

Thap3 Cas9-CKO Strategy

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Project Overview

Project Name

Thap3

Project type

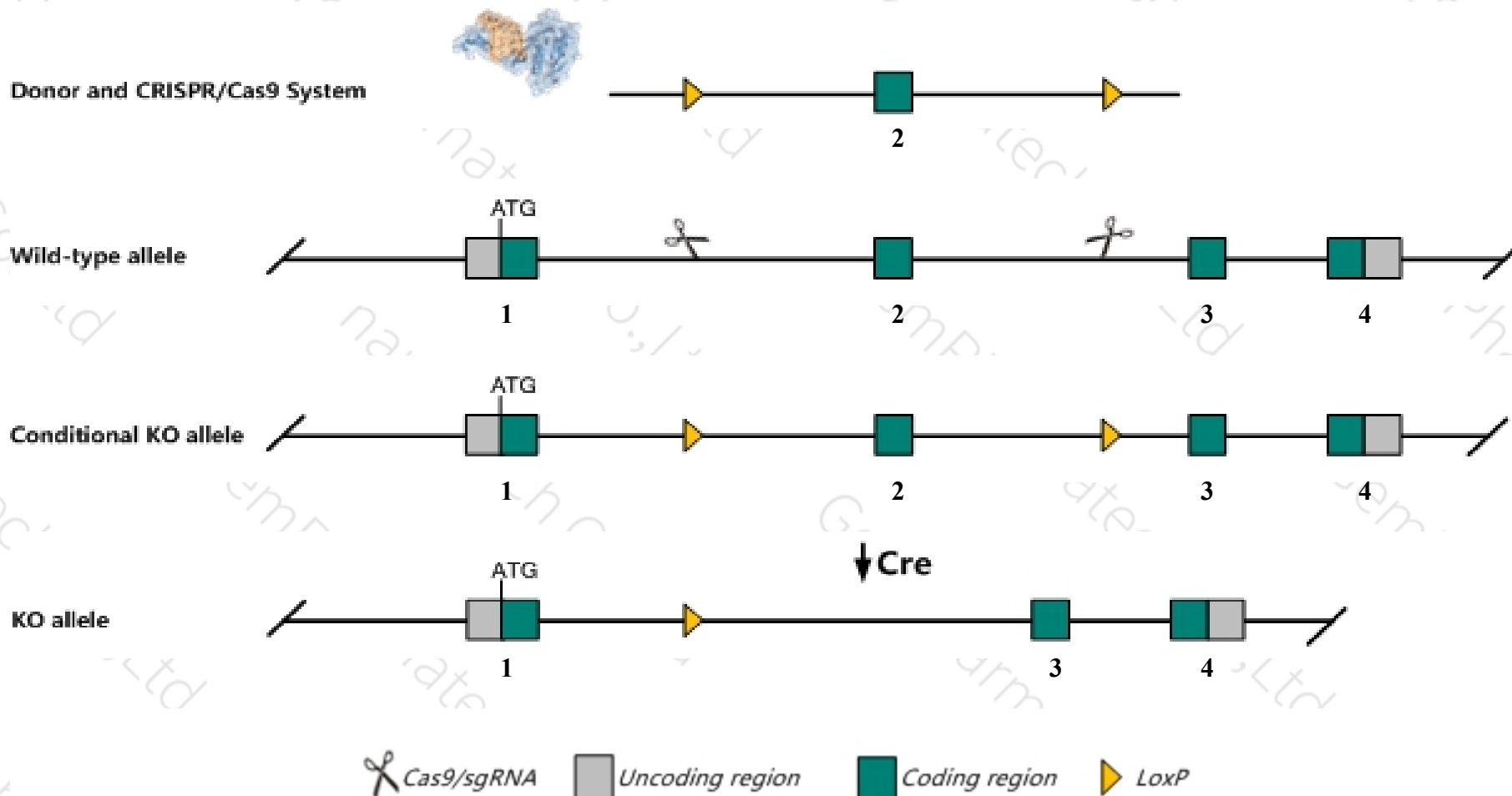
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Thap3* gene. The schematic diagram is as follows:



Technical routes

- The *Thap3* gene has 3 transcripts. According to the structure of *Thap3* gene, exon2 of *Thap3*-201(ENSMUST00000036680.7) transcript is recommended as the knockout region. The region contains 193bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Thap3* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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.

