

***Cnot10* Cas9-CKO Strategy**

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Design Date: 2020-5-9

Project Overview

Project Name

Cnot10

Project type

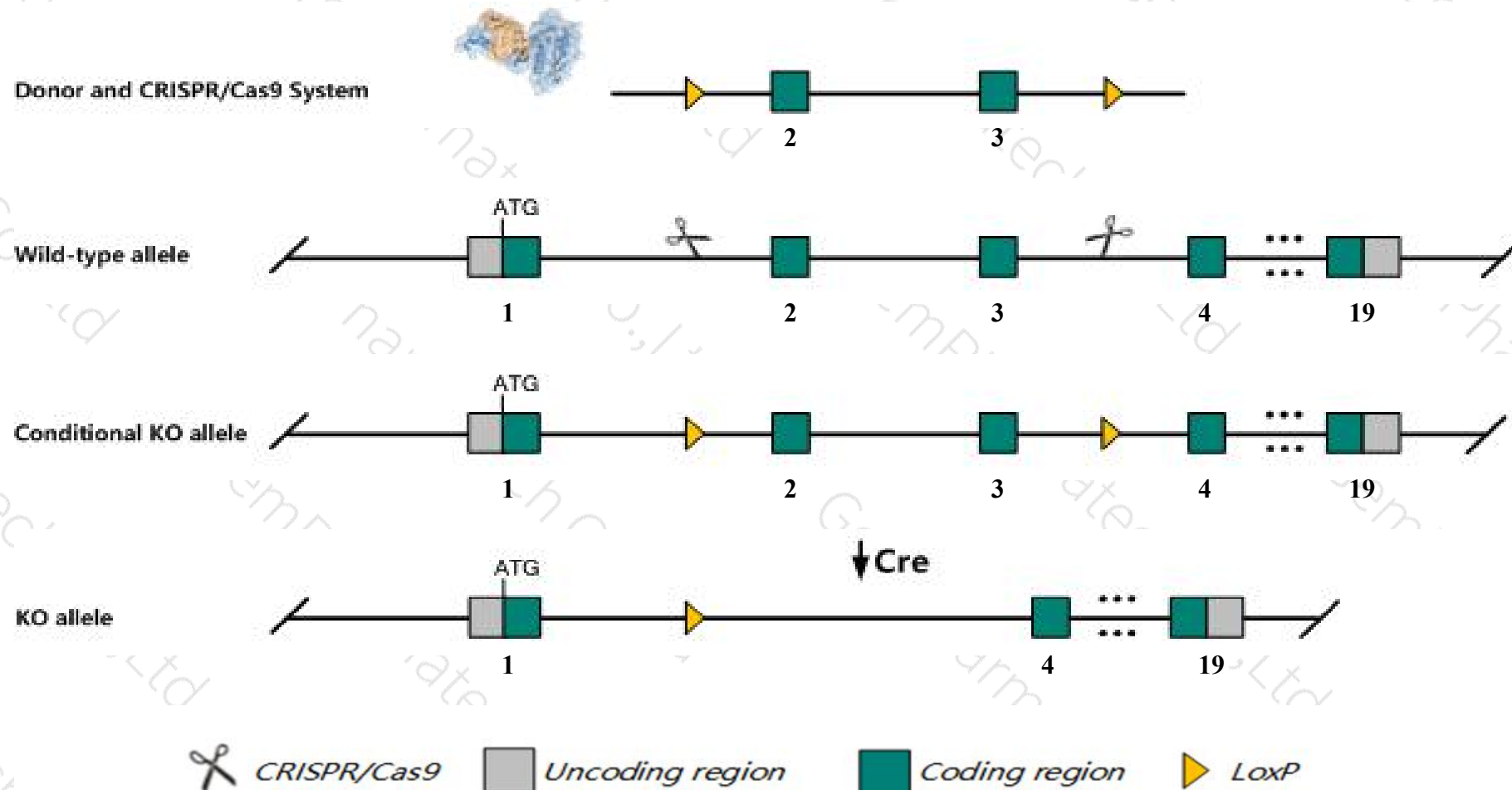
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cnot10* gene. The schematic diagram is as follows:



Technical routes

- The *Cnot10* gene has 9 transcripts. According to the structure of *Cnot10* gene, exon2-exon3 of *Cnot10-201* (ENSMUST00000070117.7) transcript is recommended as the knockout region. The region contains 257bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cnot10* 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 *Cnot10* 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)

Cnot10 CCR4-NOT transcription complex, subunit 10 [Mus musculus (house mouse)]

Gene ID: 78893, updated on 13-Mar-2020

Summary



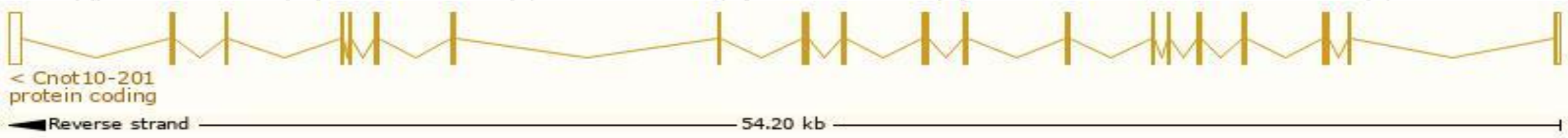
Official Symbol	Cnot10 provided by MGI
Official Full Name	CCR4-NOT transcription complex, subunit 10 provided by MGI
Primary source	MGI:MGI:1926143
See related	Ensembl:ENSMUSG00000056167
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2600001P13Rik
Expression	Ubiquitous expression in limb E14.5 (RPKM 25.5), CNS E11.5 (RPKM 22.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

