Ticam1 Cas9-CKO Strategy

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Project Overview

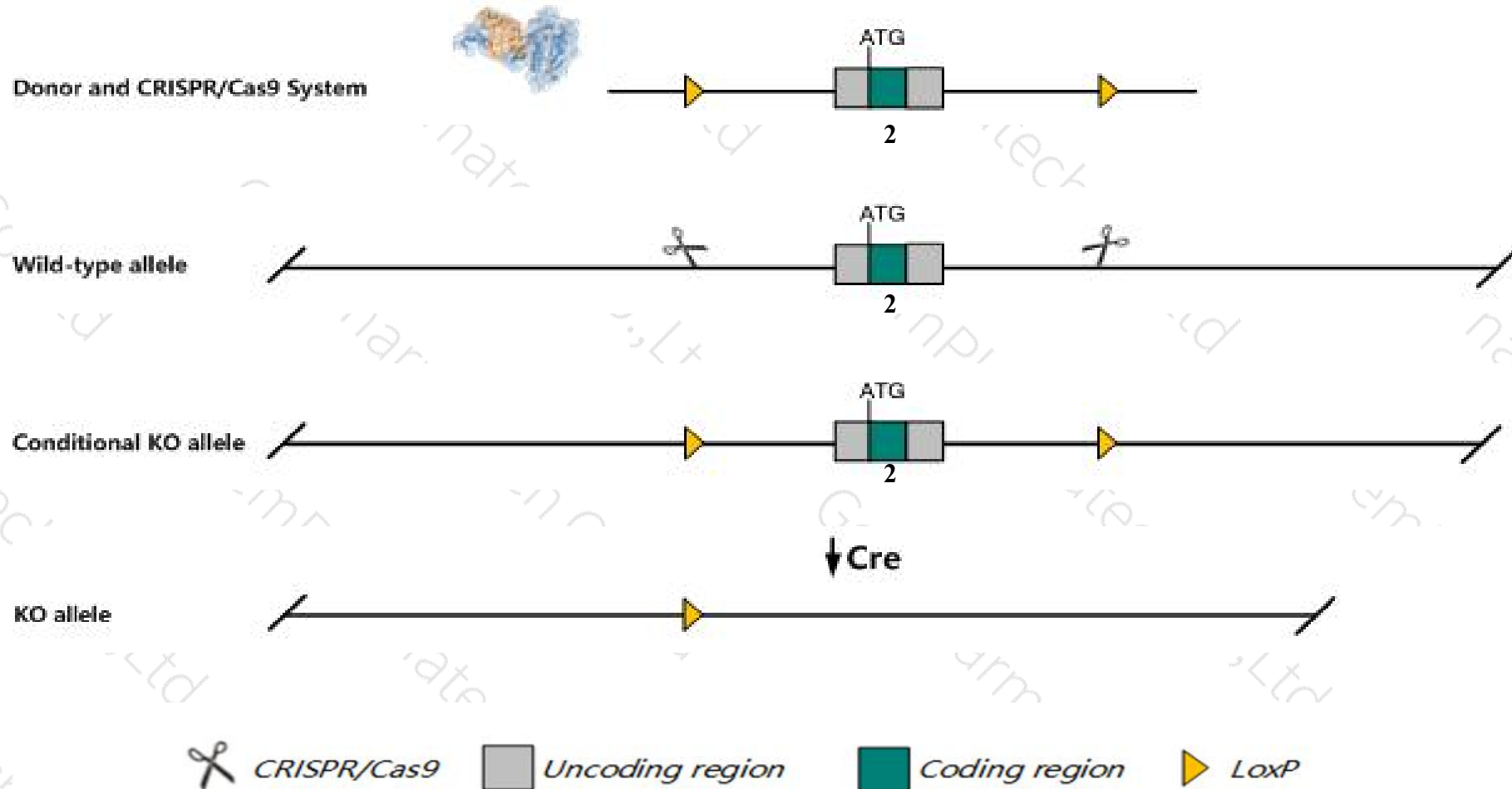|	
Project Name	*Ticam1*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ticam1* gene. The schematic diagram is as follows:

Technical routes

➤ The *Ticam1* gene has 1 transcript. According to the structure of *Ticam1* gene, exon2 of *Ticam1-201* (ENSMUST00000058136.8) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Ticam1* gene. The brief process is as follows:CRISPR/Cas9 system 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 will be 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.

