# *Cadm4* Cas9-KO Strategy

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Date:2020-02-24

# Project Overview

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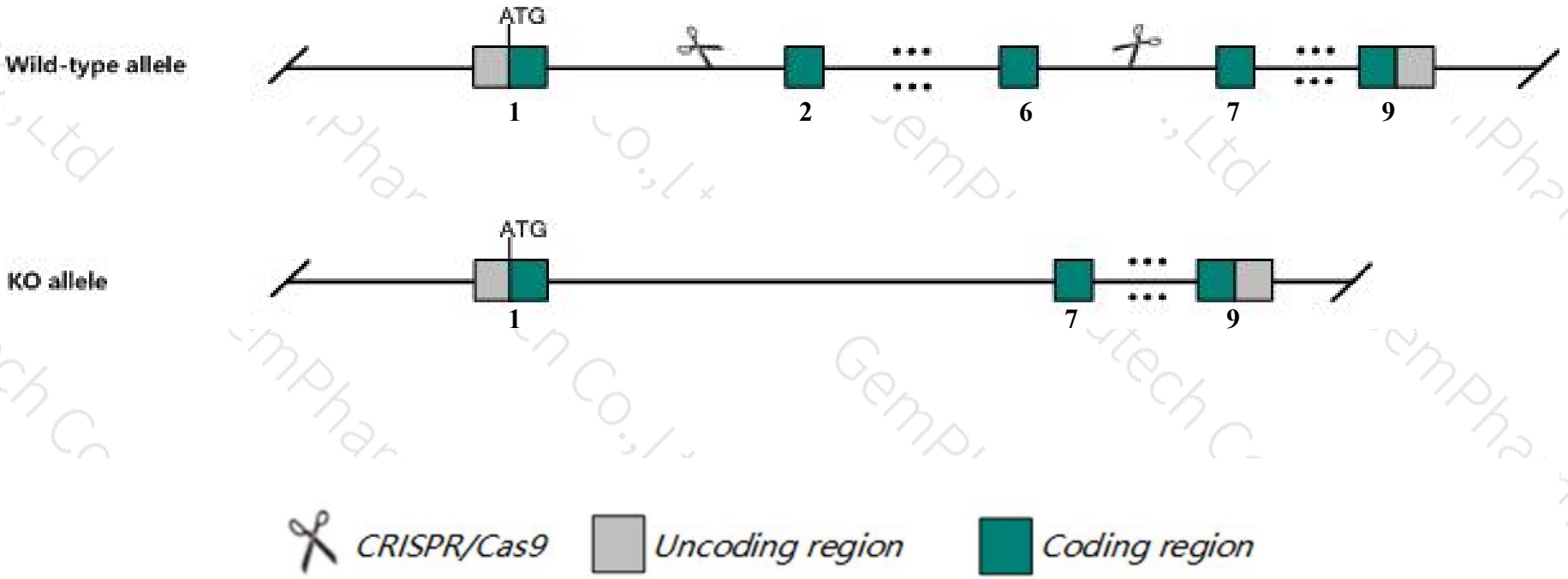
|---|---|
| **Project Name** | ***Cadm4*** |
| **Project type** | **Cas9-KO** |
| **Strain background** | **C57BL/6JGpt** |

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cadm4* gene. The schematic diagram is as follows:



# Technical routes

➢ The *Cadm4* gene has 2 transcripts. According to the structure of *Cadm4* gene, exon2-exon6 of *Cadm4-201* (ENSMUST00000068023.7) transcript is recommended as the knockout region.The region contains 691bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Cadm4* gene. The brief process is as follows: CRISPR/Cas9 systen

# Notice

- According to the existing MGI data,Mice homozygous for one null allele do not display myelination abnormalities. Mice with ubiquitous conditional deletion of the gene show myelination abnormalities, decreased nerve conduction velocity, hindlimb rigidity, limb grasping, and impaired coordination.
- The knockout region is near to the N-terminal of *Zfp428* gene,this strategy may influence the regulatory function of the N-terminal of *Zfp428* gene.
- The *Cadm4* gene is located on the Chr7. 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）

