Bcl9l Cas9-KO Strategy

Designer:	**Lixin Lv**
Reviewer:	**Yun Li**
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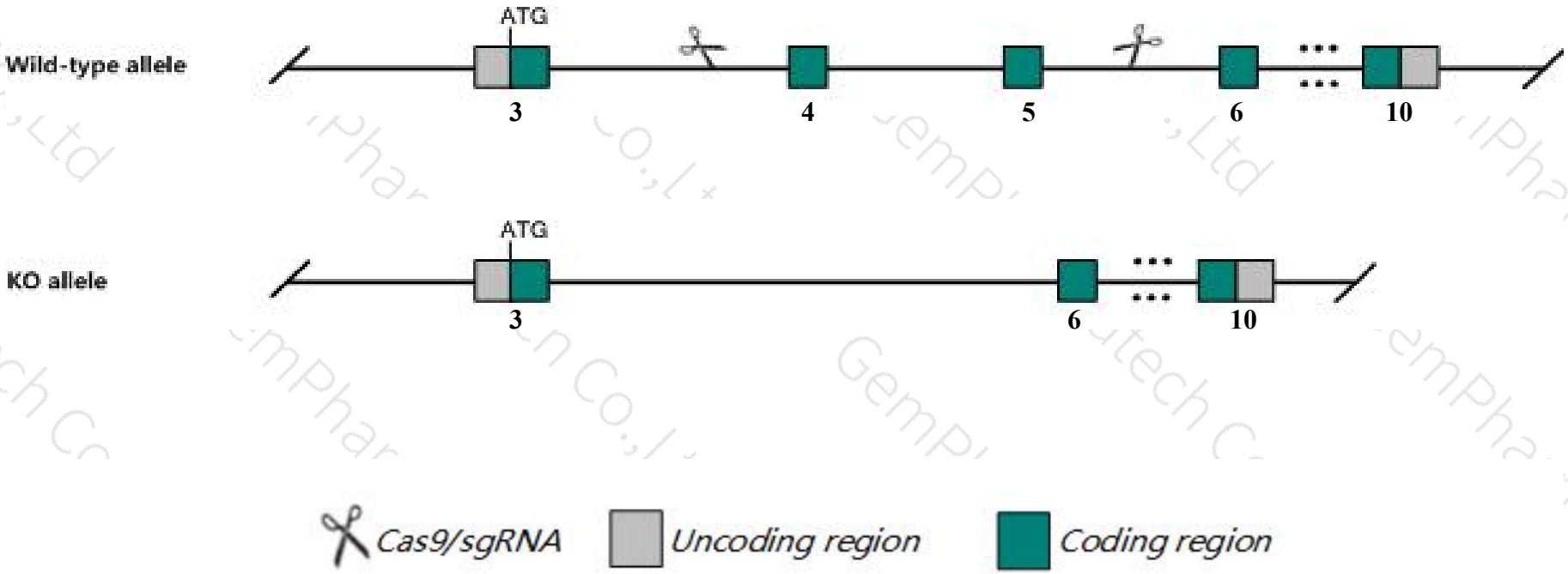
Project Overview

Project Name	***Bcl9l***
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Bcl9l* gene. The schematic diagram is as follows:



Technical routes

➢ The *Bcl9l* gene has 6 transcripts. According to the structure of *Bcl9l* gene, exon4-exon5 of *Bcl9l-203* (ENSMUST00000218183.1) transcript is recommended as the knockout region.The region contains 506bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Bcl9l* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

Notice

- According to the existing MGI data,Mice carrying homozygous floxed Bcl9 and Bcl9l alleles, inactivated in muscle cells, exhibit impaired muscle regeneration due to increased apoptosis.

