Adamts14 Cas9-KO Strategy

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Project Overview

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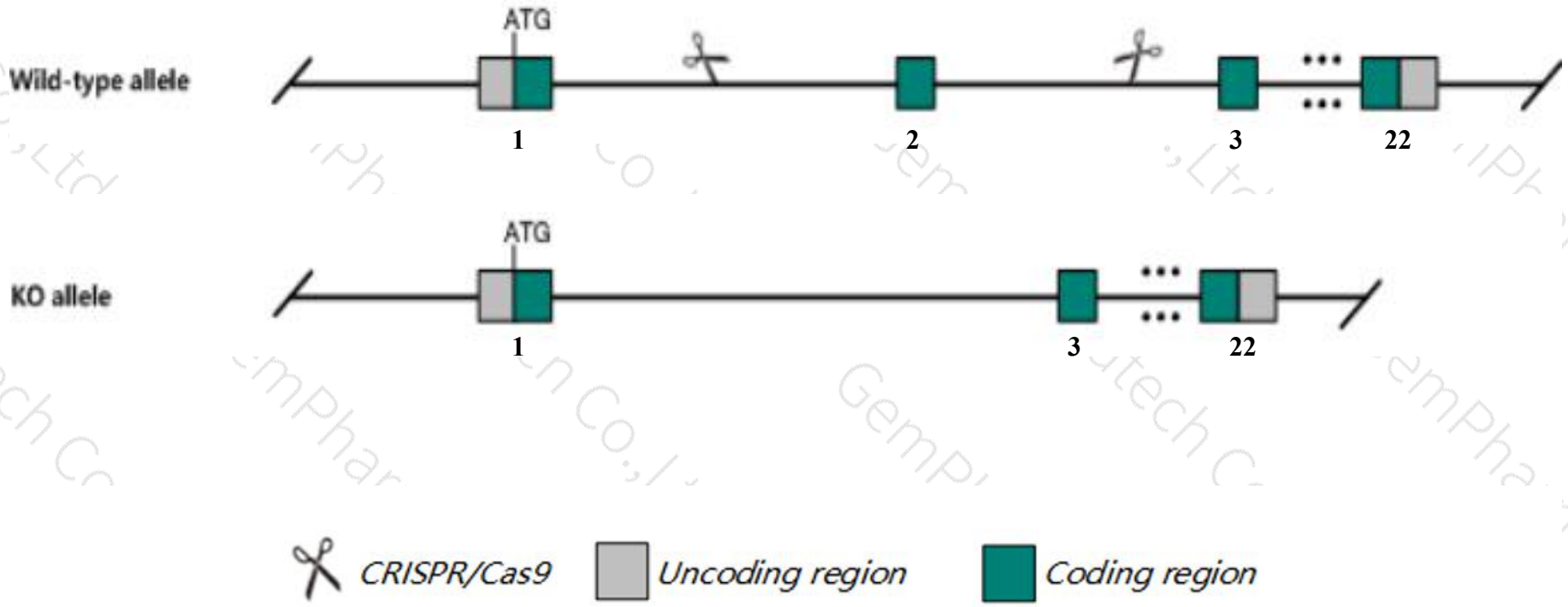
Project Name	***Adamts14***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adamts14* gene. The schematic diagram is as follows:



Technical routes

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➢ The *Adamts14* gene has 2 transcripts. According to the structure of *Adamts14* gene, exon2 of *Adamts14-201*(ENSMUST00000092486.10) transcript is recommended as the knockout region.The region contains 401bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Adamts14* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ The *Adamts14* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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Adamts14 a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 14 [Mus musculus (house mouse)]

Gene ID: 237360, updated on 13-Mar-2020

Summary

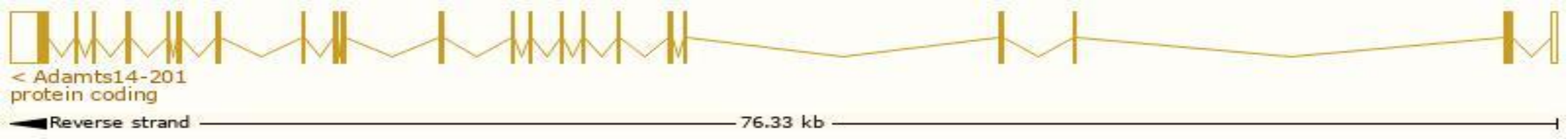
Official Symbol	Adamts14 provided by MGI
Official Full Name	a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 14 provided by MGI
Primary source	MGI:MGI:2179942
See related	Ensembl:ENSMUSG00000059901
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Adamts-14, TS14
Expression	Broad expression in limb E14.5 (RPKM 4.5), spleen adult (RPKM 3.3) and 23 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

