

Nvl Cas9-KO Strategy

Designer: Xueting Zhang

Reviewer: Yanhua Shen

Date: 2020-03-10

Project Overview

Project Name

Nvl

Project type

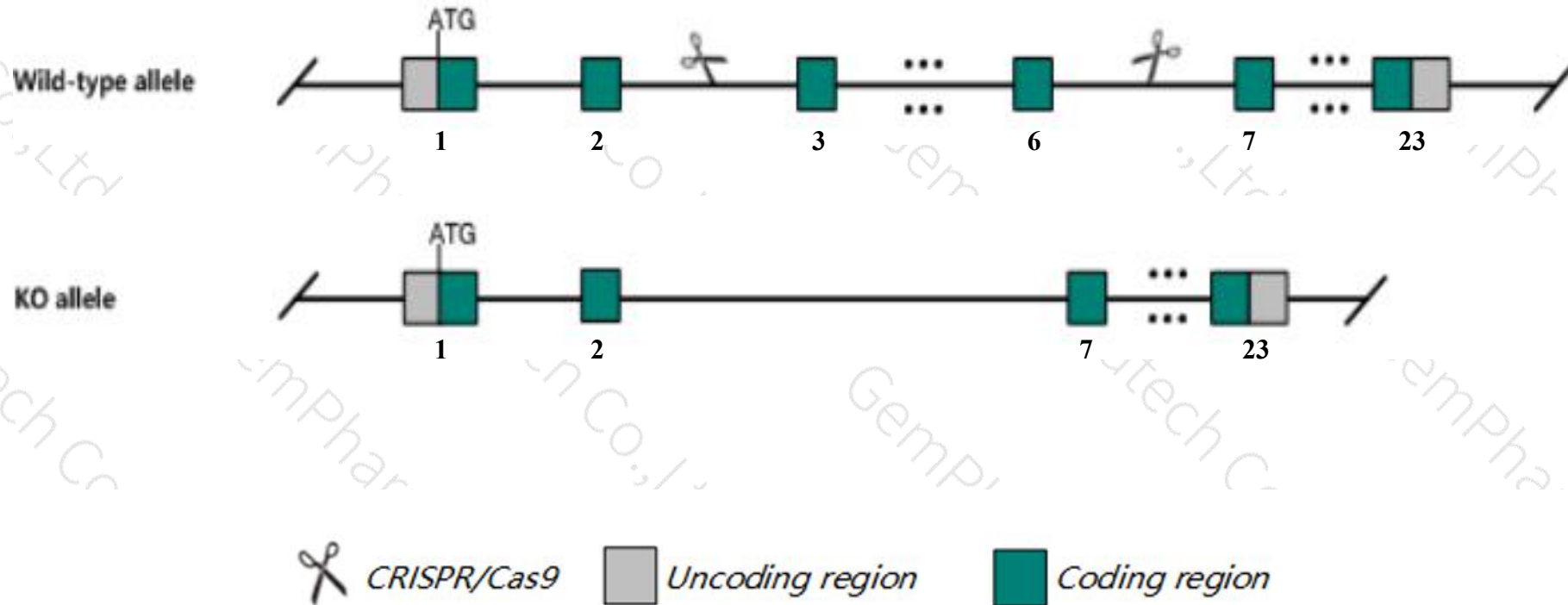
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Nvl* gene has 5 transcripts. According to the structure of *Nvl* gene, exon3-exon6 of *Nvl-201* (ENSMUST00000027797.8) transcript is recommended as the knockout region. The region contains 481bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nvl* gene. The brief process is as follows: CRISPR/Cas9 system will

- The knockout region is near to the N-terminal of *Cnih4* gene, this strategy may influence the regulatory function of the N-terminal of *Cnih4* gene.
- Transcript *Nvl*-202&203&205 may not be affected.
- The N-terminal of *Nvl* gene will remain several amino acids, it may remain the partial function of *Nvl* gene.
- The *Nvl* gene is located on the Chr1. 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)

Nvl nuclear VCP-like [*Mus musculus* (house mouse)]

Gene ID: 67459, updated on 25-Feb-2020

Summary

- Official Symbol** Nvl provided by [MGI](#)
- Official Full Name** nuclear VCP-like provided by [MGI](#)
- Primary source** [MGI:MGI:1914709](#)
- See related** [Ensembl:ENSMUSG00000026516](#)
- 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** 1200009I24Rik
- Expression** Ubiquitous expression in CNS E18 (RPKM 9.1), CNS E14 (RPKM 8.2) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 1; 1 H4 [See Nvl in Genome Data Viewer](#)

