

Nedd1 Cas9-CKO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Nedd1

Project type

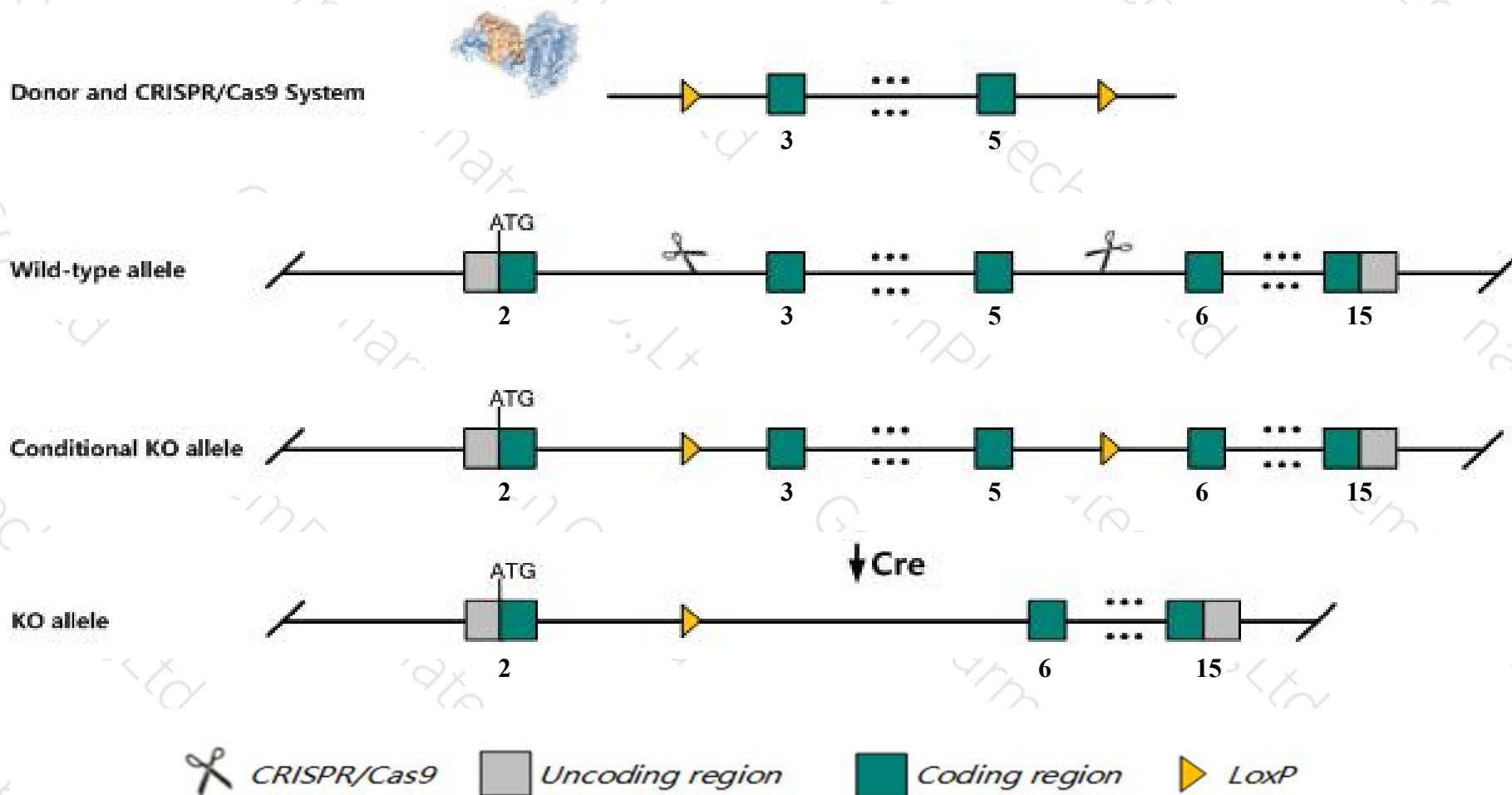
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Neddl1* gene. The schematic diagram is as follows:



- The *Neddl* gene has 4 transcripts. According to the structure of *Neddl* gene, exon3-exon5 of *Neddl*-201 (ENSMUST00000020163.6) transcript is recommended as the knockout region. The region contains 353bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Neddl* 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 *Neddl* gene is located on the Chr10. 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)

Nedd1 neural precursor cell expressed, developmentally down-regulated gene 1 [*Mus musculus* (house mouse)]

Gene ID: 17997, updated on 10-Oct-2019

Summary

Official Symbol Nedd1 provided by [MGI](#)
Official Full Name neural precursor cell expressed, developmentally down-regulated gene 1 provided by [MGI](#)
Primary source [MGI:MGI:97293](#)
See related [Ensembl:ENSMUSG00000019988](#)
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
Expression Ubiquitous expression in CNS E11.5 (RPKM 5.5), placenta adult (RPKM 4.7) and 26 other tissues [See more](#)
Orthologs [human](#) [all](#)

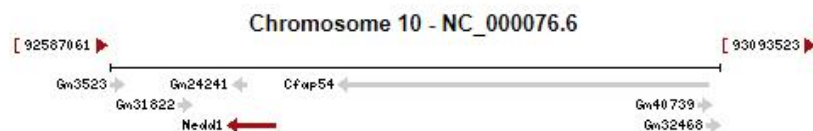
Genomic context

Location: 10; 10 C2

See Nedd1 in [Genome Data Viewer](#)

Exon count: 15

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	10	NC_000076.6 (92684745..92723682, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	10	NC_000076.5 (92147490..92185163, complement)

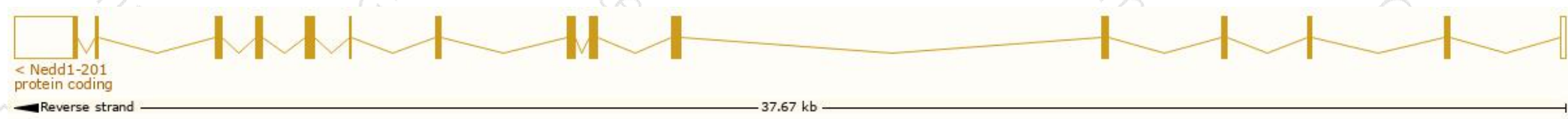


Transcript information (Ensembl)

