Nedd9 Cas9-KO Strategy

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Reviewer: Jia Yu

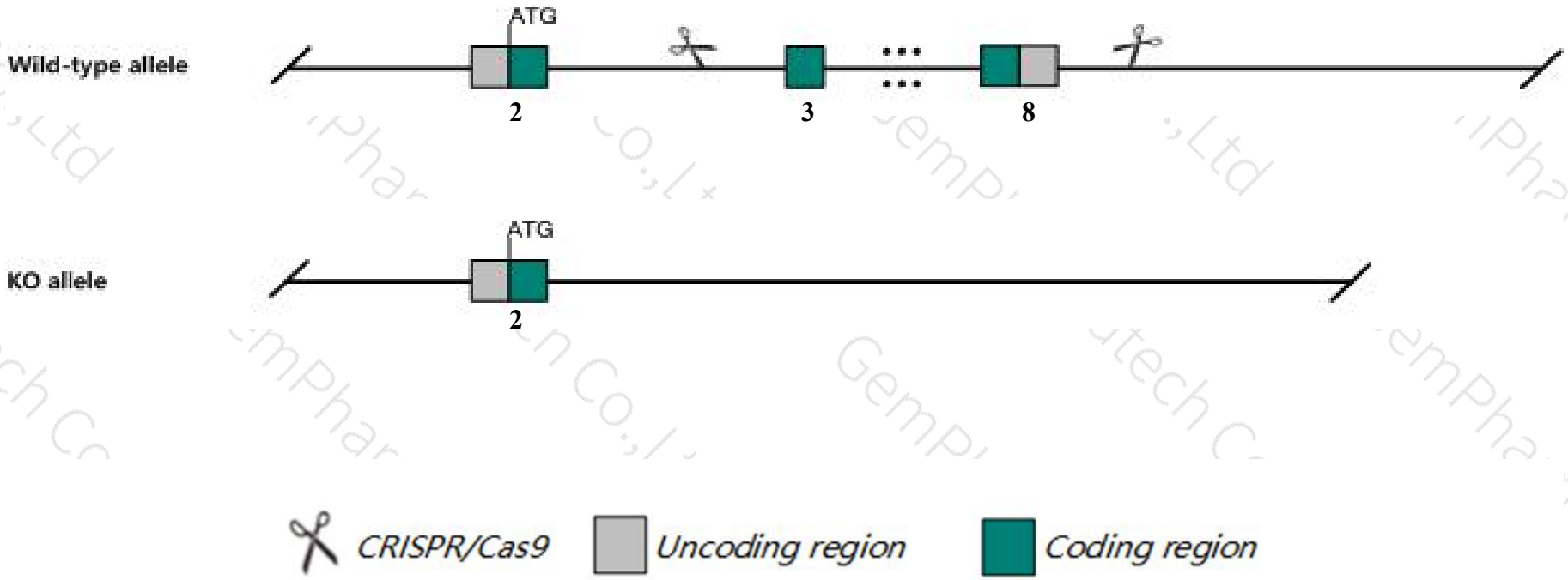
Design Date: 2020-2-10

Project Overview

Project Name	***Nedd9***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nedd9* gene. The schematic diagram is as follows:



Technical routes

➢ The *Nedd9* gene has 6 transcripts. According to the structure of *Nedd9* gene, exon3-exon8 of *Nedd9-201* (ENSMUST00000021794.13) 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 *Nedd9* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ According to the existing MGI data,Mice homozygous for one null allele exhibit impaired lymphocyte trafficking and a deficit of splenic marginal zone B cells. Mice homozygous for another null allele display impaired spatial learning and decreased hippocampal dendritic spine densities.

➢ The *Nedd9* gene is located on the Chr13. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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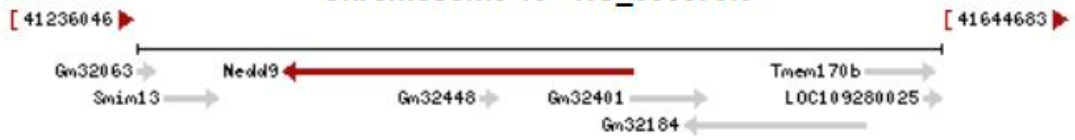
Nedd9 neural precursor cell expressed, developmentally down-regulated gene 9 [*Mus musculus* (house mouse)]

