

***Comm4* Cas9-CKO Strategy**

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Project Overview

Project Name

Commd4

Project type

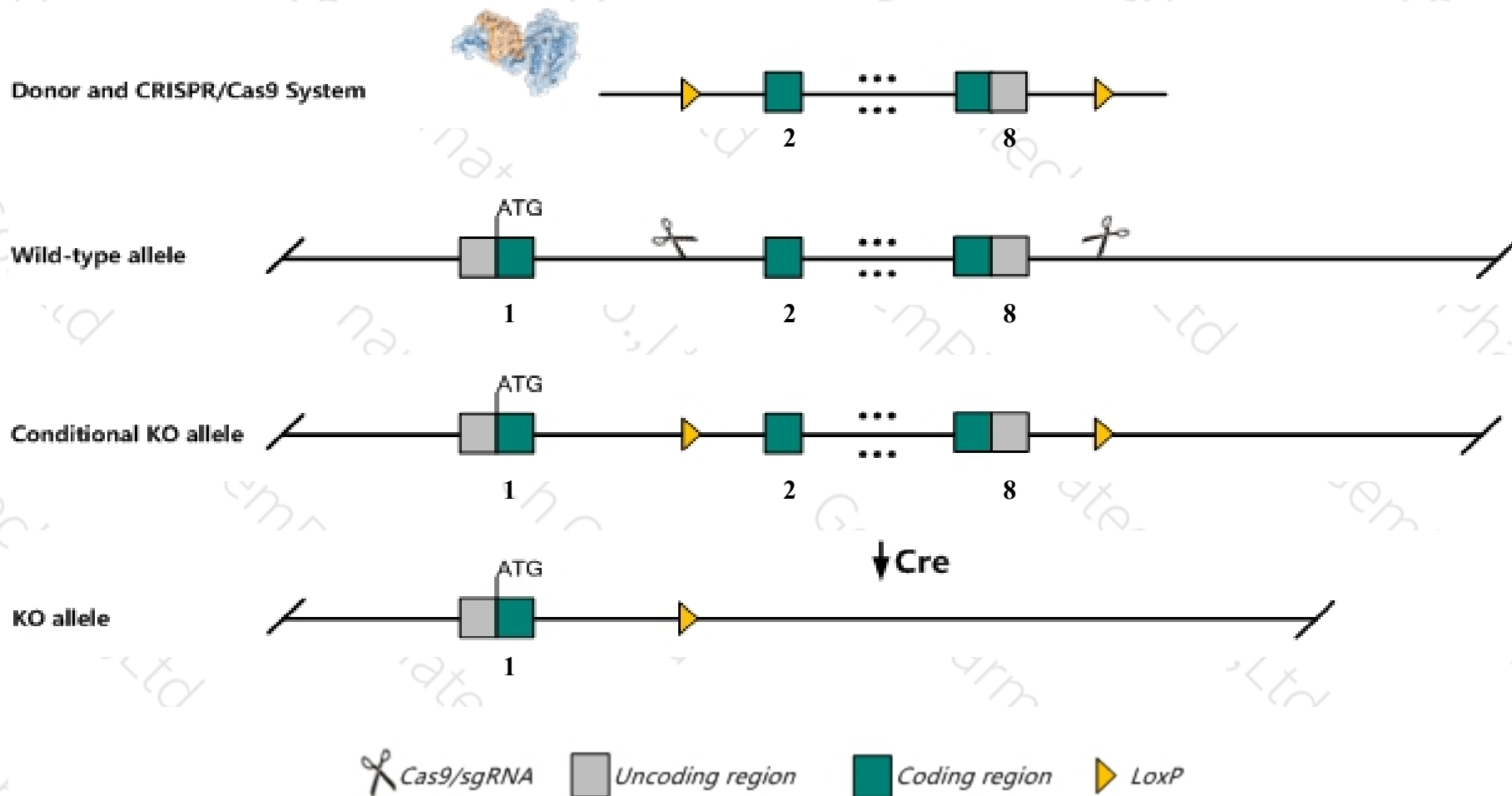
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Commd4* gene. The schematic diagram is as follows:



Technical routes

- The *Commd4* gene has 13 transcripts. According to the structure of *Commd4* gene, exon2-exon8 of *Commd4-201*(ENSMUST00000065358.8) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Commd4* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector 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 *Commd4* gene is located on the Chr9. 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)

Commd4 COMM domain containing 4 [Mus musculus (house mouse)]

