Bmf Cas9-KO Strategy

Designer:Xueting Zhang
Reviewer:Yanhua Shen
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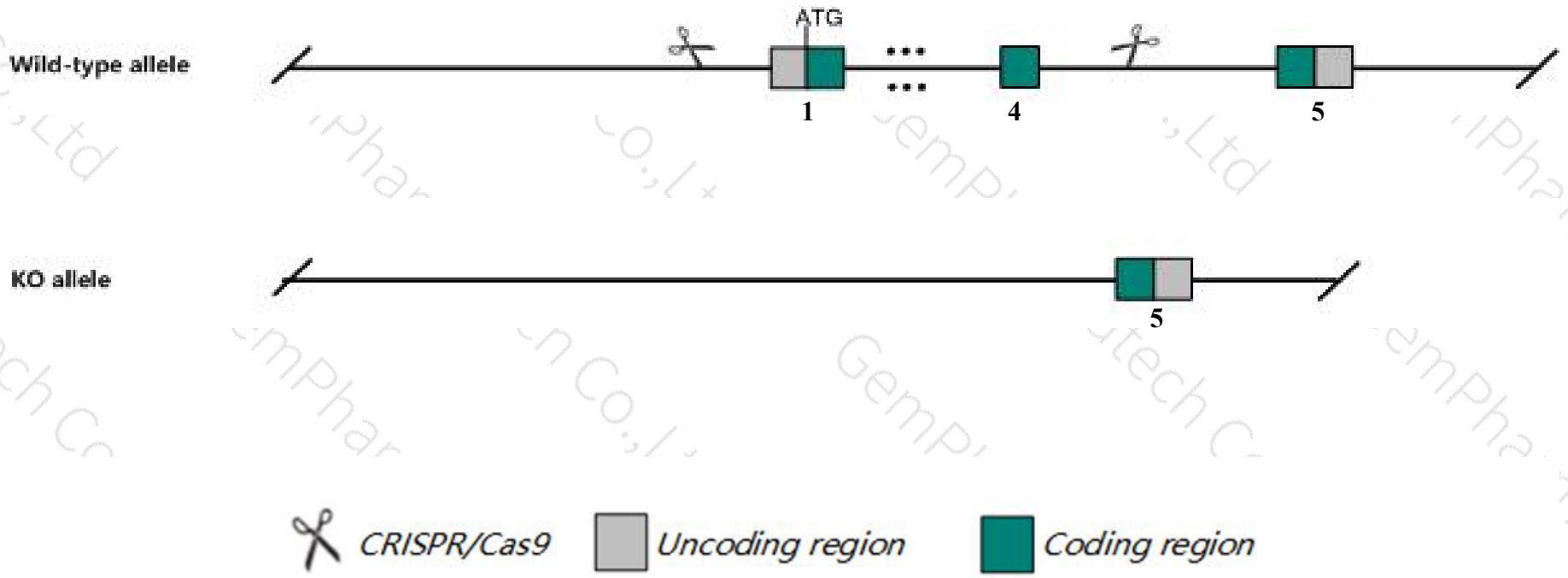
Project Overview

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

Knockout strategy

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



Technical routes

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- The *Bmf* gene has 8 transcripts. According to the structure of *Bmf* gene, exon1-exon4 of *Bmf-201* (ENSMUST00000090219.12) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

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

Notice

- According to the existing MGI data,Mice homozygous for targeted knockout mutations show enlarged spleen, increased B cells and CD8-positive T cells, decreased B cells and T cells apoptosis, vagina atresia and hydrometrocolpos.

- The *Bmf* 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）

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Bmf BCL2 modifying factor [*Mus musculus* (house mouse)]

Gene ID: 171543, updated on 26-Nov-2019

Summary

Official Symbol	Bmf provided by MGI
Official Full Name	BCL2 modifying factor provided by MGI
Primary source	MGI:MGI:2176433
See related	Ensembl:ENSMUSG00000040093
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	AW260063; AW411872
Expression	Ubiquitous expression in lung adult (RPKM 8.9), thymus adult (RPKM 8.8) and 27 other tissues See more
Orthologs	human all

Genomic context

Location: 2; 2 E5

See Bmf in Genome Data Viewer

Exon count: 8

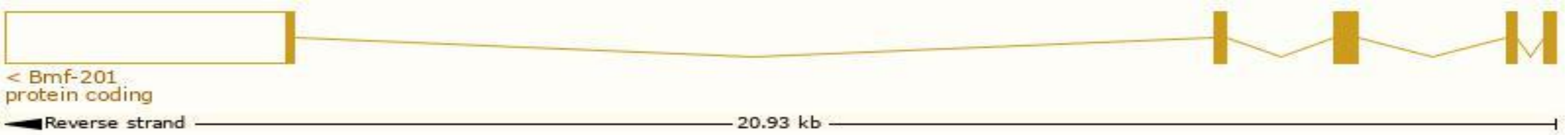
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (118528757..118549686, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (118354493..118375414, complement)

