

Nectin2 Cas9-KO Strategy

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Project Overview

Project Name

Nectin2

Project type

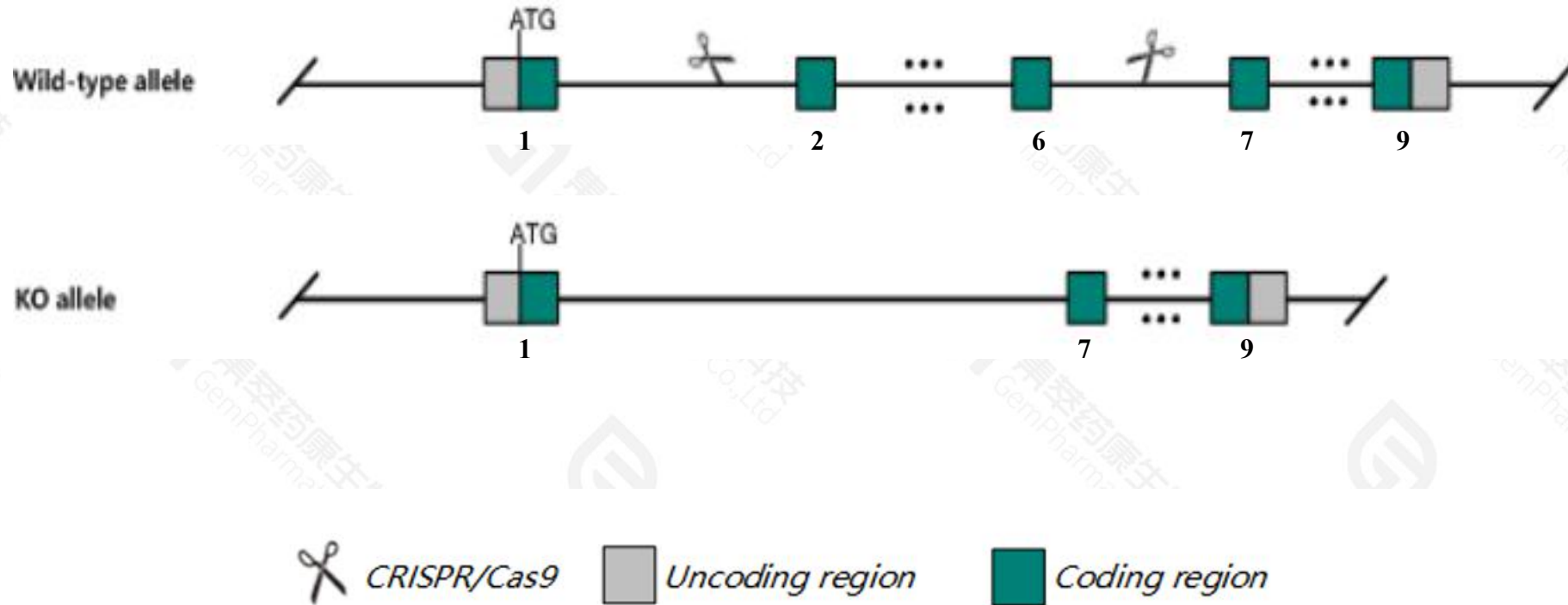
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nectin2* gene. The schematic diagram is as follows:



- The *Nectin2* gene has 3 transcripts. According to the structure of *Nectin2* gene, exon2-exon6 of *Nectin2-201*(ENSMUST00000075447.14) transcript is recommended as the knockout region. The region contains 1081bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nectin2* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, mice homozygous for targeted null mutations exhibit male sterility associated with sperm head and midpiece malformation, impaired zona binding, and lack of oocyte penetration.
- The *Nectin2* 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.

