

Tnrc6a Cas9-KO Strategy

| | |
|---------------------|----------------------|
| Designer: | Yanhua Shen |
| Reviewer | Xueting Zhang |
| Design Date: | 2020-4-16 |

Project Overview

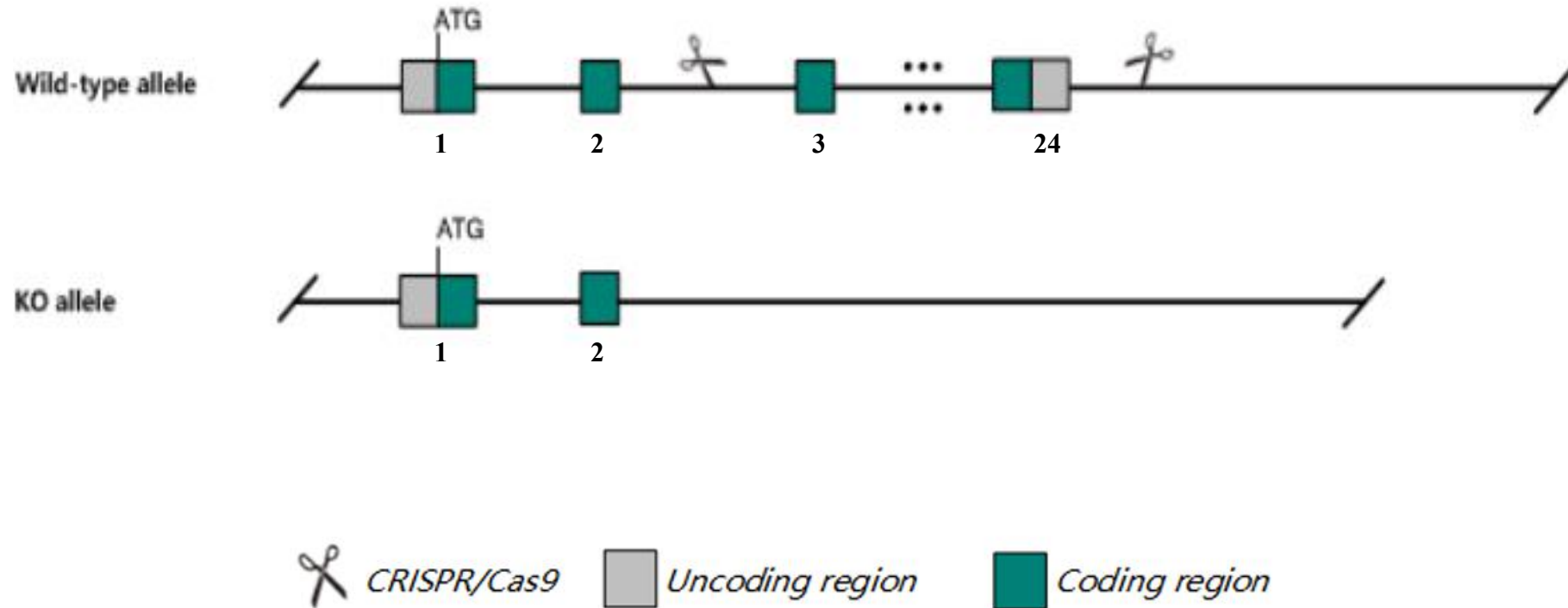
| | |
|---------------------|----------------------|
| Project Name | <i>Tnrc6a</i> |
|---------------------|----------------------|

| | |
|---------------------|----------------|
| Project type | Cas9-KO |
|---------------------|----------------|

| | |
|--------------------------|--------------------|
| Strain background | C57BL/6JGpt |
|--------------------------|--------------------|

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tnrc6a* gene. The schematic diagram is as follows:



The *Tnrc6a* gene has 11 transcripts. According to the structure of *Tnrc6a* gene, exon3-exon24 of *Tnrc6a-201* (ENSMUST00000094053.6) transcript is recommended as the knockout region. The region contains most of coding sequence. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Tnrc6a* gene. The brief process is as follows: CRISPR/Cas9 system w

According to the existing MGI data, mice homozygous for a gene trap allele exhibit partial embryonic lethality during organogenesis associated with impaired hematopoiesis.

