

***Ttll10* Cas9-CKO Strategy**

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Project Overview

Project Name

Ttll10

Project type

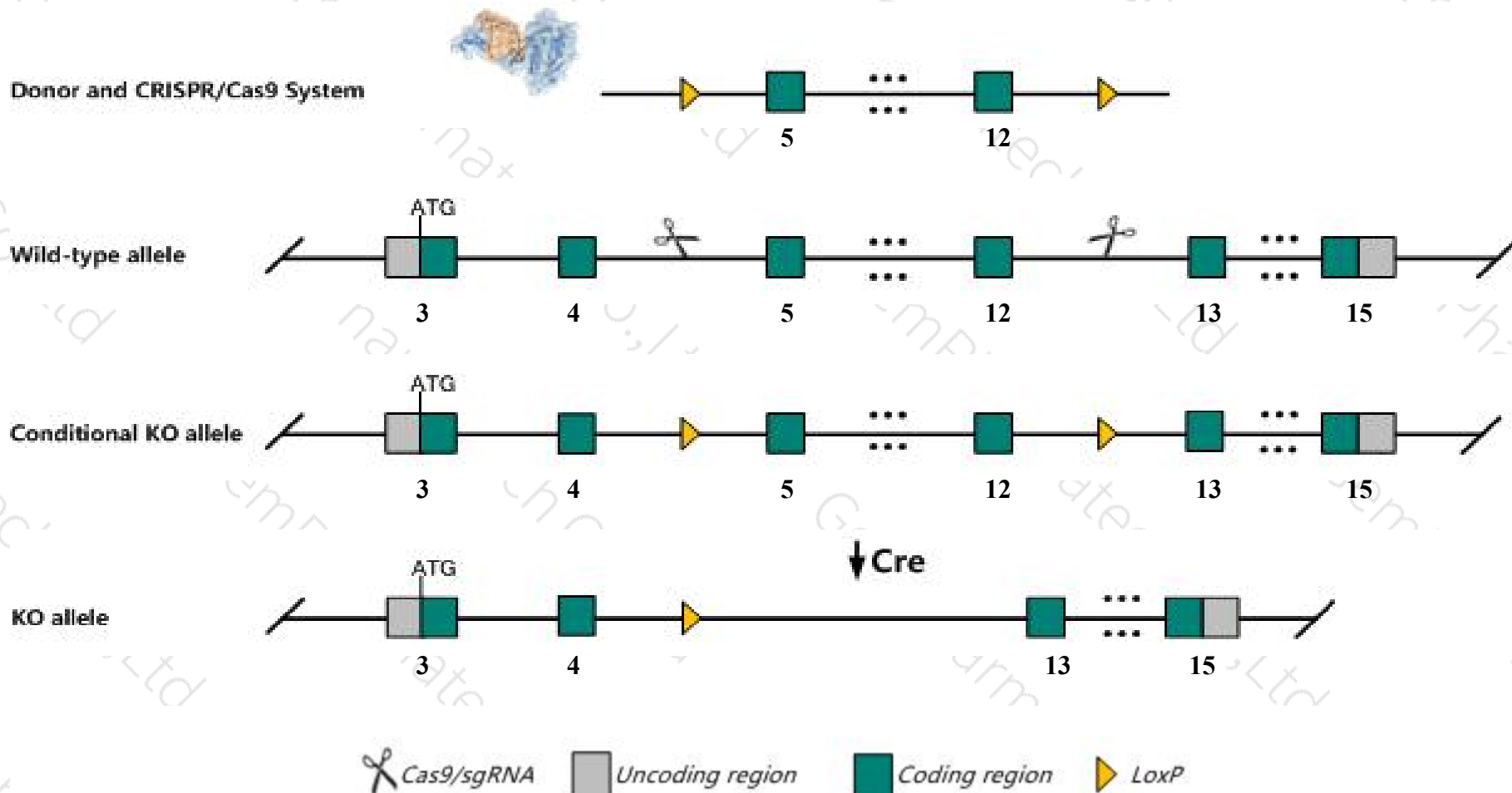
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ttll10* gene. The schematic diagram is as follows:



- The *Ttll10* gene has 8 transcripts. According to the structure of *Ttll10* gene, exon5-exon12 of *Ttll10*-202(ENSMUST00000051509.14) transcript is recommended as the knockout region. The region contains 1031bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ttll10* 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 *Till10* gene is located on the Chr4. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Ttll10 tubulin tyrosine ligase-like family, member 10 [Mus musculus (house mouse)]

Gene ID: 330010, updated on 13-Mar-2020

Summary



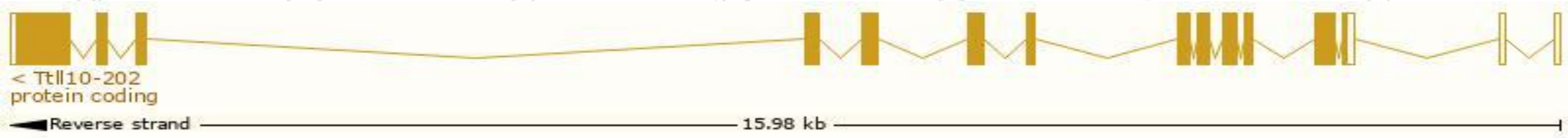
Official Symbol	Ttll10 provided by MGI
Official Full Name	tubulin tyrosine ligase-like family, member 10 provided by MGI
Primary source	MGI:MGI:1921855
See related	Ensembl:ENSMUSG00000029074
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4833412E22Rik, 4930595O22Rik, AU022799, BC042775, Ttll5
Expression	Biased expression in testis adult (RPKM 132.3) and colon adult (RPKM 7.2) See more
Orthologs	human all

Transcript information (Ensembl)

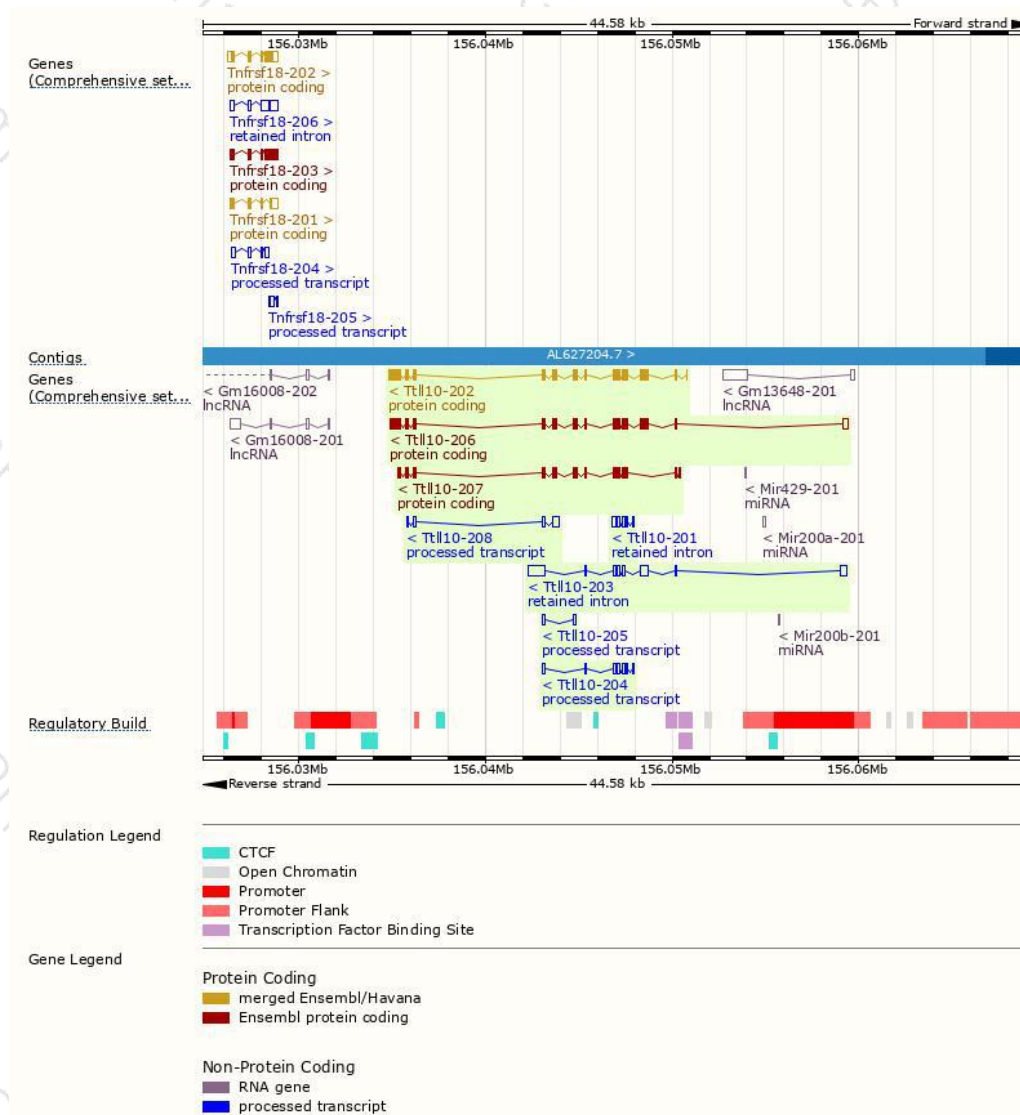
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ttll10-202	ENSMUST00000051509.14	2304	675aa	Protein coding	CCDS19058	B1ASM0	TSL:1 GENCODE basic APPRIS P2
Ttll10-206	ENSMUST00000184348.7	2556	704aa	Protein coding	-	V9GXT8	TSL:5 GENCODE basic APPRIS ALT2
Ttll10-207	ENSMUST00000184684.7	1558	458aa	Protein coding	-	V9GXB7	CDS 3' incomplete TSL:5
Ttll10-204	ENSMUST00000153649.8	758	No protein	Processed transcript	-	-	TSL:5
Ttll10-208	ENSMUST00000184750.7	631	No protein	Processed transcript	-	-	TSL:3
Ttll10-205	ENSMUST00000183563.1	256	No protein	Processed transcript	-	-	TSL:5
Ttll10-203	ENSMUST00000097731.7	2177	No protein	Retained intron	-	-	TSL:1
Ttll10-201	ENSMUST00000030951.1	596	No protein	Retained intron	-	-	TSL:1

