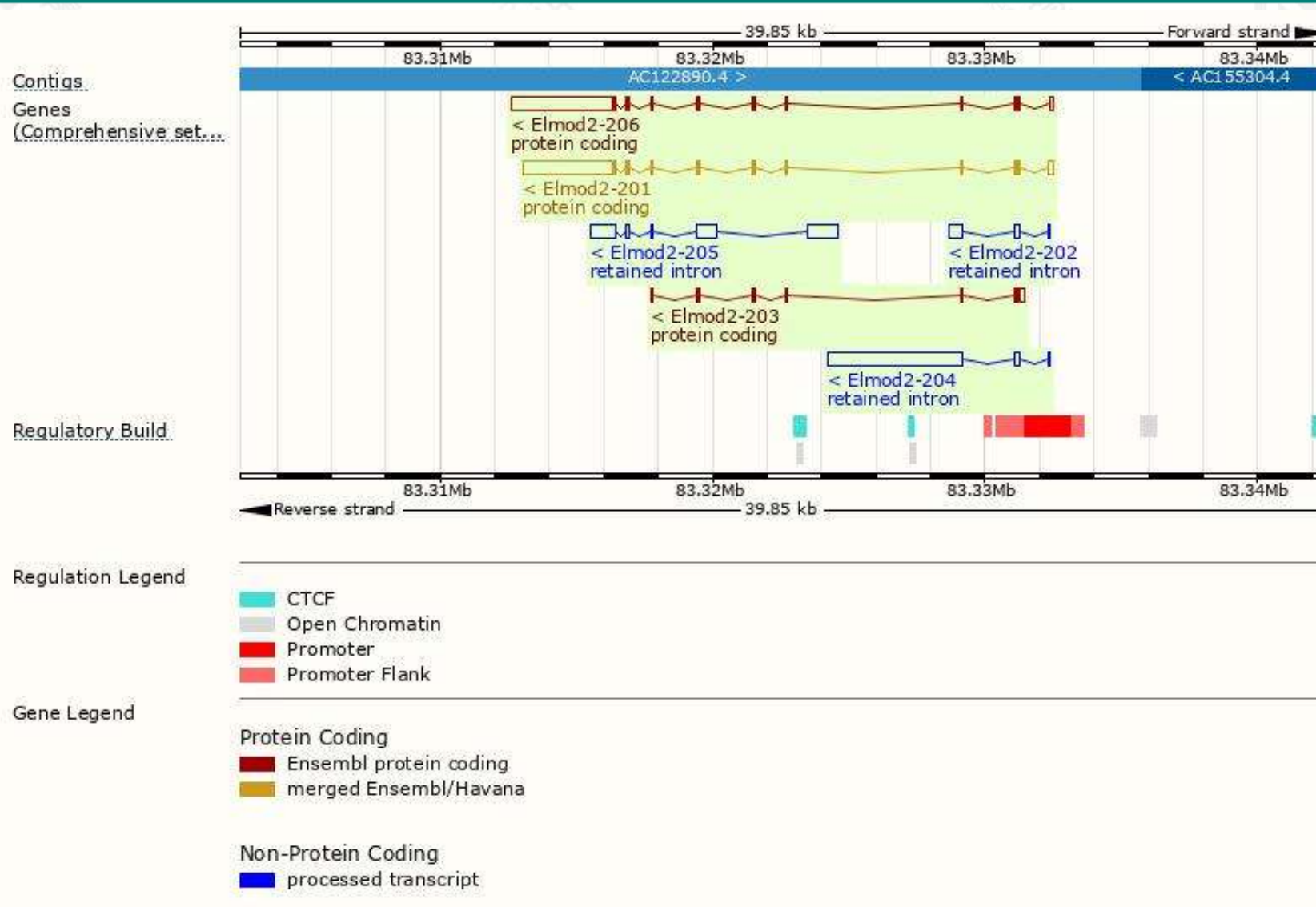
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Elmod2-206	ENSMUST00000177594.8	4704	293aa	Protein coding	CCD522450		TSL:1 , GENCODE basic , APPRIS P1 ,
Elmod2-201	ENSMUST00000053902.4	4319	293aa	Protein coding	CCD522450		TSL:1 , GENCODE basic , APPRIS P1 ,
Elmod2-203	ENSMUST00000139041.2	770	189aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Elmod2-204	ENSMUST00000141565.8	5122	No protein	Retained intron	-		TSL:2 ,
Elmod2-205	ENSMUST00000150124.2	3060	No protein	Retained intron	-		TSL:5 ,
Elmod2-202	ENSMUST00000126079.2	649	No protein	Retained intron	-		TSL:2 ,