- The *Thap3* gene is located on the Chr4. 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)

Thap3 THAP domain containing, apoptosis associated protein 3 [Mus musculus (house mouse)]

Gene ID: 69876, updated on 13-Mar-2020

Summary



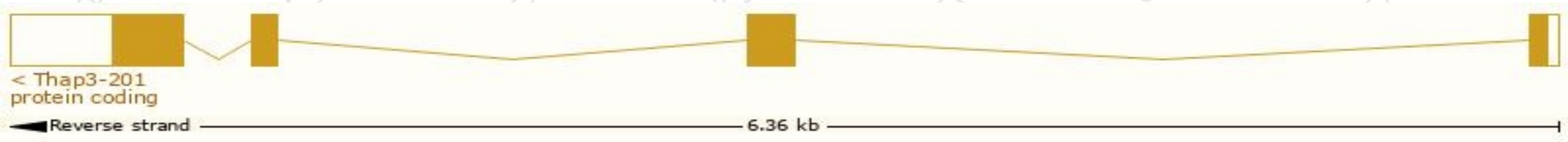
Official Symbol	Thap3 provided by MGI
Official Full Name	THAP domain containing, apoptosis associated protein 3 provided by MGI
Primary source	MGI:MGI:1917126
See related	Ensembl:ENSMUSG00000039759
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2010013E08Rik, 2210418H06Rik
Expression	Ubiquitous expression in ovary adult (RPKM 23.1), adrenal adult (RPKM 20.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

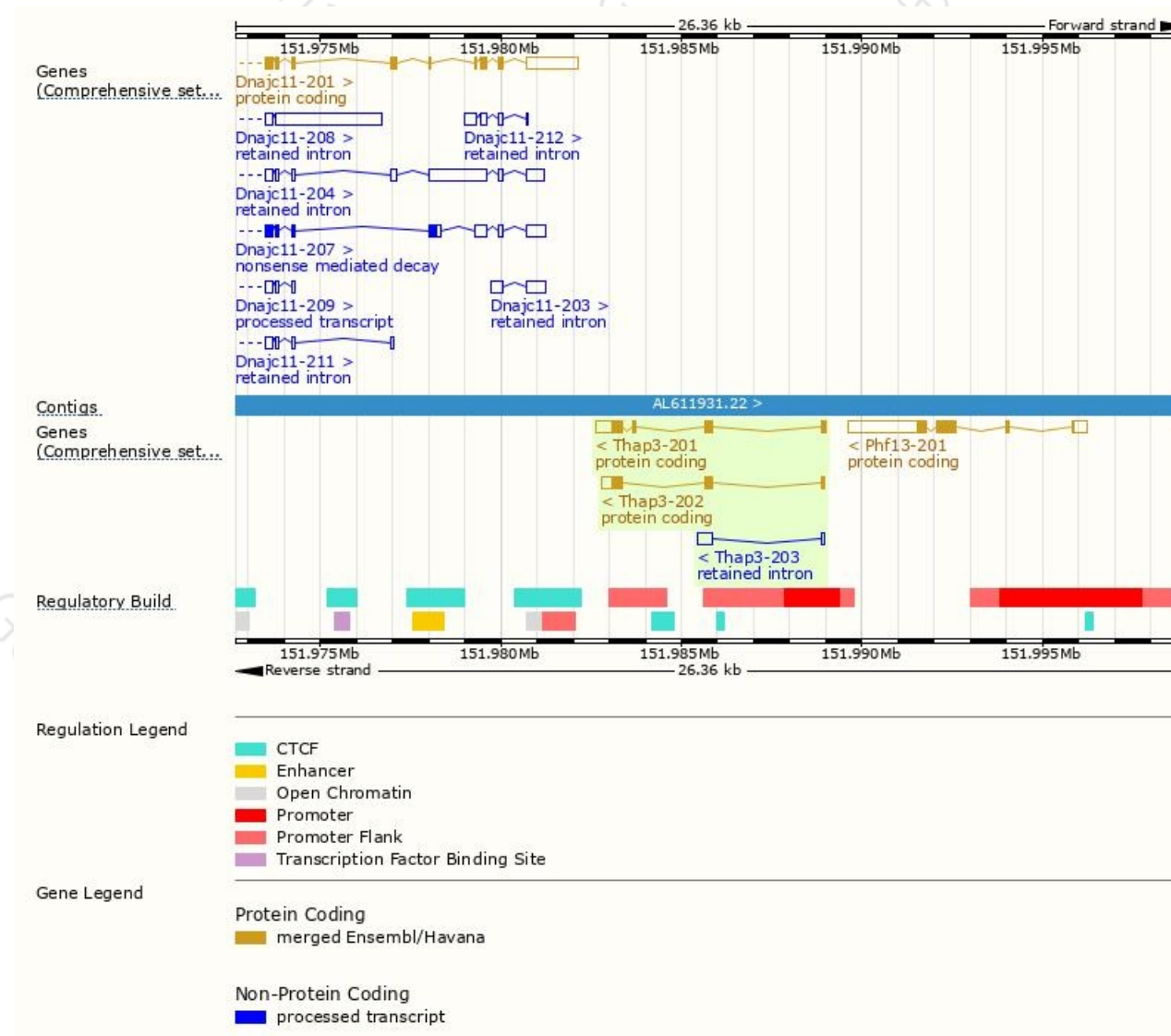
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Thap3-201	ENSMUST00000036680.7	1124	218aa	Protein coding	CCDS18982	Q52KE1 Q8BJ25	TSL:1 GENCODE basic APPRIS P3
Thap3-202	ENSMUST00000105665.2	832	184aa	Protein coding	CCDS51387	A2A8D4	TSL:1 GENCODE basic APPRIS ALT2
Thap3-203	ENSMUST00000146471.1	501	No protein	Retained intron	-	-	TSL:2

