Ncapd2 Cas9-CKO Strategy

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Project Overview

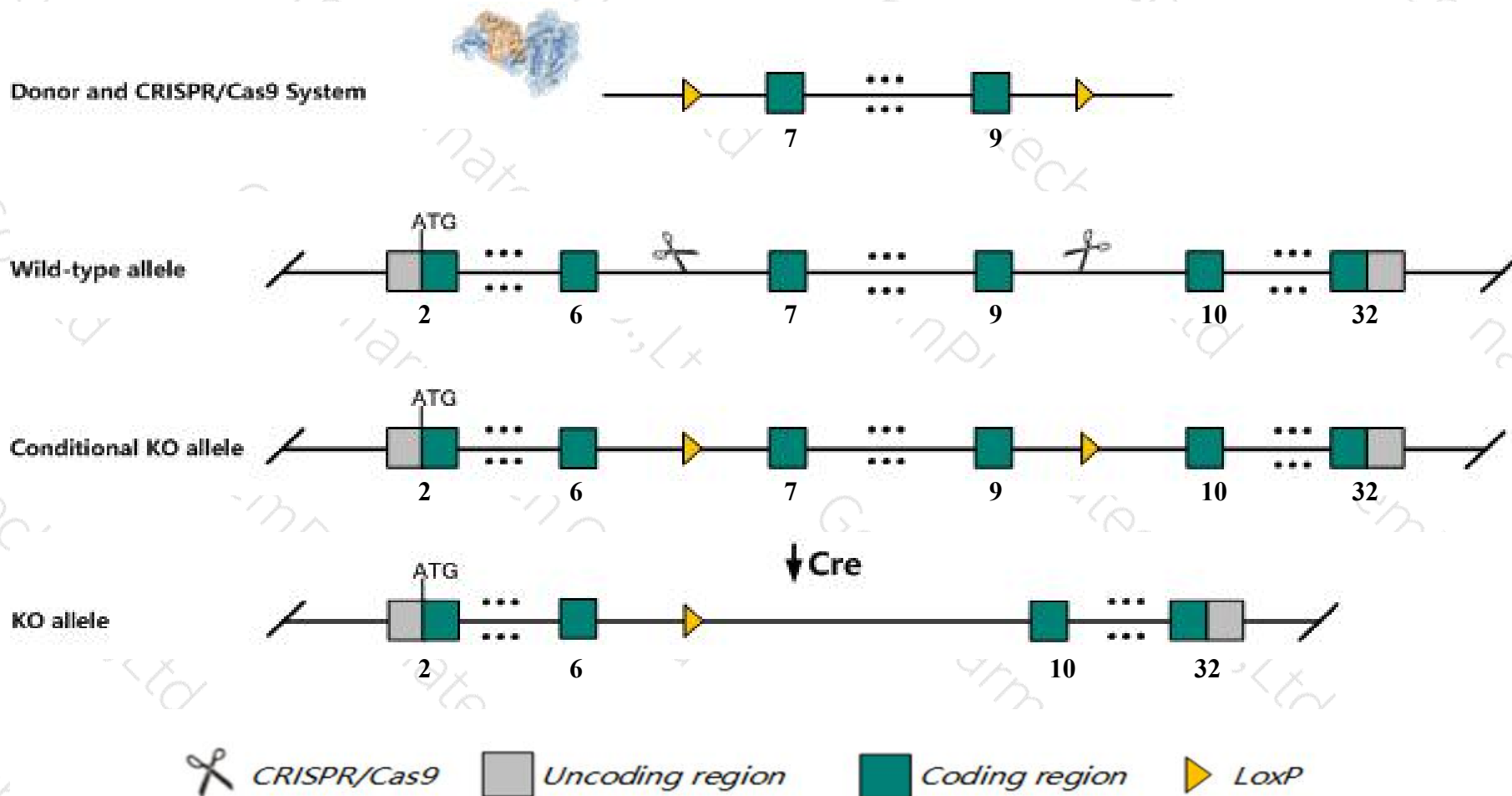|	
Project Name	*Ncapd2*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ncapd2* gene. The schematic diagram is as follows:

Technical routes

➤ The *Ncapd2* gene has 13 transcripts. According to the structure of *Ncapd2* gene, exon7-exon9 of *Ncapd2-201* (ENSMUST00000043848.10) transcript is recommended as the knockout region.The region contains 400bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Ncapd2* 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 *Ncapd2* gene is located on the Chr6. 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.

