Bcl3 Cas9-KO Strategy

Designer: Huan Wang

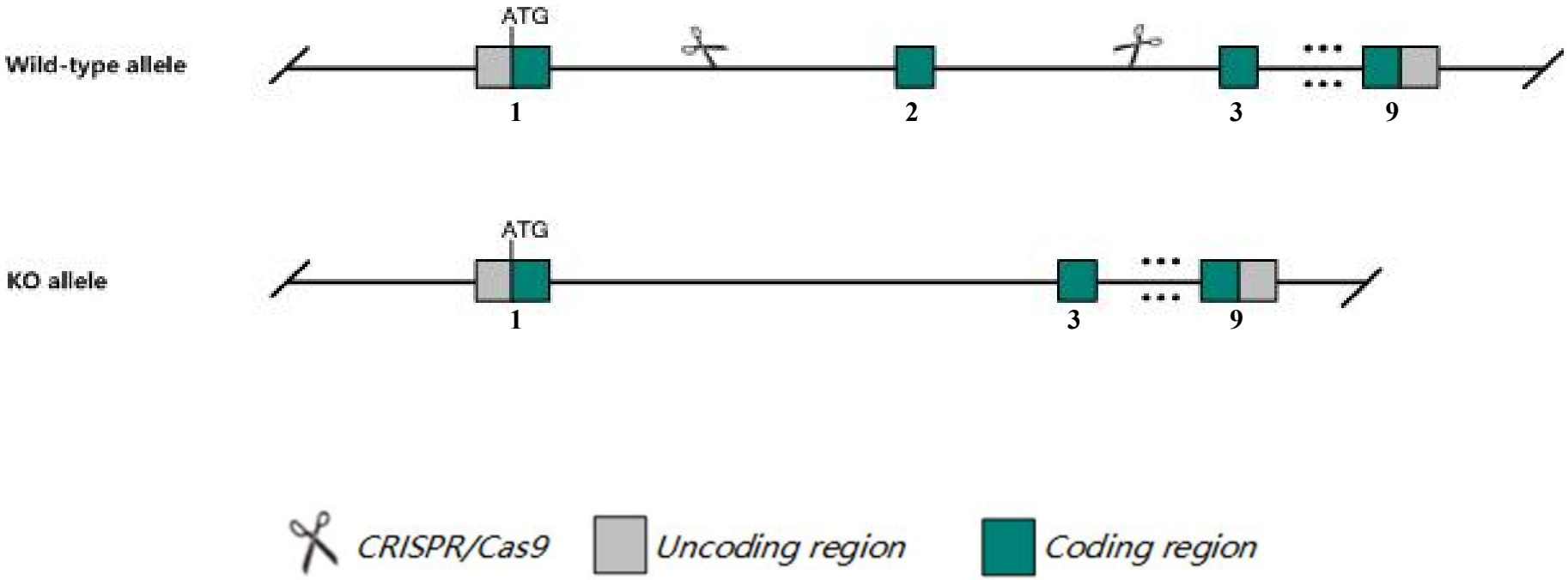
Design Date: 2019-8-3

Project Overview

Project Name	***Bcl3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Bcl3* gene. The schematic diagram is as follows:



Technical routes

The *Bcl3* gene has 6 transcripts. According to the structure of *Bcl3* gene, exon2 of *Bcl3-201* (ENSMUST00000120537.7) transcript is recommended as the knockout region.The region contains 154bp coding sequence. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Bcl3* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

According to the existing MGI data,Mice lacking functional copies of this gene exhibit defects of the immune system including disruption of the humoral immune response and abnormal spleen and Peyers patch organogenesis. Mutant mice show increased susceptibility to pathogens.

The *Bcl3* 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.

Gene information NCBI

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Bcl3 B cell leukemia/lymphoma 3 [Mus musculus (house mouse)]

Gene ID: 12051, updated on 25-Mar-2019

Summary

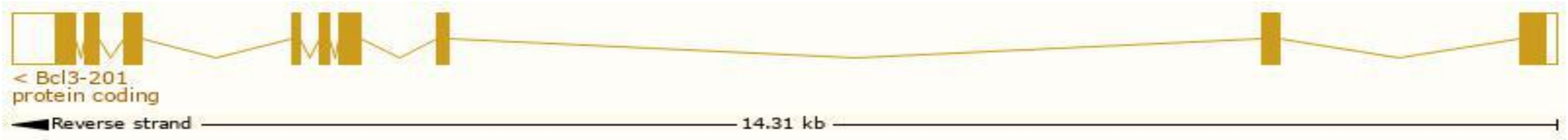
Official Symbol	Bcl3 provided by MGI
Official Full Name	B cell leukemia/lymphoma 3 provided by MGI
Primary source	MGI:MGI:88140
See related	Ensembl:ENSMUSG00000053175
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI528691, Bcl-3
Expression	Biased expression in duodenum adult (RPKM 114.5), small intestine adult (RPKM 82.2) and 11 other tissues See more
Orthologs	human all

