Ncam2 Cas9-KO Strategy

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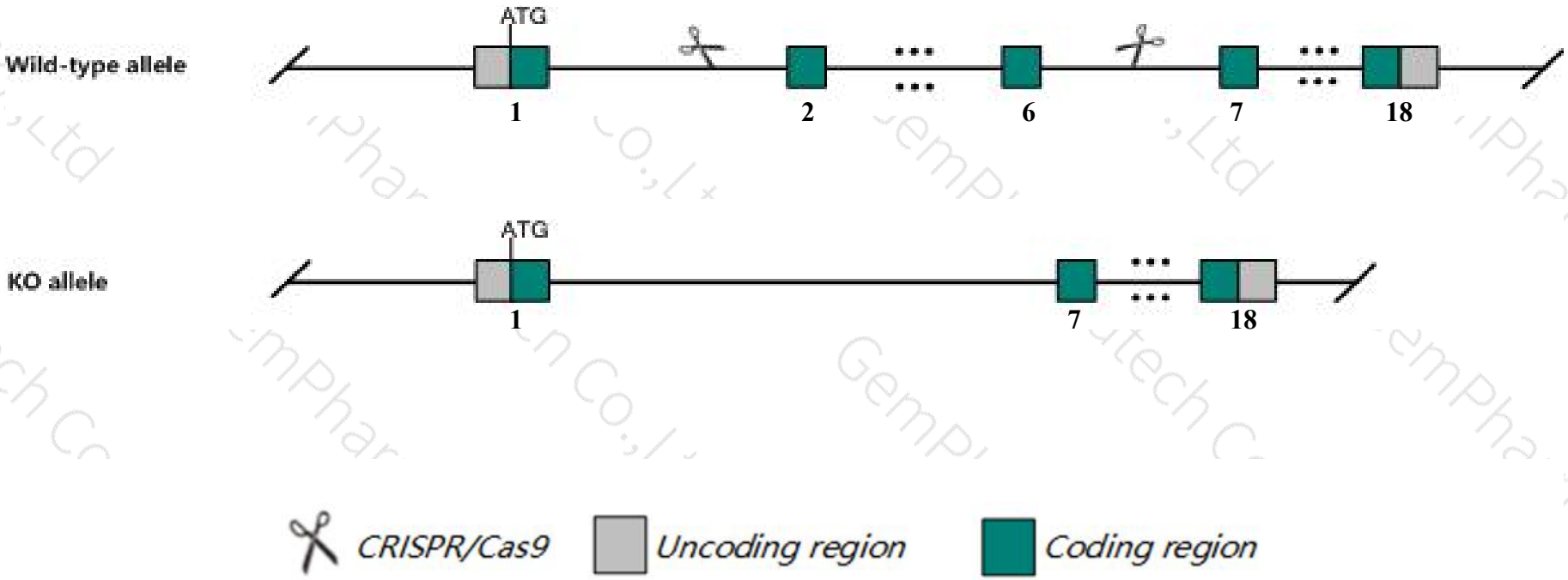
Project Overview

Project Name	***Ncam2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ncam2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ncam2* gene has 4 transcripts. According to the structure of *Ncam2* gene, exon2-exon6 of *Ncam2-202* (ENSMUST00000067602.4) transcript is recommended as the knockout region.The region contains 682bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ncam2* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

➢ According to the existing MGI data,A gene trap insertion into an intron of this gene results in no obvious phenotype. Mice homozygous for a knock-out allele exhibit exhibit increased proliferation rate and clonogenic frequency in spinal cord-derived neurospheres.

➢ The *Ncam2* gene is located on the Chr16. 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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Ncam2 neural cell adhesion molecule 2 [Mus musculus (house mouse)]

Gene ID: 17968, updated on 31-Jan-2019

Summary

Official Symbol	Ncam2 provided by MGI
Official Full Name	neural cell adhesion molecule 2 provided by MGI
Primary source	MGI:MGI:97282
See related	Ensembl:ENSMUSG00000022762
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	Ncam-2, Ocam, RNCAM
Expression	Biased expression in cortex adult (RPKM 3.2), frontal lobe adult (RPKM 3.0) and 6 other tissues See more
Orthologs	human all