Notice

➢ According to the existing MGI data,Homozygous null mice are viable but exhibit abnormalities of the innate immune system.

➢ The *Ticam1* gene is located on the Chr17. 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）

Ticam1 toll-like receptor adaptor molecule 1 [Mus musculus (house mouse)]
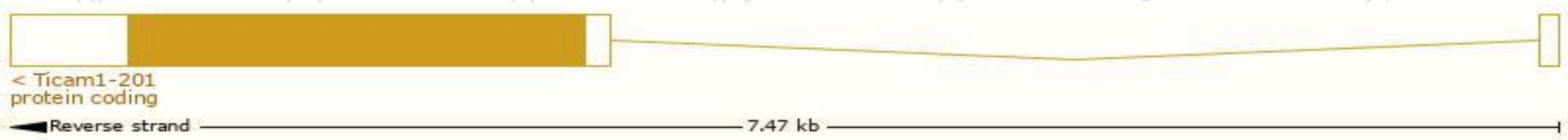
Gene ID: 106759, updated on 9-Apr-2019

Summary

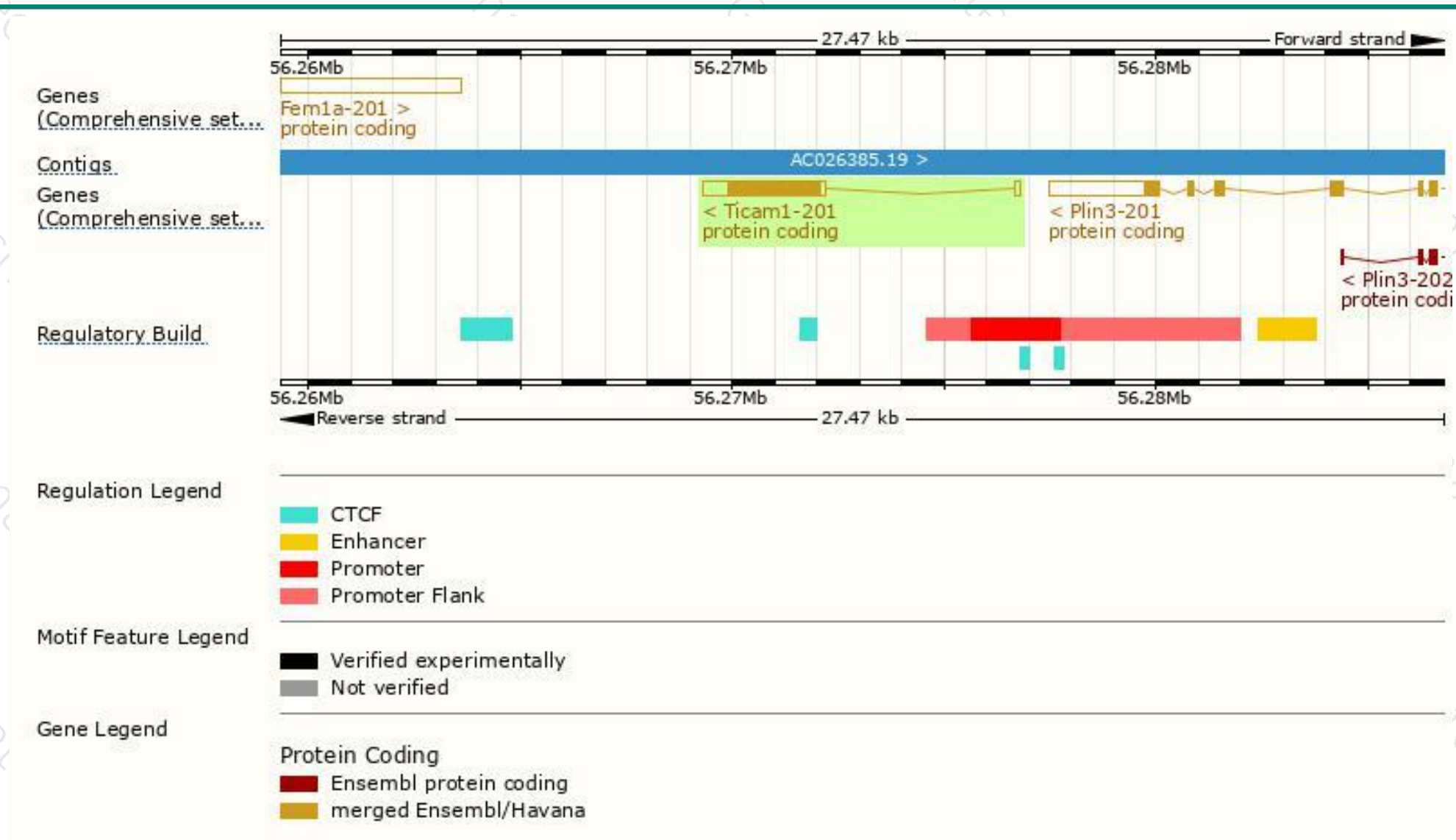|	
Official Symbol	Ticam1 provided by MGI
Official Full Name	toll-like receptor adaptor molecule 1 provided by MGI
Primary source	MGI:MGI:2147032
See related	Ensembl:ENSMUSG00000047123
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW046014, AW547018, TICAM-1, TRIF
Expression	Broad expression in duodenum adult (RPKM 44.7), small intestine adult (RPKM 31.1) and 20 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ticam1-201	ENSMUST00000058136.8	2992	732aa	Protein coding	CCDS28900	Q80UF7	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Ticam1-201* transcript,The transcription is shown below
