

***Trub2* Cas9-KO Strategy**

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Project Overview

Project Name

Trub2

Project type

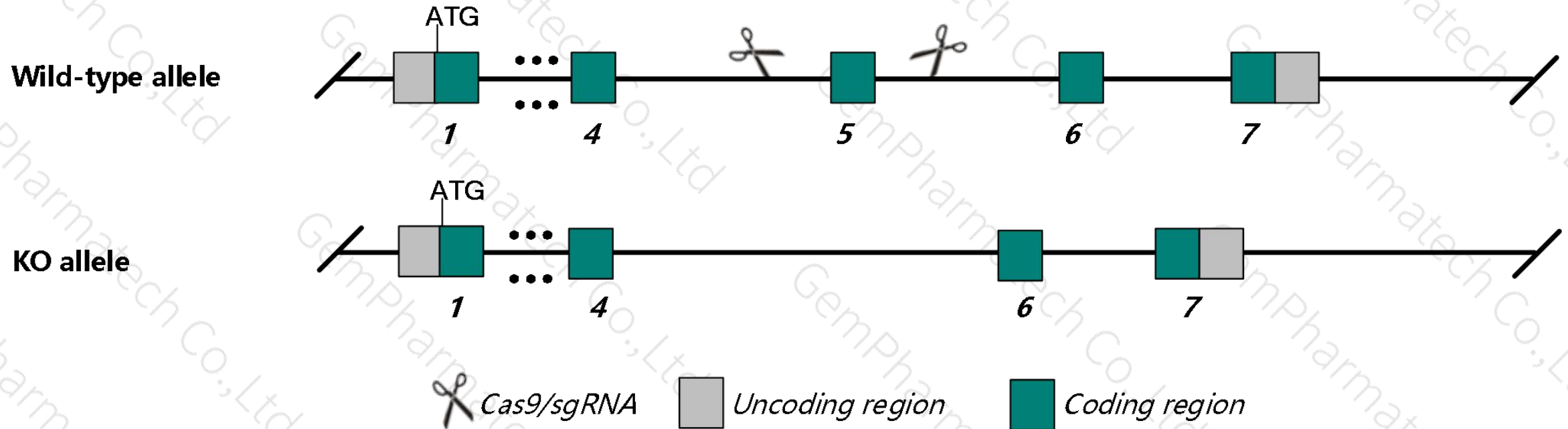
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trub2* gene. The schematic diagram is as follows:



- The *Trub2* gene has 10 transcripts. According to the structure of *Trub2* gene, exon5 of *Trub2-210* (ENSMUST00000177467.7) transcript is recommended as the knockout region. The region contains 82bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Trub2* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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 *Trub2* gene is located on the Chr2. 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)

Trub2 TruB pseudouridine (psi) synthase family member 2 [*Mus musculus* (house mouse)]

Gene ID: 227682, updated on 12-Aug-2019

Summary

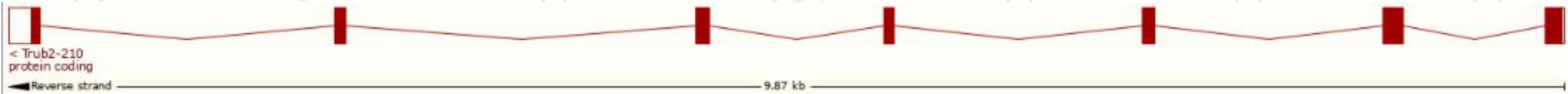
Official Symbol	Trub2 provided by MGI
Official Full Name	TruB pseudouridine (psi) synthase family member 2 provided by MGI
Primary source	MGI:MGI:2442186
See related	Ensembl:ENSMUSG000000039826
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	G430055L02Rik
Expression	Ubiquitous expression in mammary gland adult (RPKM 13.6), subcutaneous fat pad adult (RPKM 12.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