Gene ID: 66199, updated on 13-Mar-2020

Summary



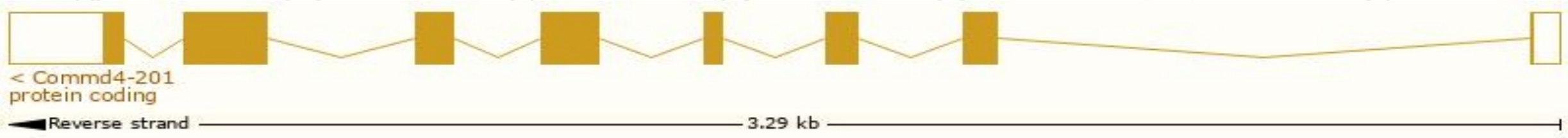
Official Symbol	Commd4 provided by MGI
Official Full Name	COMM domain containing 4 provided by MGI
Primary source	MGI:MGI:1913449
See related	Ensembl:ENSMUSG00000032299
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110039H05Rik
Expression	Ubiquitous expression in thymus adult (RPKM 54.1), placenta adult (RPKM 51.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

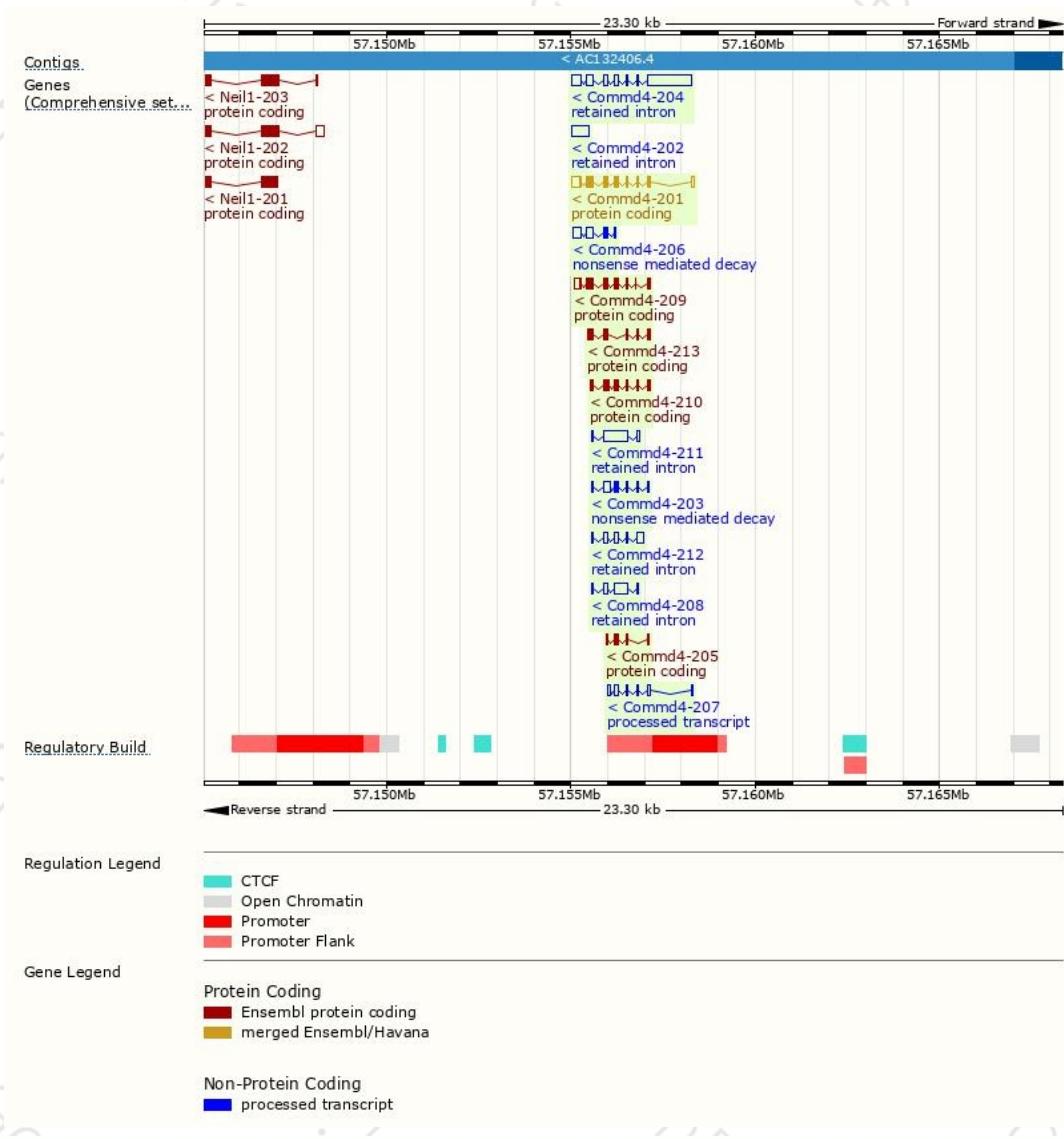
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Commd4-201	ENSMUST00000065358.8	858	199aa	Protein coding	CCDS40647	Q9CQ02	TSL:1 GENCODE basic APPRIS P1
Commd4-209	ENSMUST00000214640.1	703	180aa	Protein coding	-	A0A1L1SVC7	CDS 5' incomplete TSL:3
Commd4-210	ENSMUST00000215013.1	492	164aa	Protein coding	-	A0A1L1SRX4	CDS 5' and 3' incomplete TSL:3
Commd4-213	ENSMUST00000217018.1	388	129aa	Protein coding	-	A0A1L1SRJ9	CDS 5' and 3' incomplete TSL:3
Commd4-205	ENSMUST00000214097.1	246	82aa	Protein coding	-	A0A1L1SRM6	CDS 5' and 3' incomplete TSL:3
Commd4-206	ENSMUST00000214174.1	579	54aa	Nonsense mediated decay	-	A0A1L1STT5	CDS 5' incomplete TSL:2
Commd4-203	ENSMUST00000213580.1	472	96aa	Nonsense mediated decay	-	A0A1L1ST08	CDS 5' incomplete TSL:3
Commd4-207	ENSMUST00000214212.1	414	No protein	Processed transcript	-	-	TSL:3
Commd4-204	ENSMUST00000214072.1	1941	No protein	Retained intron	-	-	TSL:1
Commd4-211	ENSMUST00000215500.1	770	No protein	Retained intron	-	-	TSL:3
Commd4-208	ENSMUST00000214325.1	527	No protein	Retained intron	-	-	TSL:3
Commd4-212	ENSMUST00000216031.1	458	No protein	Retained intron	-	-	TSL:3
Commd4-202	ENSMUST00000213161.1	437	No protein	Retained intron	-	-	TSL:NA

