

# *Nvl* Cas9-CKO Strategy

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# Project Overview

**Project Name**

*Nvl*

**Project type**

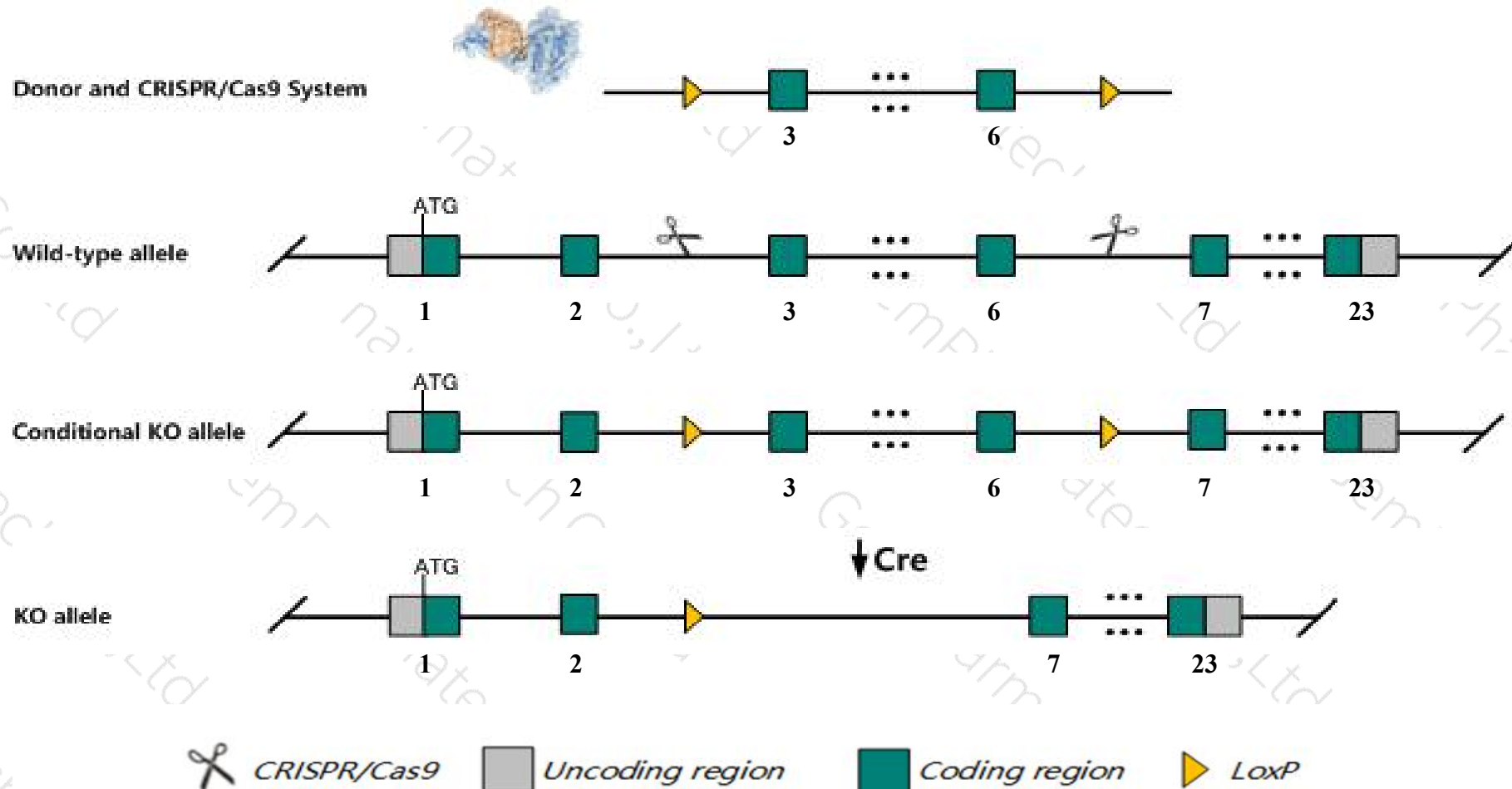
**Cas9-CKO**

**Strain background**

**C57BL/6JGpt**

# Conditional Knockout strategy

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



# Technical routes

- 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 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 floxed 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological 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

Exon count: 24

See Nvl in [Genome Data Viewer](#)