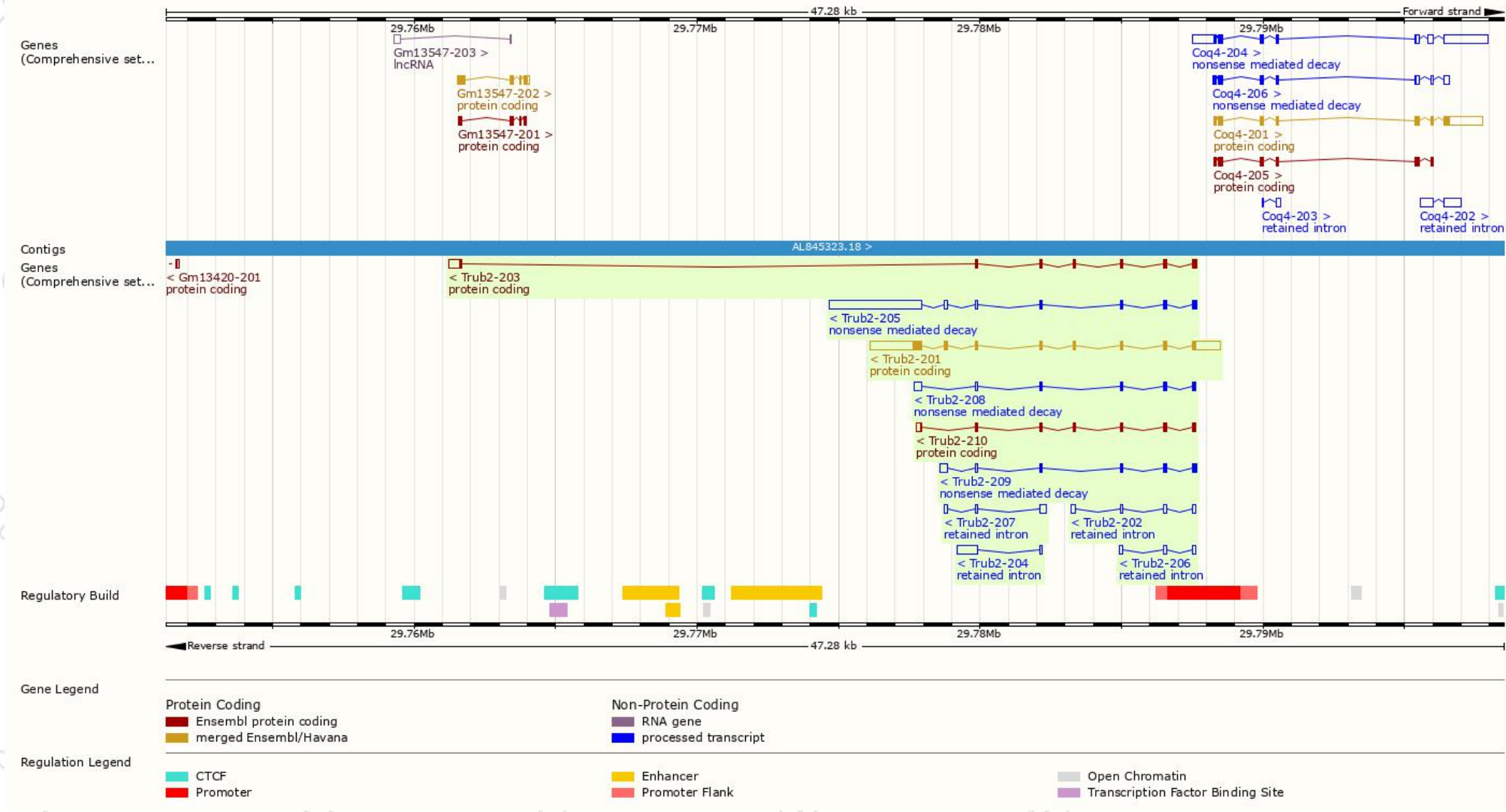
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trub2-201	ENSMUST00000048044.11	3408	331aa	Protein coding	CCDS15856	Q91WG3	TSL:1 GENCODE basic APPRIS P1
Trub2-210	ENSMUST00000177467.7	744	194aa	Protein coding	CCDS71016	H3BKT7	TSL:3 GENCODE basic
Trub2-203	ENSMUST00000113807.9	1035	204aa	Protein coding	-	A2ARC1	TSL:1 GENCODE basic
Trub2-205	ENSMUST00000156846.7	3930	121aa	Nonsense mediated decay	-	H3BLS1	TSL:1
Trub2-209	ENSMUST00000177133.7	806	121aa	Nonsense mediated decay	-	H3BLS1	TSL:2
Trub2-208	ENSMUST00000176312.7	763	121aa	Nonsense mediated decay	-	H3BLS1	TSL:3
Trub2-204	ENSMUST00000148120.1	762	No protein	Retained intron	-	-	TSL:3
Trub2-202	ENSMUST00000113803.7	490	No protein	Retained intron	-	-	TSL:2
Trub2-207	ENSMUST00000176167.1	412	No protein	Retained intron	-	-	TSL:3
Trub2-206	ENSMUST00000175644.1	371	No protein	Retained intron	-	-	TSL:2

