Tiam2 Cas9-KO Strategy

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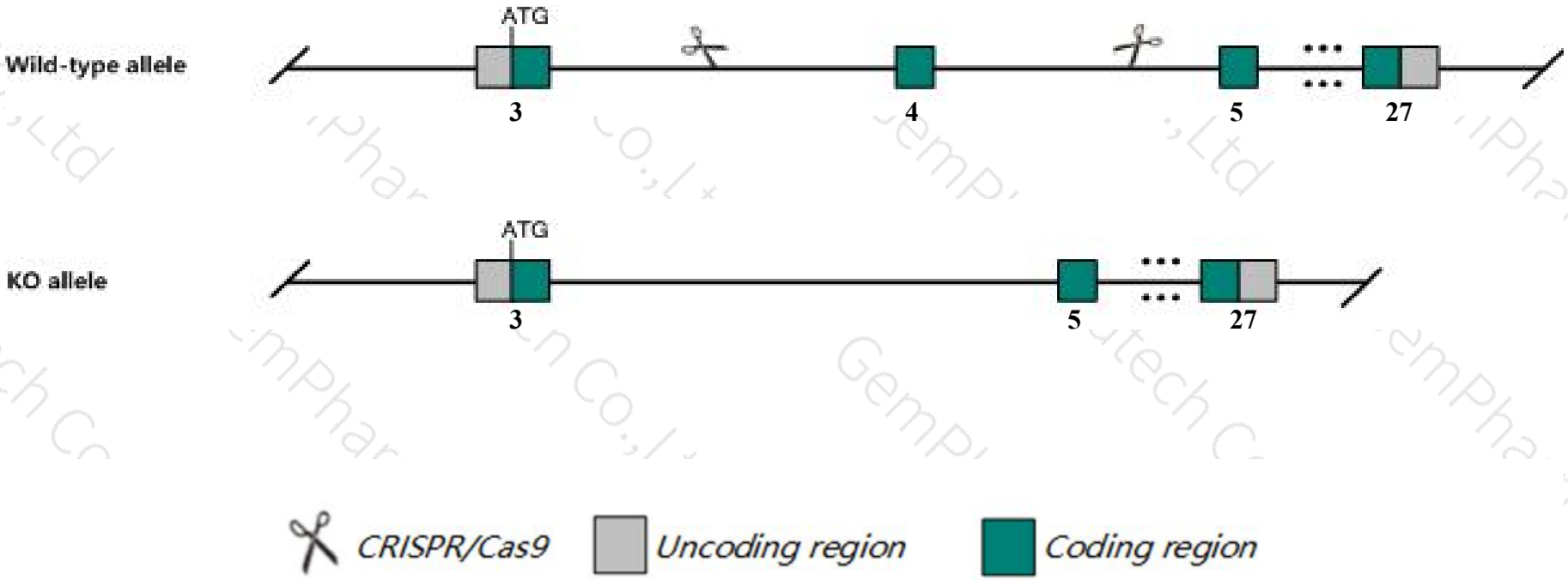
Project Overview

Project Name	***Tiam2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tiam2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Tiam2* gene has 9 transcripts. According to the structure of *Tiam2* gene, exon4 of *Tiam2-201* (ENSMUST00000072156.6) transcript is recommended as the knockout region.The region contains 436bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Tiam2* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ The *Tiam2* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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Tiam2 T cell lymphoma invasion and metastasis 2 [*Mus musculus* (house mouse)]

Gene ID: 24001, updated on 12-Nov-2019

Summary

Official Symbol	Tiam2 provided by MGI
Official Full Name	T cell lymphoma invasion and metastasis 2 provided by MGI
Primary source	MGI:MGI:1344338
See related	Ensembl:ENSMUSG00000023800
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	STEF; mKIAA2016; 3000002F19Rik
Expression	Broad expression in frontal lobe adult (RPKM 8.1), CNS E18 (RPKM 7.8) and 16 other tissues See more
Orthologs	human all

