Fmo4 Cas9-CKO Strategy

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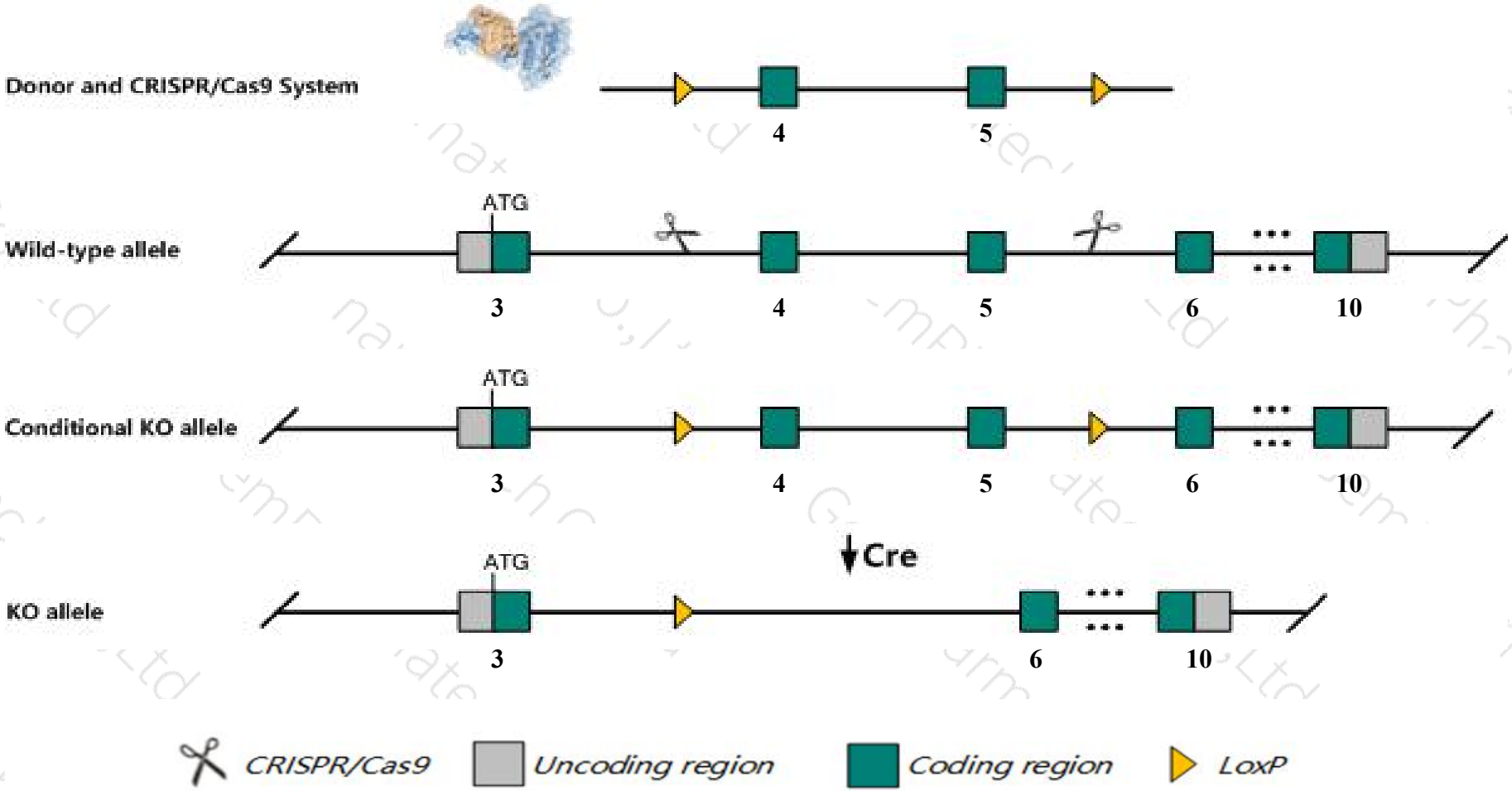
Project Overview

Project Name	***Fmo4***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fmo4* gene. The schematic diagram is as follows:



Technical routes

- The *Fmo4* gene has 6 transcripts. According to the structure of *Fmo4* gene, exon4-exon5 of *Fmo4-202* (ENSMUST00000111525.7) transcript is recommended as the knockout region.The region contains 352bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Fmo4* 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 *Fmo4* gene is located on the Chr1. 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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Fmo4 flavin containing monooxygenase 4 [*Mus musculus* (house mouse)]