➤ Transcript *Ncapd2-212* may not be affected.

➤ 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.

Ncapd2 non-SMC condensin I complex, subunit D2 [Mus musculus (house mouse)]

Gene ID: 68298, updated on 31-Jan-2019

▲ Summary

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Official Symbol	Ncapd2 provided by MGI
Official Full Name	non-SMC condensin I complex, subunit D2 provided by MGI
Primary source	MGI:MGI:1915548
See related	Ensembl:ENSMUSG00000038252
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	2810406C15Rik, 2810465G24Rik, CAP-D2, CNAP1, mKIAA0159
Expression	Broad expression in CNS E11.5 (RPKM 53.3), thymus adult (RPKM 40.7) and 24 other tissuesSee 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
Ncapd2-201	ENSMUST00000043848.10	4629	1392aa	Protein coding	CCDS39636	A0A0R4J0H7	TSL:1 GENCODE basic APPRIS P1
Ncapd2-212	ENSMUST00000189959.1	604	162aa	Protein coding	-	A0A087WNQ1	CDS 3' incomplete TSL:3
Ncapd2-210	ENSMUST00000188762.6	877	94aa	Nonsense mediated decay	-	A0A087WRK6	TSL:5
Ncapd2-206	ENSMUST00000188119.1	894	No protein	Retained intron	-	-	TSL:2
Ncapd2-202	ENSMUST00000185624.6	825	No protein	Retained intron	-	-	TSL:3
Ncapd2-205	ENSMUST00000186667.6	745	No protein	Retained intron	-	-	TSL:3
Ncapd2-211	ENSMUST00000189706.6	688	No protein	Retained intron	-	-	TSL:5
Ncapd2-203	ENSMUST00000186210.1	682	No protein	Retained intron	-	-	TSL:3
Ncapd2-213	ENSMUST00000191080.1	670	No protein	Retained intron	-	-	TSL:2
Ncapd2-209	ENSMUST00000188665.1	646	No protein	Retained intron	-	-	TSL:2
Ncapd2-207	ENSMUST00000188306.1	630	No protein	Retained intron	-	-	TSL:2
Ncapd2-204	ENSMUST00000186561.1	617	No protein	Retained intron	-	-	TSL:2
Ncapd2-208	ENSMUST00000188410.6	480	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Ncapd2-201* transcript,The transcription is shown below