Gm45846-201 gene may be destroyed.

The effect of transcripts 203,205,207 is unknown.

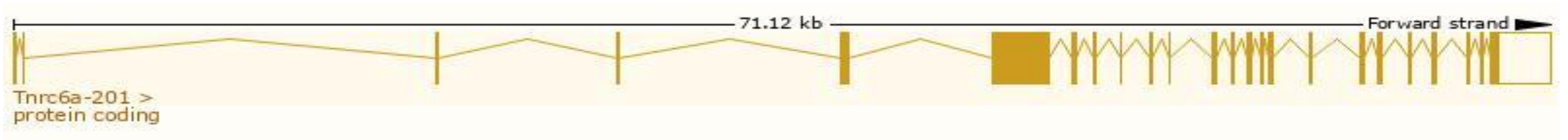
The *Tnrc6a* gene is located on the Chr7. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.

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.

Transcript information Ensembl

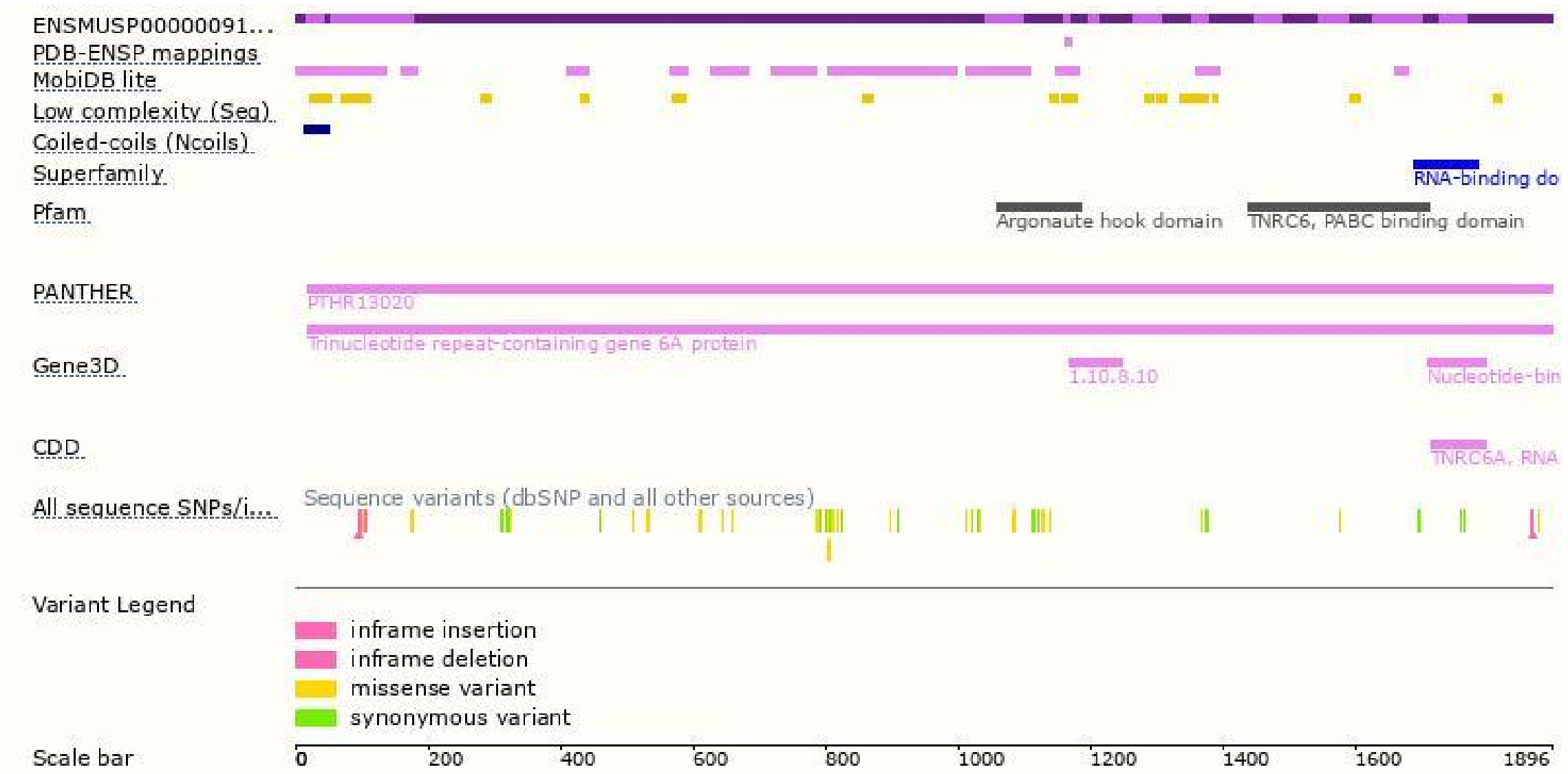
The gene has 11 transcripts, all transcripts are shown below:

The strategy is based on the design of *Tnrc6a-201* transcript, The transcription is shown below

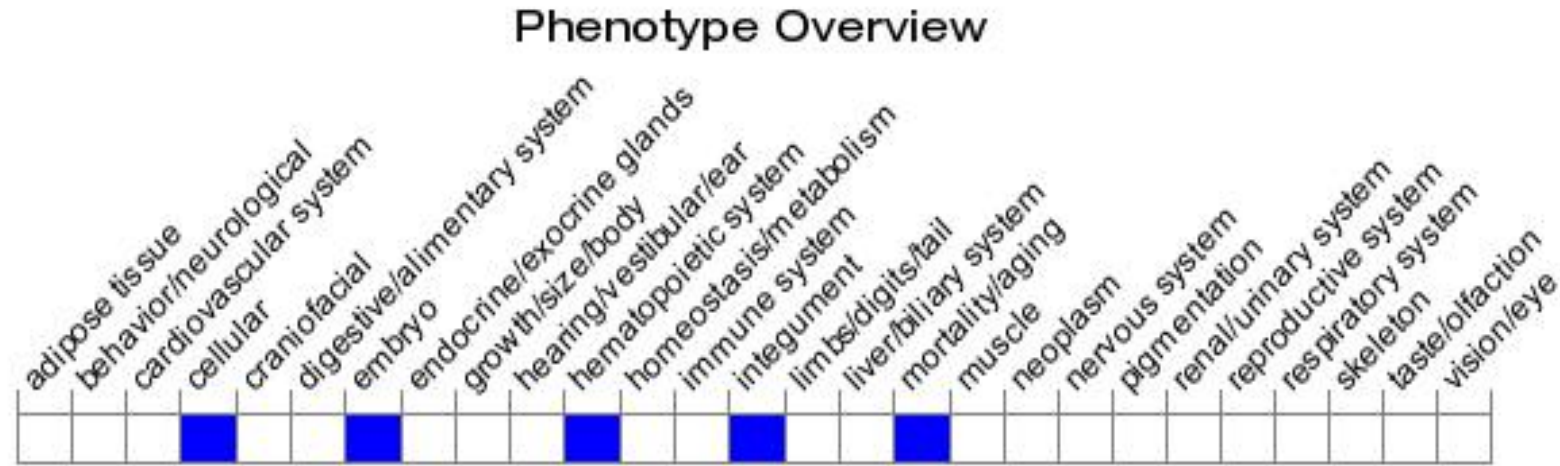


Genomic location distribution

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 gene trap allele exhibit partial embryonic lethality during organogenesis associated with impaired hematopoiesis.

If you have any questions, you are welcome to inquire.
Tel: 400-9660890