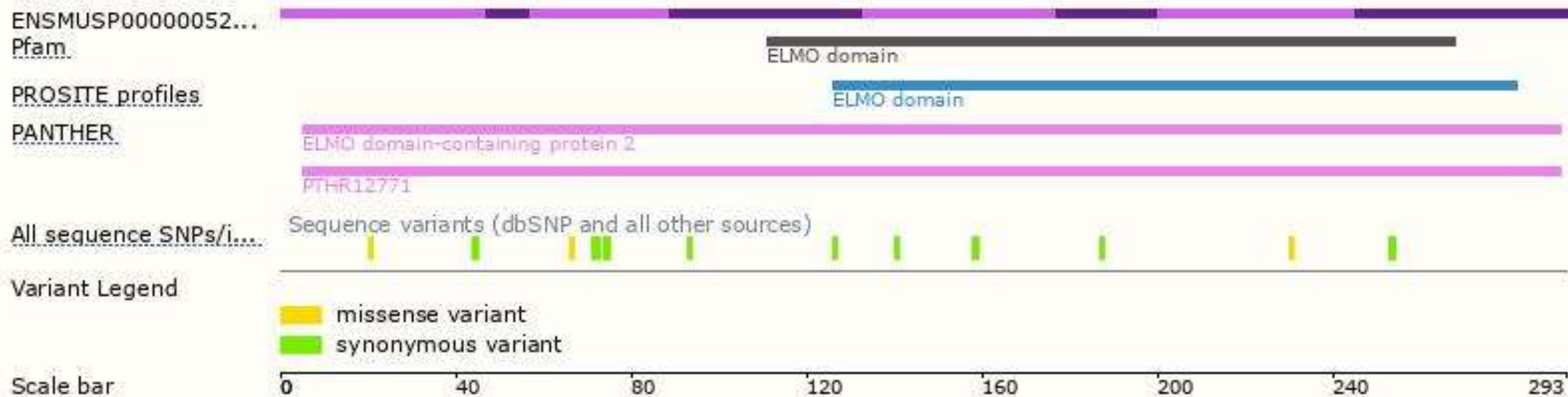
The strategy is based on the design of *Elmod2-206* transcript,the transcription is shown below:



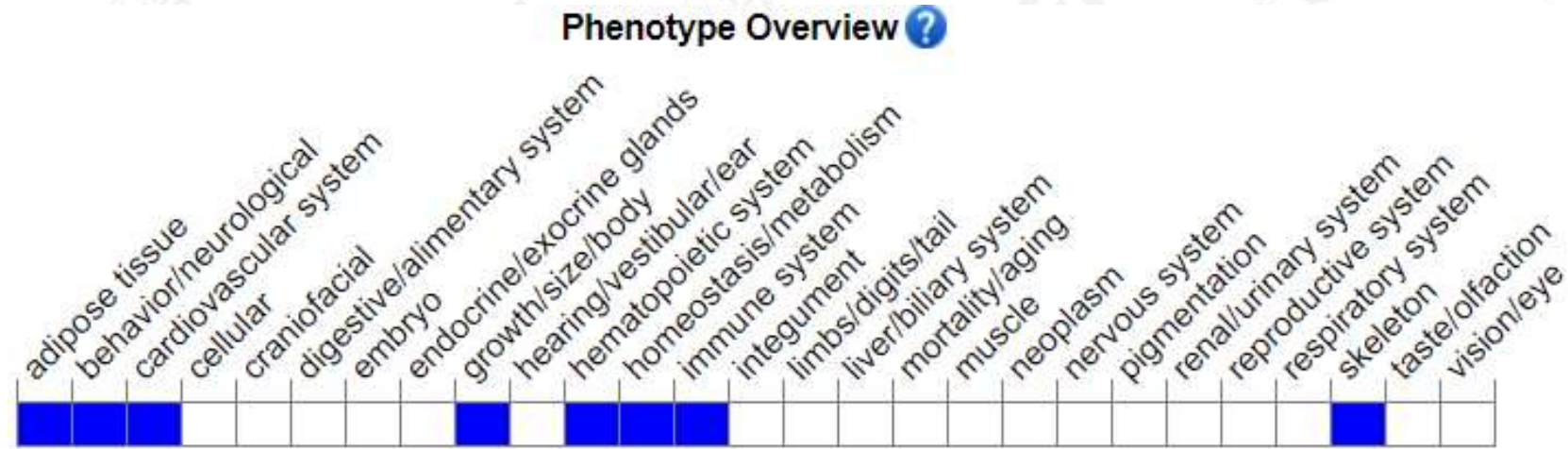
Genomic location distribution



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/>).

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