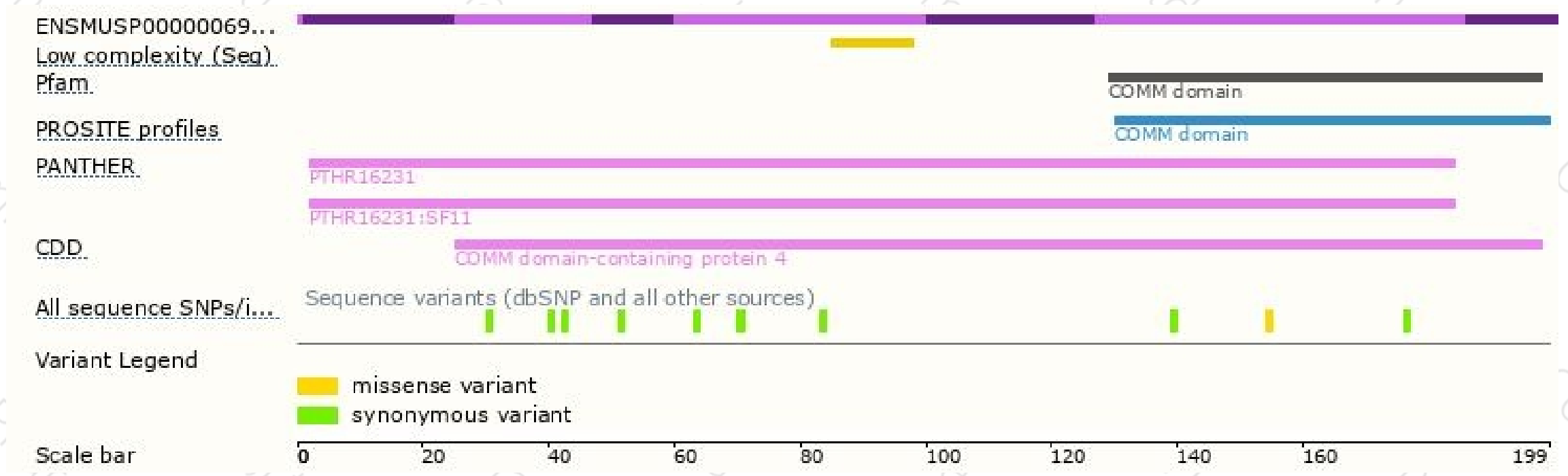
The strategy is based on the design of *Commd4-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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