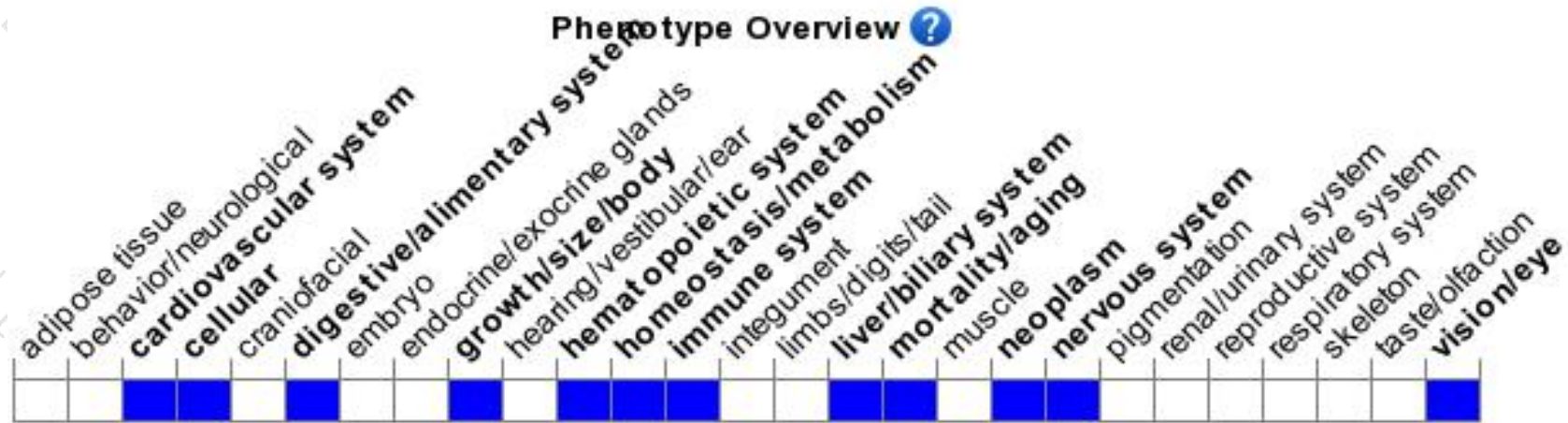

< Ticam1-201
protein coding

Reverse strand   7.47 kb

Genomic location distribution

Protein domain

ENSMUSP00000055...									
MobiDB lite									
Low complexity (Seg)									
hmmpanther		TIR domain-containing adapter molecule 1							
		PTHR23213							
Superfamily domains					Toll/interleukin-1 receptor homology (TIR) domain superfamily				
Pfam domain								RHIM domain	
PIRSF domain		TIR domain-containing adapter molecule 1							
Gene3D		1.25.40.780				Toll/interleukin-1 receptor homology (TIR) domain superfamily			
All sequence SNPs/i...		Sequence variants (dbSNP and all other sources)							
Variant Legend									

Variant Legend

- 🟥 inframe deletion
- 🟨 missense variant
- 🟩 synonymous variant

Scale bar: 0　80　160　240　320　400　480　560　640　732

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,Homozygous null mice are viable but exhibit abnormalities of the innate immune system.

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