Gene ID: 18003, updated on 12-Aug-2019

Summary

Official Symbol	Nedd9 provided by MGI
Official Full Name	neural precursor cell expressed, developmentally down-regulated gene 9 provided by MGI
Primary source	MGI:MGI:97302
See related	Ensembl:ENSMUSG00000021365
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	CasL; HEF1; MEF1; p105; Cas-L; Nedd-9
Expression	Ubiquitous expression in lung adult (RPKM 23.8), spleen adult (RPKM 20.3) and 22 other tissues See more
Orthologs	human all

Chromosome 13 - NC_000079.6

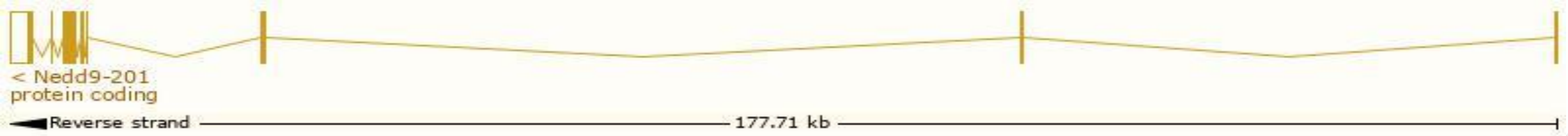


Transcript information（Ensembl）

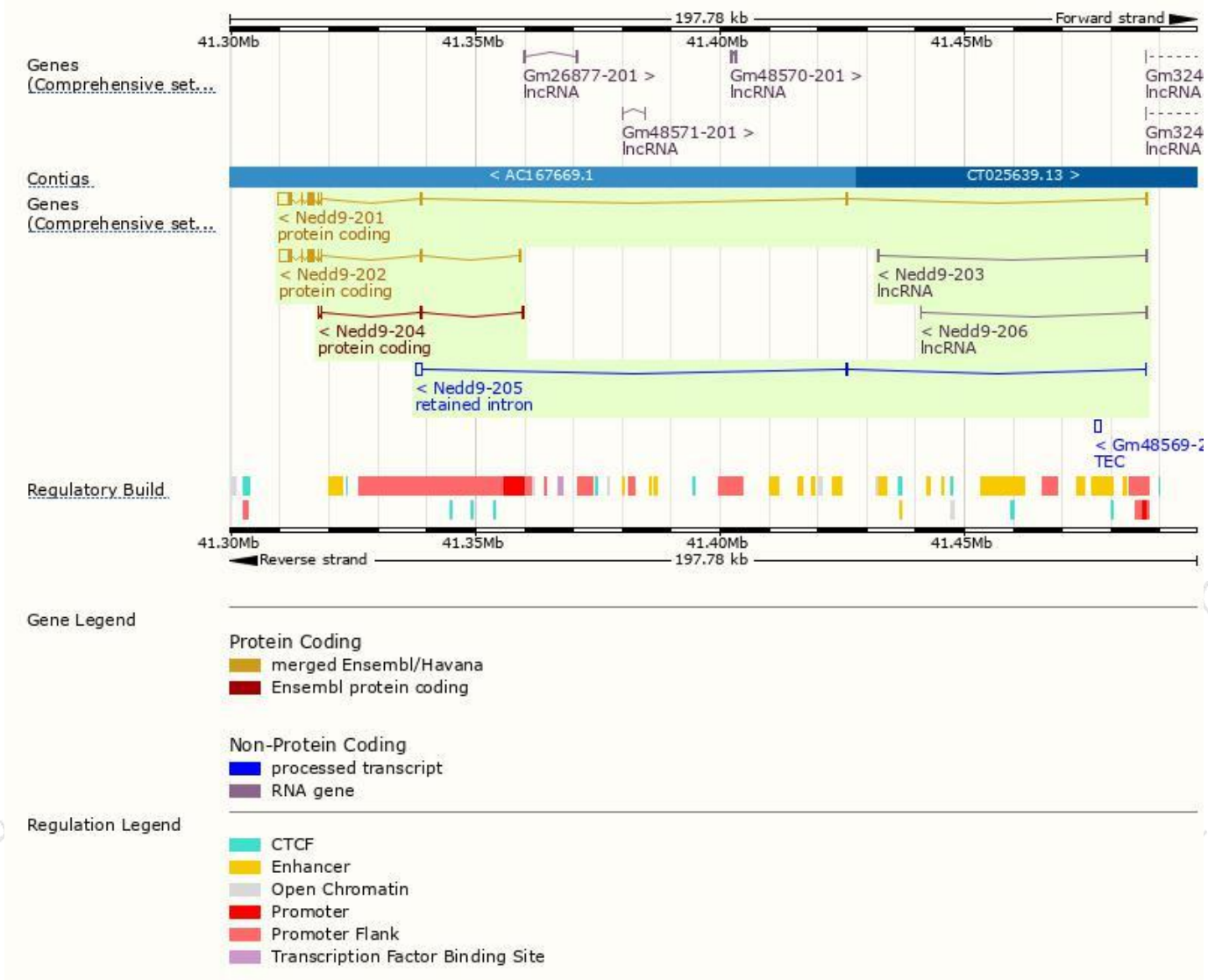
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Nedd9-201	ENSMUST00000021794.13	4871	833aa	ENSMUSP00000021794.6	Protein coding	CCDS49247	O35177	TSL:1 GENCODE basic APPRIS ALT1
Nedd9-202	ENSMUST00000163623.2	4626	833aa	ENSMUSP00000125773.1	Protein coding	CCDS36640	A0A0R4J212	TSL:1 GENCODE basic APPRIS P3
Nedd9-204	ENSMUST00000224803.1	711	194aa	ENSMUSP00000152937.1	Protein coding	-	A0A286YCE4	CDS 3' incomplete
Nedd9-205	ENSMUST00000225053.1	1455	No protein	-	Retained intron	-	-	-
Nedd9-206	ENSMUST00000225297.1	302	No protein	-	lncRNA	-	-	-
Nedd9-203	ENSMUST00000224083.1	267	No protein	-	lncRNA	-	-	-

