

***Ctnnbl1* Cas9-KO Strategy**

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Project Overview

Project Name

Ctnnbl1

Project type

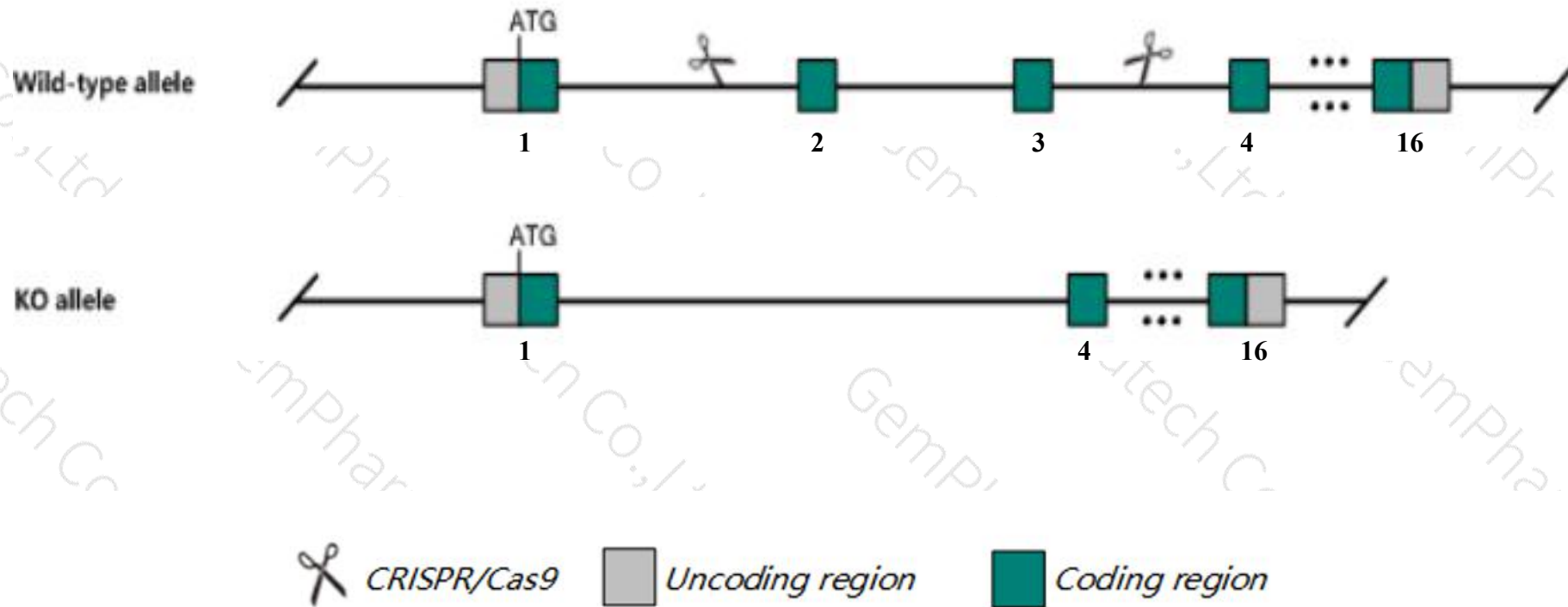
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ctnnb1* gene. The schematic diagram is as follows:



- The *Ctnnb1* gene has 4 transcripts. According to the structure of *Ctnnb1* gene, exon2-exon3 of *Ctnnb1*-201(ENSMUST00000029178.6) transcript is recommended as the knockout region. The region contains 296bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ctnnb1* 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.

- The *Ctnnb1* gene is located on the Chr2. 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)

Ctnnb1 catenin, beta like 1 [Mus musculus (house mouse)]

Gene ID: 66642, updated on 13-Mar-2020

Summary



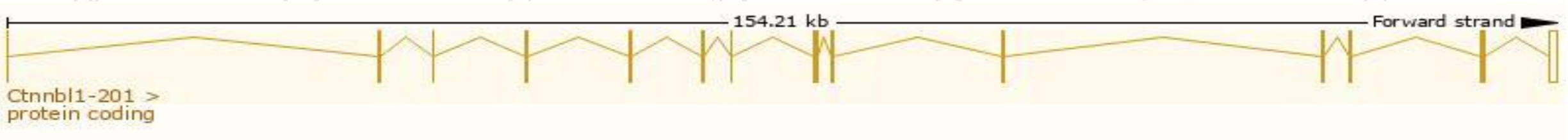
Official Symbol	Ctnnb1 provided by MGI
Official Full Name	catenin, beta like 1 provided by MGI
Primary source	MGI:MGI:1913892
See related	Ensembl:ENSMUSG00000027649
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5730471K09Rik, NAP, NYD-SP19, P14L
Expression	Ubiquitous expression in testis adult (RPKM 25.7), CNS E11.5 (RPKM 19.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

