

# ***Defb19* Cas9-CKO Strategy**

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**Reviewer :**

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**2019-10-11**

# Project Overview



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**Project Name**

***Defb19***

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**Project type**

**Cas9-CKO**

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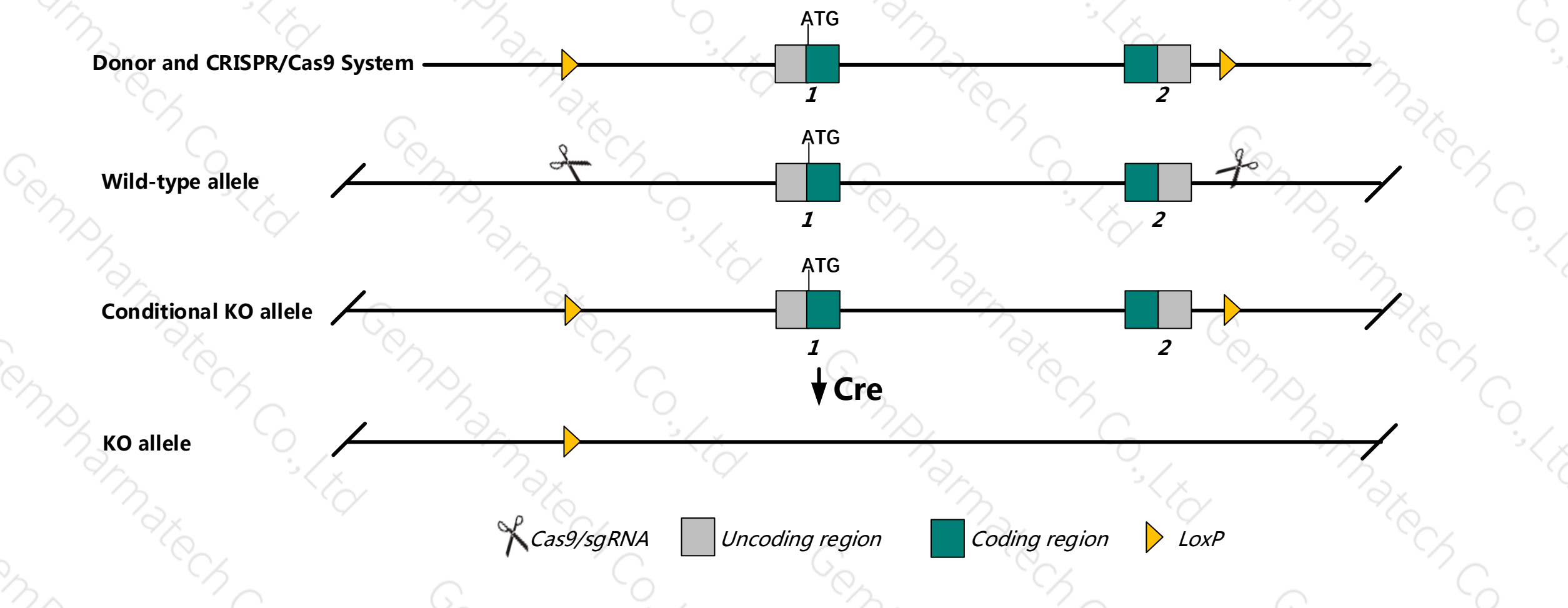
**Strain background**

**C57BL/6JGpt**

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# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Defb19* gene. The schematic diagram is as follows:



- The *Defb19* gene has 1 transcript. According to the structure of *Defb19* gene, exon 1-2 of *Defb19*-201 (ENSMUST00000053180.3) transcript is recommended as the knockout region. The region contains all coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Defb19* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA and Donor were microinjected into the fertilized eggs of C57BL/6JGpt 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/6JGpt mice.
- The flox mice were knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- The flox region is about 1.1 kb from the C-terminus of *Defb21-201*, which may affect the regulation of this gene.
- The *Defb19* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

# Gene information ( NCBI )

## Defb19 defensin beta 19 [ *Mus musculus* (house mouse) ]

Gene ID: 246700, updated on 12-Aug-2019

### Summary

Official Symbol	Defb19 provided by <a href="#">MGI</a>
Official Full Name	defensin beta 19 provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:2385955</a>
See related	<a href="#">Ensembl:ENSMUSG00000050645</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Tdl; BD-19; Defb24; mBD-19
Expression	Restricted expression toward testis adult (RPKM 198.2) <a href="#">See more</a>



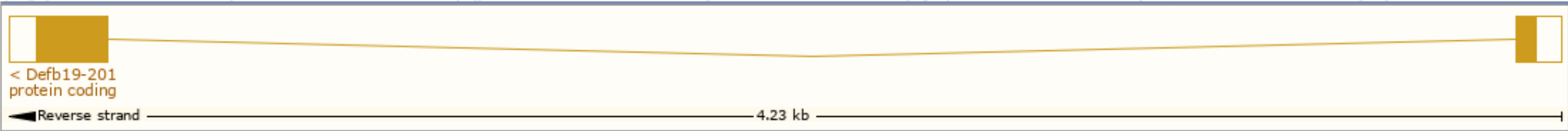
# Transcript information ( Ensembl )



