

Noc2l Cas9-CKO Strategy

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Project Overview

Project Name

Noc2l

Project type

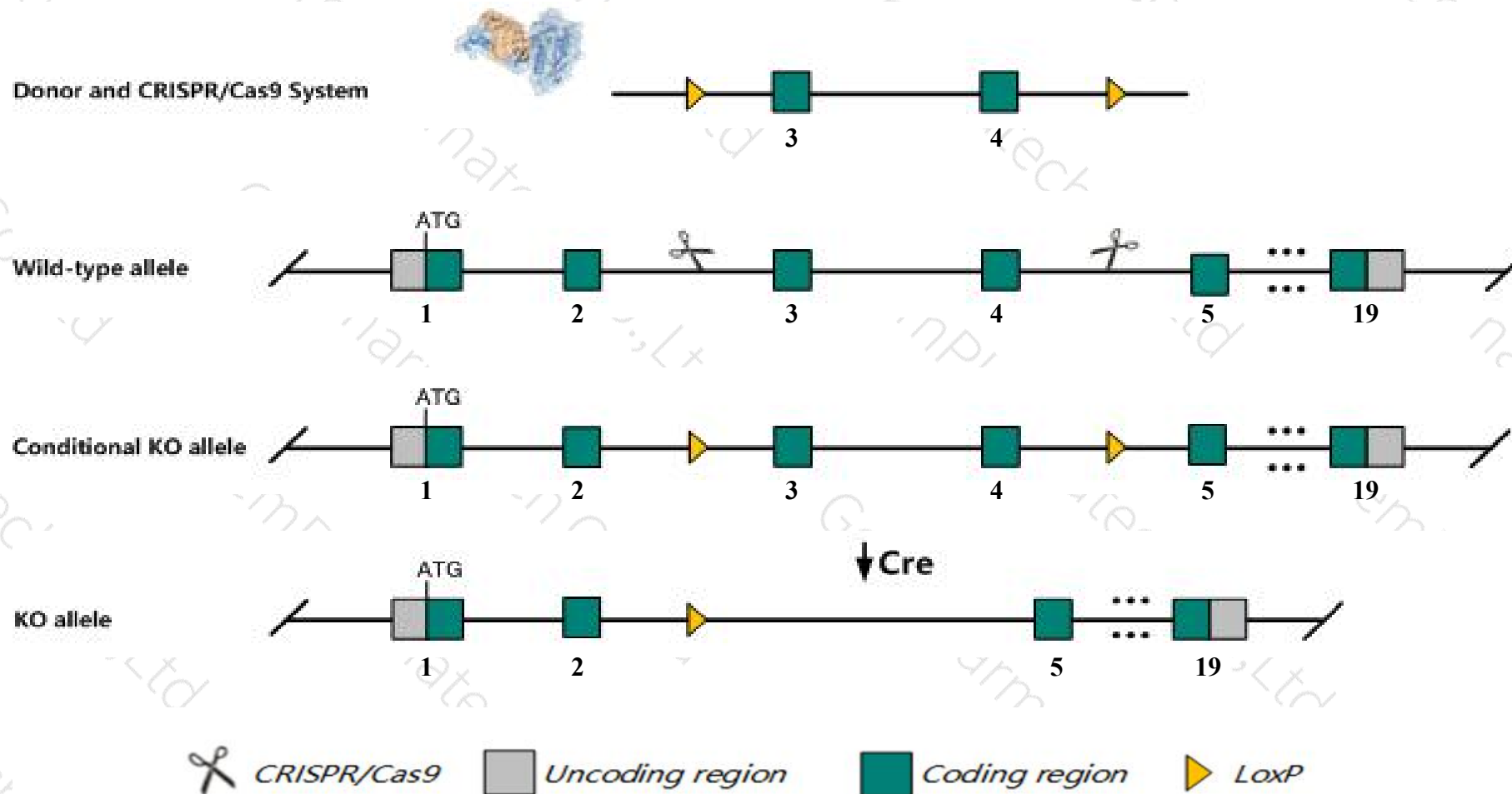
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Noc2l* gene. The schematic diagram is as follows:



- The *Noc2l* gene has 5 transcripts. According to the structure of *Noc2l* gene, exon3-exon4 of *Noc2l-201* (ENSMUST00000179543.7) transcript is recommended as the knockout region. The region contains 304bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Noc2l* 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.

