

# ***Adams18 Cas9-KO Strategy***

Designer: Xueting Zhang

Reviewer: Yanhua Shen

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# Project Overview

**Project Name**

*Adamts18*

**Project type**

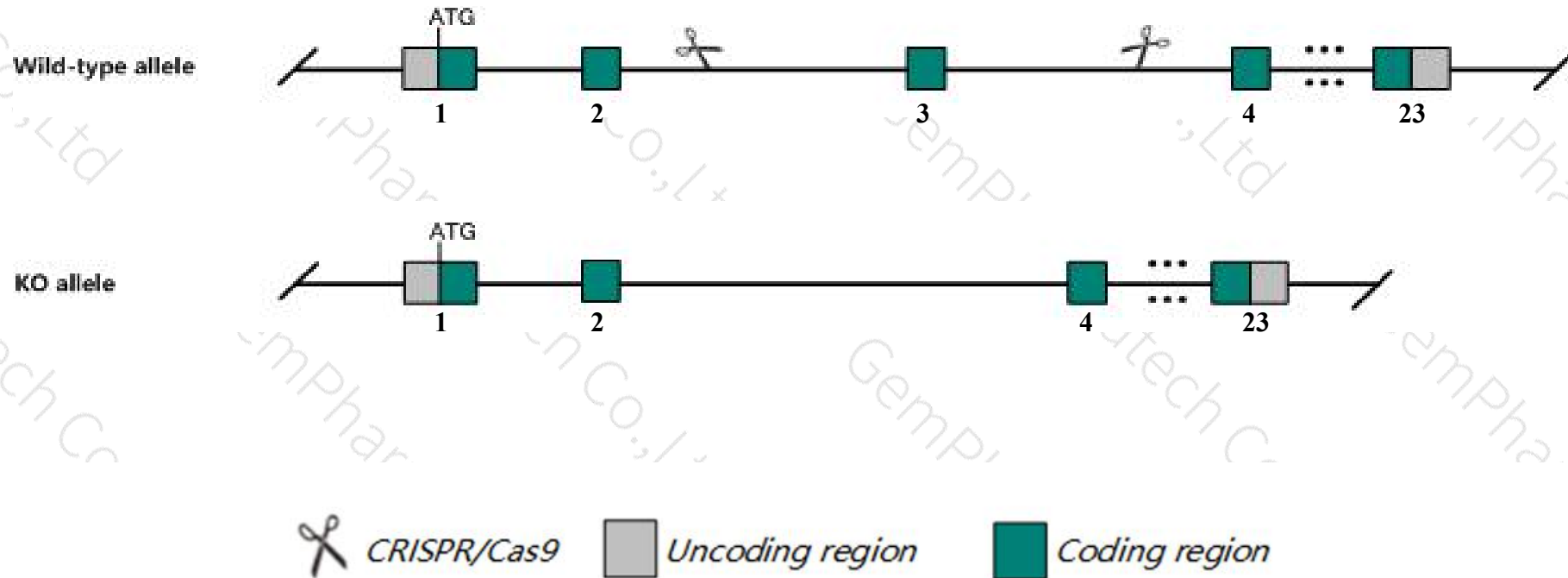
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adamts18* gene. The schematic diagram is as follows:



- The *Adamts18* gene has 7 transcripts. According to the structure of *Adamts18* gene, exon3 of *Adamts18-201* (ENSMUST00000093113.4) transcript is recommended as the knockout region. The region contains 314bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Adamts18* gene. The brief process is as follows: CRISPR/Cas9 sys

- According to the existing MGI data, Mice homozygous for a floxed allele exhibit some fertility defects. Mice homozygous for a null allele exhibit growth and eye defects and increased susceptibility to chemically induced tumors.
- The *Adamts18* gene is located on the Chr8. 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)

**Adamts18** a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 18 [ *Mus musculus* (house mouse) ]

Gene ID: 208936, updated on 24-Dec-2019

Summary

- Official Symbol** Adamts18 provided by [MGI](#)
- Official Full Name** a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 18 provided by [MGI](#)
- Primary source** [MGI:MGI:2442600](#)
- See related** [Ensembl:ENSMUSG000000053399](#)
- 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** ADAMTS21; 9630038L21; E130314N14Rik
- Expression** Biased expression in CNS E14 (RPKM 1.9), CNS E18 (RPKM 1.8) and 12 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

**Location:** 8; 8 E1 See Adamts18 in [Genome Data Viewer](#)

**Exon count:** 24

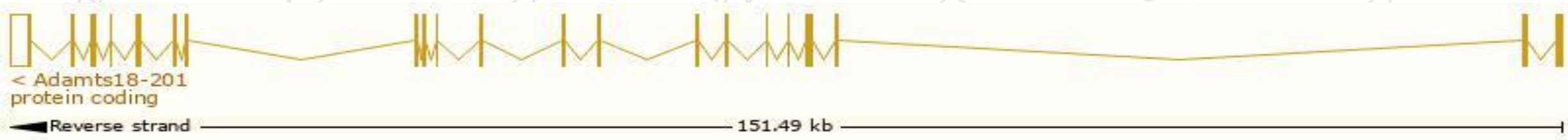
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	8	NC_000074.6 (113697123..113849343, complement)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	8	NC_000074.5 (116222037..116372739, complement)