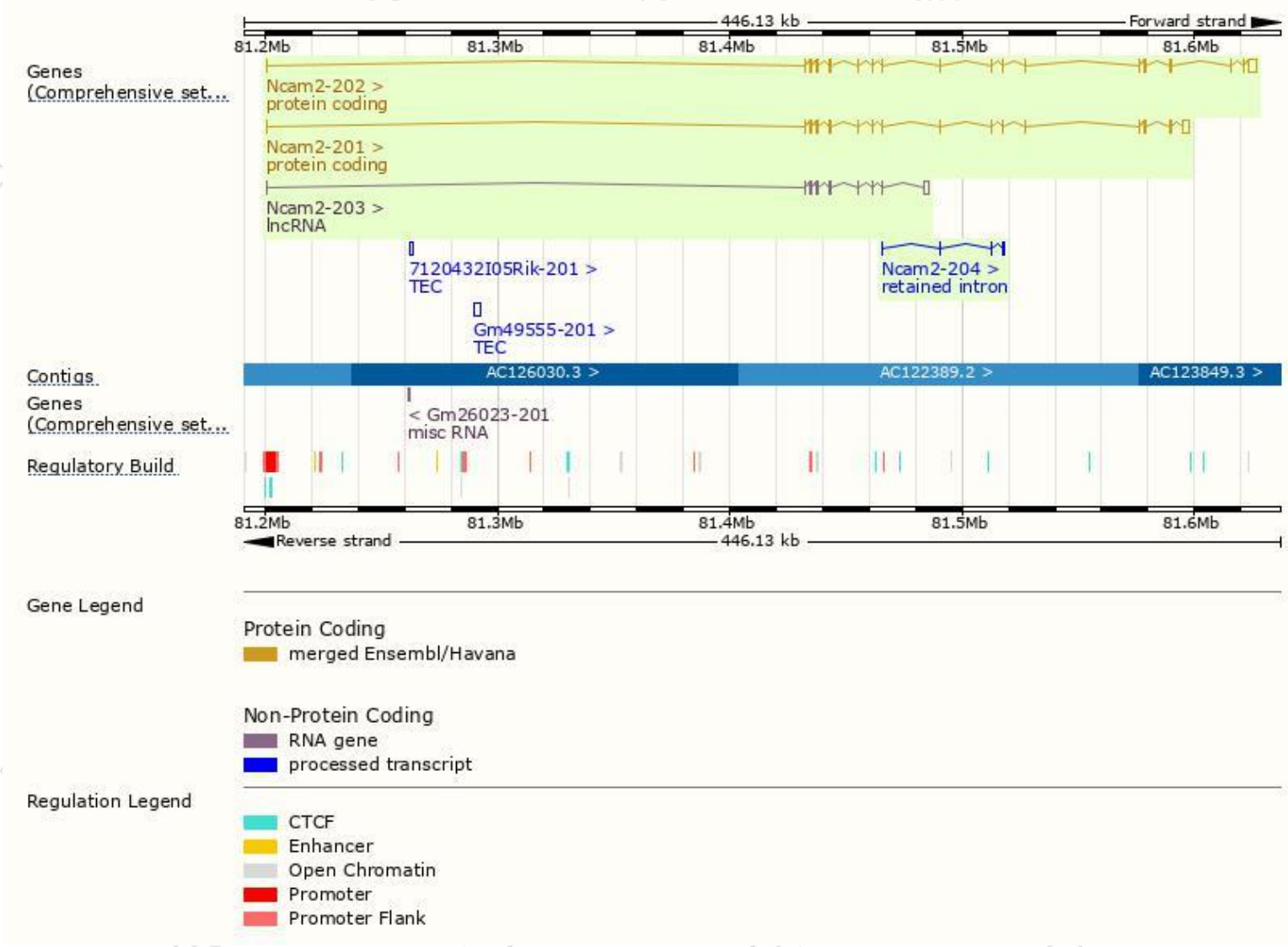
Transcript information（Ensembl）

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

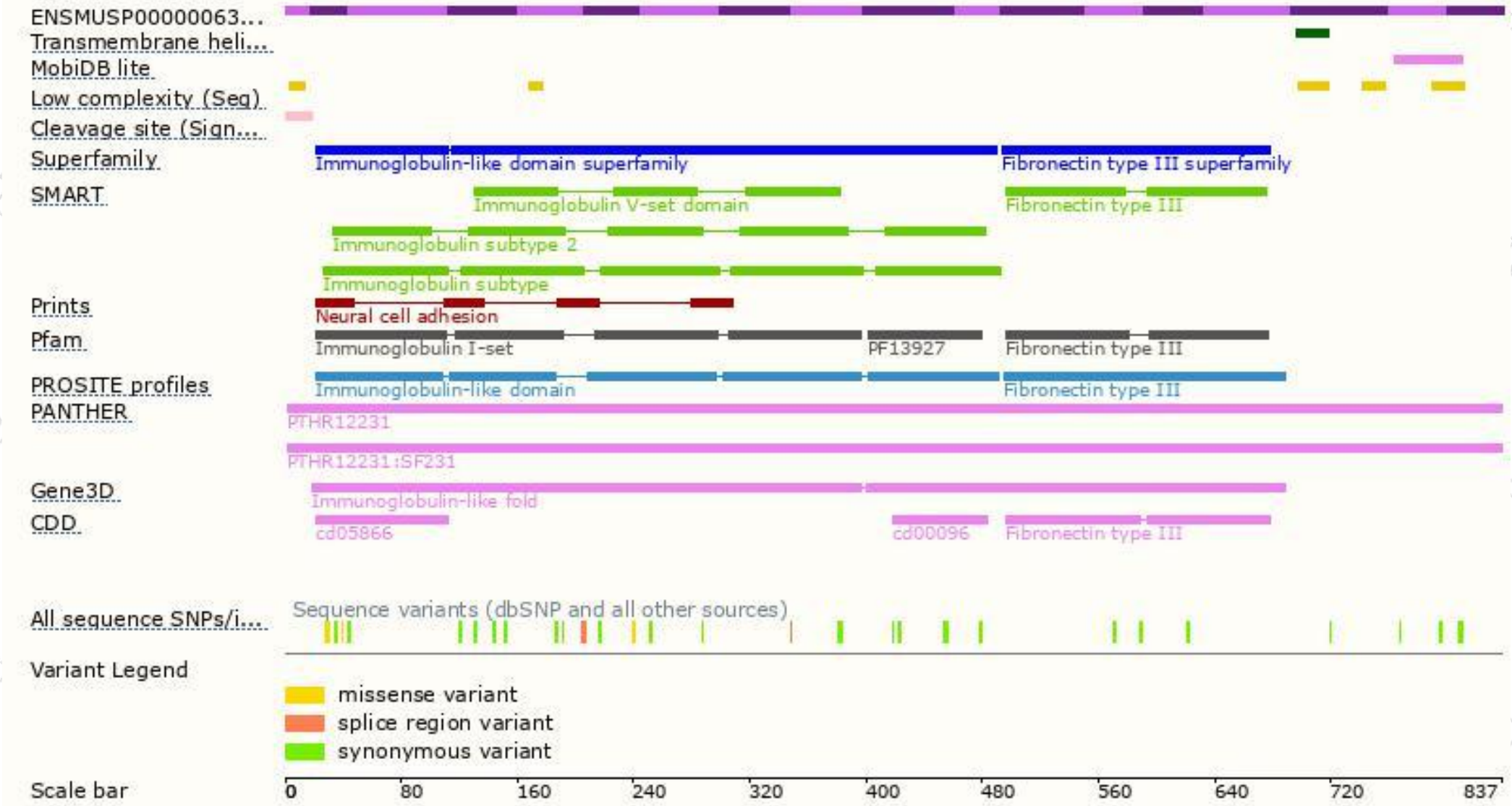
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ncam2-202	ENSMUST00000067602.4	6106	837aa	Protein coding	CCDS49888	O35136	TSL:1 GENCODE basic APPRIS ALT2
Ncam2-201	ENSMUST00000037785.13	4893	727aa	Protein coding	CCDS28281	O35136	TSL:1 GENCODE basic APPRIS P3
