

# ***Ttll8* Cas9-CKO Strategy**

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# Project Overview

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**Project Name**

***Ttll8***

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**Project type**

**Cas9-CKO**

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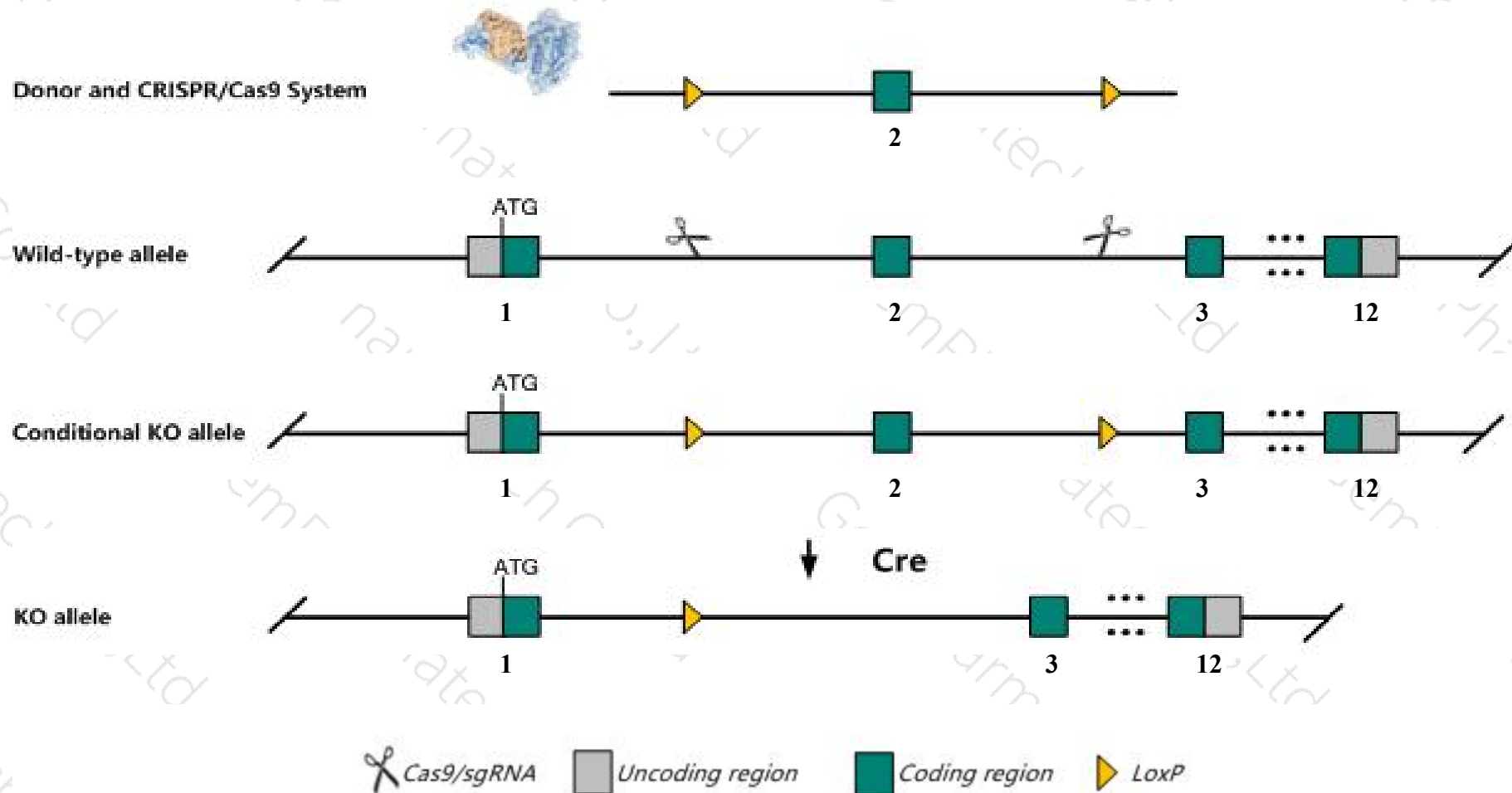
**Strain background**

**C57BL/6JGpt**

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# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tll8* gene. The schematic diagram is as follows:



# Technical routes

- The *Ttll8* gene has 4 transcripts. According to the structure of *Ttll8* gene, exon2 of *Ttll8-201*(ENSMUST00000109371.7) transcript is recommended as the knockout region. The region contains 92bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ttll8* 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- The *Ttll8* gene is located on the Chr15. 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.
- Transcript *Ttll8*-202 may not be affected.
- This strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.