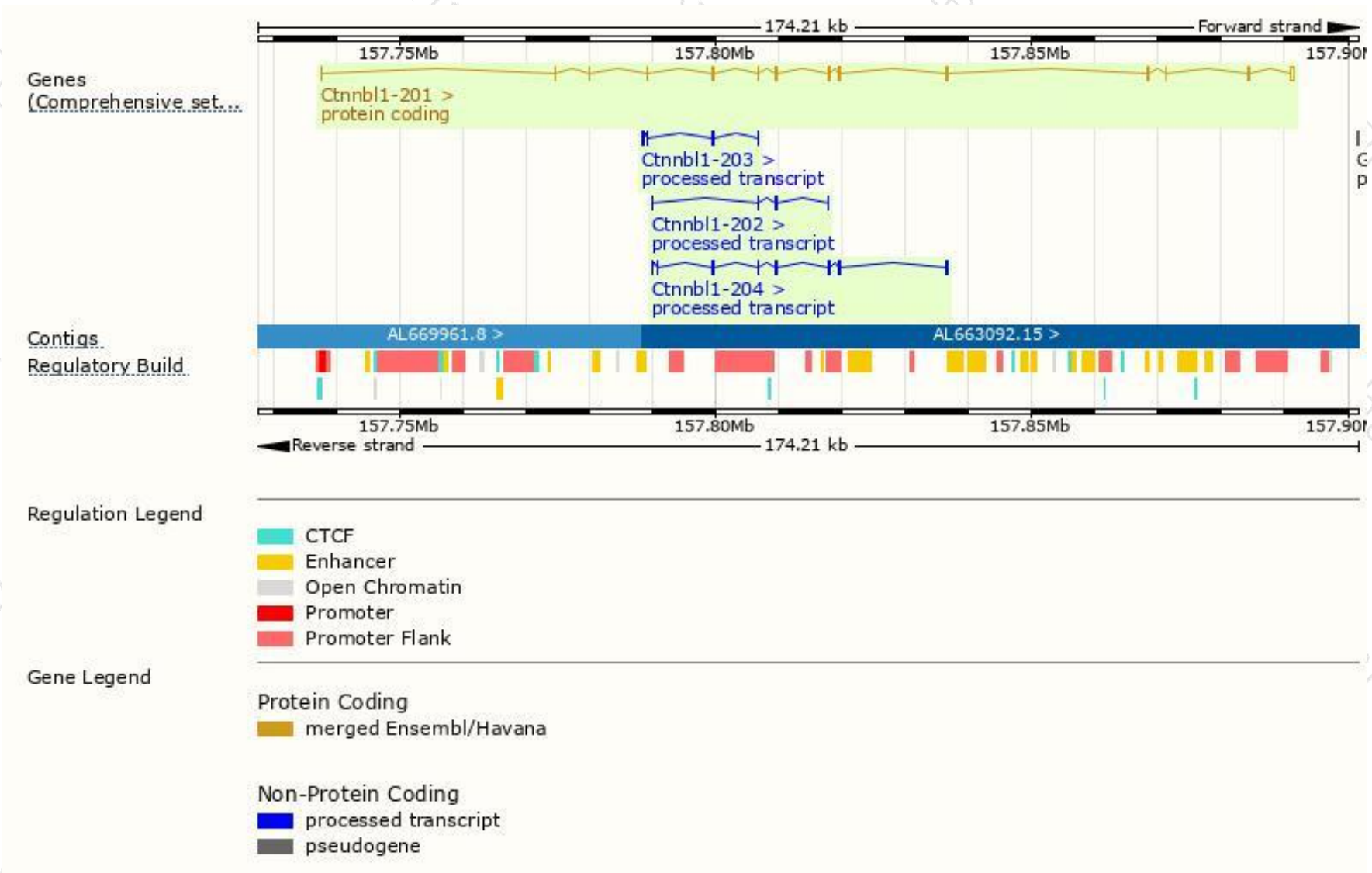
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ctnnbl1-201	ENSMUST00000029178.6	2442	563aa	Protein coding	CCDS16982	Q9CWL8	TSL:1 GENCODE basic APPRIS P1
Ctnnbl1-204	ENSMUST00000156300.1	801	No protein	Processed transcript	-	-	TSL:5
Ctnnbl1-202	ENSMUST00000129842.7	374	No protein	Processed transcript	-	-	TSL:5
Ctnnbl1-203	ENSMUST00000155479.1	344	No protein	Processed transcript	-	-	TSL:3