Transcript information（Ensembl）

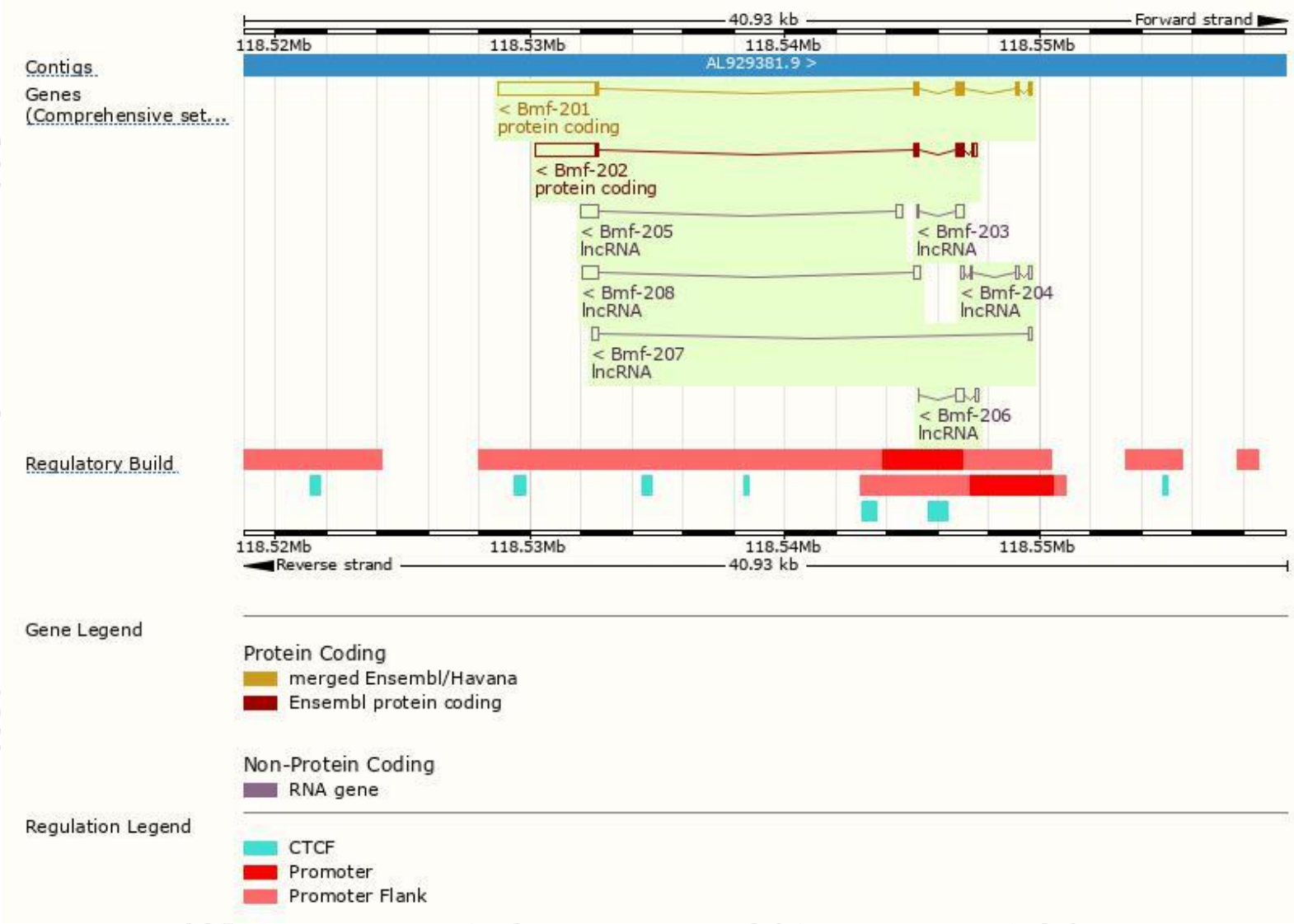
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bmf-201	ENSMUST00000090219.12	4642	271aa	Protein coding	CCDS16578	A2AV75	TSL:1 GENCODE basic APPRIS P3
Bmf-202	ENSMUST00000110859.2	3078	190aa	Protein coding	CCDS79835	A2AV74	TSL:1 GENCODE basic APPRIS ALT2
Bmf-205	ENSMUST00000143583.1	905	No protein	lncRNA	-	-	TSL:3
Bmf-208	ENSMUST00000154521.1	840	No protein	lncRNA	-	-	TSL:1
Bmf-204	ENSMUST00000138342.1	447	No protein	lncRNA	-	-	TSL:2
Bmf-206	ENSMUST00000146962.1	411	No protein	lncRNA	-	-	TSL:5
Bmf-203	ENSMUST00000125860.1	374	No protein	lncRNA	-	-	TSL:2
Bmf-207	ENSMUST00000152123.1	361	No protein	lncRNA	-	-	TSL:2