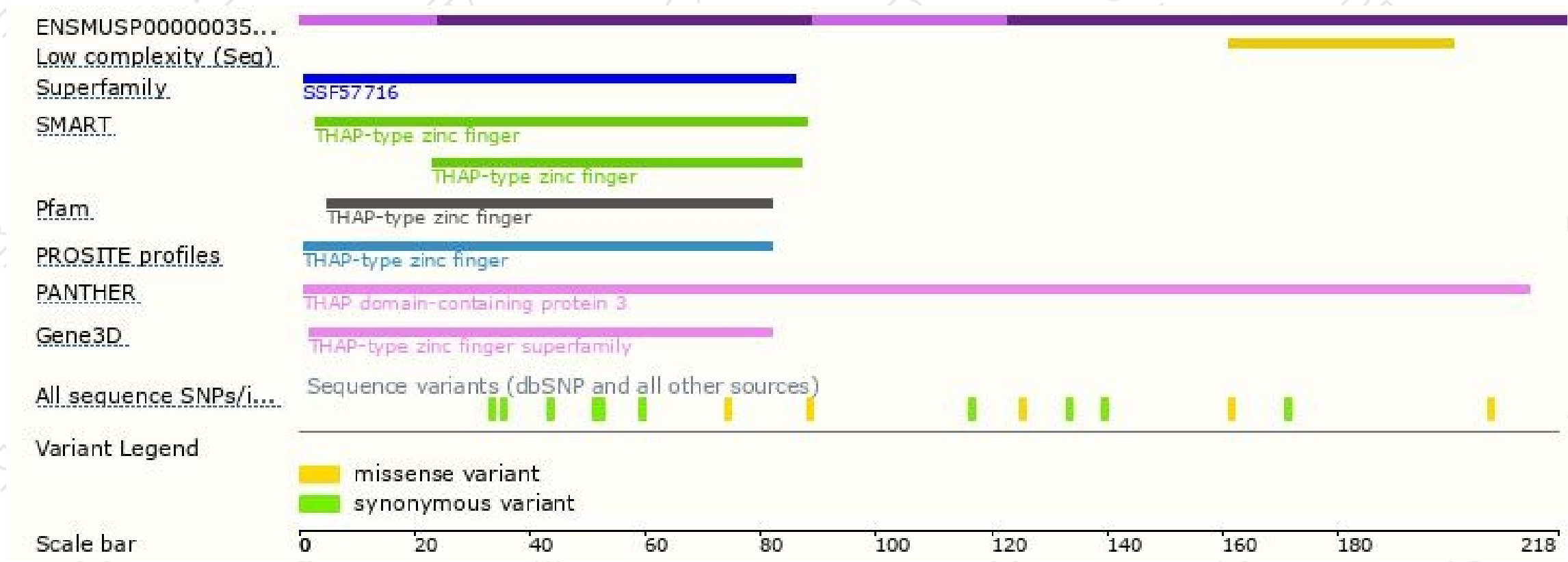
The strategy is based on the design of *Thap3-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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