Transcript information Ensembl

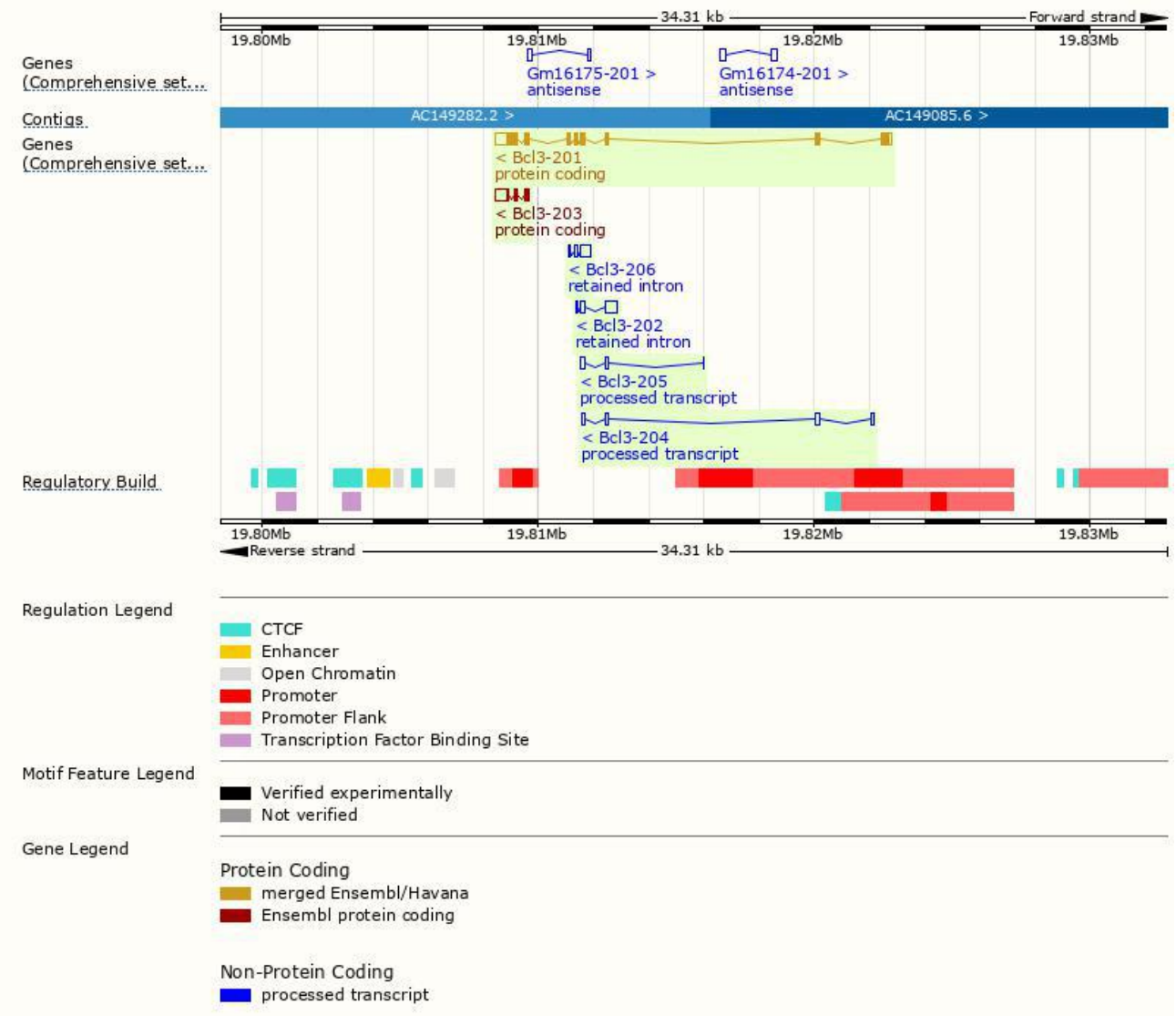
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bcl3-206	ENSMUST00000152768.1	502	No protein	Retained intron	-	-	TSL:3
Bcl3-205	ENSMUST00000141996.1	346	No protein	lncRNA	-	-	TSL:3
Bcl3-204	ENSMUST00000139680.1	460	No protein	lncRNA	-	-	TSL:3
Bcl3-203	ENSMUST00000135609.7	755	114aa	Protein coding	-	F6YNH8	CDS 5' incomplete TSL:3
Bcl3-202	ENSMUST00000123375.7	694	No protein	Retained intron	-	-	TSL:3
Bcl3-201	ENSMUST00000120537.7	1850	448aa	Protein coding	CCDS20914	Q9Z2F6	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Bcl3-201* transcript,The transcription is shown below

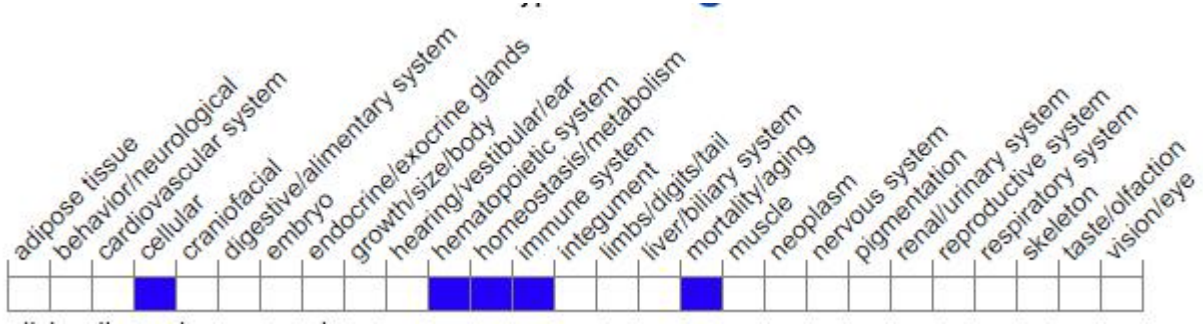


Genomic location distribution



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/).

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If you have any questions, you are welcome to inquire.
Tel: 400-9660890

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GemPharmatech Co.,Ltd