Gene ID: 226564, updated on 12-Aug-2019

Summary

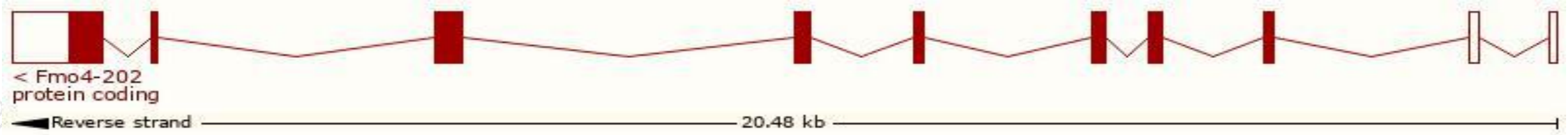
Official Symbol	Fmo4 provided by MGI
Official Full Name	flavin containing monooxygenase 4 provided by MGI
Primary source	MGI:MGI:2429497
See related	Ensembl:ENSMUSG00000026692
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	D1Ertd532e
Expression	Biased expression in placenta adult (RPKM 10.1), large intestine adult (RPKM 5.6) and 7 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

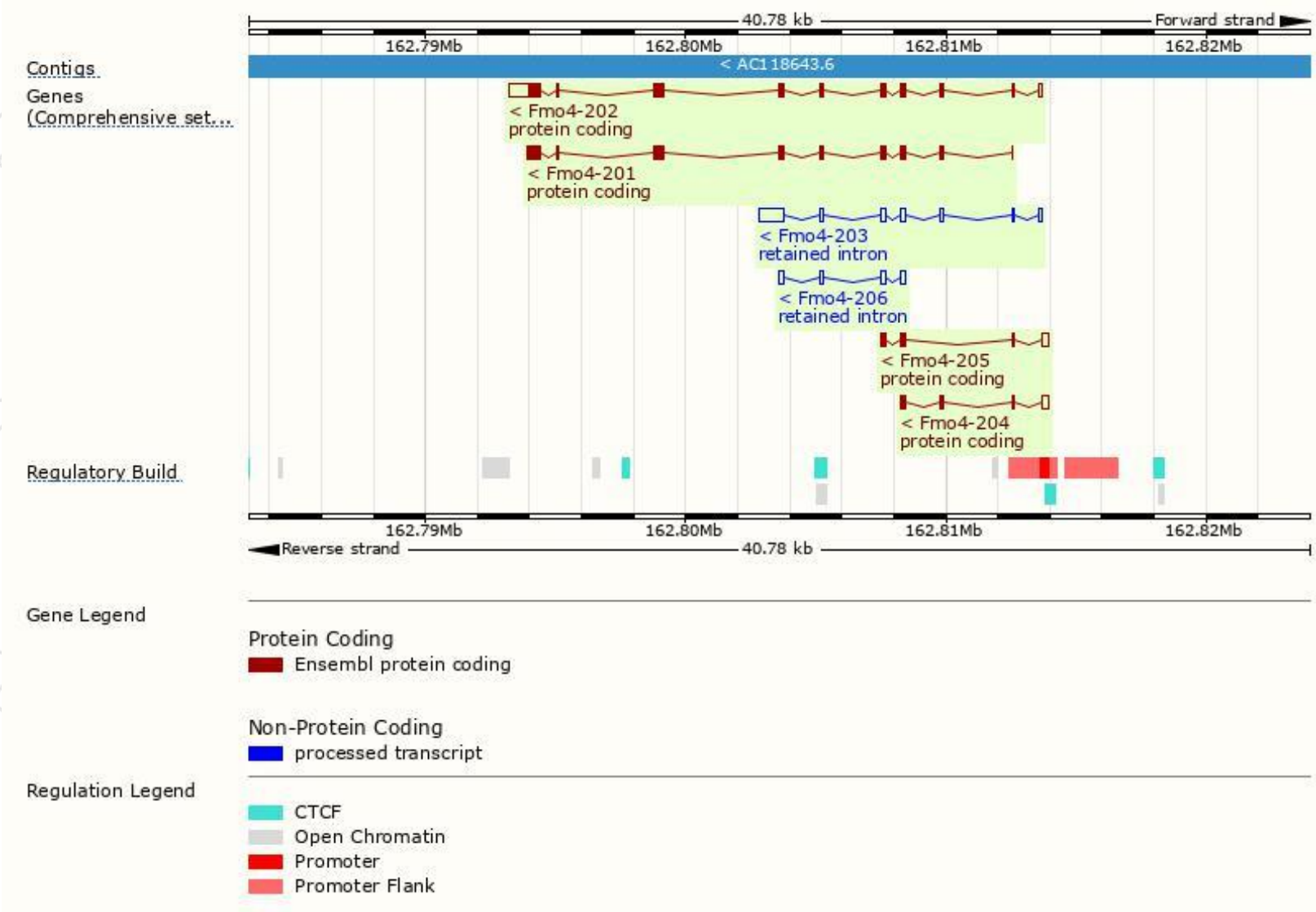
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fmo4-202	ENSMUST00000111525.7	2683	560aa	Protein coding	CCDS15423	Q8VHG0	TSL:5 GENCODE basic APPRIS P1
Fmo4-201	ENSMUST00000028014.9	1787	560aa	Protein coding	CCDS15423	Q8VHG0	TSL:1 GENCODE basic APPRIS P1
Fmo4-205	ENSMUST00000144916.7	710	113aa	Protein coding	-	D3Z2C5	CDS 3' incomplete TSL:3
Fmo4-204	ENSMUST00000140274.1	702	99aa	Protein coding	-	D3YUF0	CDS 3' incomplete TSL:3
Fmo4-203	ENSMUST00000140031.7	1774	No protein	Retained intron	-	-	TSL:1
Fmo4-206	ENSMUST00000193508.1	680	No protein	Retained intron	-	-	TSL:3

