

***Bpifb1* Cas9-KO Strategy**

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Reviewer:

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Project Overview

Project Name

Bpifb1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Bpifb1* gene. The schematic diagram is as follows:



- The *Bpifb1* gene has 3 transcripts. According to the structure of *Bpifb1* gene, exon3-exon6 of *Bpifb1-202* (ENSMUST00000081816.10) transcript is recommended as the knockout region. The region contains 479bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Bpifb1* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit strain background sensitive transmission ratio distortion and increased basal MUC5B production.
- The *Bpifbl* 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)

Bpifb1 BPI fold containing family B, member 1 [*Mus musculus* (house mouse)]

Gene ID: 228801, updated on 12-Aug-2019

Summary

Official Symbol Bpifb1 provided by [MGI](#)
Official Full Name BPI fold containing family B, member 1 provided by [MGI](#)
Primary source [MGI:MGI:2137431](#)
See related [Ensembl:ENSMUSG00000027485](#)
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 Lplunc1
Expression Biased expression in stomach adult (RPKM 138.8), lung adult (RPKM 47.1) and 1 other tissue [See more](#)
Orthologs [human](#) [all](#)

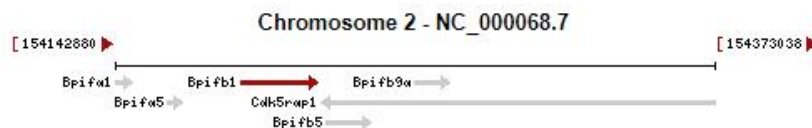
Genomic context

Location: 2; 2 H1

[See Bpifb1 in Genome Data Viewer](#)

Exon count: 17

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (154190818..154220343)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (154016554..154046079)

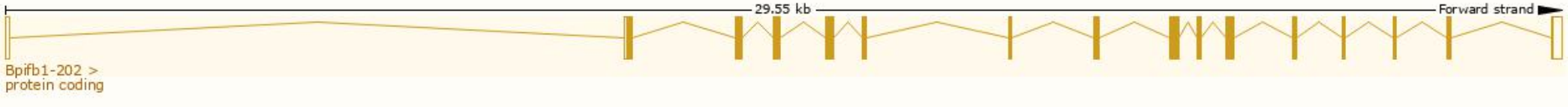


Transcript information (Ensembl)

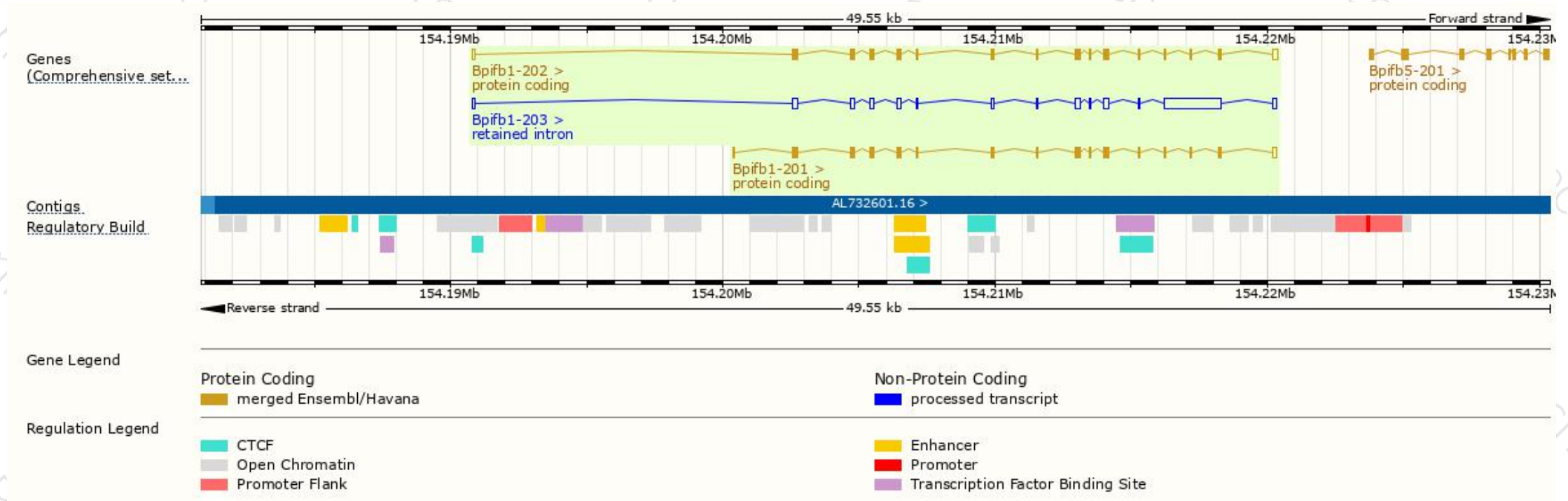
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bpifb1-202	ENSMUST00000081816.10	1699	474aa	Protein coding	CCDS16927	Q61114	TSL:1 GENCODE basic APPRIS P1
Bpifb1-201	ENSMUST00000028987.6	1637	474aa	Protein coding	CCDS16927	Q61114	TSL:1 GENCODE basic APPRIS P1
Bpifb1-203	ENSMUST00000123017.1	3545	No protein	Retained intron	-	-	TSL:2