集萃药康 GemPharmatech

## Cadm4 cell adhesion molecule 4 [ *Mus musculus* (house mouse) ]

Gene ID: 260299, updated on 21-Aug-2019

### Summary

| | |
|---|---|
| **Official Symbol** | Cadm4 provided by MGI |
| **Official Full Name** | cell adhesion molecule 4 provided by MGI |
| **Primary source** | MGI:MGI:2449088 |
| **See related** | Ensembl:ENSMUSG00000054793 |
| **Gene type** | protein coding |
| **RefSeq status** | PROVISIONAL |
| **Organism** | Mus musculus |
| **Lineage** | Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus |
| **Also known as** | Tsll2; Igdf4c; Igsf4c |
| **Expression** | Biased expression in CNS E18 (RPKM 63.0), cerebellum adult (RPKM 62.2) and 14 other tissues See more |
| **Orthologs** | human all |

### Genomic context

**Location:** 7; 7 A3

See Cadm4 in Genome Data Viewer

**Exon count:** 9

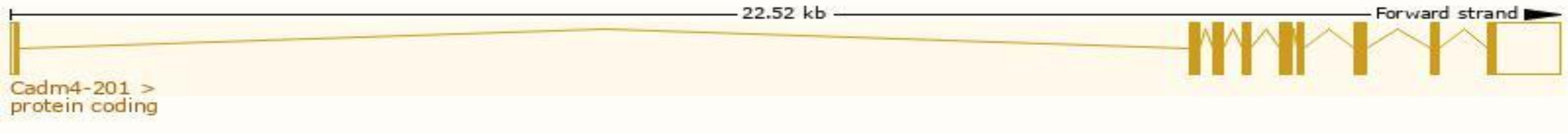
| Annotation release | Status | Assembly | Chr | Location |
|---|---|---|---|---|
| 108 | current | GRCm38.p6 (GCF_000001635.26) | 7 | NC_000073.6 (24482023..24504533) |
| Build 37.2 | previous assembly | MGSCv37 (GCF_000001635.18) | 7 | NC_000073.5 (25267042..25289552) |

# Transcript information（Ensembl）

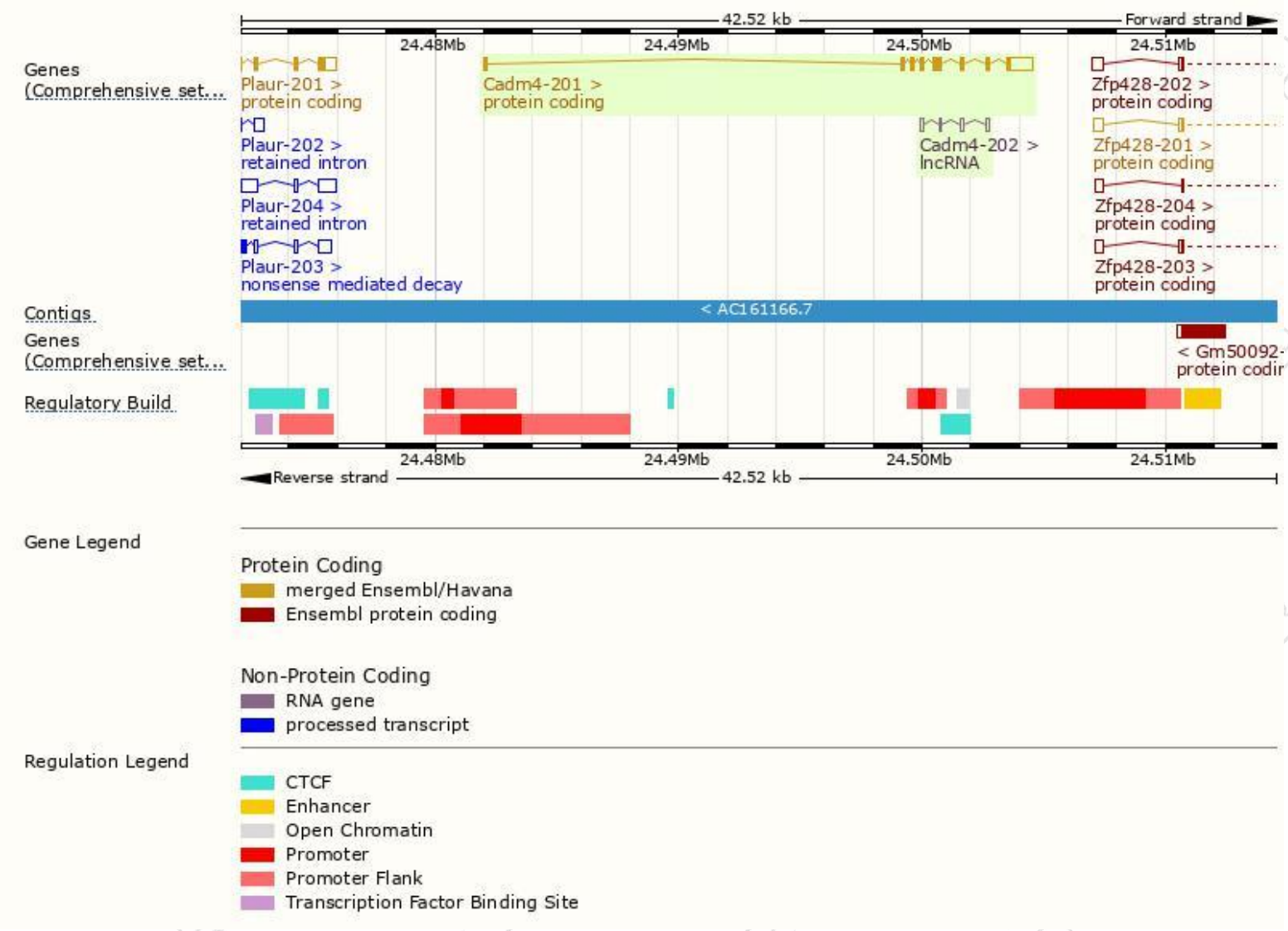
The gene has 2 transcripts,all transcripts are shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|---|---|---|---|---|---|---|---|
| Cadm4-201 | ENSMUST00000068023.7 | 2161 | 388aa | Protein coding | CCDS20951 | Q8R464 | TSL:1 GENCODE basic APPRIS P1 |
| Cadm4-202 | ENSMUST00000205820.1 | 491 | No protein | lncRNA | - | - | TSL:3 |