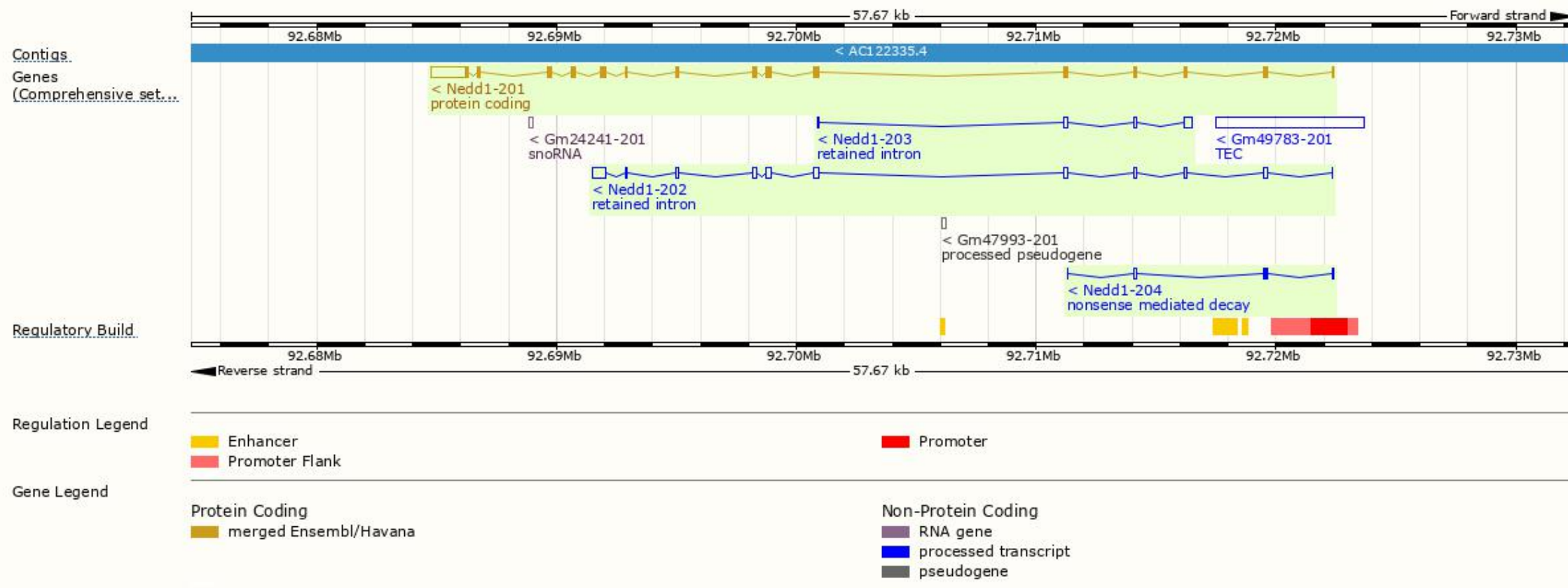
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nedd1-201	ENSMUST00000020163.6	3534	660aa	Protein coding	CCDS24123	P33215	TSL:1 GENCODE basic APPRIS P1
Nedd1-204	ENSMUST000000216086.1	391	48aa	Nonsense mediated decay	-	A0A1L1SUM9	TSL:5
Nedd1-202	ENSMUST000000214417.1	1866	No protein	Retained intron	-	-	TSL:1
Nedd1-203	ENSMUST000000215970.1	627	No protein	Retained intron	-	-	TSL:2

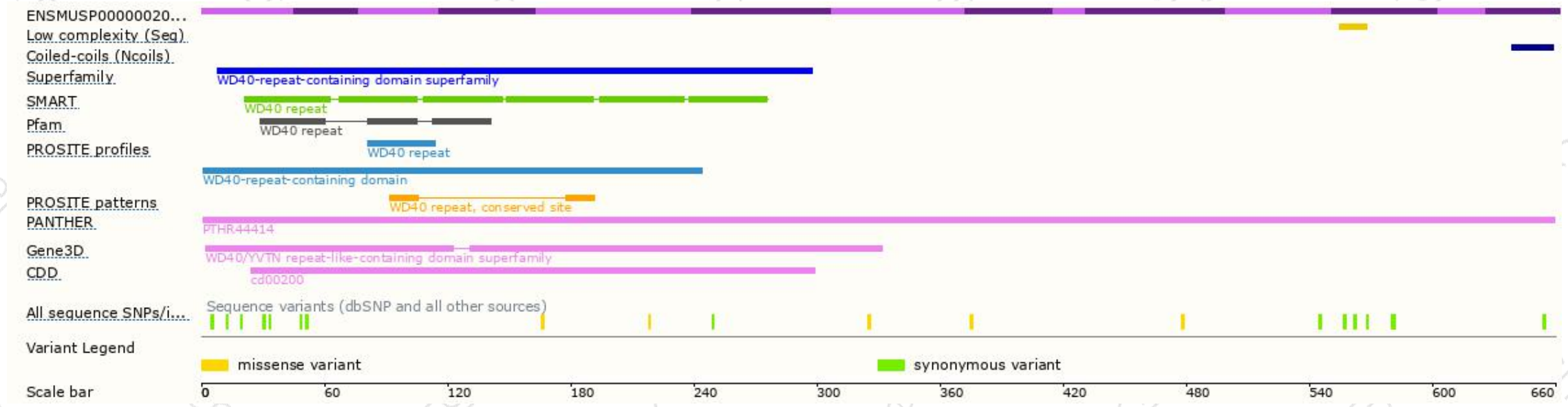
The strategy is based on the design of *Nedd1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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