# Gene information (NCBI)

## Ttll8 tubulin tyrosine ligase-like family, member 8 [Mus musculus (house mouse)]

Gene ID: 239591, updated on 13-Mar-2020

### Summary



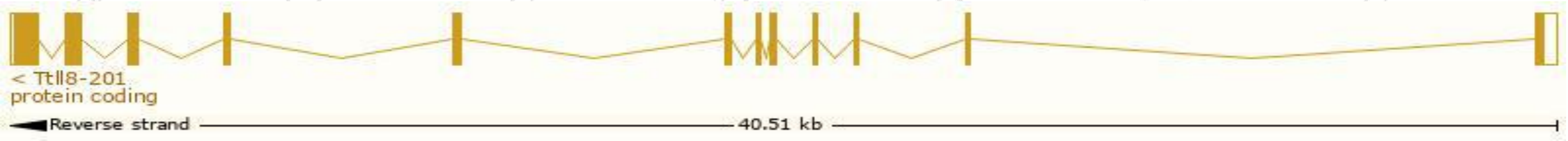
<b>Official Symbol</b>	Ttll8 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	tubulin tyrosine ligase-like family, member 8 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1922902</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000022388</a>
<b>Gene type</b>	protein 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>	1700019P01Rik, 4933401B17
<b>Expression</b>	Restricted expression toward testis adult (RPKM 37.7) <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

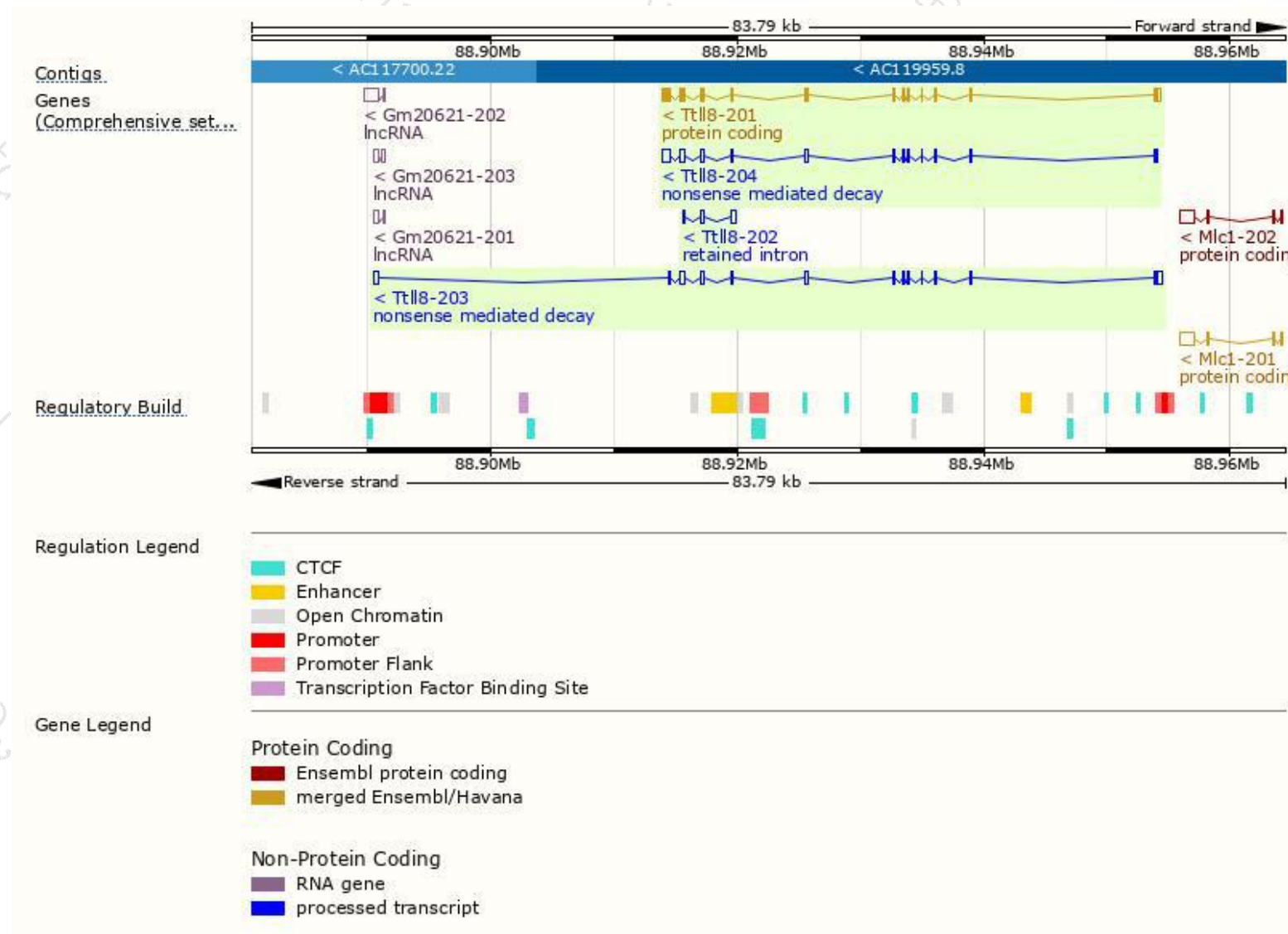
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ttll8-201	<a href="#">ENSMUST00000109371.7</a>	2968	<a href="#">832aa</a>	Protein coding	<a href="#">CCDS27735</a>	<a href="#">A4Q9F1</a>	TSL:1 GENCODE basic APPRIS P1
Ttll8-203	<a href="#">ENSMUST00000177180.7</a>	2719	<a href="#">194aa</a>	Nonsense mediated decay	-	<a href="#">H3BKG4</a>	TSL:1
Ttll8-204	<a href="#">ENSMUST00000177254.7</a>	2556	<a href="#">189aa</a>	Nonsense mediated decay	-	<a href="#">H3BJ58</a>	CDS 5' incomplete TSL:1
Ttll8-202	<a href="#">ENSMUST00000137740.1</a>	690	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Ttll8-201* transcript,the transcription is shown below:

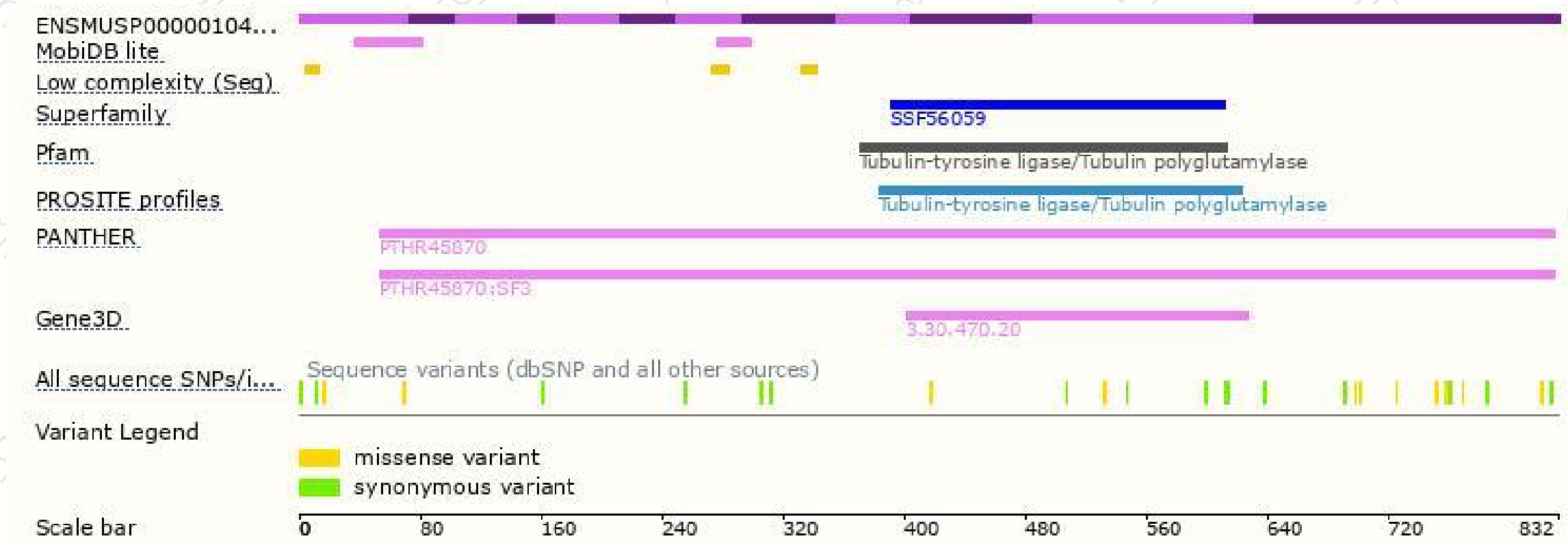


# Genomic location distribution





# Protein domain



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

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