The strategy is based on the design of *Cadm4-201* transcript,The transcription is shown below

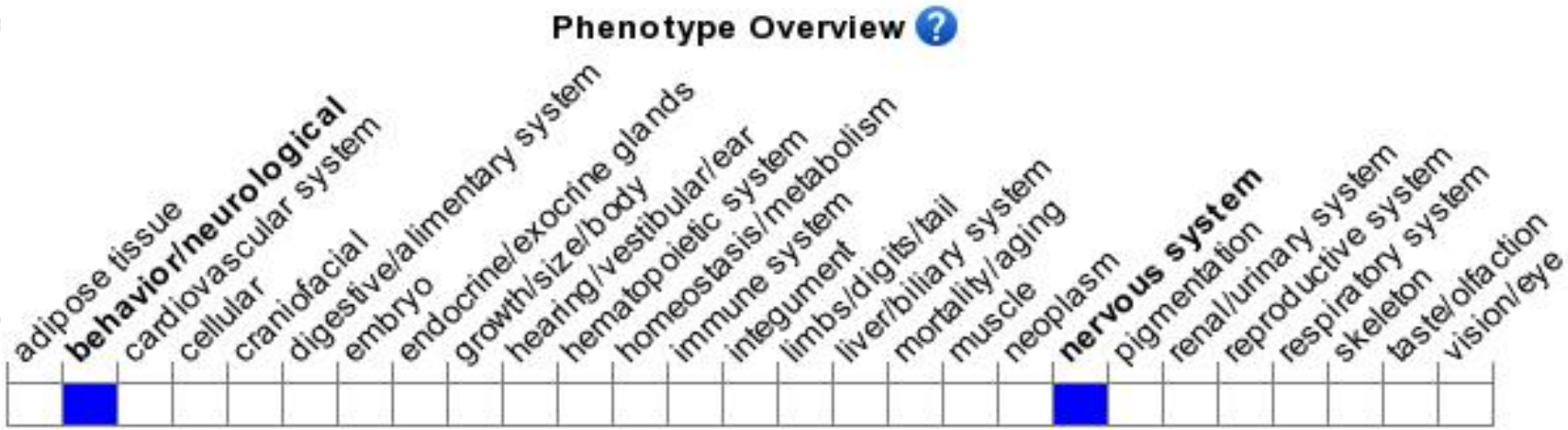


# Genomic location distribution



# 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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