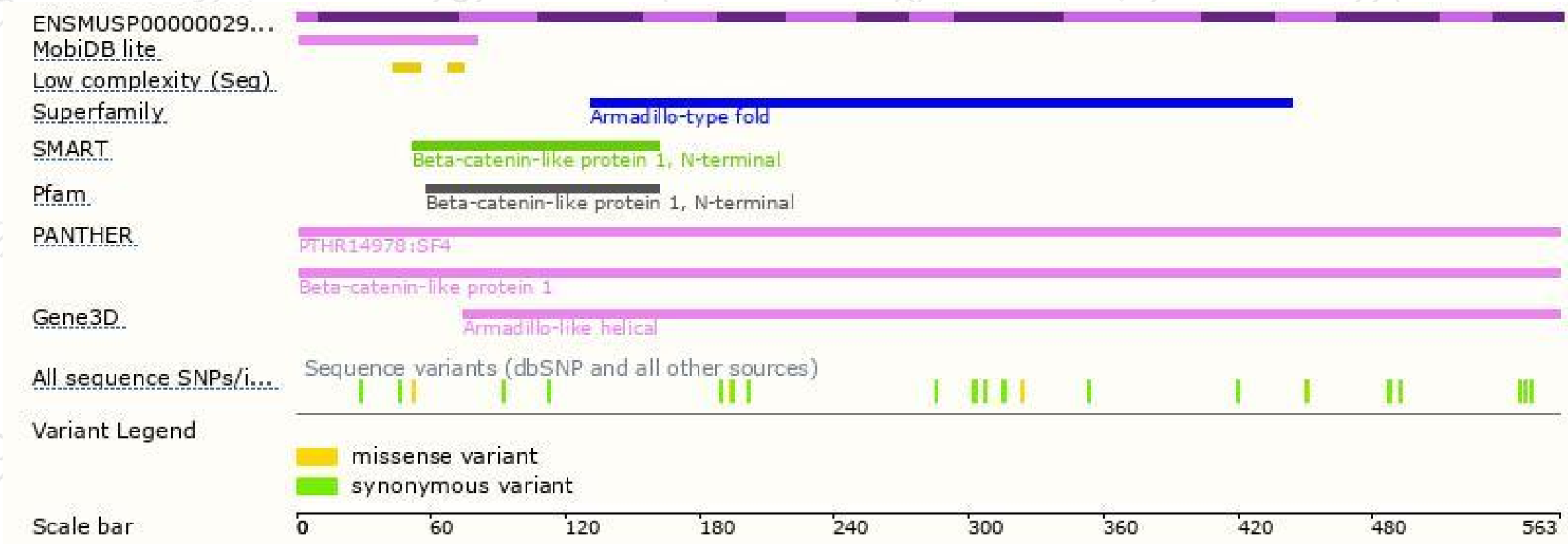
The strategy is based on the design of *Ctnnbl1-201* transcript,the transcription is shown below:



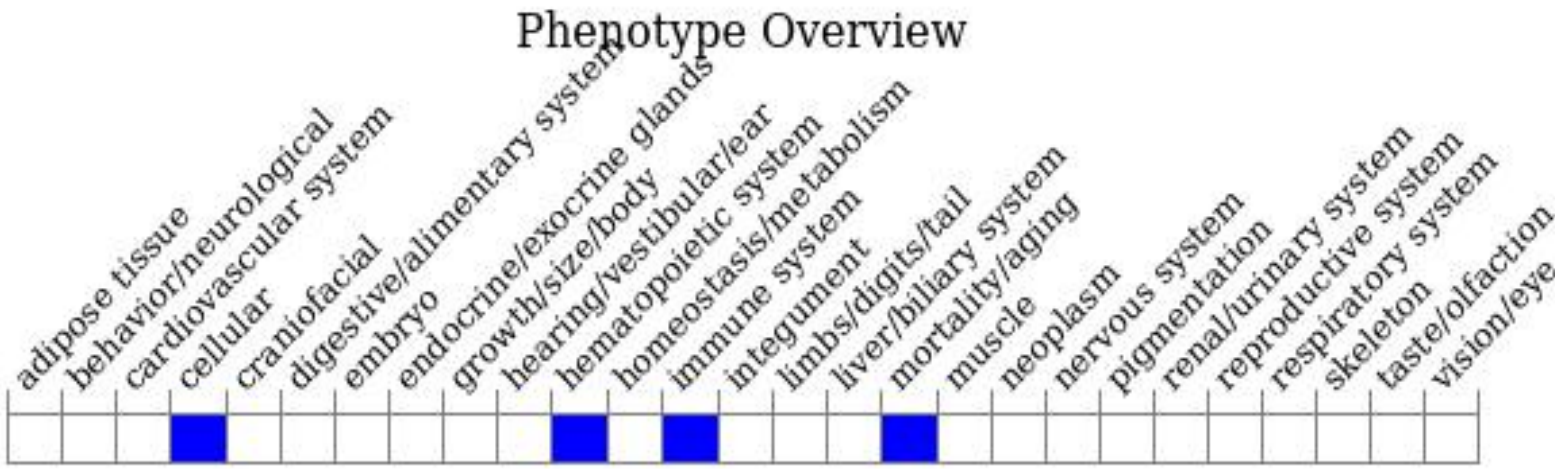
Genomic location distribution



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/>).

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

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