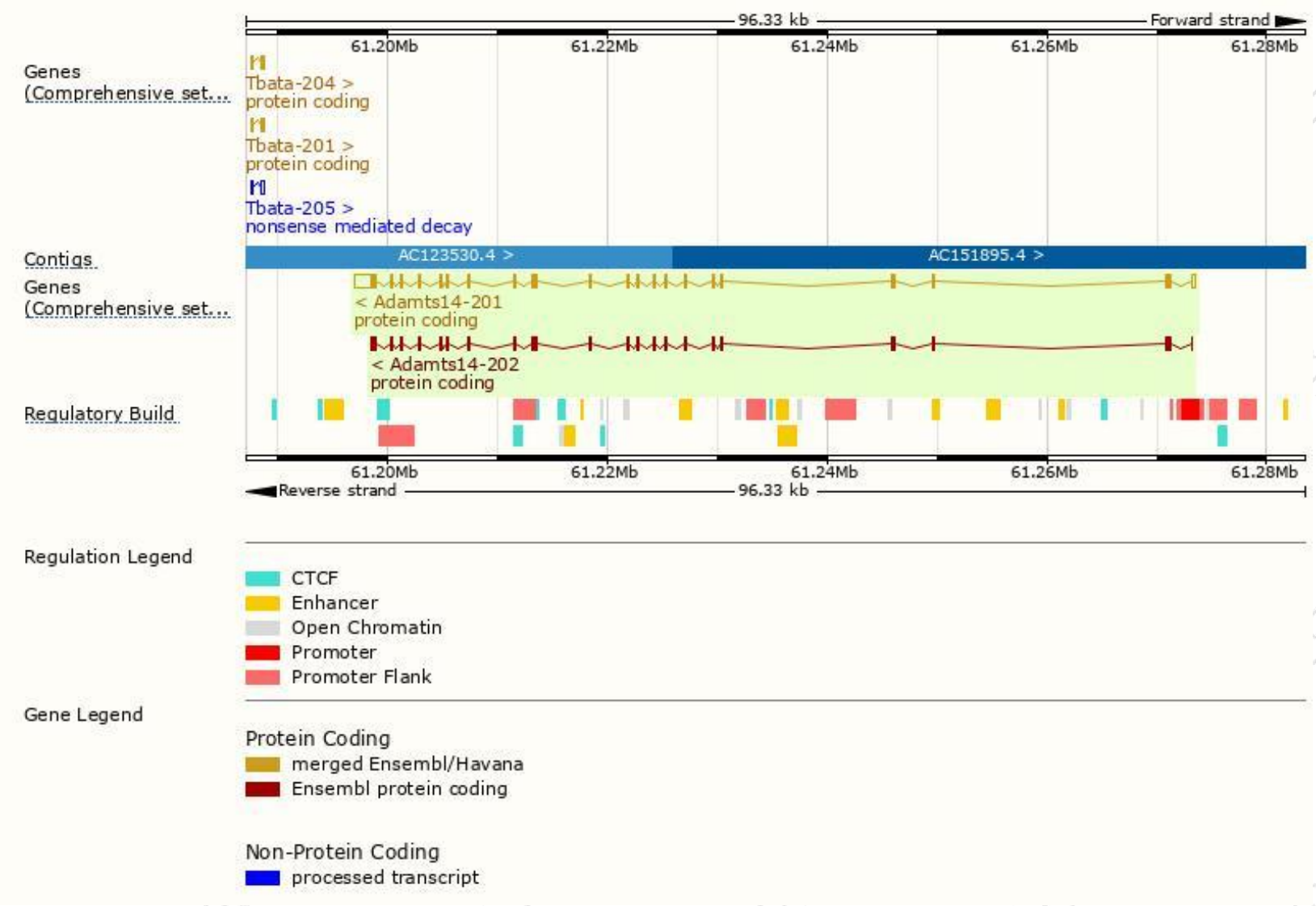
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adamts14-201	ENSMUST00000092486.10	5188	1206aa	Protein coding	CCDS35915	B2RXX5	TSL:1 GENCODE basic APPRIS P2
Adamts14-202	ENSMUST00000120336.1	3645	1209aa	Protein coding	-	E9PX39	TSL:5 GENCODE basic APPRIS ALT2