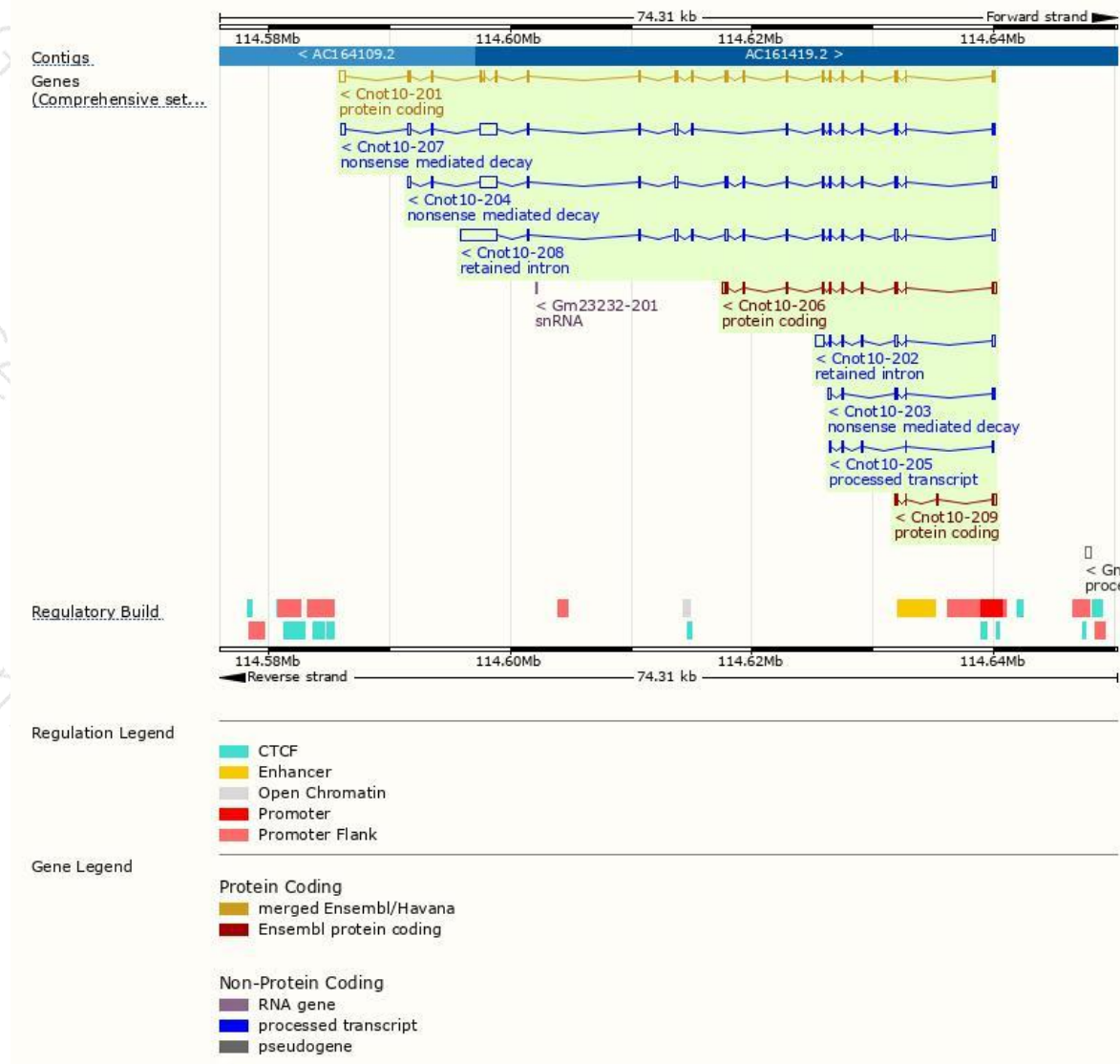
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cnot10-201	ENSMUST00000070117.7	2853	744aa	Protein coding	CCDS40794	Q8BH15	TSL:1 GENCODE basic APPRIS P1
Cnot10-206	ENSMUST00000216785.1	1723	409aa	Protein coding	-	A0A1L1SQF2	TSL:5 GENCODE basic
Cnot10-209	ENSMUST00000238809.1	619	126aa	Protein coding	-	-	CDS 3' incomplete
Cnot10-207	ENSMUST00000217148.1	3466	289aa	Nonsense mediated decay	-	A0A1L1SQA7	TSL:1
Cnot10-204	ENSMUST00000215155.1	3437	405aa	Nonsense mediated decay	-	A0A1L1SS47	TSL:1
Cnot10-203	ENSMUST00000213955.1	753	105aa	Nonsense mediated decay	-	A0A1L1SSE2	TSL:1
Cnot10-205	ENSMUST00000215701.1	487	No protein	Processed transcript	-	-	TSL:3
Cnot10-208	ENSMUST00000217296.1	4866	No protein	Retained intron	-	-	TSL:1
Cnot10-202	ENSMUST00000213539.1	1441	No protein	Retained intron	-	-	TSL:1