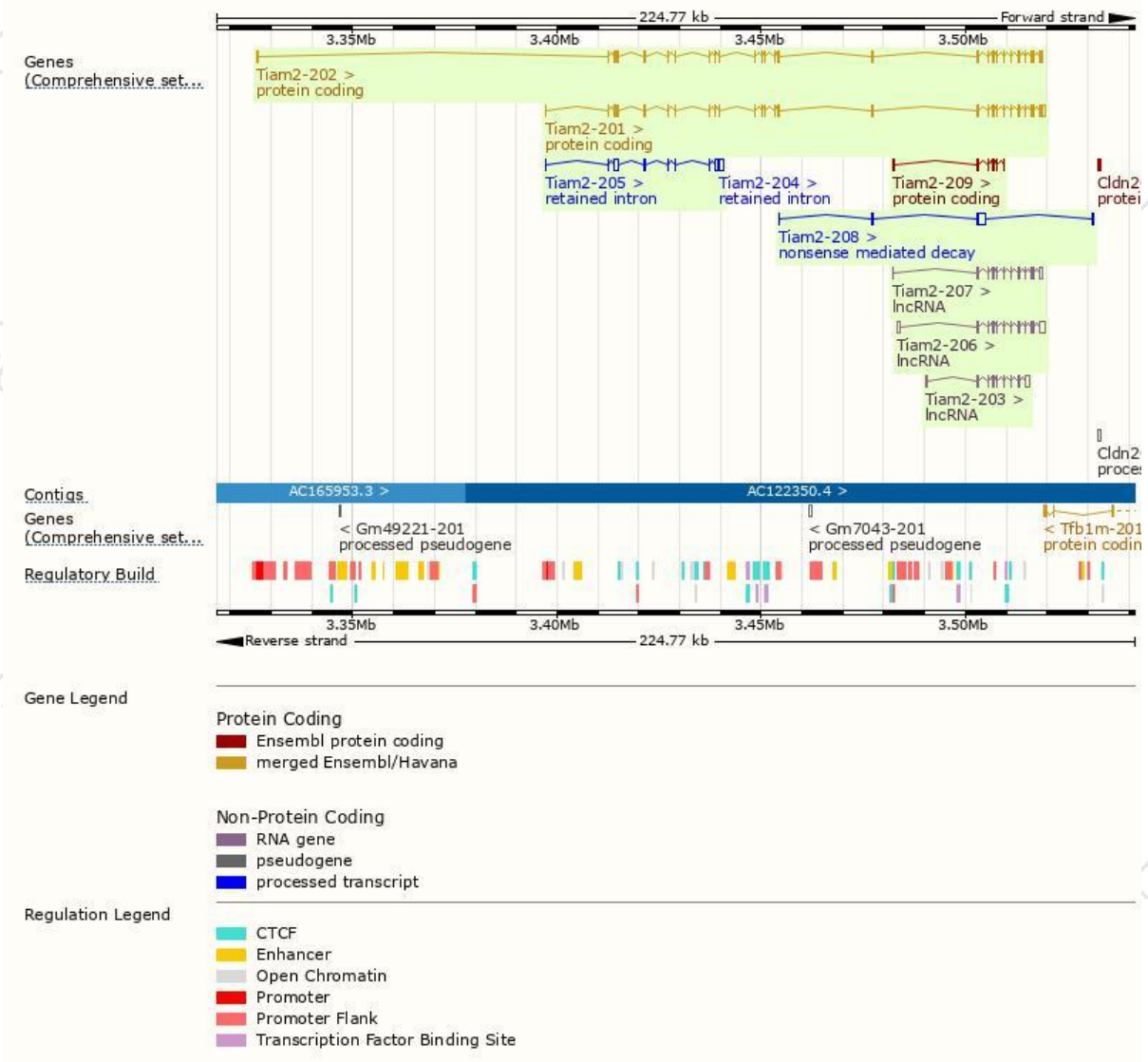
Transcript information（Ensembl）

The gene has 9 transcripts,all transcripts are shown below:

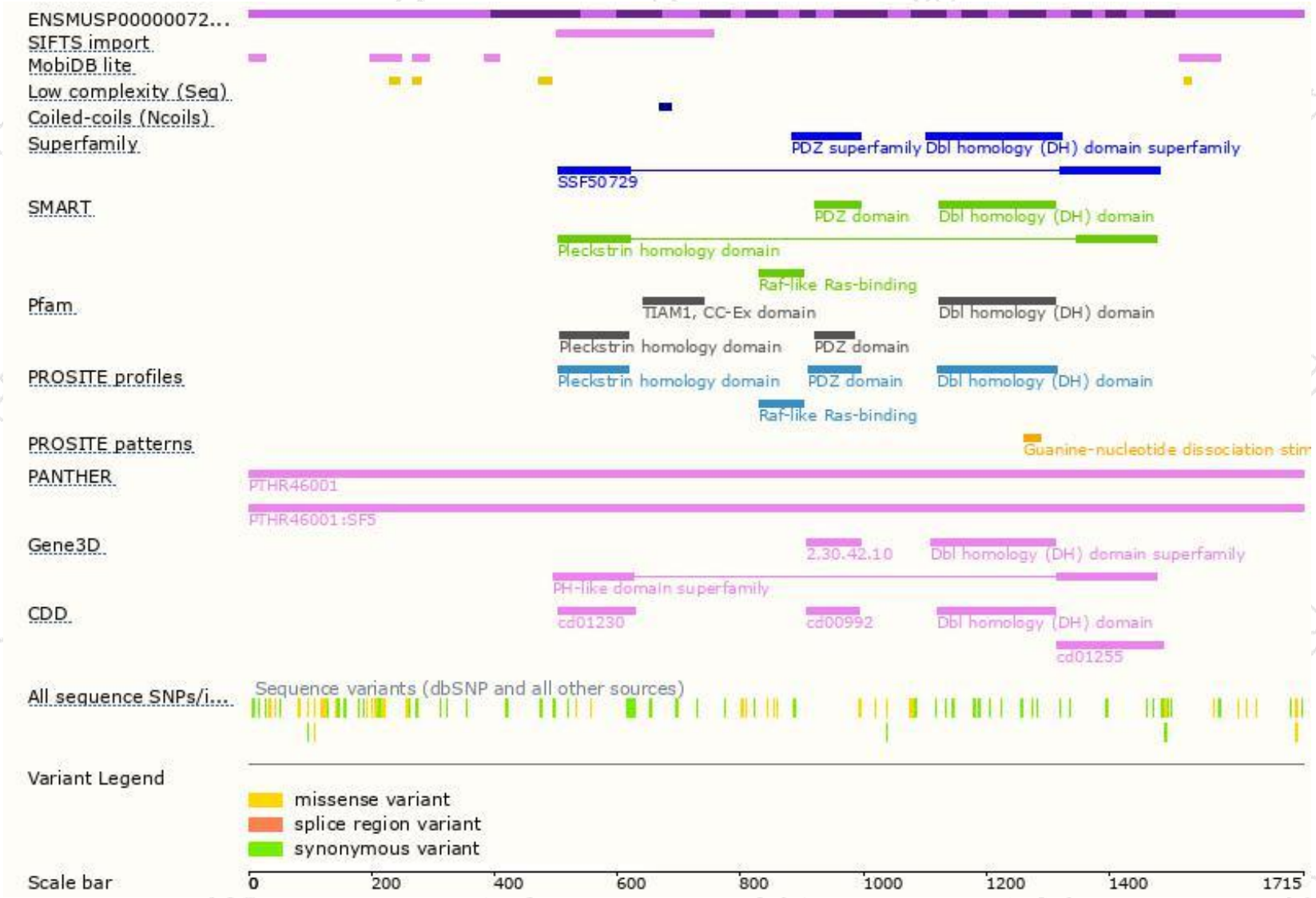
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tiam2-201	ENSMUST00000072156.6	6127	1715aa	Protein coding	CCDS37421	Q6ZPF3	TSL:1 GENCODE basic APPRIS P1
Tiam2-202	ENSMUST00000169838.8	5725	1715aa	Protein coding	CCDS37421	Q6ZPF3	TSL:1 GENCODE basic APPRIS P1
Tiam2-209	ENSMUST00000227604.1	929	177aa	Protein coding	-	A0A2I3BRJ9	CDS 3' incomplete
Tiam2-208	ENSMUST00000227405.1	2827	142aa	Nonsense mediated decay	-	A0A2I3BRI9	CDS 5' incomplete
Tiam2-205	ENSMUST00000226905.1	3303	No protein	Retained intron	-	-	
Tiam2-204	ENSMUST00000226748.1	1133	No protein	Retained intron	-	-	
Tiam2-206	ENSMUST00000226913.1	3184	No protein	lncRNA	-	-	
Tiam2-203	ENSMUST00000226434.1	2278	No protein	lncRNA	-	-	
Tiam2-207	ENSMUST00000226997.1	2131	No protein	lncRNA	-	-	

The strategy is based on the design of *Tiam2-201* transcript,The transcription is shown below

Genomic location distribution



Protein domain



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

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