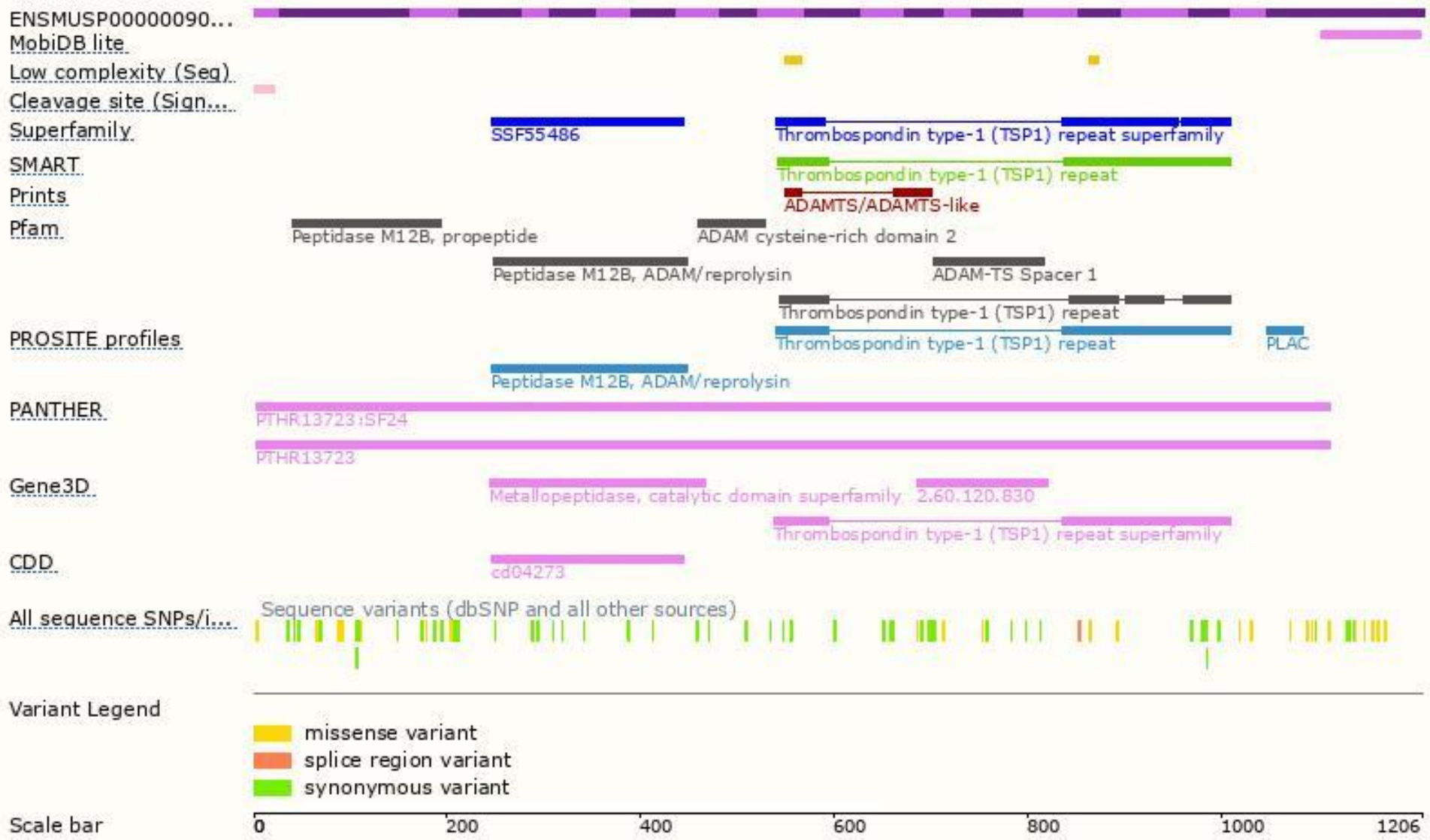
The strategy is based on the design of *Adamts14-201* transcript,the transcription is shown below:



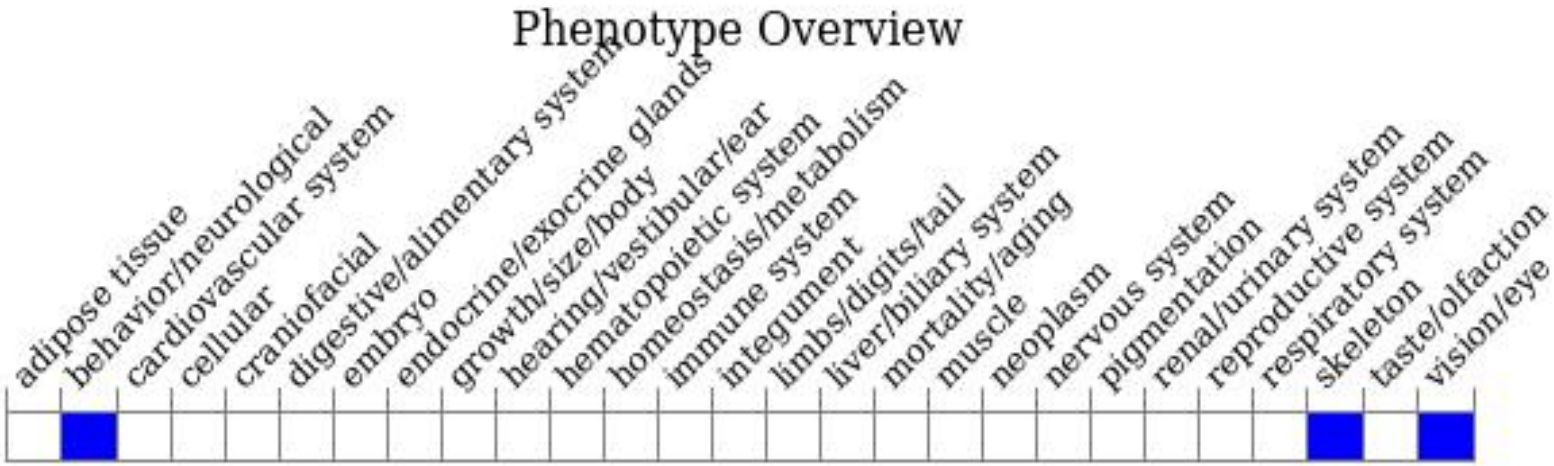
Genomic location distribution



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/).

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