Nectin2 nectin cell adhesion molecule 2 [Mus musculus (house mouse)]

Gene ID: 19294, updated on 2-Feb-2021

Summary



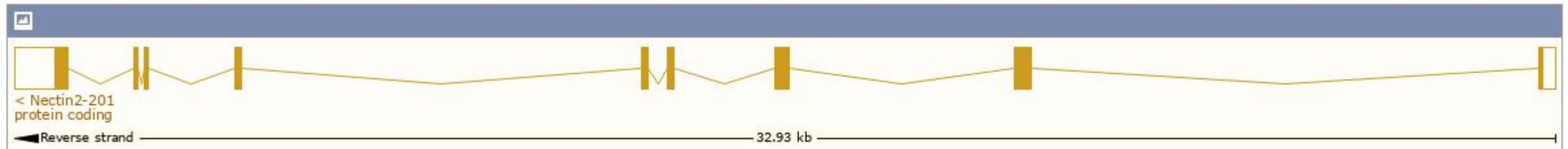
Official Symbol	Nectin2 provided by MGI
Official Full Name	nectin cell adhesion molecule 2 provided by MGI
Primary source	MGI:MGI:97822
See related	Ensembl:ENSMUSG00000062300
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI325026, AI987993, Cd112, MP, MPH, P, Pvr, Pvrl2, Pvs, necti, nectin-2
Expression	Broad expression in duodenum adult (RPKM 62.2), colon adult (RPKM 44.8) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

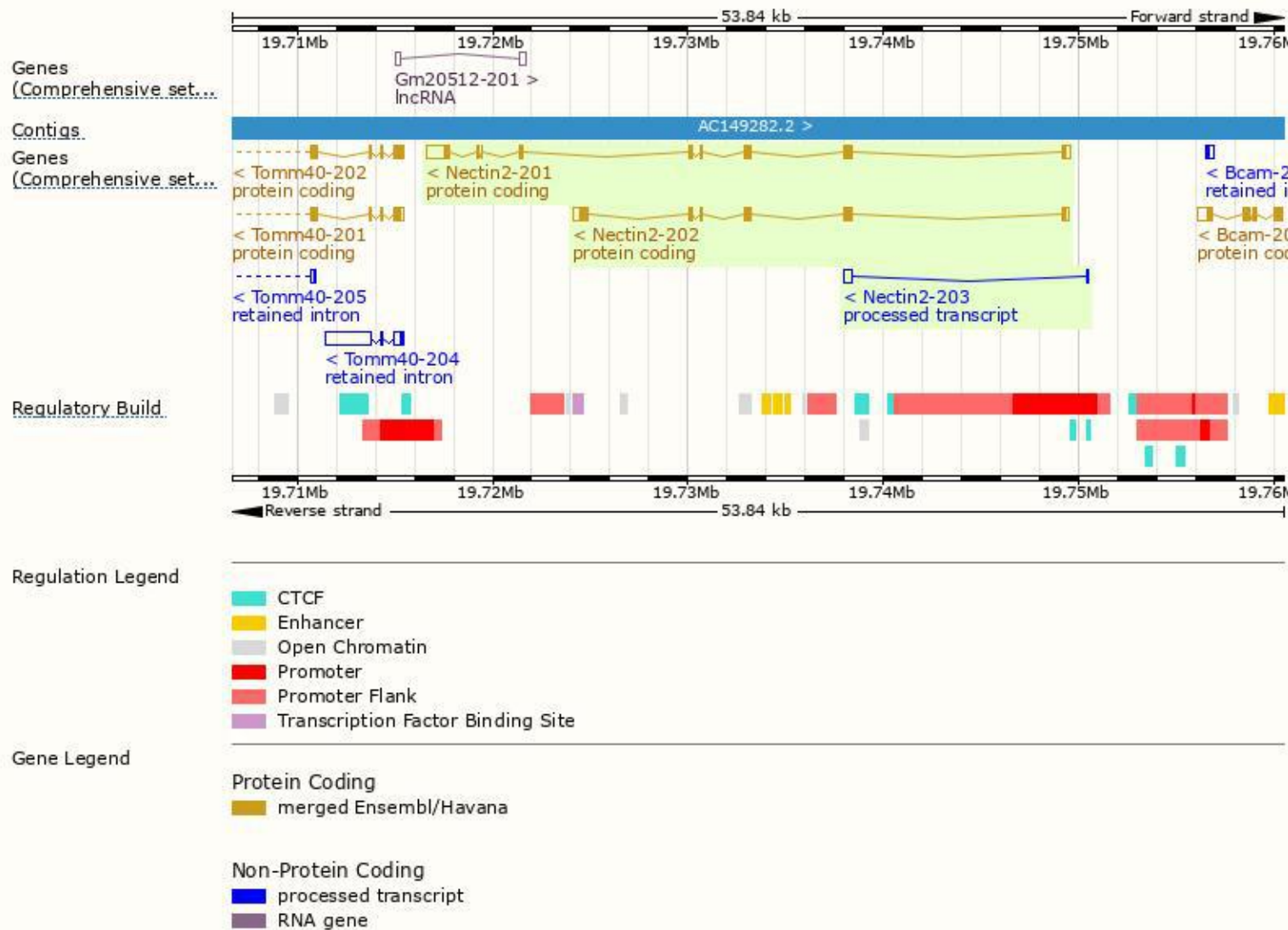
The gene has 3 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nectin2-201	ENSMUST00000075447.14	2735	530aa	Protein coding	CCDS20913		TSL:1 , GENCODE basic , APPRIS P3 ,
Nectin2-202	ENSMUST00000108450.5	1955	467aa	Protein coding	CCDS52063		TSL:1 , GENCODE basic , APPRIS ALT2 ,
Nectin2-203	ENSMUST00000207271.2	399	No protein	Processed transcript	-		TSL:3 ,