The strategy is based on the design of *Nedd9-201* transcript,The transcription is shown below

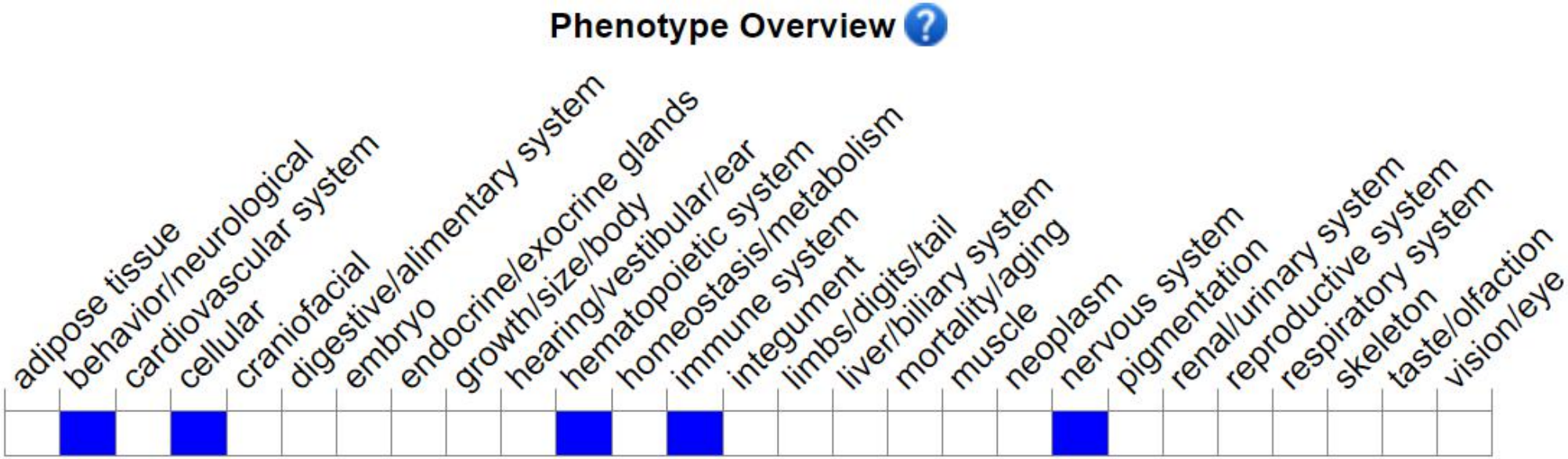


Genomic location distribution



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/).

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

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