

***Thop1* Cas9-CKO Strategy**

Designer: Xueting Zhang

Reviewer: Yanhua Shen

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Project Overview

Project Name

Thop1

Project type

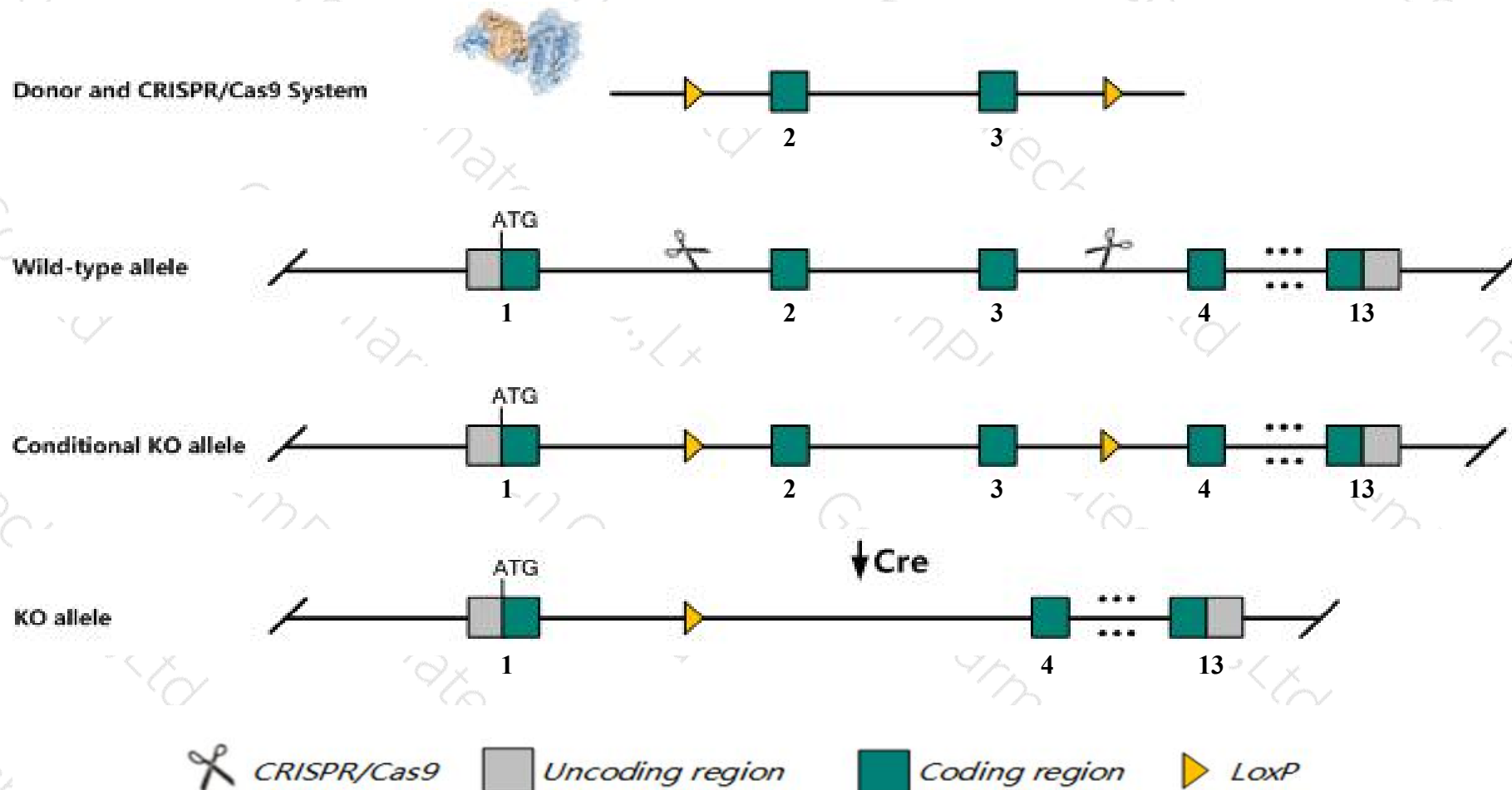
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Thop1* gene. The schematic diagram is as follows:



Technical routes

- The *Thop1* gene has 5 transcripts. According to the structure of *Thop1* gene, exon2-exon3 of *Thop1*-201 (ENSMUST00000005057.6) transcript is recommended as the knockout region. The region contains 362bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Thop1* gene. The brief process is as follows: CRISPR/Cas9 system 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 will be 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.