The strategy is based on the design of *Nectin2-201* transcript, the transcription is shown below:



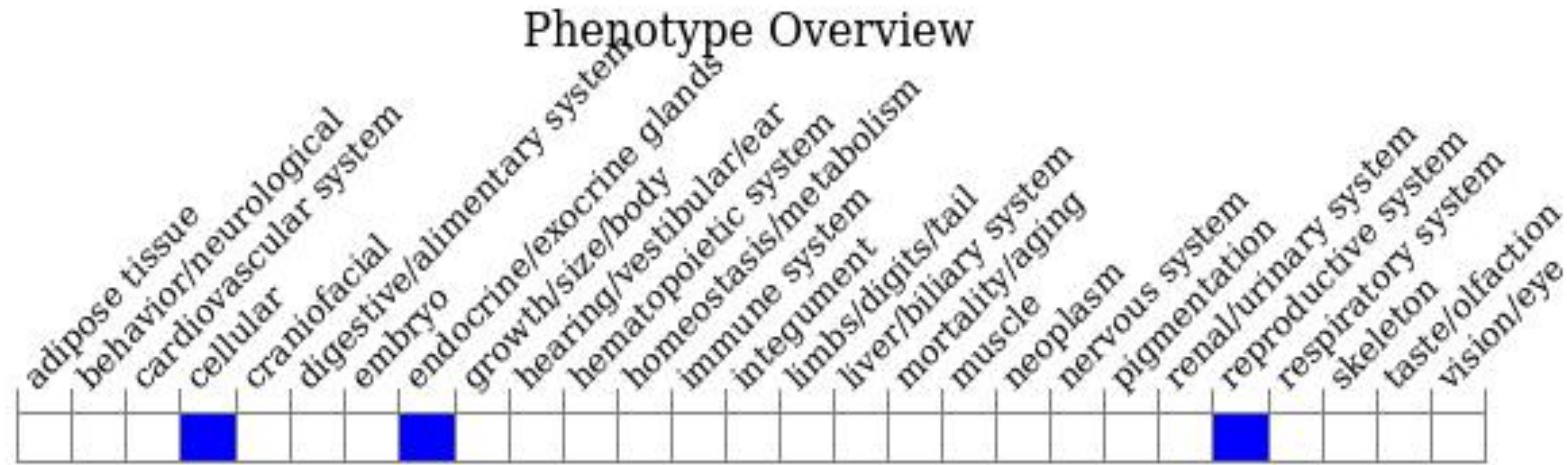
Genomic location distribution



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/>).

According to the existing MGI data, mice homozygous for targeted null mutations exhibit male sterility associated with sperm head and midpiece malformation, impaired zona binding, and lack of oocyte penetration.

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

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