# Transcript information (Ensembl)

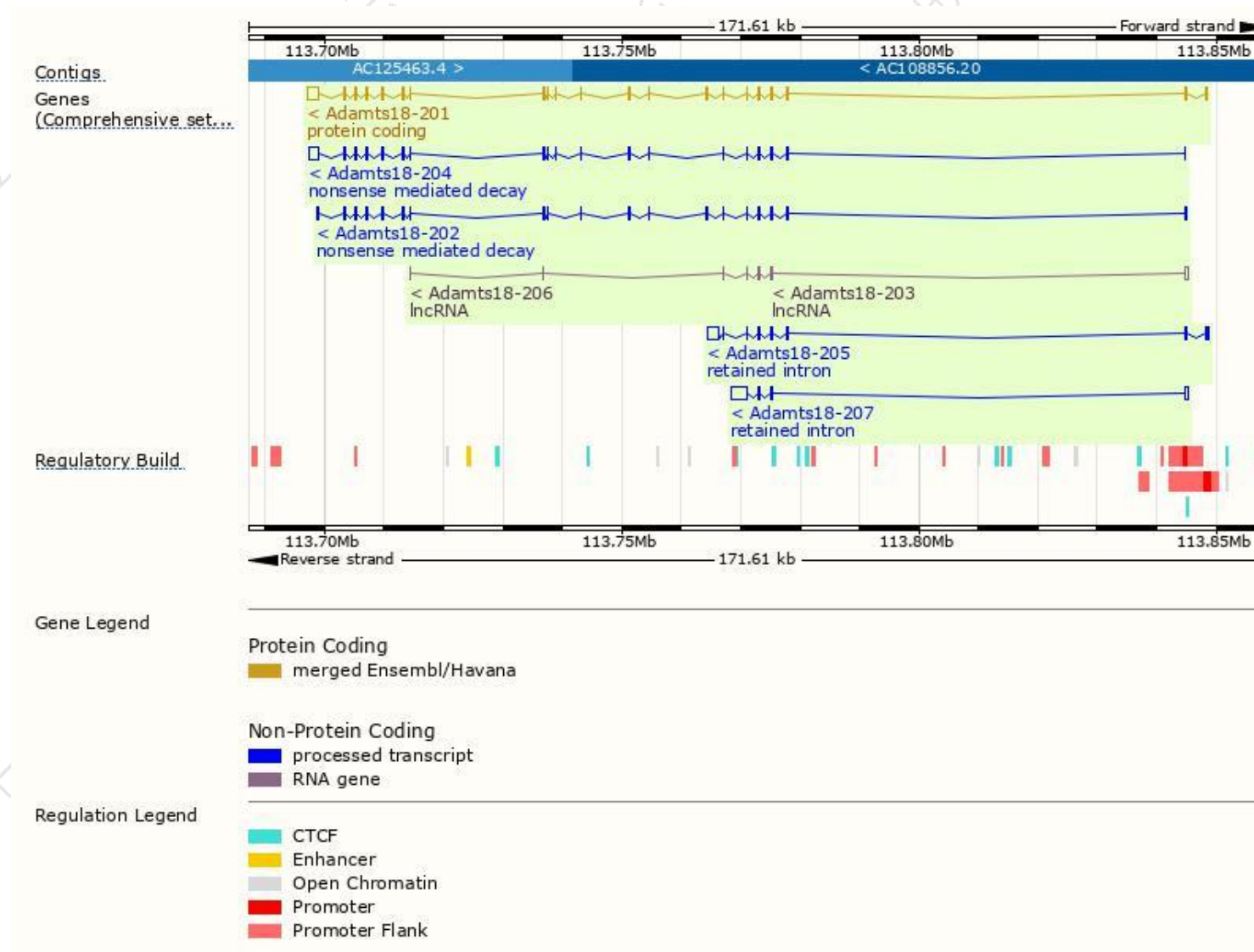
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adamts18-201	<a href="#">ENSMUST00000093113.4</a>	5642	<a href="#">1219aa</a>	Protein coding	<a href="#">CCDS40485</a>	<a href="#">Q4VC17</a>	TSL:1 GENCODE basic APPRIS P1
Adamts18-204	<a href="#">ENSMUST00000212665.1</a>	4591	<a href="#">117aa</a>	Nonsense mediated decay	-	<a href="#">A0A1D5RLE1</a>	CDS 5' incomplete TSL:1
Adamts18-202	<a href="#">ENSMUST00000212437.1</a>	3307	<a href="#">148aa</a>	Nonsense mediated decay	-	<a href="#">A0A1D5RLA5</a>	CDS 5' incomplete TSL:1
Adamts18-207	<a href="#">ENSMUST00000213078.1</a>	3524	No protein	Retained intron	-	-	TSL:1
Adamts18-205	<a href="#">ENSMUST00000213061.1</a>	3397	No protein	Retained intron	-	-	TSL:1
Adamts18-206	<a href="#">ENSMUST00000213076.1</a>	693	No protein	lncRNA	-	-	TSL:3
Adamts18-203	<a href="#">ENSMUST00000212527.1</a>	637	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Adamts18-201* transcript,The transcription is shown below