< Ncapd2-201
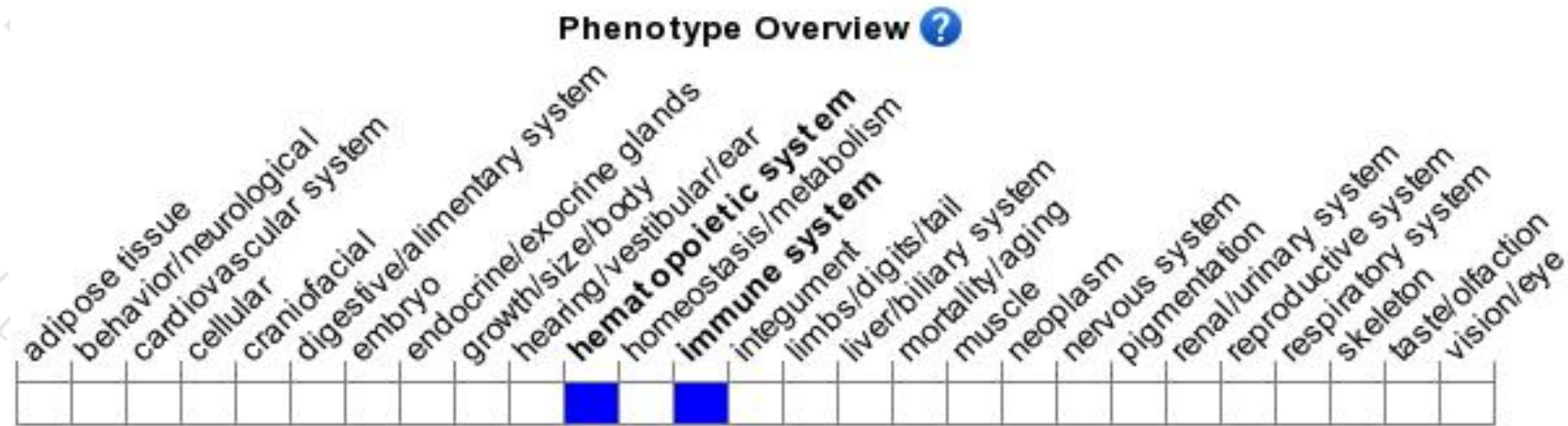protein coding

Reverse strand

23.70 kb
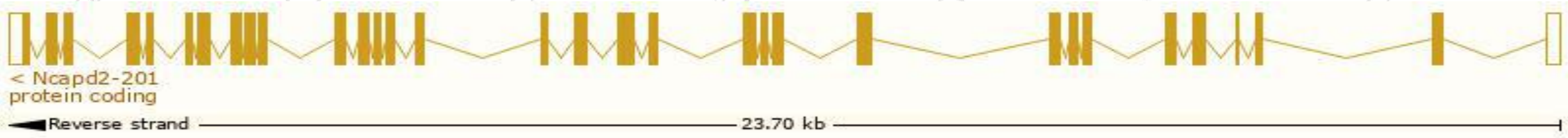
Genomic location distribution
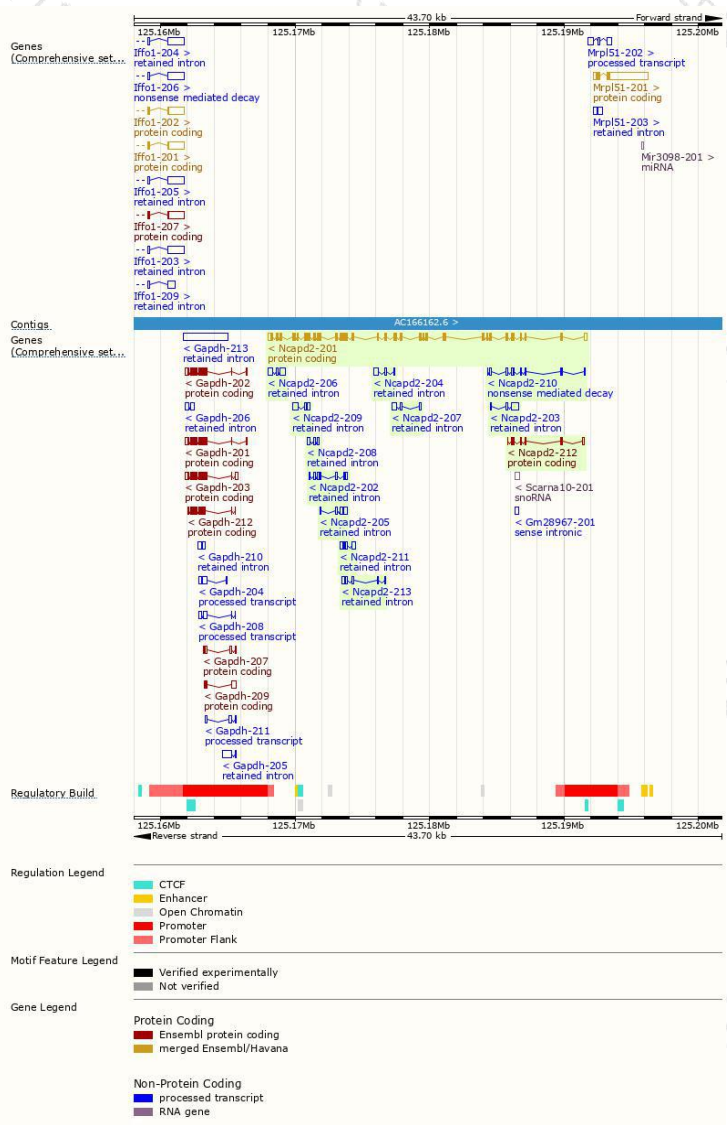
Protein domain

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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