

# ***Bcl11b* Cas9-KO Strategy**

**Designer:**

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**Design Date:**

**2019-7-19**

# Project Overview

**Project Name**

***Bcl11b***

**Project type**

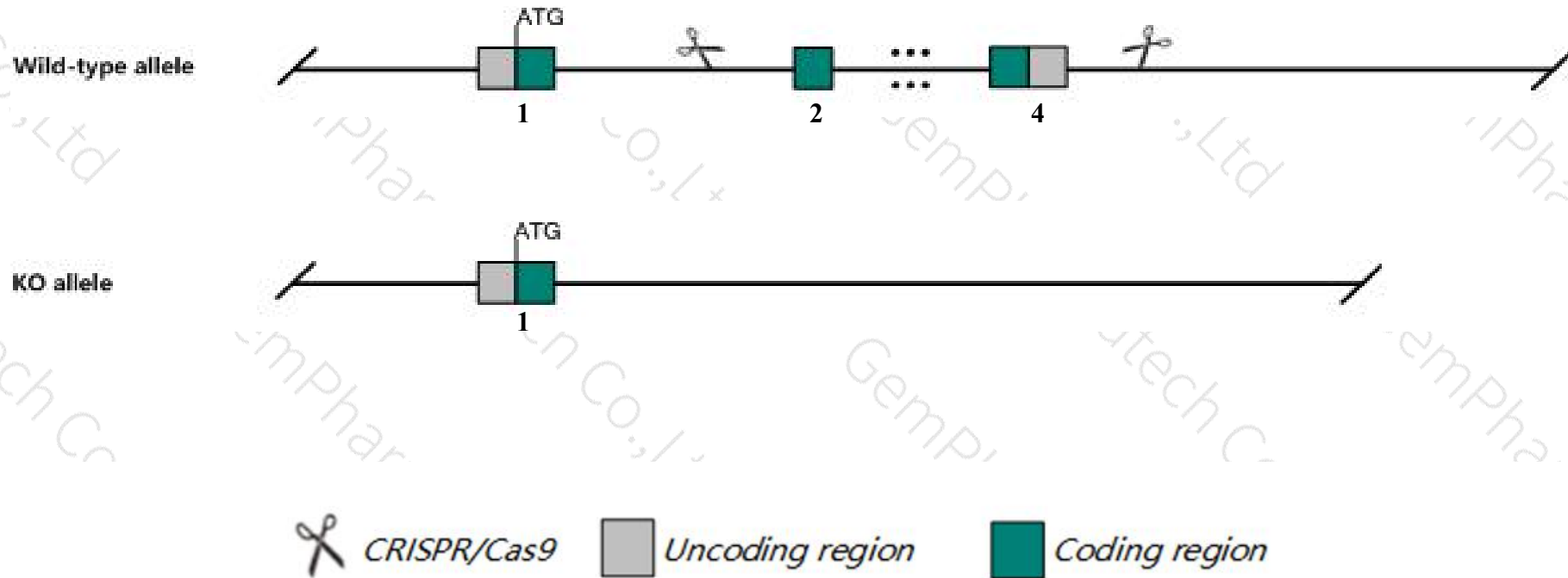
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Bcl11b* gene. The schematic diagram is as follows:



- The *Bcl11b* gene has 3 transcripts. According to the structure of *Bcl11b* gene, exon2-exon4 of *Bcl11b*-201 (ENSMUST00000066060.10) transcript is recommended as the knockout region. The region contains 2597bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Bcl11b* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Animals homozygous for a mutation of this gene are born with open eyes, exhibit abnormalities of the thymus, and die within 1 day after birth. Mice heterozygous for a hypomorphic allele and a knock-out allele exhibit lethality at weaning due to maxillary incisor hyperplasia.
- The *Bcl11b* gene is located on the Chr12. 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)

## Bcl11b B cell leukemia/lymphoma 11B [Mus musculus (house mouse)]

Gene ID: 58208, updated on 9-Apr-2019

### Summary



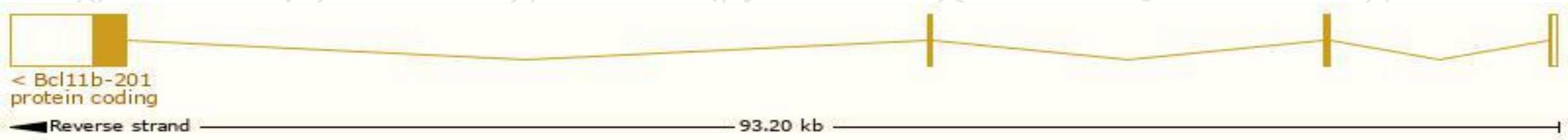
<b>Official Symbol</b>	Bcl11b provided by <a href="#">MGI</a>
<b>Official Full Name</b>	B cell leukemia/lymphoma 11B provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1929913</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000048251</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	9130430L19Rik, AI604821, B630002E05Rik, BCL-11B, Ct1p2, Rit1
<b>Expression</b>	Biased expression in thymus adult (RPKM 56.0), CNS E18 (RPKM 12.1) and 8 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