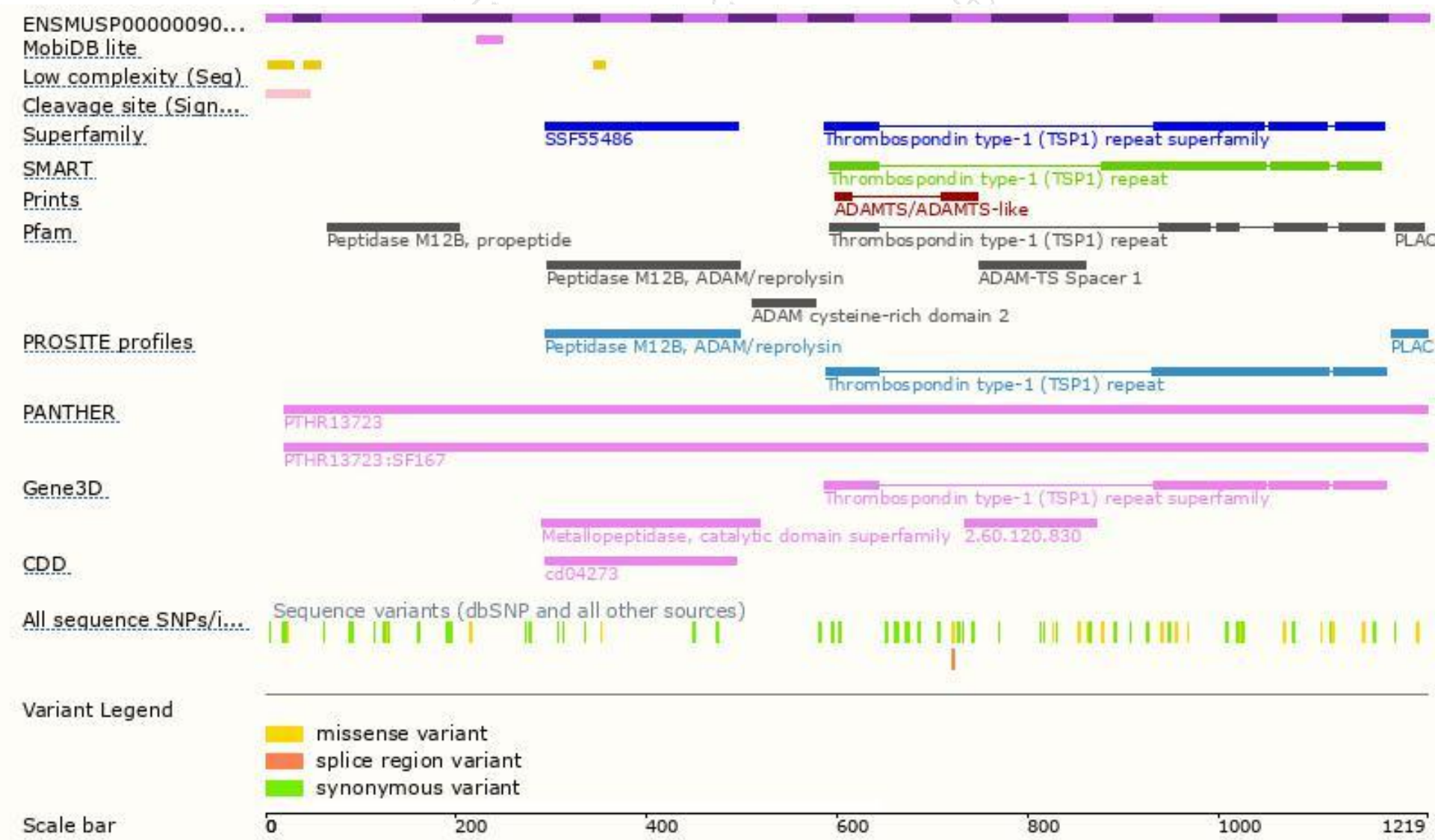


# Genomic location distribution





# 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 floxed allele exhibit some fertility defects. Mice homozygous for a null allele exhibit growth and eye defects and increased susceptibility to chemically induced tumors.

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

Tel: 400-9660890