Exon count: 24

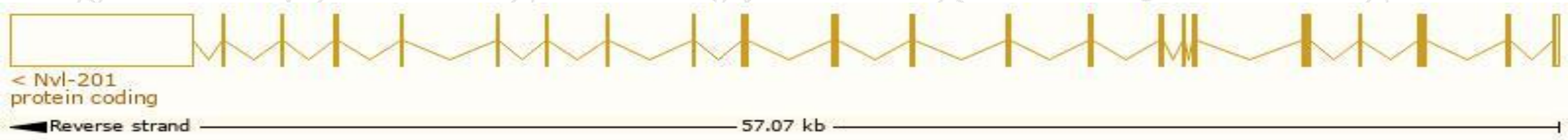
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	1	NC_000067.6 (181087138..181144214, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	1	NC_000067.5 (183023554..183074288, complement)

Transcript information (Ensembl)

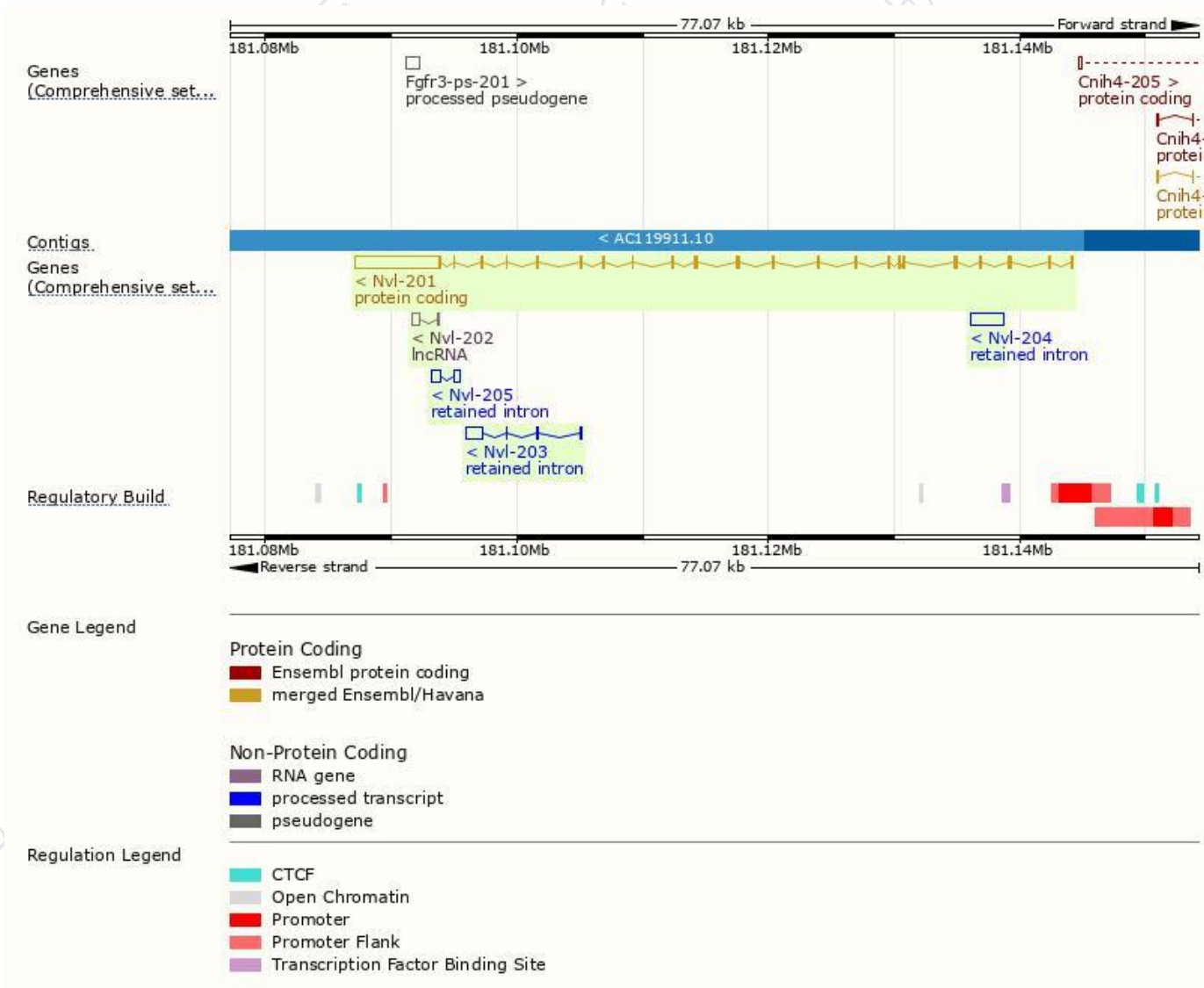
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nvl-201	ENSMUST00000027797.8	9392	855aa	Protein coding	CCDS15581	Q9DBY8	TSL:1 GENCODE basic APPRIS P1
Nvl-204	ENSMUST00000193758.1	2529	No protein	Retained intron	-	-	TSL:NA
Nvl-203	ENSMUST00000191728.1	1502	No protein	Retained intron	-	-	TSL:1
Nvl-205	ENSMUST00000195209.1	1193	No protein	Retained intron	-	-	TSL:2
Nvl-202	ENSMUST00000191721.1	603	No protein	lncRNA	-	-	TSL:2