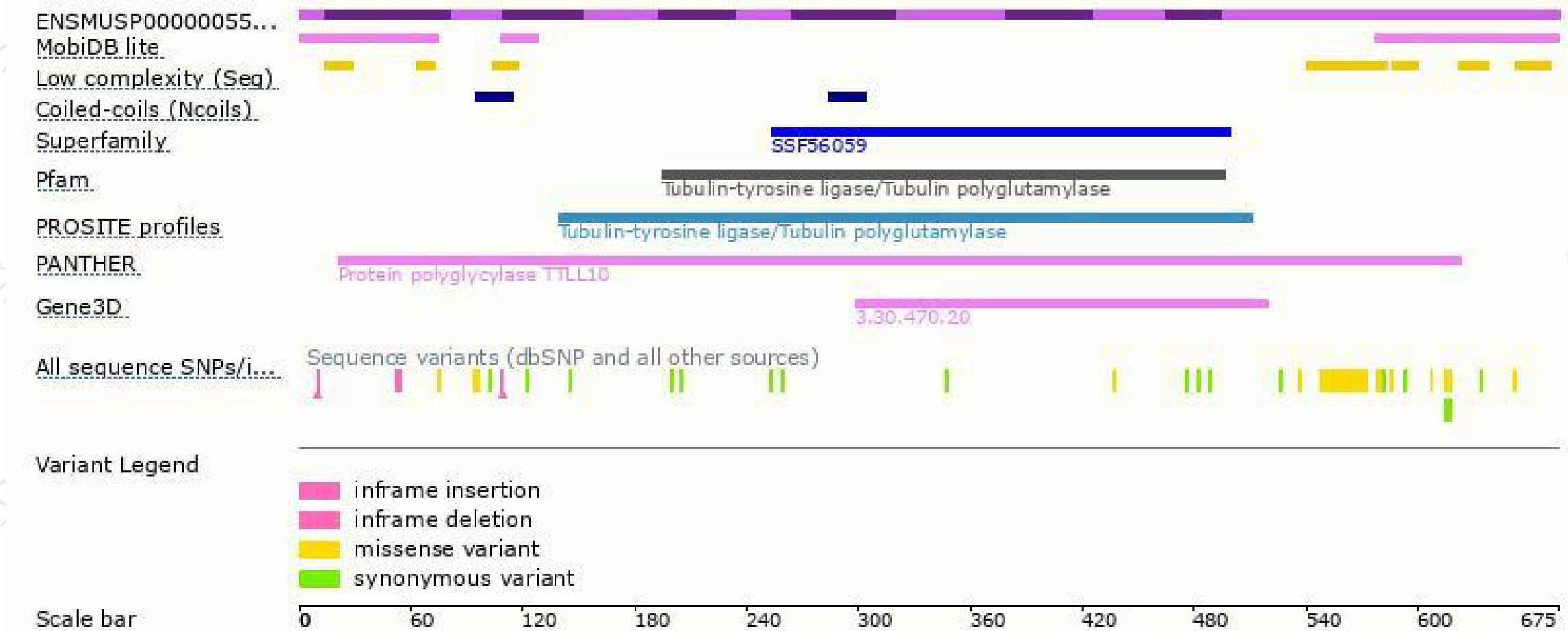
The strategy is based on the design of *Ttll10-202* transcript,the transcription is shown below:



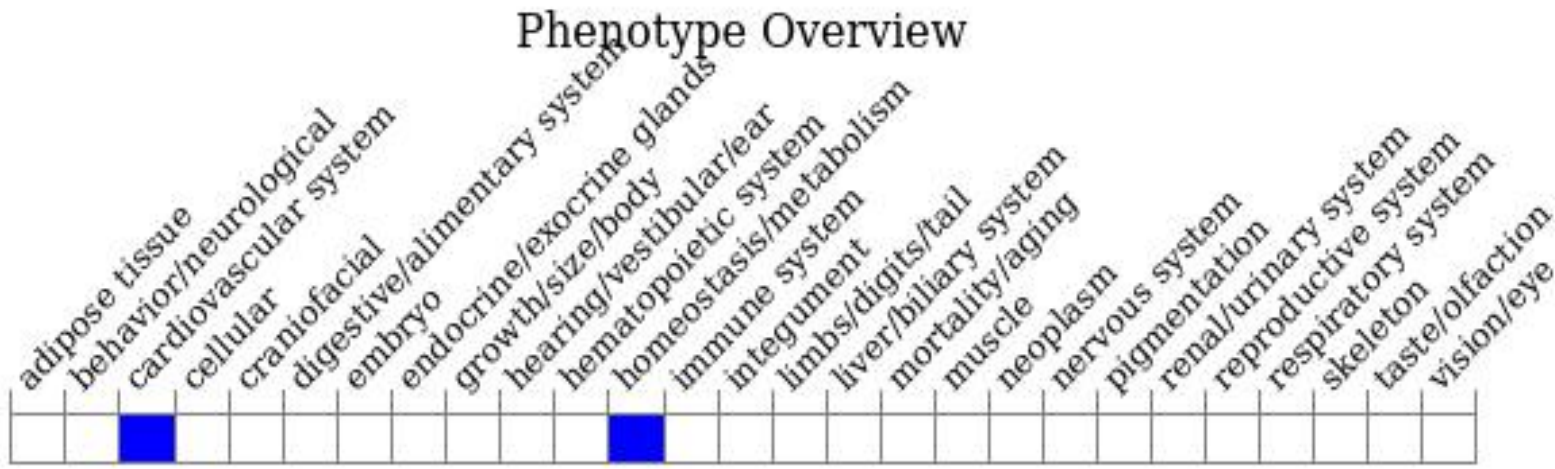
Genomic location distribution



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/>).

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

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