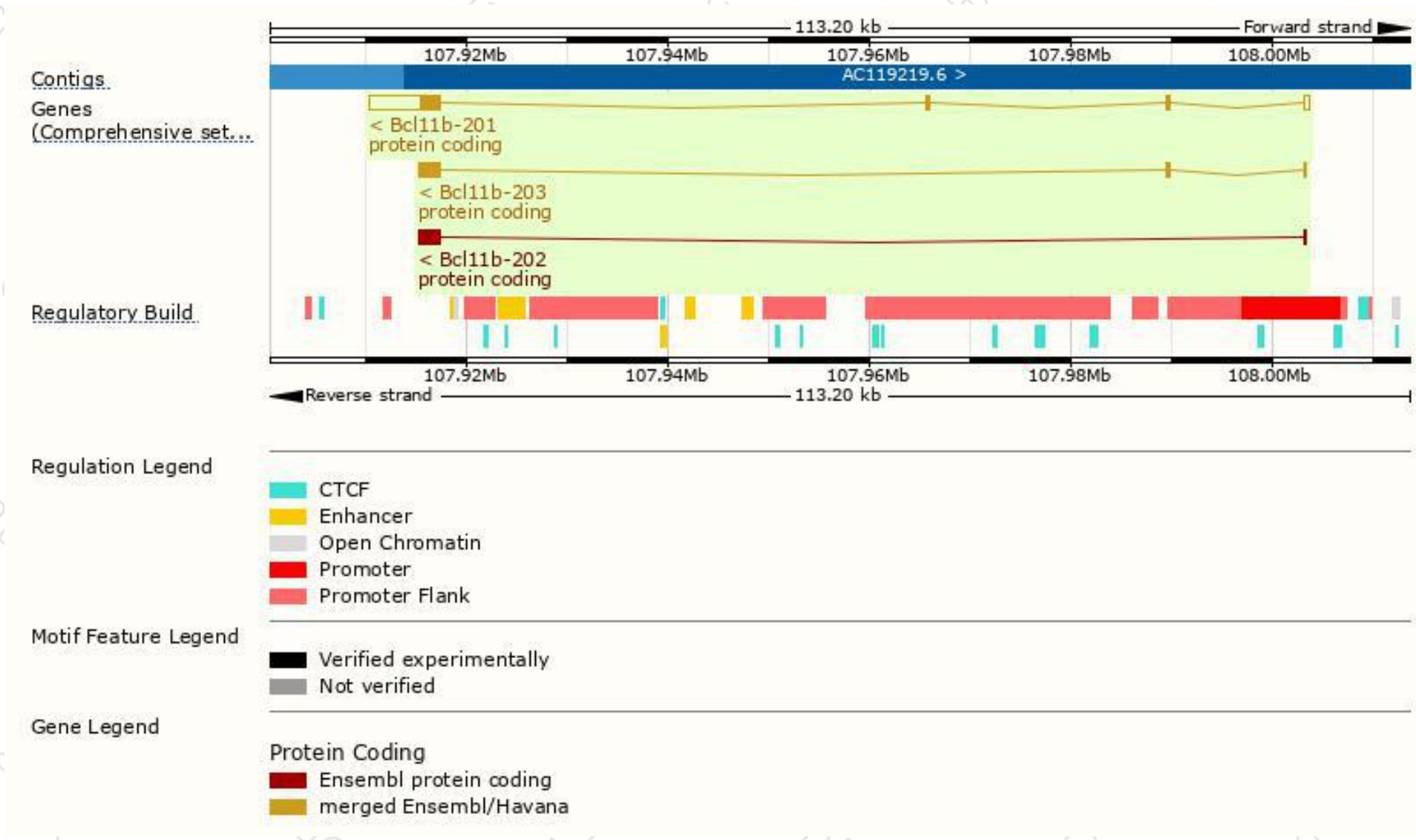
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bcl11b-201	<a href="#">ENSMUST00000066060.10</a>	8111	<a href="#">884aa</a>	Protein coding	<a href="#">CCDS36553</a>	<a href="#">Q99PV8</a>	TSL:1 GENCODE basic APPRIS P4
Bcl11b-203	<a href="#">ENSMUST00000109891.2</a>	2888	<a href="#">812aa</a>	Protein coding	<a href="#">CCDS36552</a>	<a href="#">Q99PV8</a>	TSL:1 GENCODE basic APPRIS ALT2
Bcl11b-202	<a href="#">ENSMUST00000109887.7</a>	2522	<a href="#">690aa</a>	Protein coding	<a href="#">CCDS70419</a>	<a href="#">A0A0R4J1E1</a>	TSL:1 GENCODE basic APPRIS ALT2

The strategy is based on the design of *Bcl11b-201* transcript,The transcription is shown below