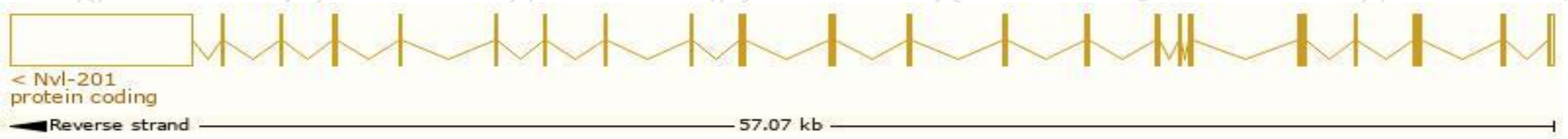
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	1	NC_000067.6 (181087138..181144214, complement)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	1	NC_000067.5 (183023554..183074288, complement)

# Transcript information (Ensembl)

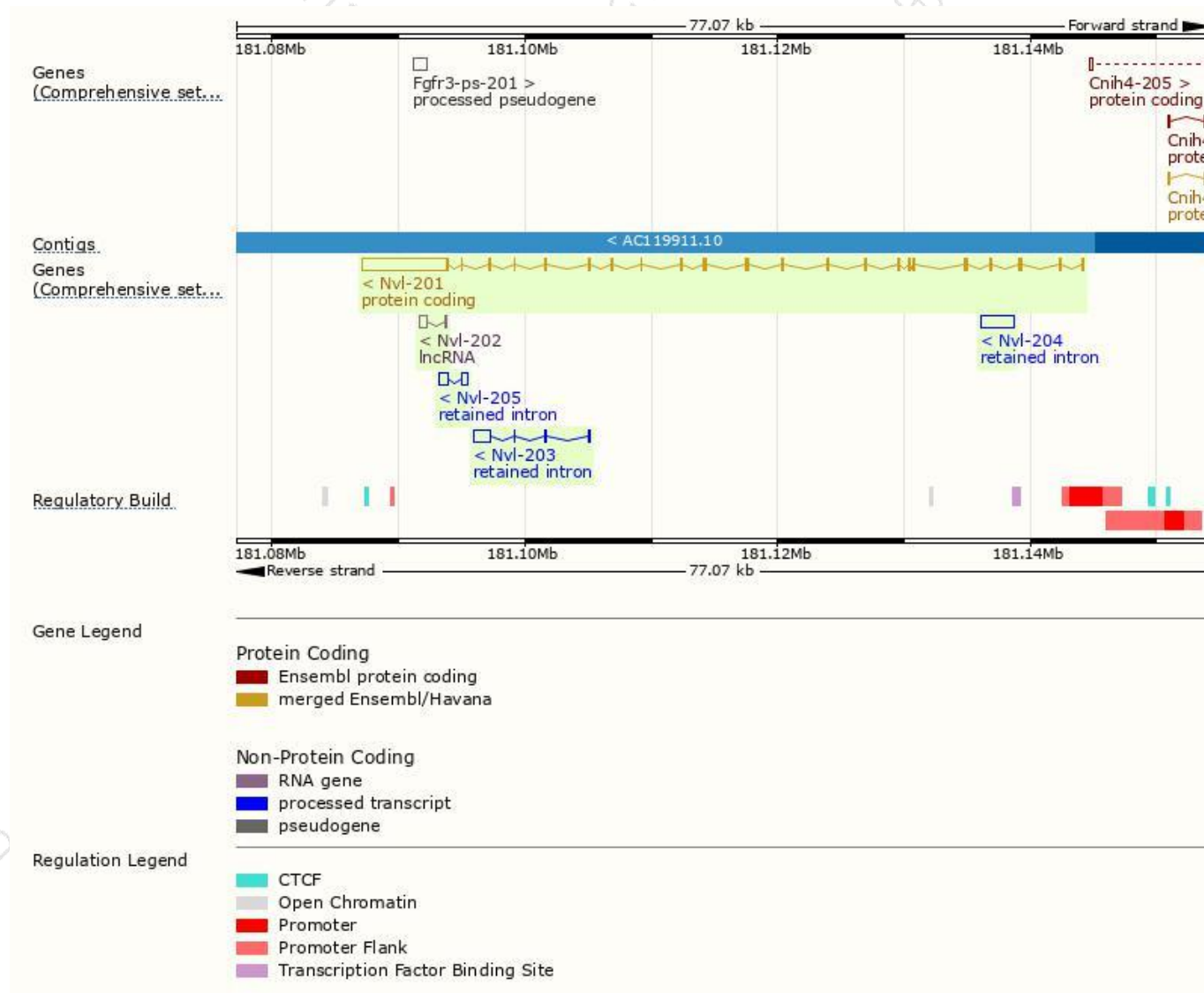
The gene has 5 transcripts,all transcripts are shown below:

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

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

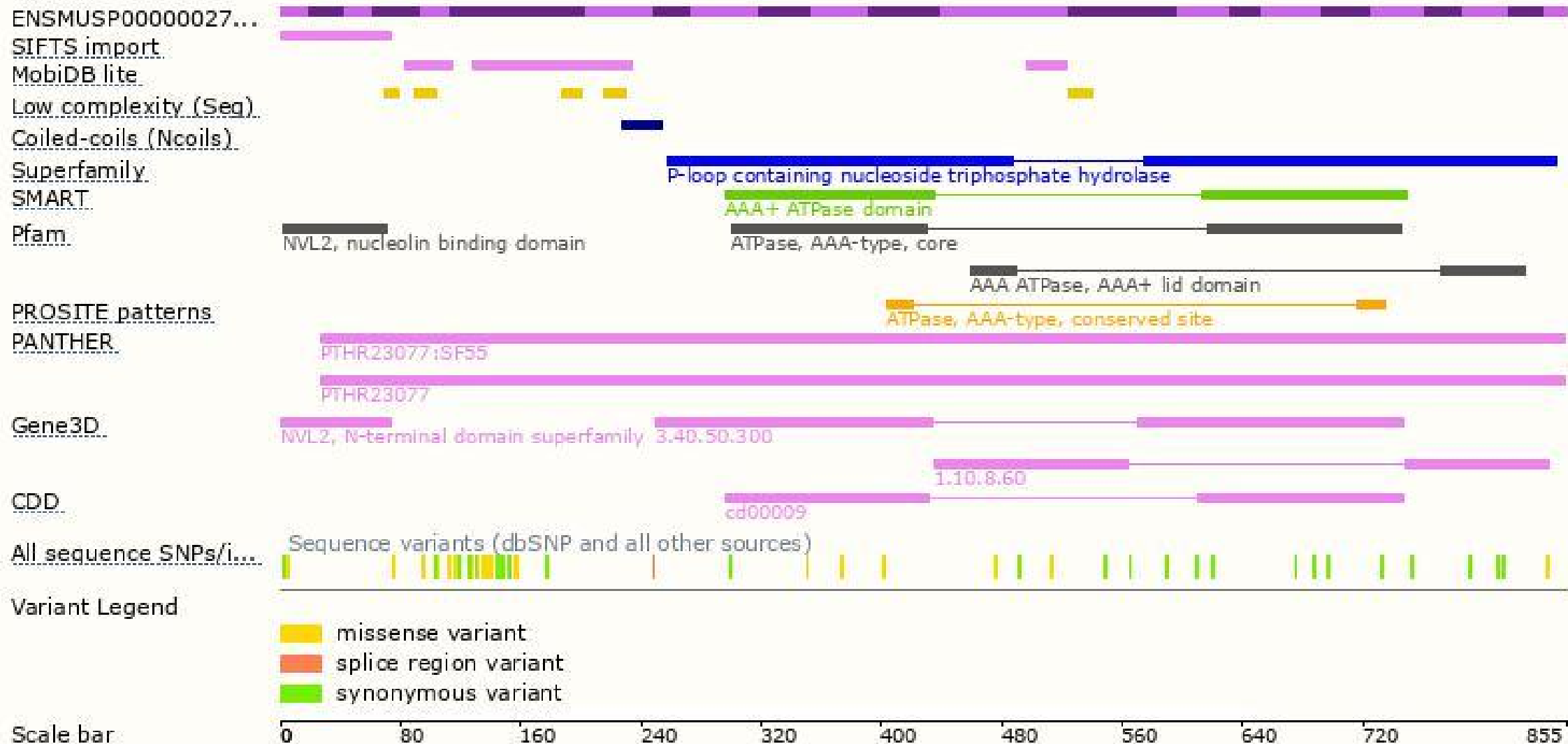


# Genomic location distribution





# Protein domain



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

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