- According to the existing MGI data, Mice lacking expression of this gene display embryonic lethality prior to the tooth bud stage. Mice with an immune cell deletion display impaired T and B cell differentiation with a cell cycle defect.
- The *Noc2l* gene is located on the Chr4. 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)

Noc2l NOC2 like nucleolar associated transcriptional repressor [Mus musculus (house mouse)]

Gene ID: 57741, updated on 30-Mar-2019

Summary



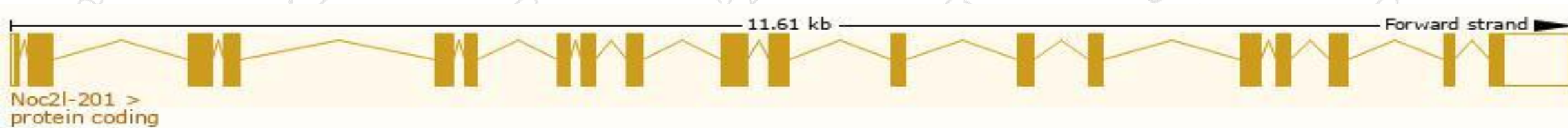
Official Symbol	Noc2l provided by MGI
Official Full Name	NOC2 like nucleolar associated transcriptional repressor provided by MGI
Primary source	MGI:MGI:1931051
See related	Ensembl:ENSMUSG00000095567
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA410003, AF155546, NIR
Expression	Ubiquitous expression in ovary adult (RPKM 56.2), thymus adult (RPKM 50.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

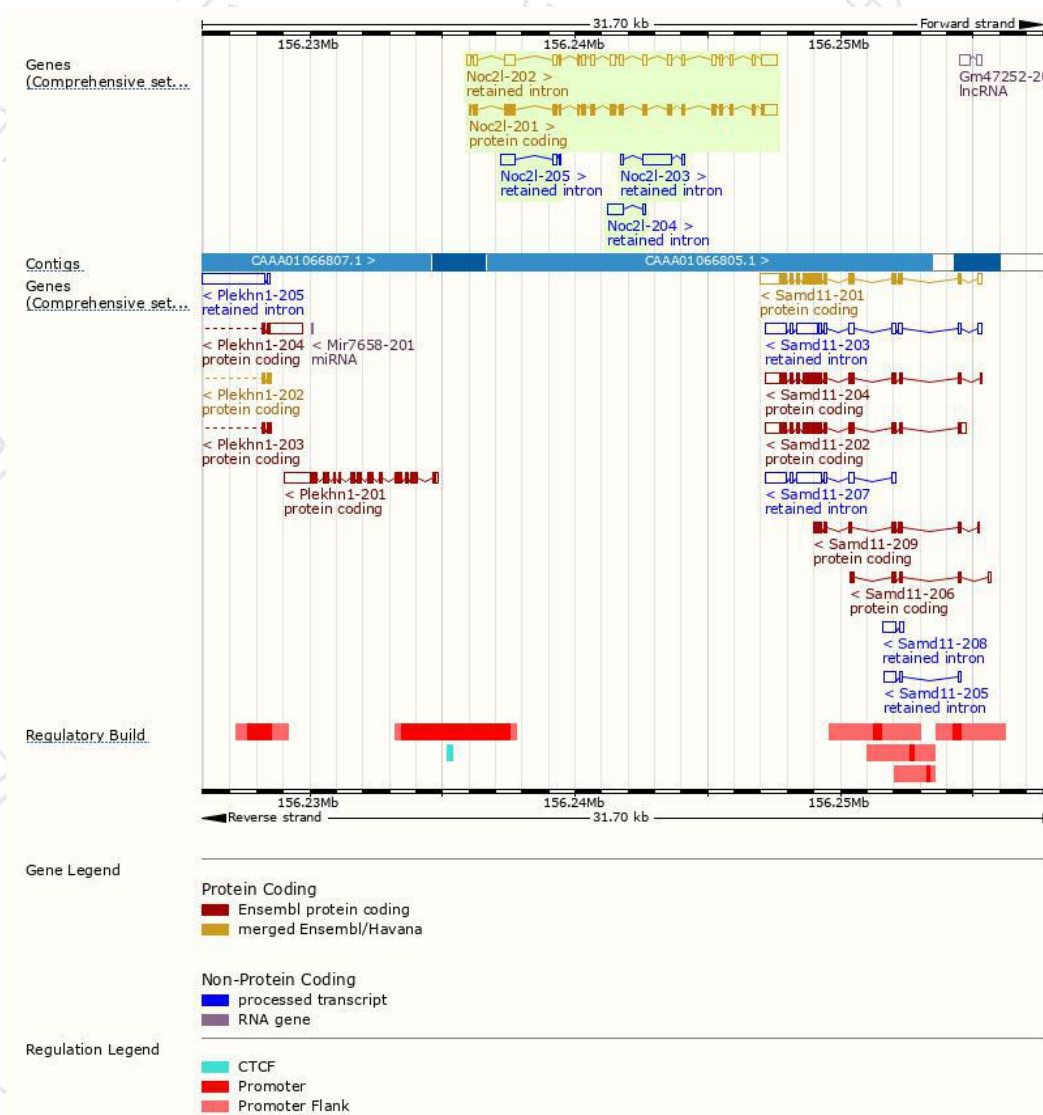
The gene has 5 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Noc2l-201	ENSMUST00000179543.7	2785	750aa	Protein coding	CCDS57322	J3QK52	TSL:1 GENCODE basic APPRIS P1
Noc2l-202	ENSMUST00000179886.2	2945	No protein	Retained intron	-	-	TSL:1
Noc2l-203	ENSMUST00000238213.1	1240	No protein	Retained intron	-	-	
Noc2l-205	ENSMUST00000238476.1	722	No protein	Retained intron	-	-	
Noc2l-204	ENSMUST00000238320.1	667	No protein	Retained intron	-	-	