- The *Bcl9l* gene is located on the Chr9. 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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Bcl9l B cell CLL/lymphoma 9-like [*Mus musculus* (house mouse)]

Gene ID: 80288, updated on 24-Oct-2019

Summary

Official Symbol	Bcl9l provided by MGI
Official Full Name	B cell CLL/lymphoma 9-like provided by MGI
Primary source	MGI:MGI:1933114
See related	Ensembl:ENSMUSG00000063382
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	B9L; BCL9-2; DLNB11; BC003321
Expression	Ubiquitous expression in mammary gland adult (RPKM 17.6), lung adult (RPKM 16.5) and 26 other tissues See more
Orthologs	human all

Genomic context

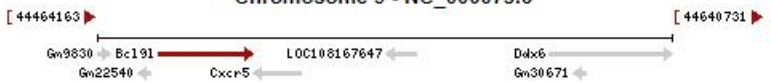
Location: 9; 9 A5.2

See Bcl9l in Genome Data Viewer

Exon count: 13

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	9	NC_000075.6 (44482738..44511906)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	9	NC_000075.5 (44307219..44318506)

Chromosome 9 - NC_000075.6

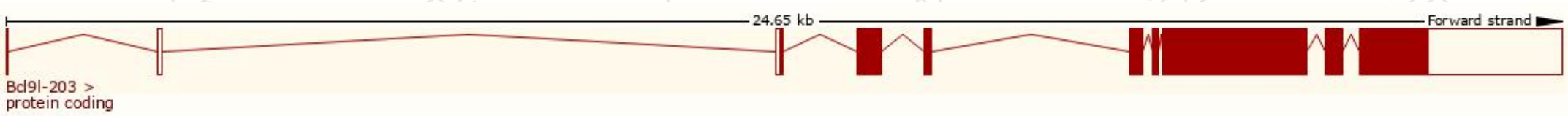


Transcript information（Ensembl）

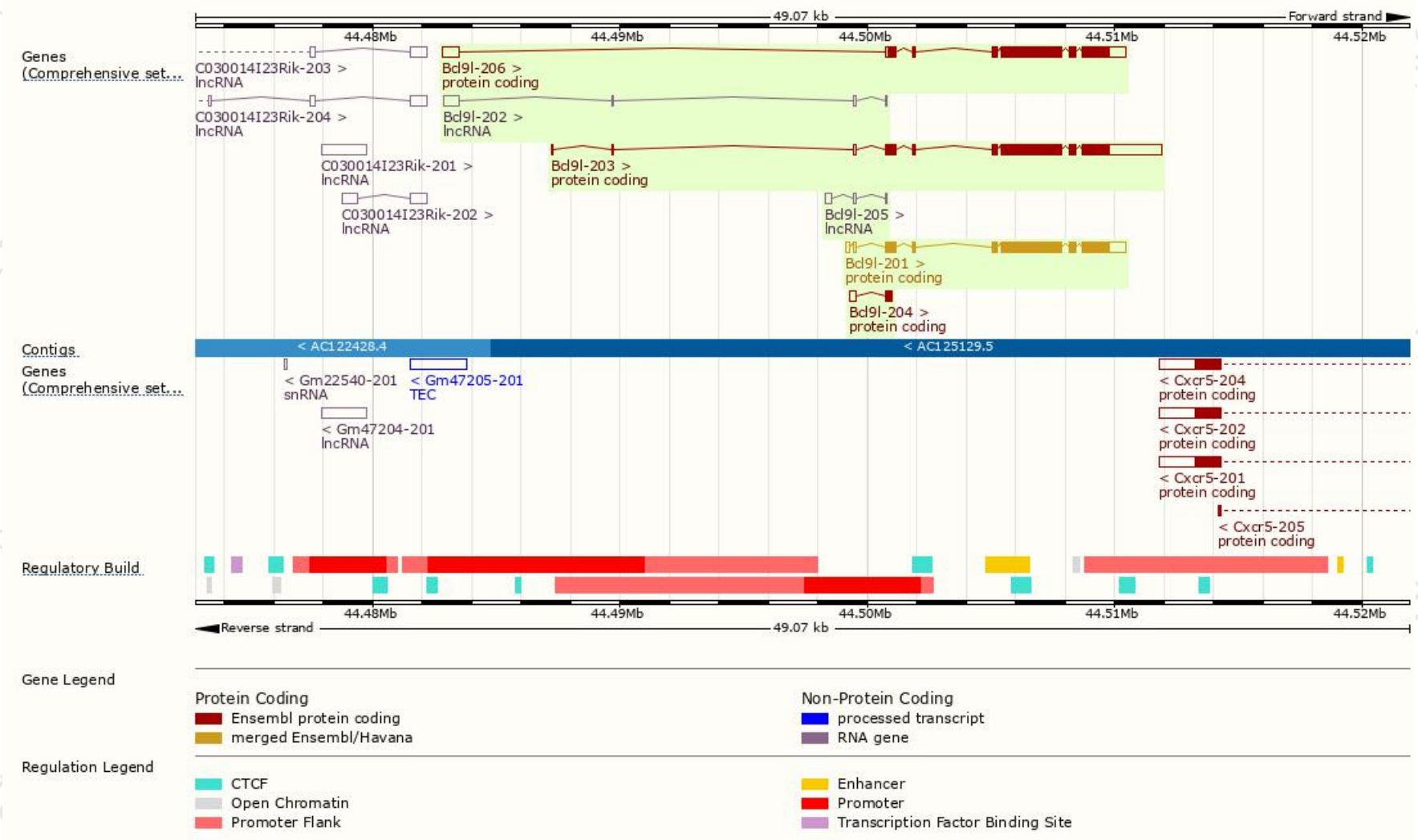
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bcl9l-203	ENSMUST00000218183.1	6771	1494aa	Protein coding	CCDS40601	Q67FY2	TSL:5 GENCODE basic APPRIS P2
Bcl9l-201	ENSMUST00000074989.6	5339	1494aa	Protein coding	CCDS40601	Q67FY2	TSL:1 GENCODE basic APPRIS P2
Bcl9l-206	ENSMUST00000220303.1	5760	1457aa	Protein coding	-	Q67FY2	TSL:1 GENCODE basic APPRIS ALT2
Bcl9l-204	ENSMUST00000218913.1	522	90aa	Protein coding	-	A0A1W2P7G4	CDS 3' incomplete TSL:3
Bcl9l-202	ENSMUST00000217898.1	836	No protein	lncRNA	-	-	TSL:5
Bcl9l-205	ENSMUST00000220292.1	419	No protein	lncRNA	-	-	TSL:3