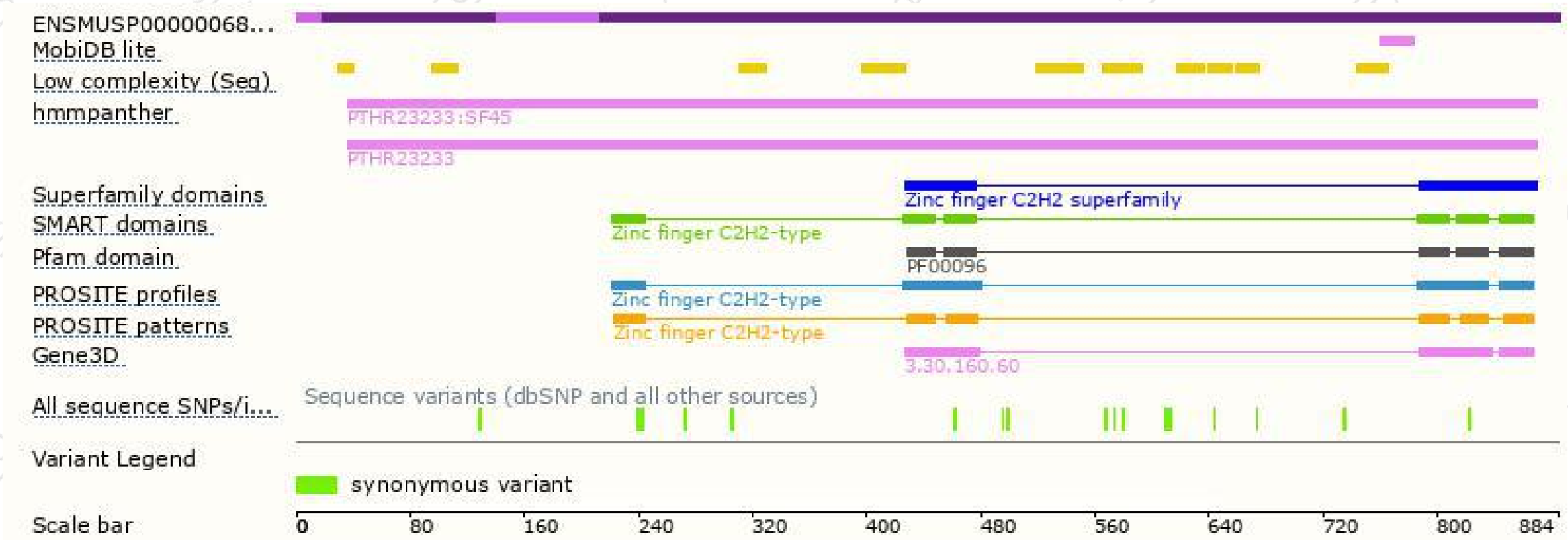


# Genomic location distribution

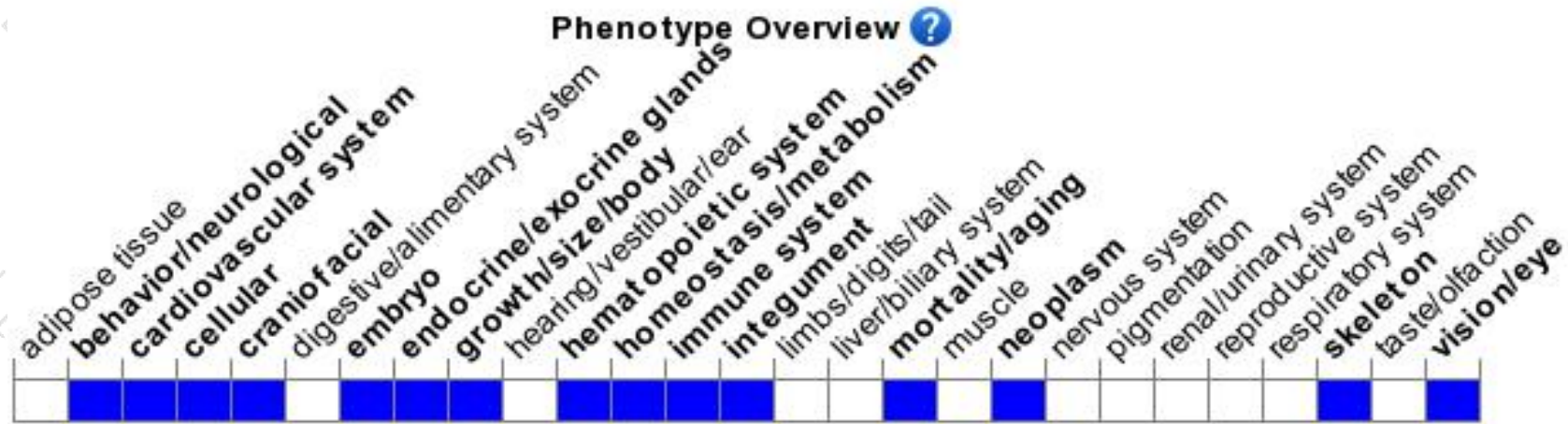




# Protein domain



# Mouse phenotype description(MGI )



*Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).*

According to the existing MGI data, Animals homozygous for a mutation of this gene are born with open eyes, exhibit abnormalities of the thymus, and die within 1 day after birth. Mice heterozygous for a hypomorphic allele and a knock-out allele exhibit lethality at weaning due to maxillary incisor hyperplasia.

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

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