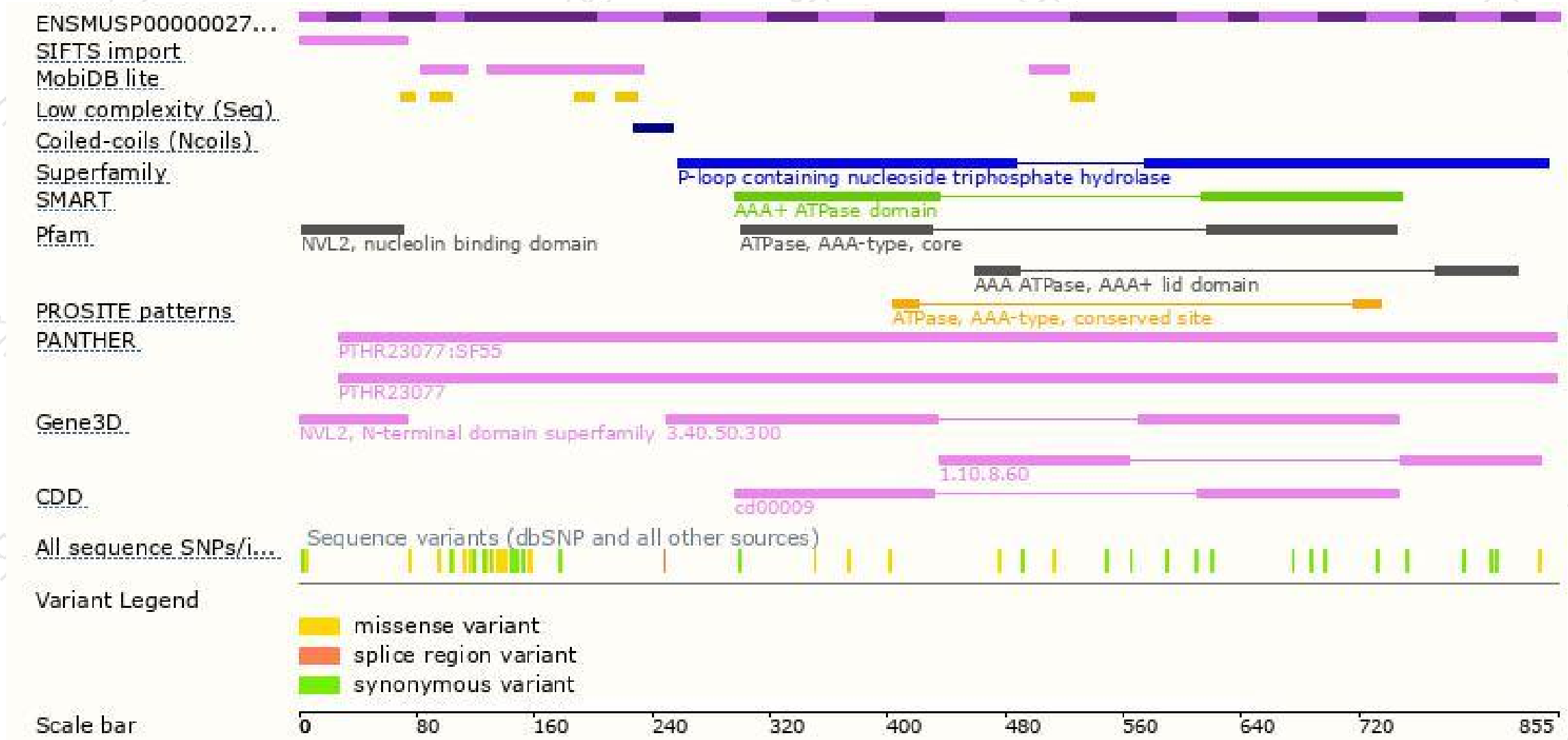
The strategy is based on the design of *Nvl-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