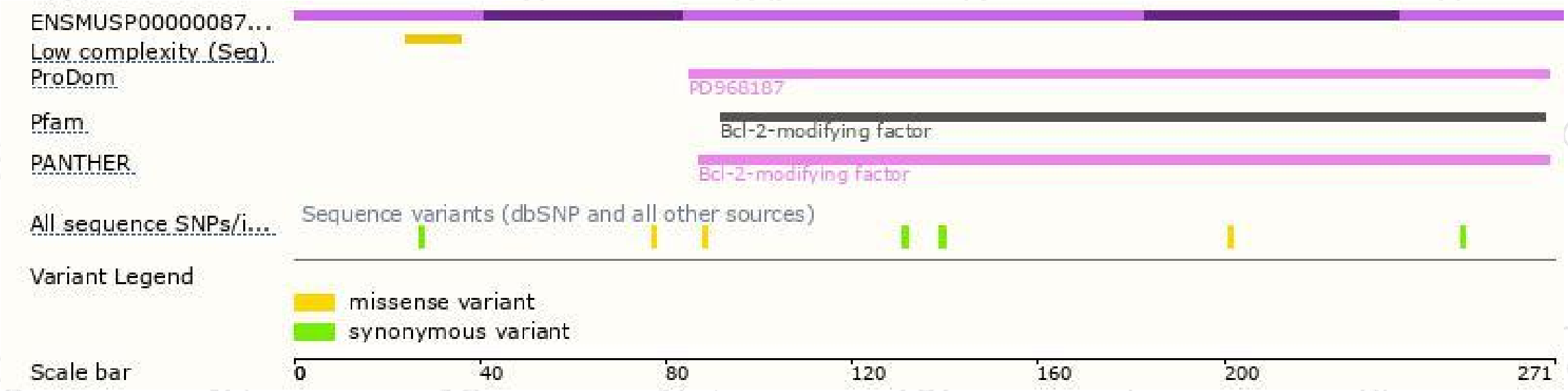
The strategy is based on the design of *Bmf-201* transcript,The transcription is shown below



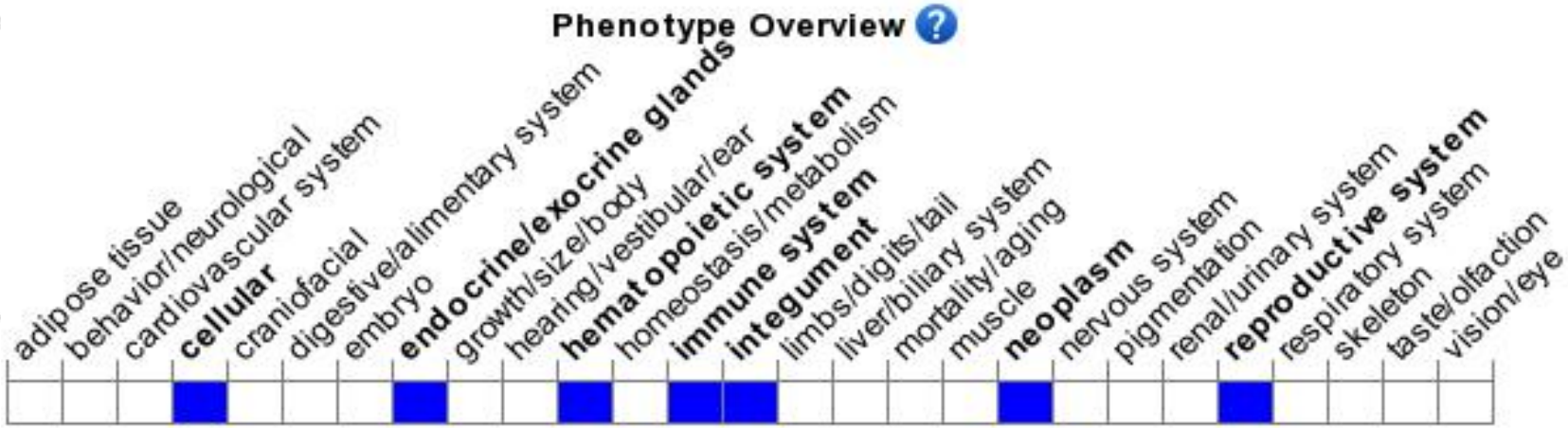
Genomic location distribution



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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