Prss55 Cas9-CKO Strategy

Designer: **Daohua Xu**

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Project Overview

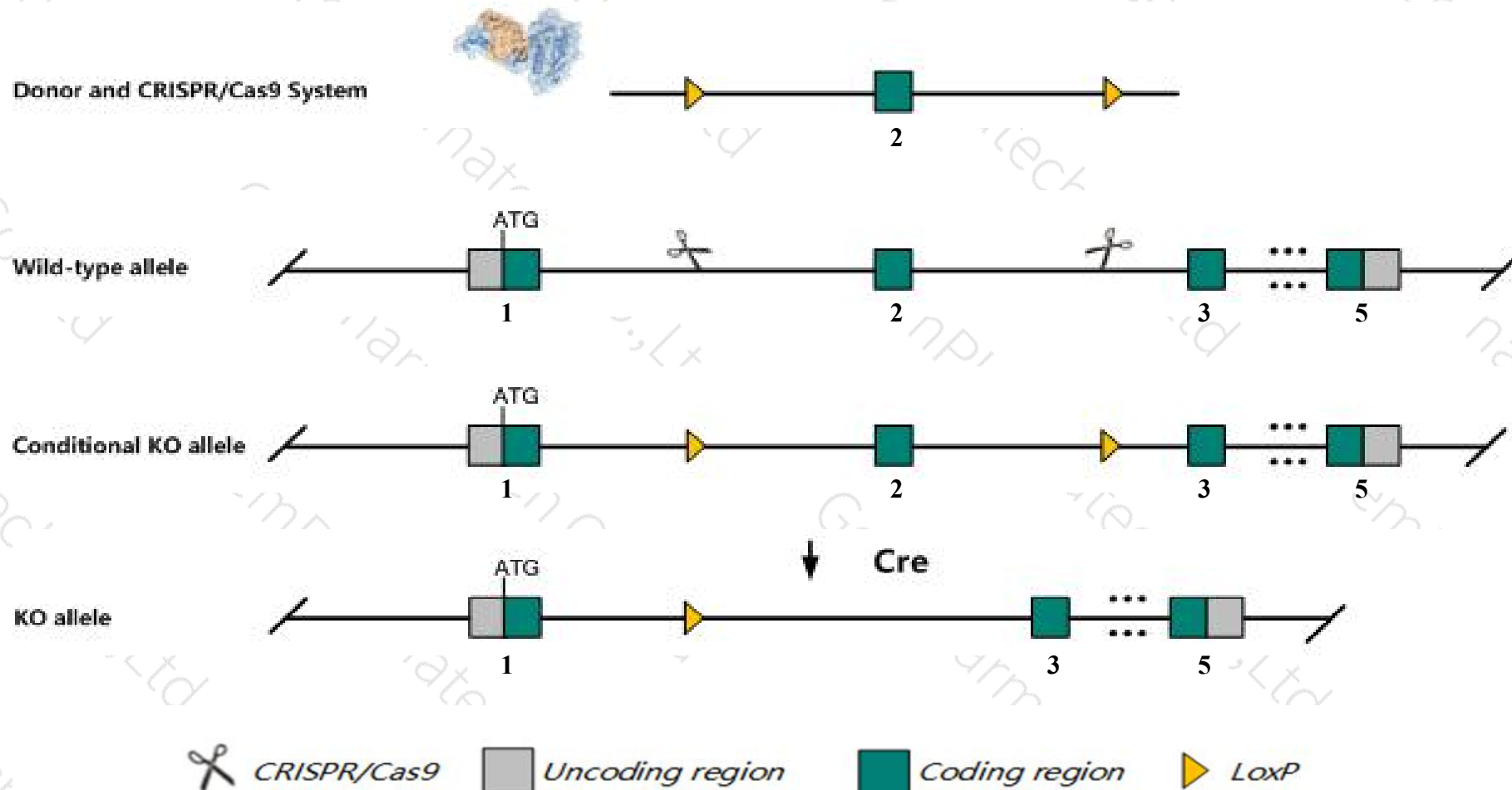|	
Project Name	*Prss55*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Prss55* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System

Wild-type allele

Conditional KO allele

Cre

KO allele

CRISPR/Cas9   Uncoding region   Coding region   LoxP

Technical routes

➤ The *Prss55* gene has 3 transcripts. According to the structure of *Prss55* gene, exon2 of *Prss55-201* (ENSMUST00000089338.5) transcript is recommended as the knockout region.The region contains Ens 193bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Prss55* 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

➢ According to the existing MGI data,Male mice homozygous for a null allele display normal fertility and testis morphology.