The strategy is based on the design of *Noc2l-201* transcript, The transcription is shown below



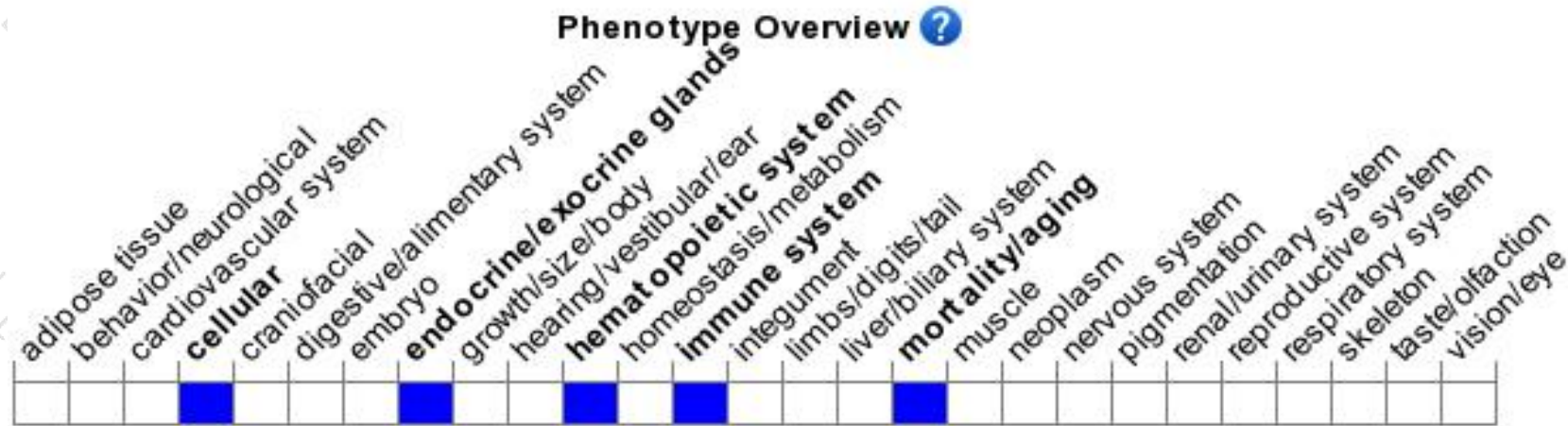
Genomic location distribution



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/>).

According to the existing MGI data, Mice lacking expression of this gene display embryonic lethality prior to the tooth bud stage. Mice with an immune cell deletion display impaired T and B cell differentiation with a cell cycle defect.

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

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