

Bcl9 Cas9-KO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Bcl9

Project type

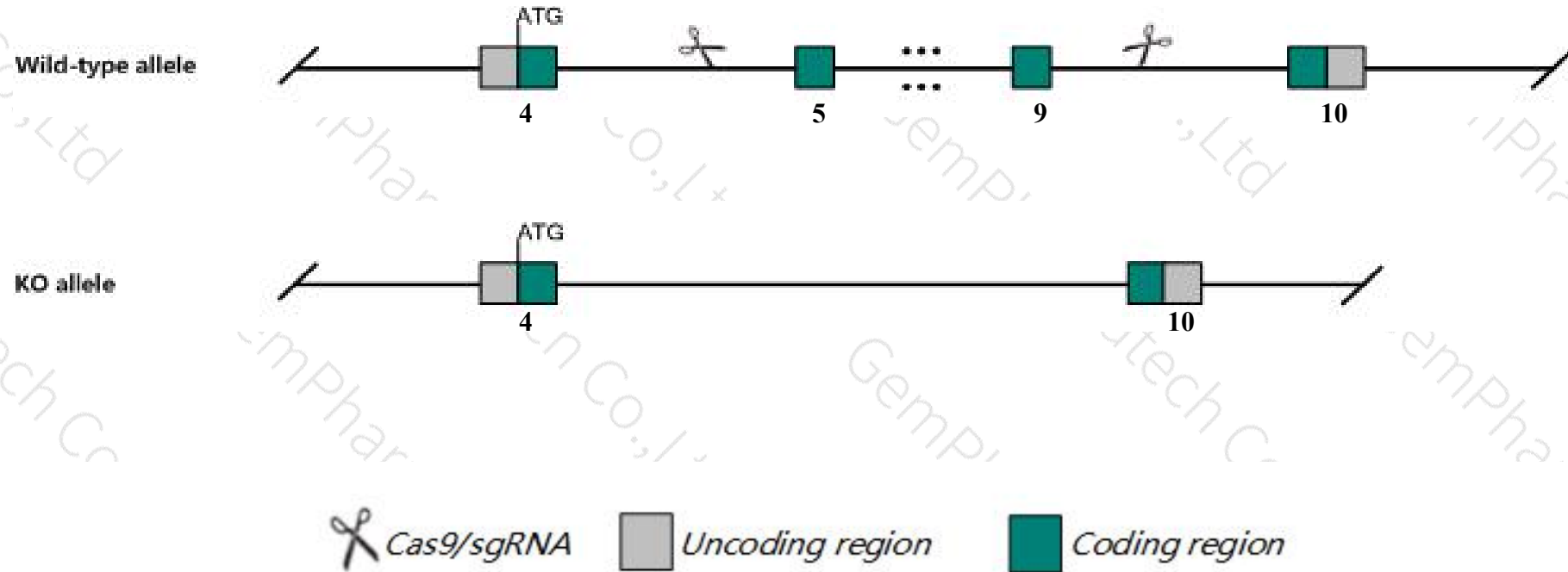
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Bcl9* gene. The schematic diagram is as follows:



- The *Bcl9* gene has 8 transcripts. According to the structure of *Bcl9* gene, exon5-exon9 of *Bcl9-201* (ENSMUST00000046521.13) transcript is recommended as the knockout region. The region contains 3107bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Bcl9* 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.

- 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 *Bcl9* gene is located on the Chr3. 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)

Bcl9 B cell CLL/lymphoma 9 [*Mus musculus* (house mouse)]

Gene ID: 77578, updated on 12-Aug-2019

Summary

Official Symbol Bcl9 provided by [MGI](#)
Official Full Name B cell CLL/lymphoma 9 provided by [MGI](#)
Primary source [MGI:MGI:1924828](#)
See related [Ensembl:ENSMUSG00000038256](#)
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 Gm130; 2610202E01Rik; 8030475K17Rik; A330041G23Rik
Expression Ubiquitous expression in limb E14.5 (RPKM 13.7), CNS E11.5 (RPKM 12.3) and 28 other tissues [See more](#)
Orthologs [human](#) [all](#)

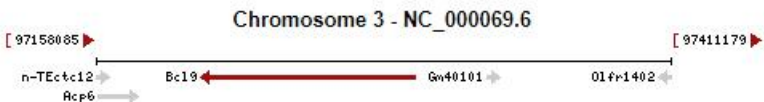
Genomic context

Location: 3: 3 F2.1

See Bcl9 in [Genome Data Viewer](#)

Exon count: 13

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	3	NC_000069.6 (97203658..97298402, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	3	NC_000069.5 (97008551..97020430, complement)



Transcript information (Ensembl)