Ncam2-204	ENSMUST00000232550.1	931	No protein	Retained intron	-	-	
Ncam2-203	ENSMUST00000231687.1	3413	No protein	lncRNA	-	-	

The strategy is based on the design of *Ncam2-202* transcript,The transcription is shown below

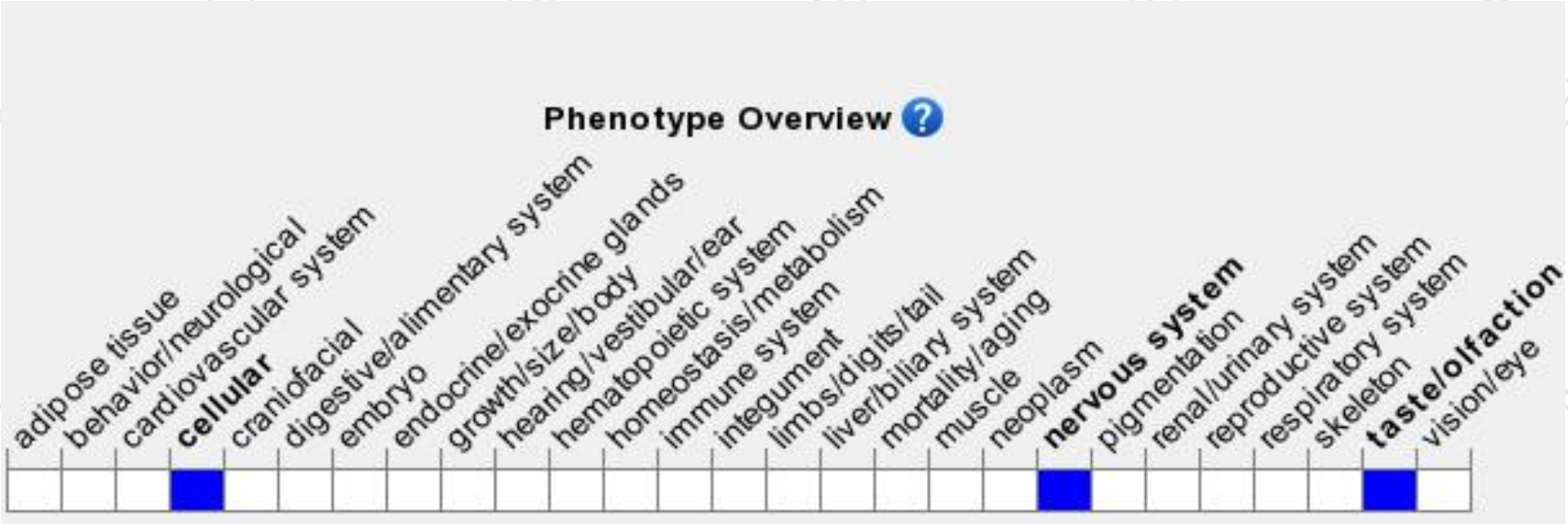
Genomic location distribution



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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