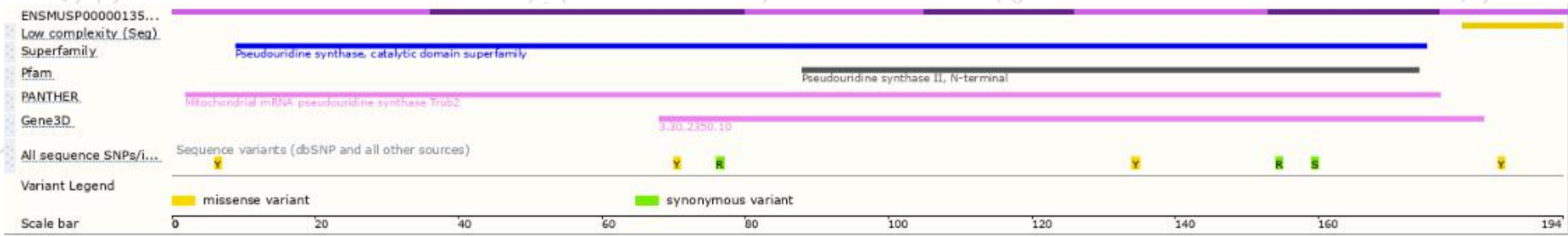
The strategy is based on the design of *Trub2-210* transcript,The transcription is shown below



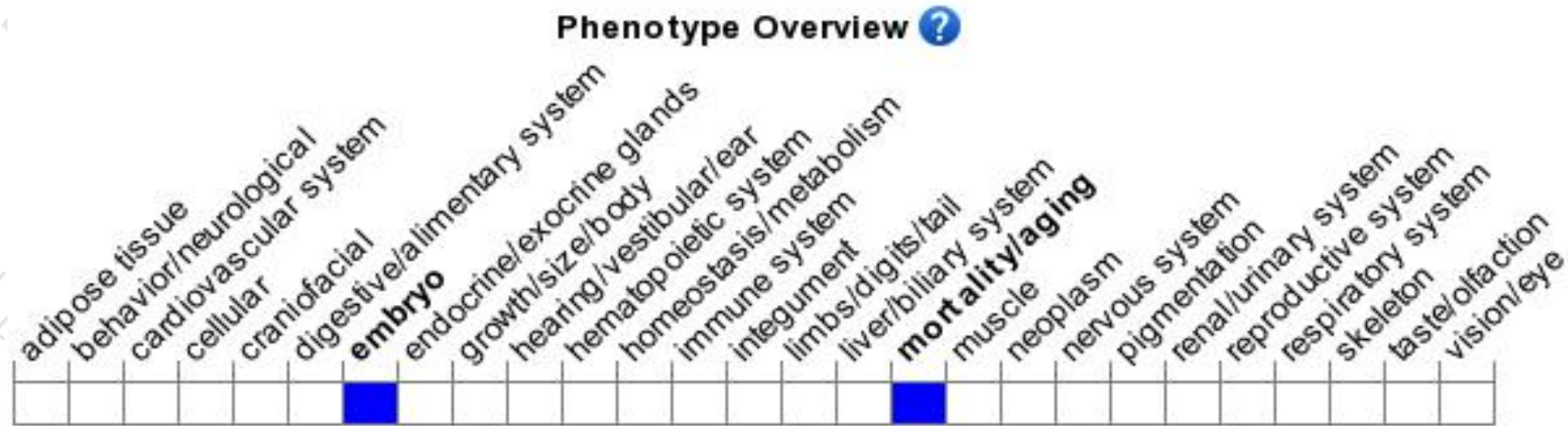
Genomic location distribution



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/>).

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

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