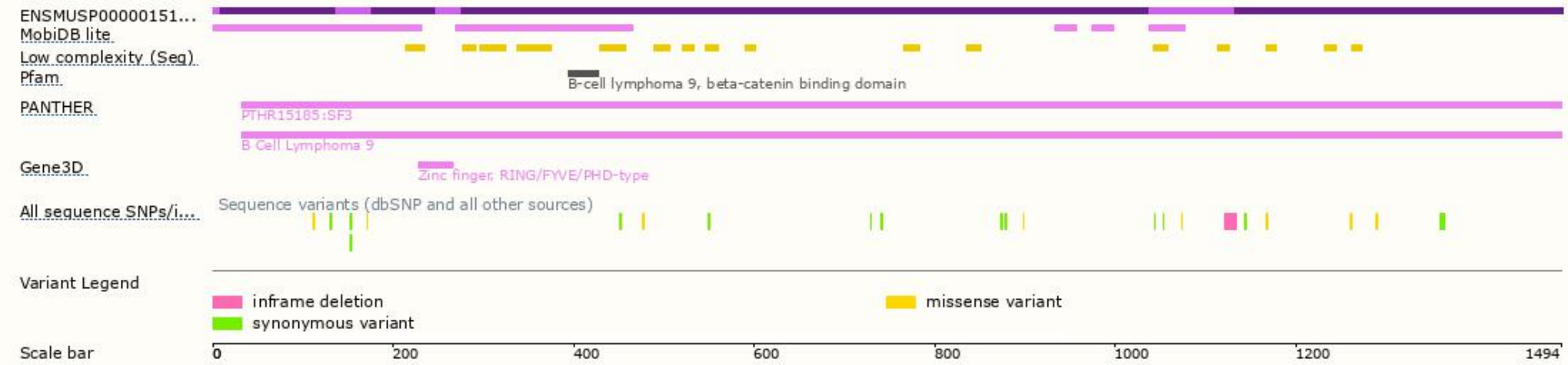
The strategy is based on the design of *Bcl9l-203* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

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GemPharmatech Co.,Ltd