Trim46 Cas9-KO Strategy

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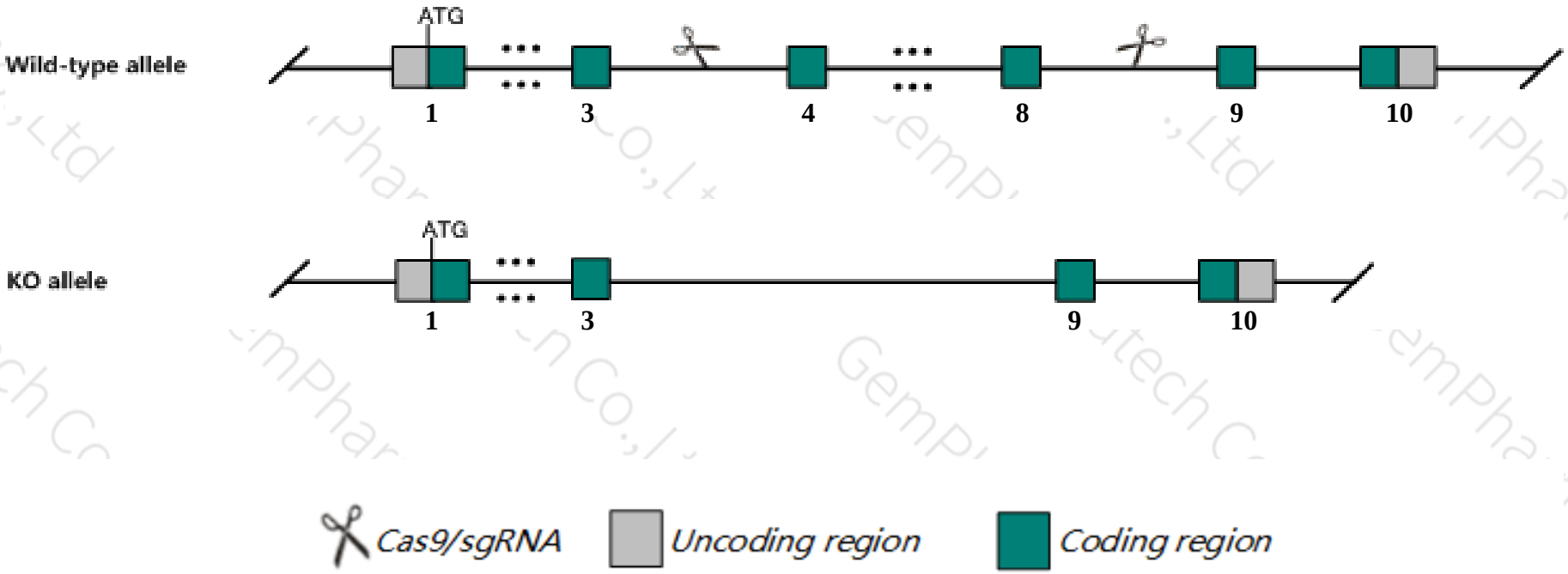
Project Overview

Project Name	***Trim46***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trim46* gene. The schematic diagram is as follows:



Technical routes

➢ The *Trim46* gene has 6 transcripts. According to the structure of *Trim46* gene, exon4-exon8 of *Trim46-201* (ENSMUST00000041022.14) transcript is recommended as the knockout region.The region contains 919bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Trim46* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA 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.

Notice

➢ The *Trim46* gene is located on the Chr3. 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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Trim46 tripartite motif-containing 46 [Mus musculus (house mouse)]

Gene ID: 360213, updated on 31-Jan-2019

Summary

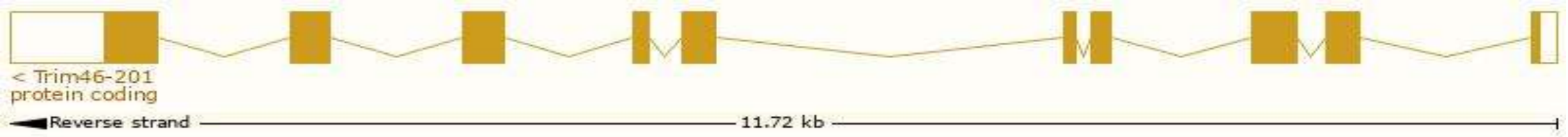
Official Symbol	Trim46 provided by MGI
Official Full Name	tripartite motif-containing 46 provided byMGI
Primary source	MGI:MGI:2673000
See related	Ensembl:ENSMUSG00000042766
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	TRIFIC
Expression	Broad expression in CNS E18 (RPKM 29.1), whole brain E14.5 (RPKM 28.7) and 18 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