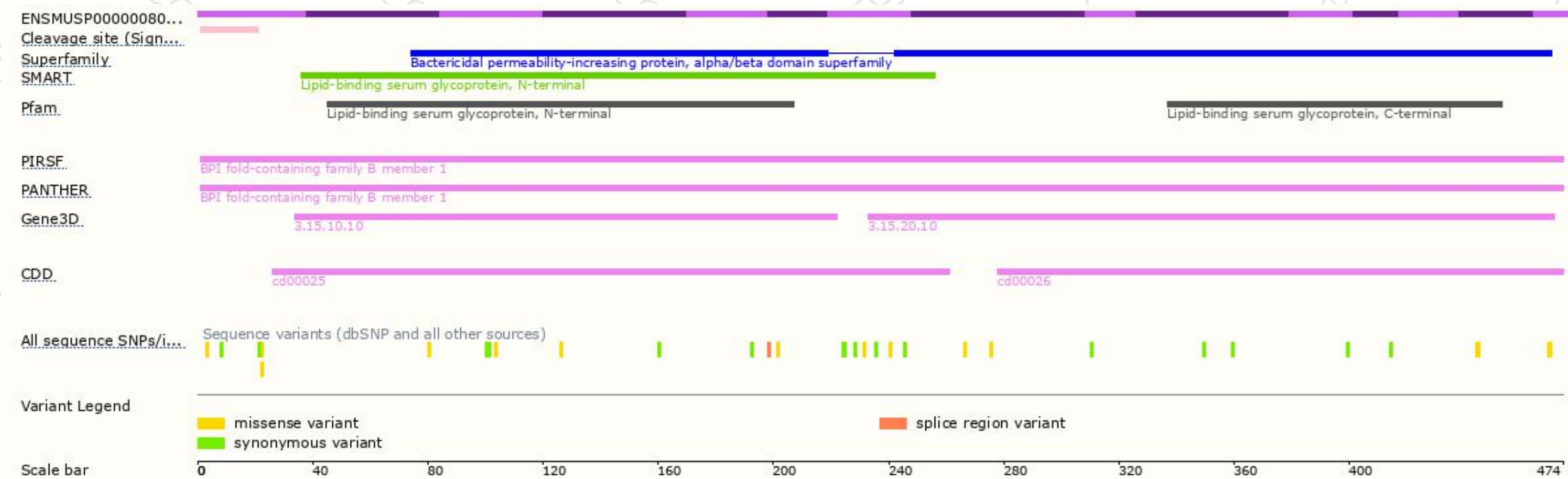
The strategy is based on the design of *Bpifb1-202* transcript,The transcription is shown below



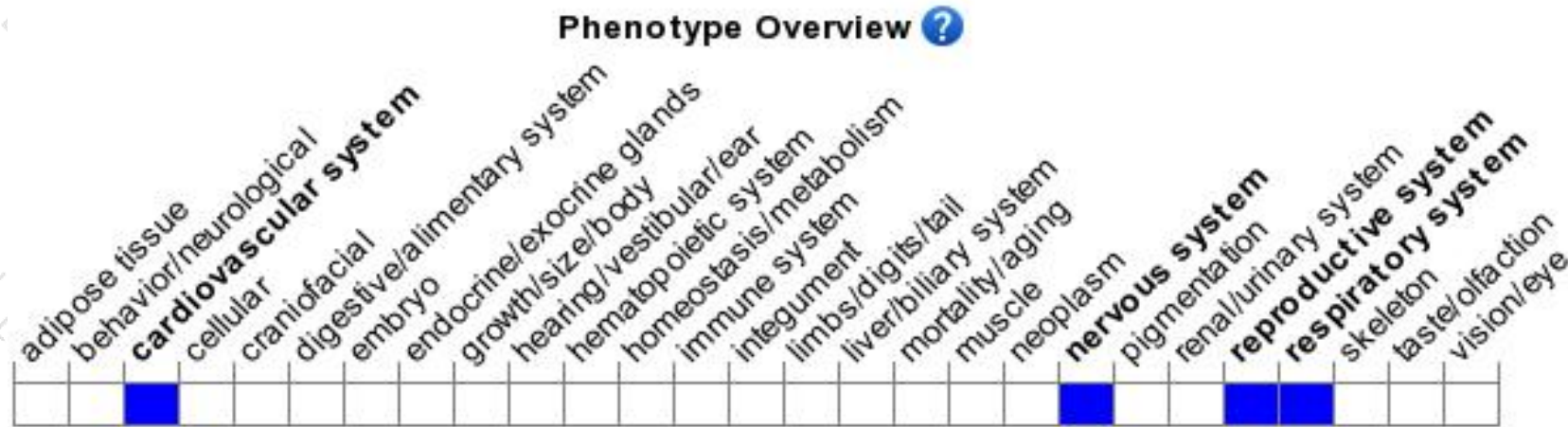
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous for a knock-out allele exhibit strain background sensitive transmission ratio distortion and increased basal MUC5B production.

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

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