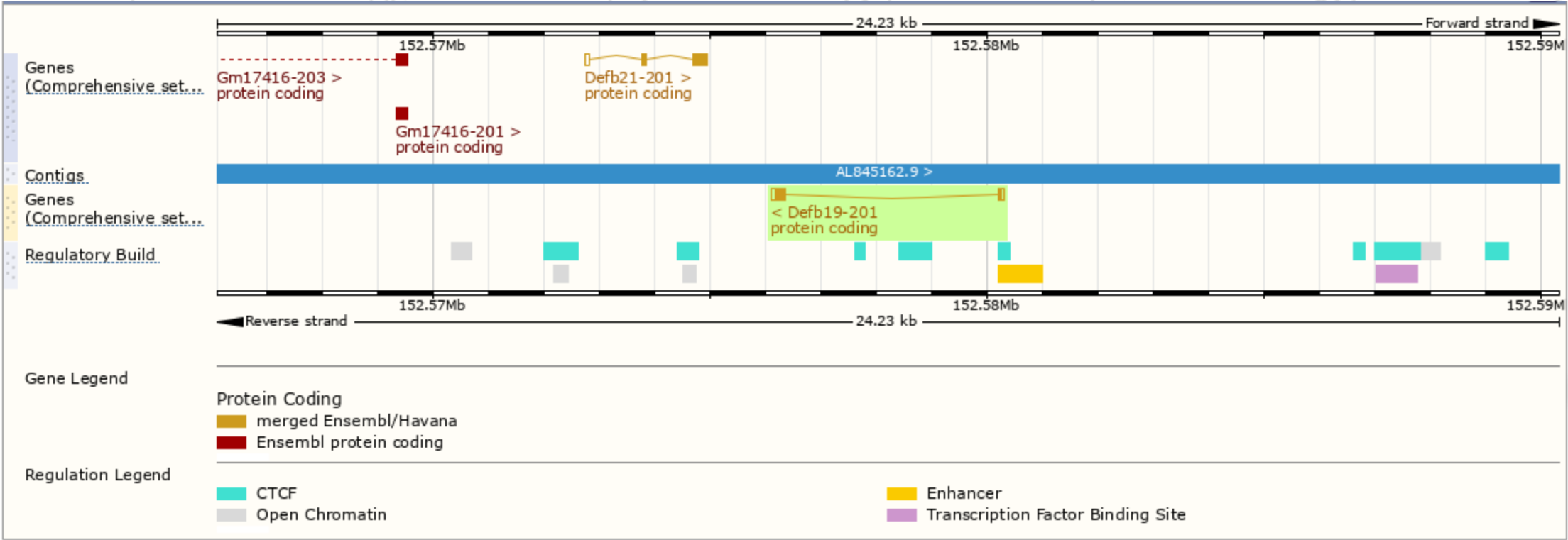
The gene has 1 transcript, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Defb19-201	<a href="#">ENSMUST00000053180.3</a>	394	<a href="#">83aa</a>	Protein coding	<a href="#">CCDS38277</a>	<a href="#">Q8K3I8</a>	TSL:1 Gencode basic APPRIS P1

The strategy is based on the design of *Defb19-201* transcript, The transcription is shown below

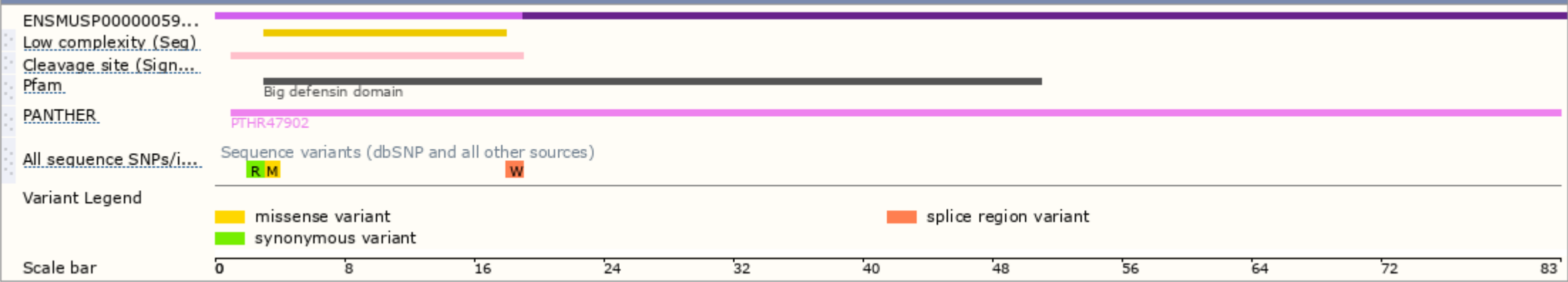


# Genomic location distribution





# Protein domain



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