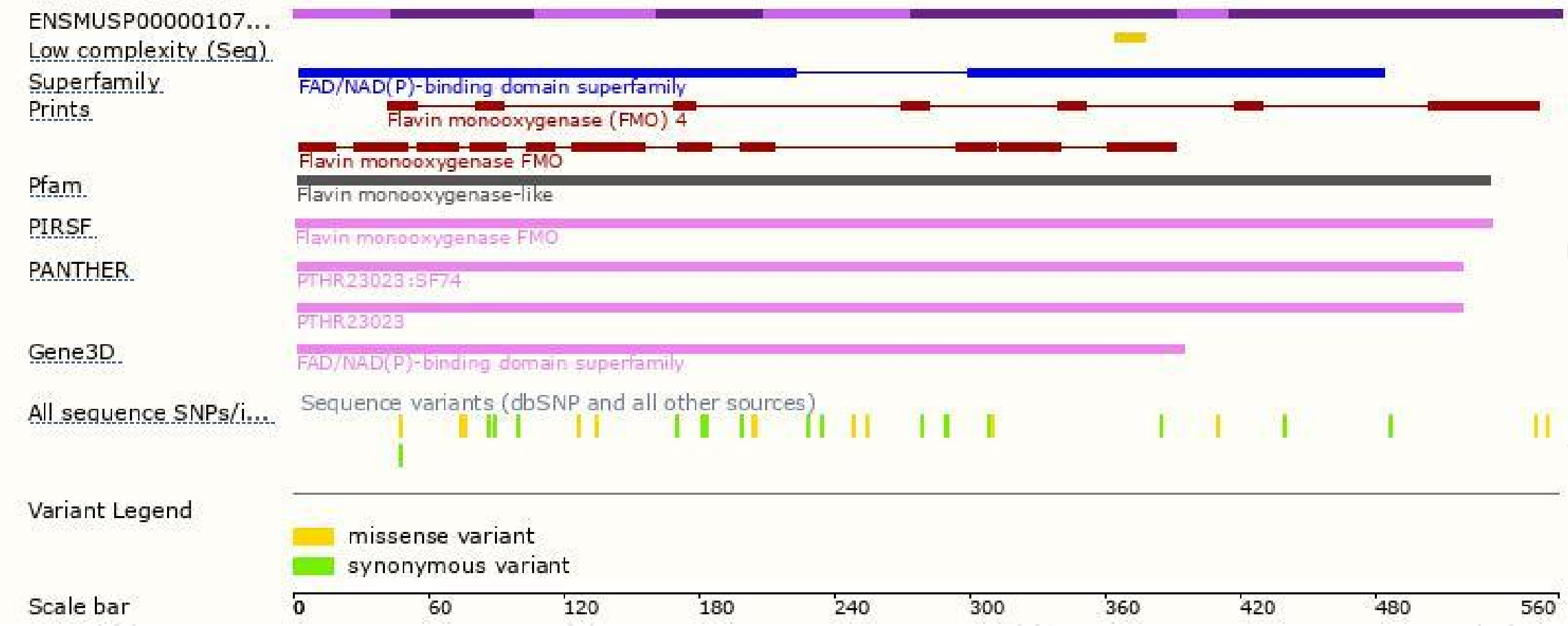
The strategy is based on the design of *Fmo4-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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