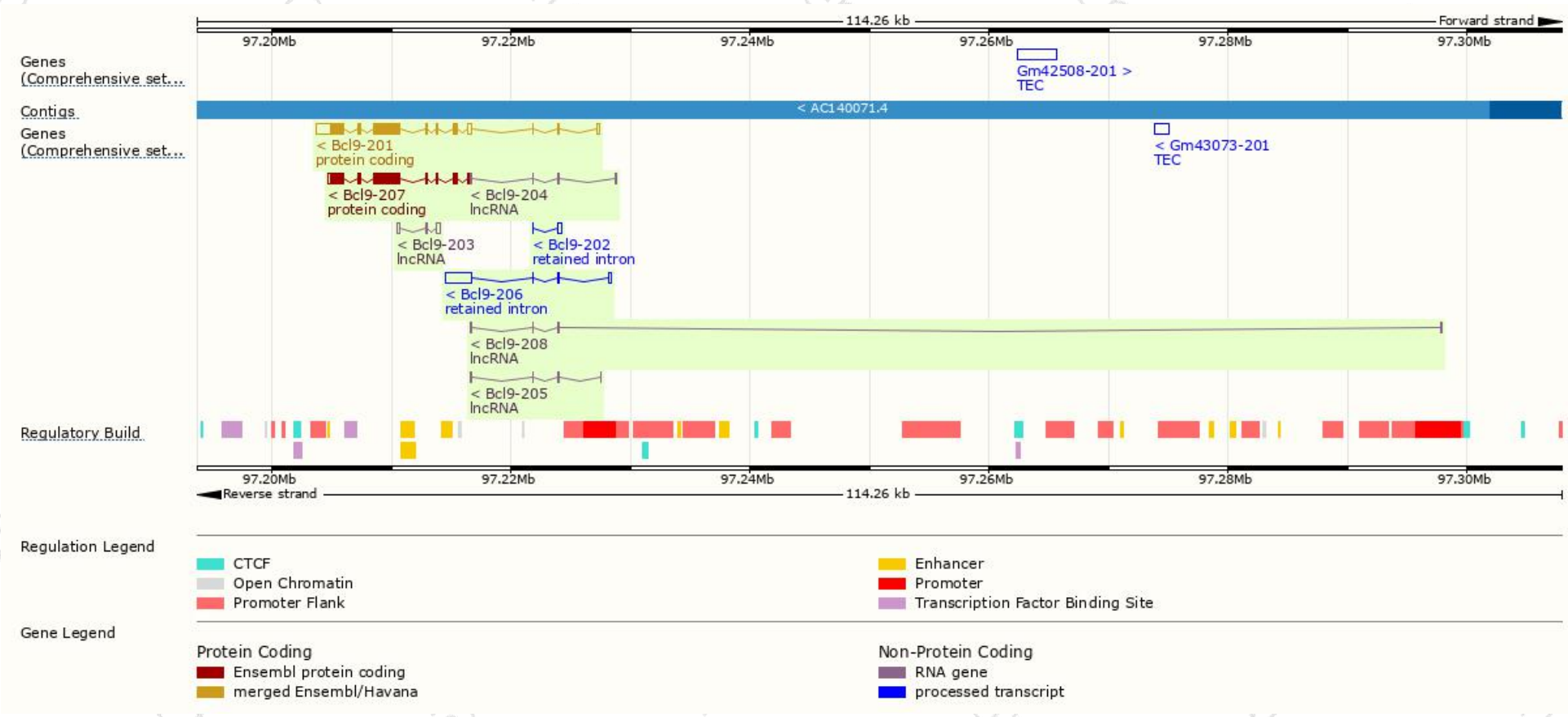
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bcl9-201	ENSMUST00000046521.13	6102	1425aa	Protein coding	CCDS17654	Q9D219	TSL:1 GENCODE basic APPRIS P1
Bcl9-207	ENSMUST00000166341.1	4652	1425aa	Protein coding	CCDS17654	Q9D219	TSL:1 GENCODE basic APPRIS P1
Bcl9-206	ENSMUST00000141861.7	2500	No protein	Retained intron	-	-	TSL:1
Bcl9-202	ENSMUST00000127319.1	405	No protein	Retained intron	-	-	TSL:3
Bcl9-203	ENSMUST00000132266.1	679	No protein	lncRNA	-	-	TSL:3
Bcl9-208	ENSMUST00000196586.1	453	No protein	lncRNA	-	-	TSL:3
Bcl9-204	ENSMUST00000134695.7	421	No protein	lncRNA	-	-	TSL:3
Bcl9-205	ENSMUST00000135247.5	353	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Bcl9-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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