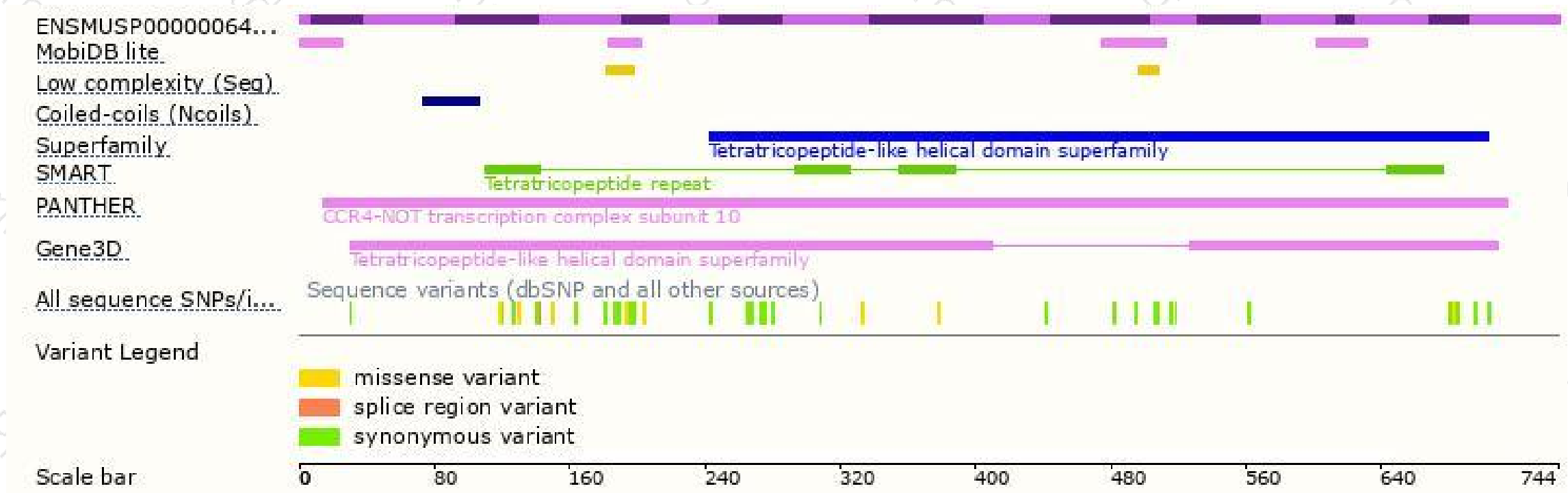
The strategy is based on the design of *Cnot10-201* transcript,the transcription is shown below:



Genomic location distribution

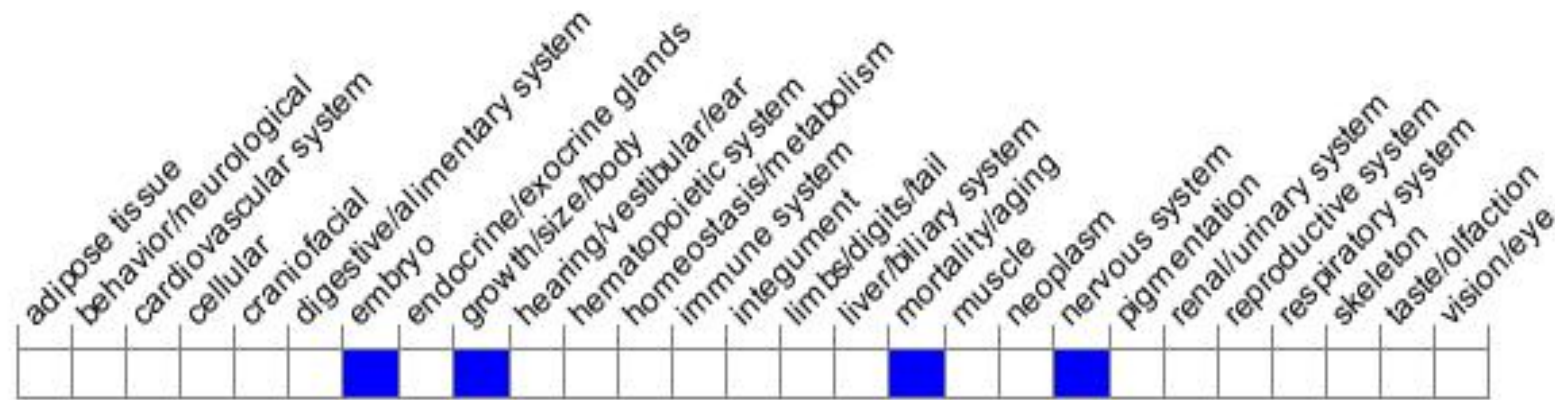


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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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