Notice

- Transcript *Thop1*-203 may not be affected.
- The *Thop1* gene is located on the Chr10. 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)

Thop1 thimet oligopeptidase 1 [*Mus musculus* (house mouse)]

Gene ID: 50492, updated on 12-Aug-2019

Summary

- Official Symbol** Thop1 provided by [MGI](#)
- Official Full Name** thimet oligopeptidase 1 provided by [MGI](#)
- Primary source** [MGI:MGI:1354165](#)
- See related** [Ensembl:ENSMUSG00000004929](#)
- 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** EP24.15; AI131655; AI327041
- Expression** Broad expression in testis adult (RPKM 160.6), ovary adult (RPKM 53.8) and 24 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 10 C1; 10 39.72 cM See Thop1 in [Genome Data Viewer](#)

Exon count: 13

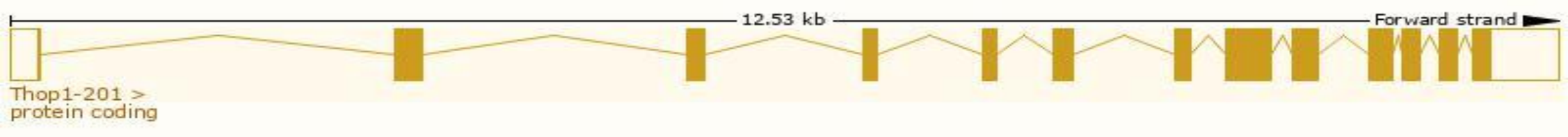
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	10	NC_000076.6 (81070083..81082360)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	10	NC_000076.5 (80532828..80545105)

Transcript information (Ensembl)

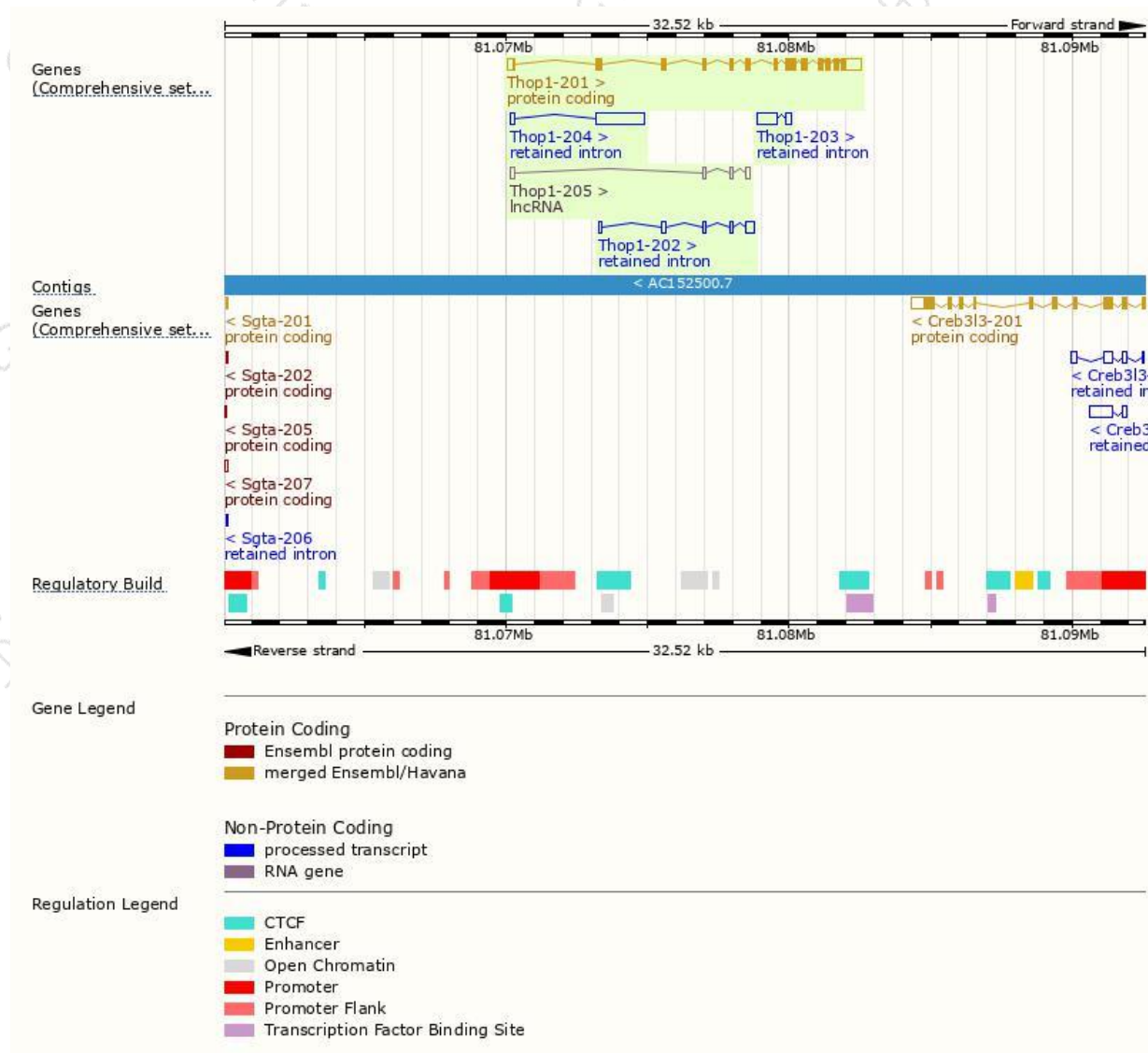
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Thop1-201	ENSMUST00000005057.6	2832	687aa	Protein coding	CCDS24042	A0A0R4IZY0	TSL:1 GENCODE basic APPRIS P1
Thop1-204	ENSMUST00000167658.1	1877	No protein	Retained intron	-	-	TSL:2
Thop1-203	ENSMUST00000166404.1	935	No protein	Retained intron	-	-	TSL:2
Thop1-202	ENSMUST00000166015.1	733	No protein	Retained intron	-	-	TSL:2
Thop1-205	ENSMUST00000171484.7	466	No protein	lncRNA	-	-	TSL:3