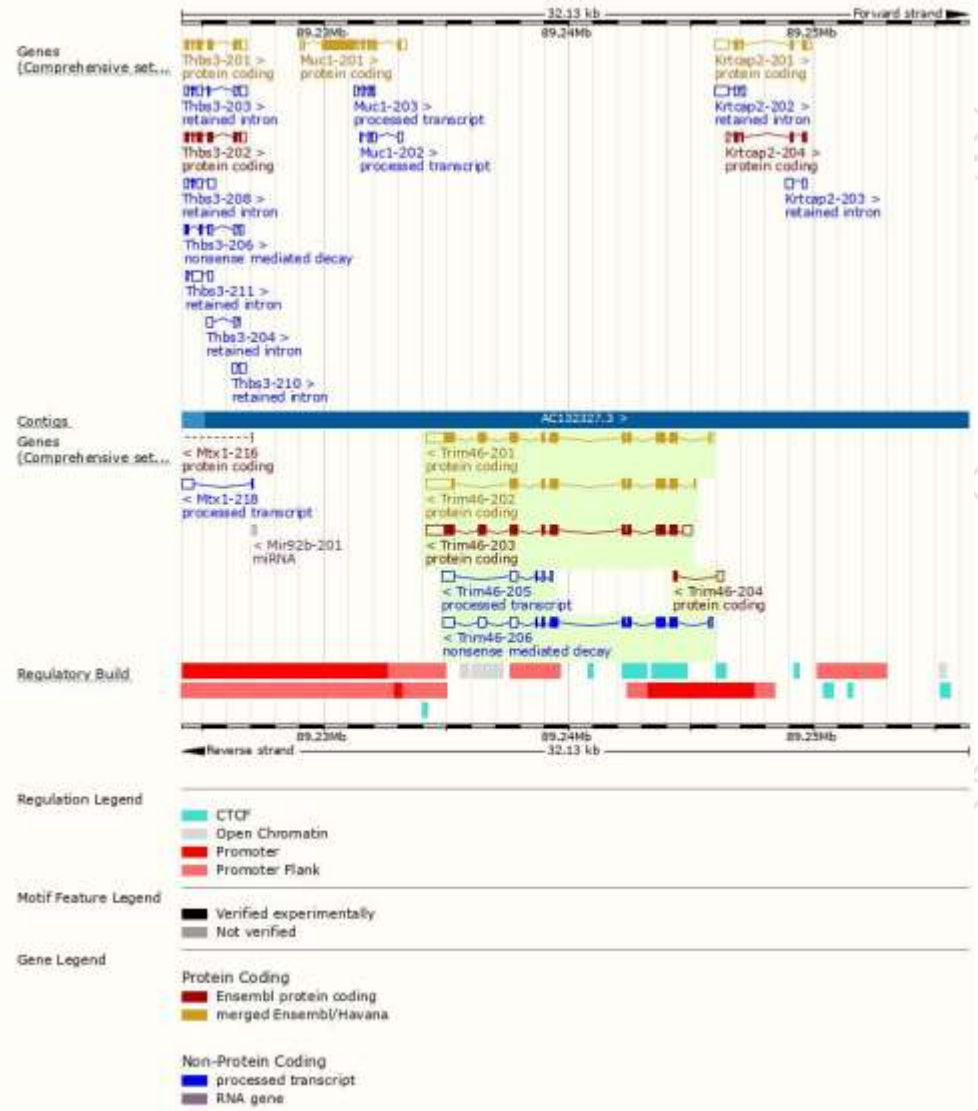
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trim46-201	ENSMUST00000041022.14	3122	759aa	Protein coding	CCDS17497	Q7TNM2	TSL:1 GENCODE basic APPRIS P1
Trim46-202	ENSMUST00000090924.12	2721	541aa	Protein coding	CCDS17498	Q3TC52	TSL:1 GENCODE basic
Trim46-203	ENSMUST00000107464.7	3252	736aa	Protein coding	-	D3YXA6	TSL:5 GENCODE basic
Trim46-204	ENSMUST00000125952.1	357	37aa	Protein coding	-	D3YYF9	CDS 3' incomplete TSL:3
Trim46-206	ENSMUST00000143637.1	2444	447aa	Nonsense mediated decay	-	E9PUI3	TSL:5
Trim46-205	ENSMUST00000139419.1	996	No protein	Processed transcript	-	-	TSL:3

