Traip Cas9-KO Strategy

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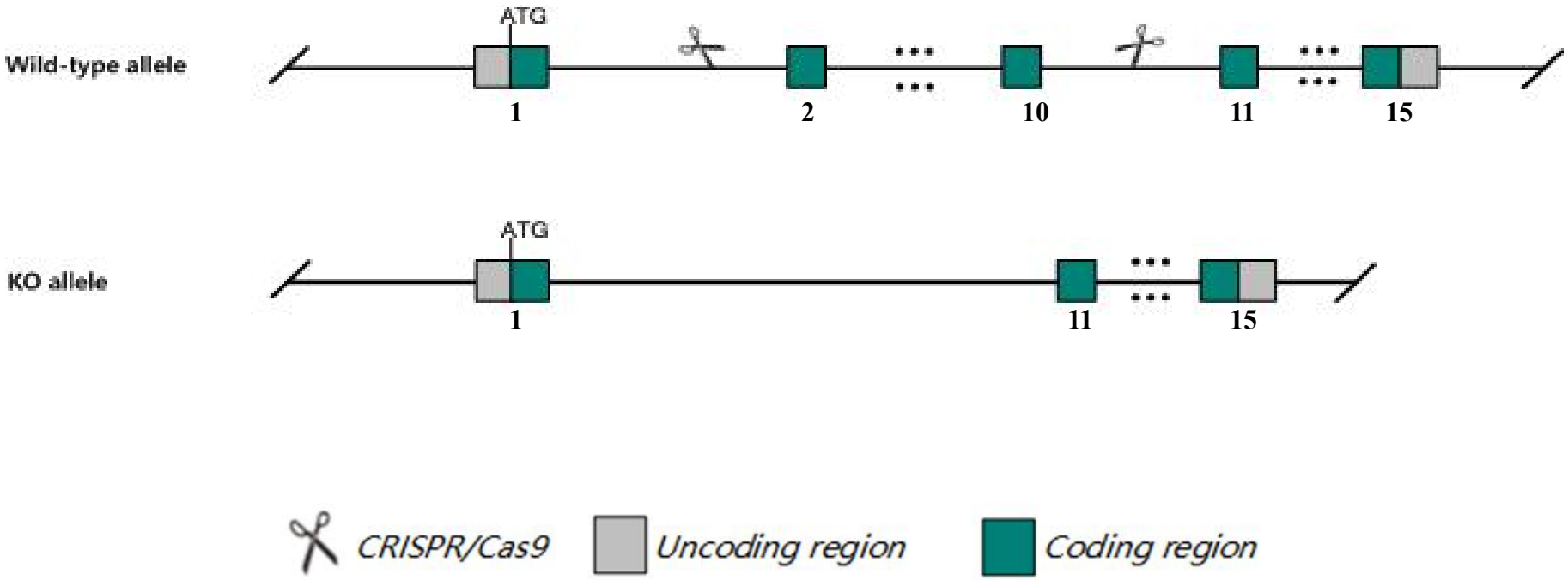
Project Overview

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

Knockout strategy

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



Technical routes

The *Traip* gene has 7 transcripts. According to the structure of *Traip* gene, exon2-exon10 of *Traip-201* (ENSMUST00000049348.8) transcript is recommended as the knockout region.The region contains 786bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

According to the existing MGI data,Mice homozygous for a null allele exhibit embryonic lethality at prior to E8.5, embryonic growth retardation, decreased embryonic size, decreased cell proliferation and increased apoptosis.

The *Traip* gene is located on the Chr9. 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.

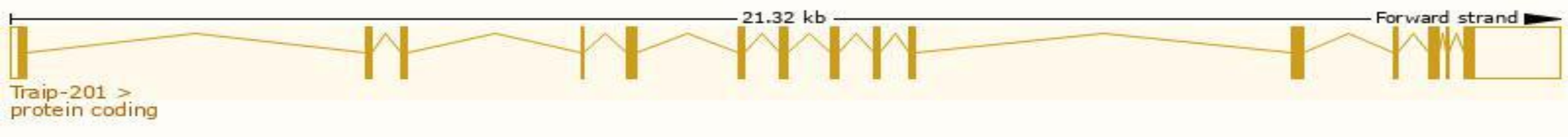
Gene information NCBI

Transcript information Ensembl

The gene has 7 transcripts,all transcripts are shown below:

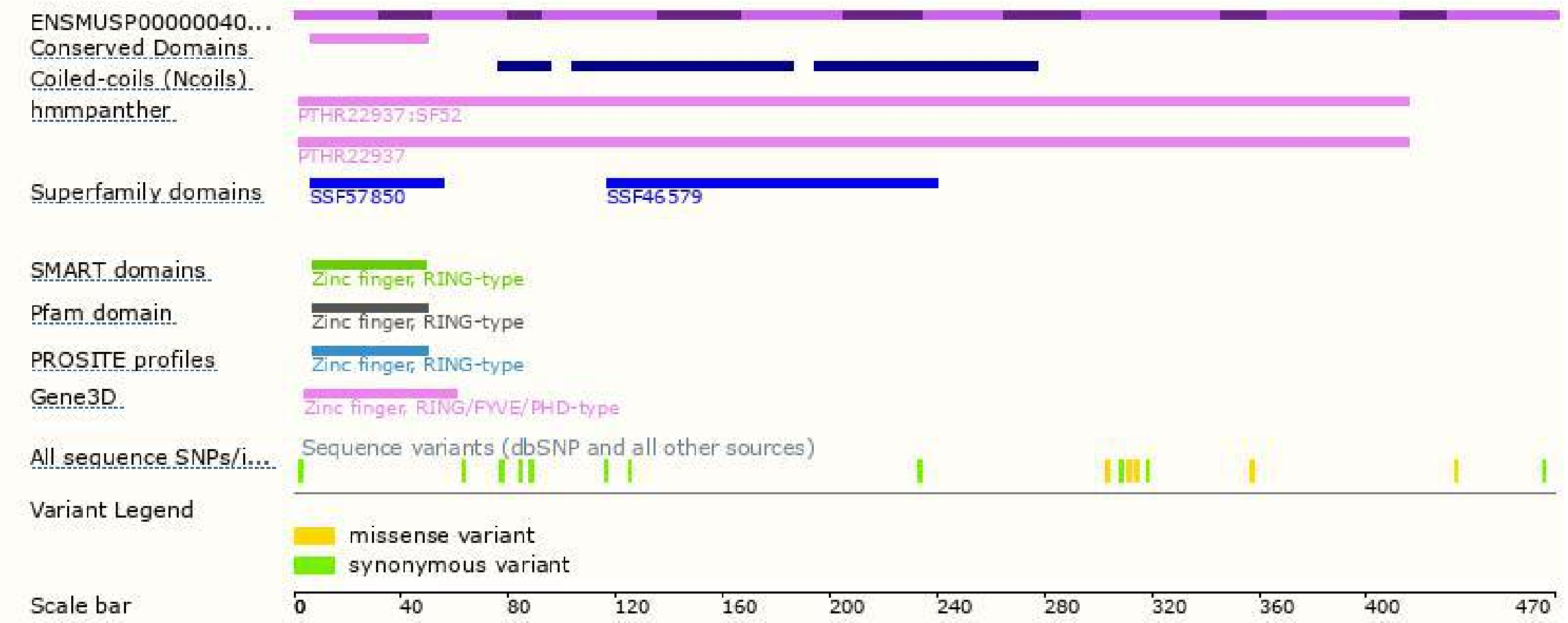
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Traip-201	ENSMUST00000049348.8	2706	470aa	Protein coding	CCDS23511	Q8VIG6	TSL:1 GENCODE basic APPRIS P1
Traip-205	ENSMUST00000194271.1	515	142aa	Protein coding	-	A0A0A6YWT5	CDS 3' incomplete TSL:5
Traip-202	ENSMUST00000192567.1	1949	No protein	Processed transcript	-	-	TSL:1
Traip-203	ENSMUST00000193715.1	383	No protein	Processed transcript	-	-	TSL:3
Traip-206	ENSMUST00000194538.5	3680	No protein	Retained intron	-	-	TSL:2
Traip-207	ENSMUST00000195803.1	844	No protein	Retained intron	-	-	TSL:3
Traip-204	ENSMUST00000194191.1	400	No protein	Retained intron	-	-	TSL:3

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

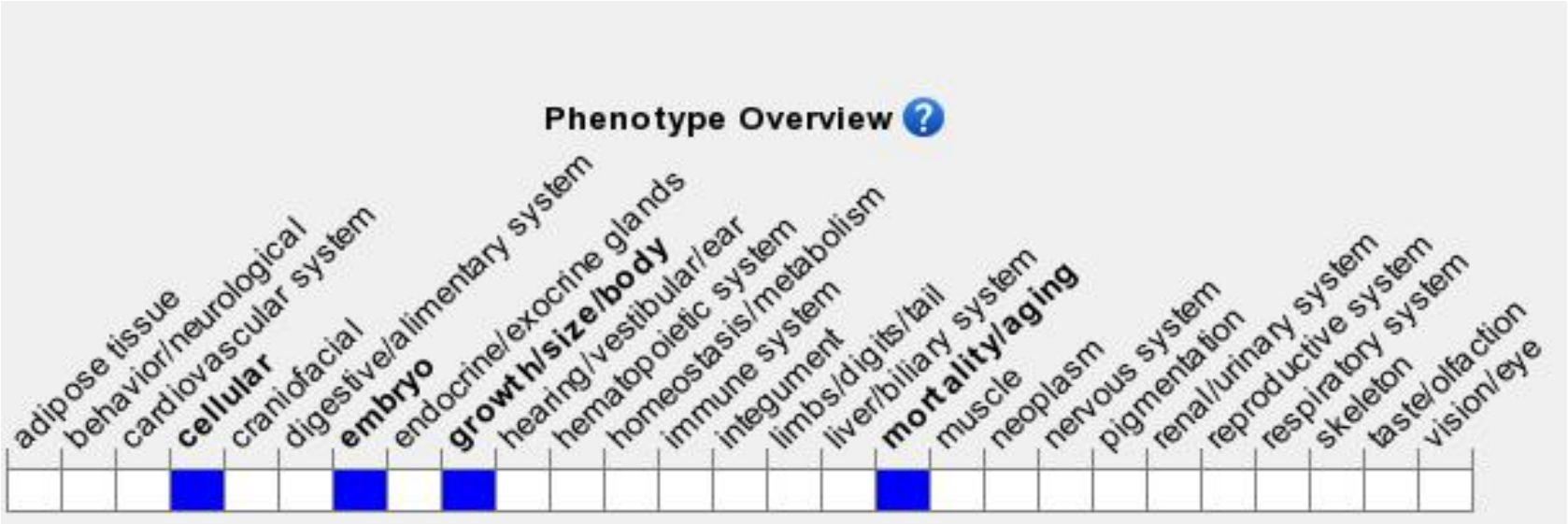


Genomic location distribution

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/).

According to the existing MGI data,Mice homozygous for a null allele exhibit embryonic lethality at prior to E8.5, embryonic growth retardation, decreased embryonic size, decreased cell proliferation and increased apoptosis.

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

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