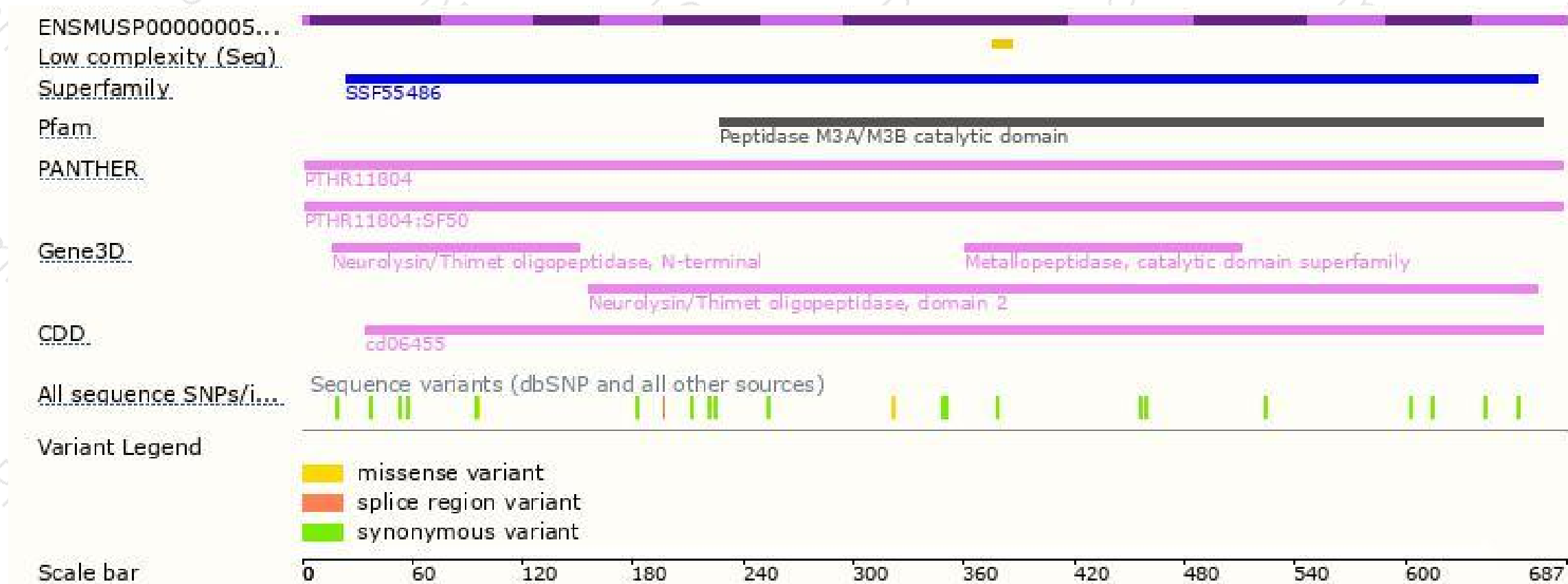
The strategy is based on the design of *Thop1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