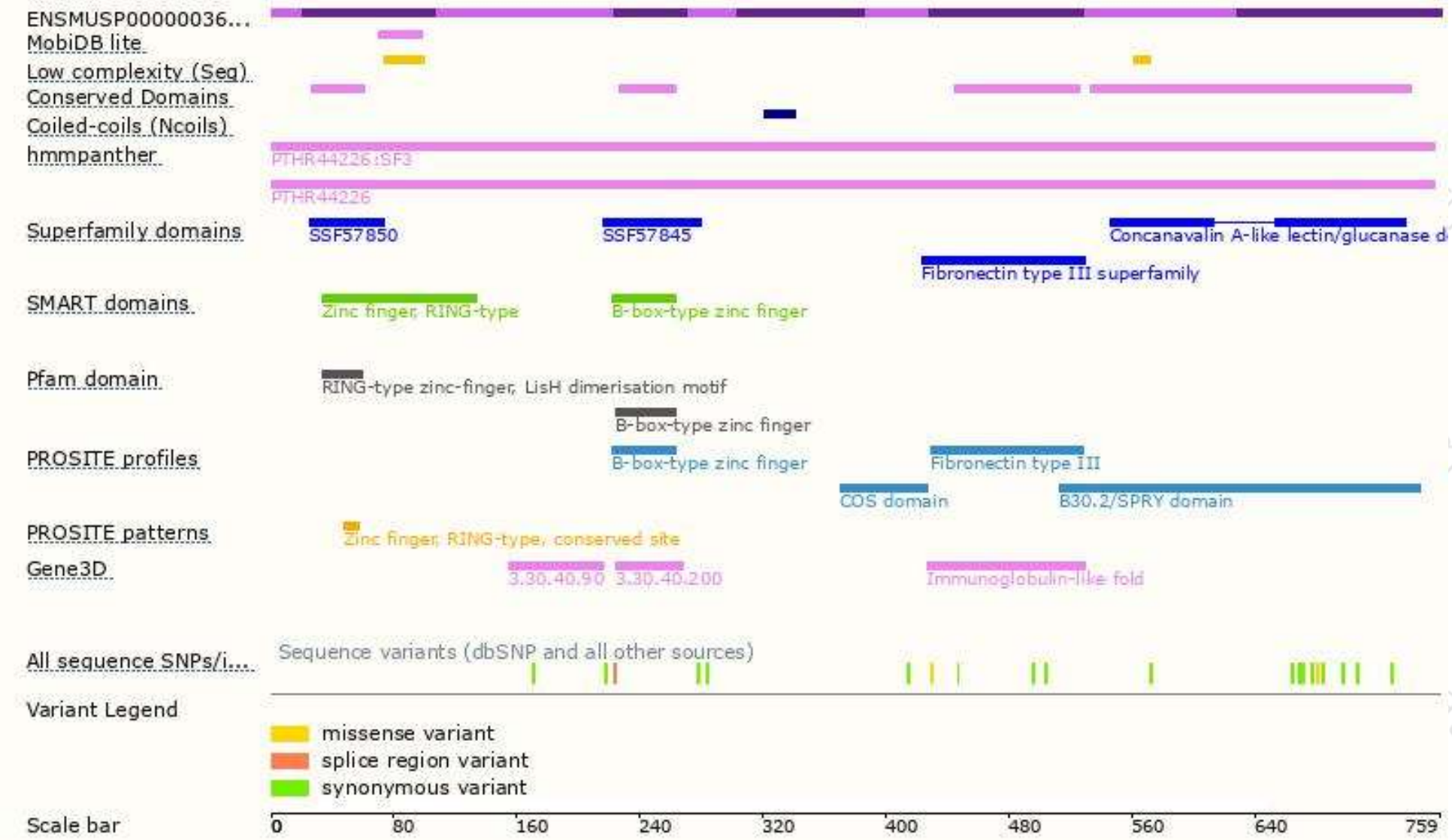
The strategy is based on the design of *Trim46-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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