➢ The *Prss55* gene is located on the Chr14. 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）

Prss55 protease, serine 55 [Mus musculus (house mouse)]

Gene ID: 71037, updated on 31-Jan-2019

Summary

Official Symbol	Prss55 provided by MGI
Official Full Name	protease, serine 55 provided by MGI
Primary source	MGI:MGI:1918287
See related	Ensembl:ENSMUSG00000034623
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	4933401F05Rik
Expression	Restricted expression toward testis adult (RPKM 127.8)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
Prss55-201	ENSMUST00000089338.5	1032	321aa	Protein coding	CCDS36952	G3X9K6	TSL:1 GENCODE basic APPRIS P1
Prss55-203	ENSMUST00000171503.7	1074	225aa	Protein coding	-	E9QA75	TSL:1 GENCODE basic
Prss55-202	ENSMUST00000169113.1	613	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Prss55-201* transcript,The transcription is shown below

< Prss55-201
protein coding

◄ Reverse strand

9.96 kb
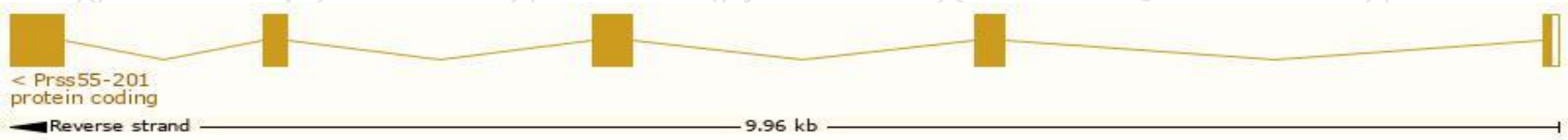
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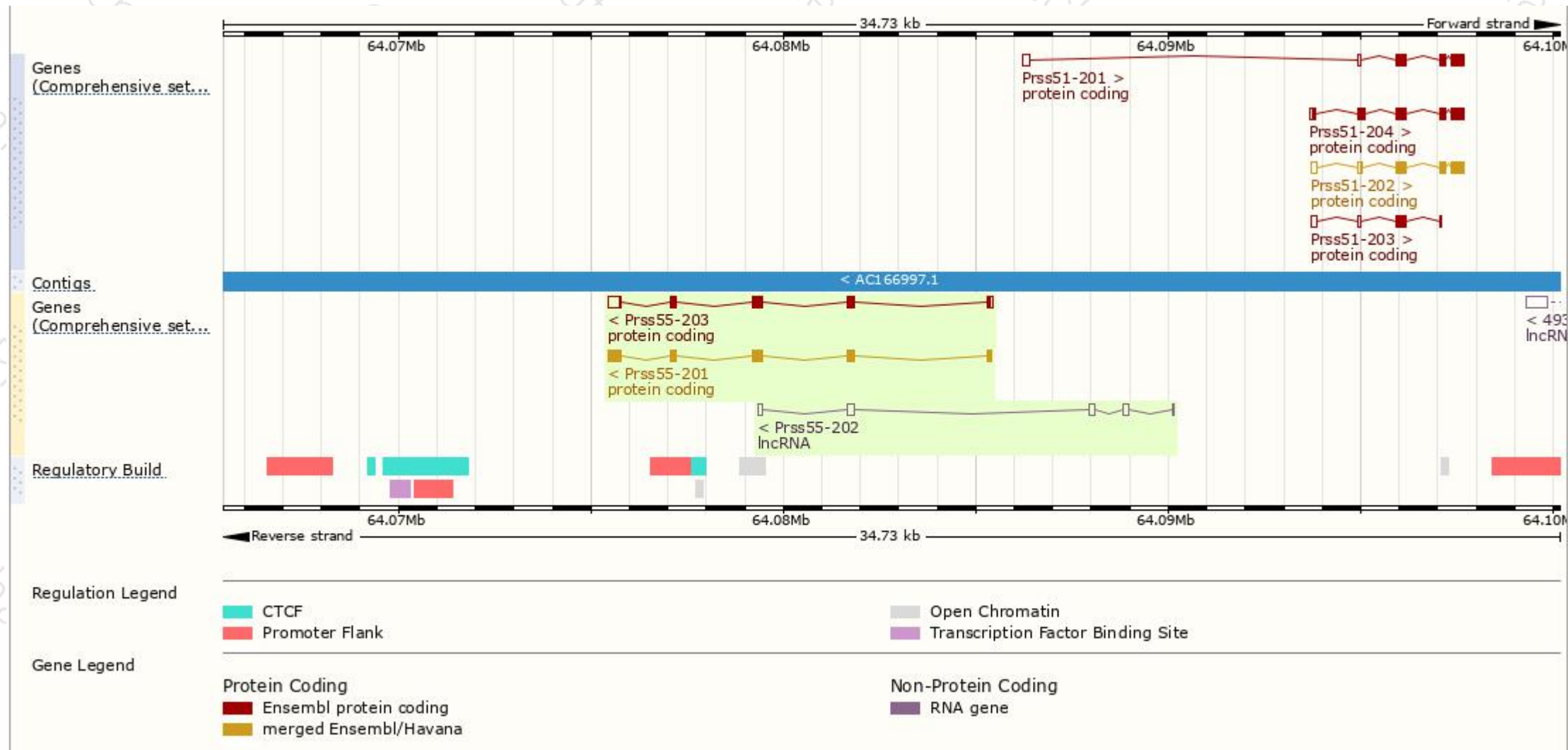
Protein domain

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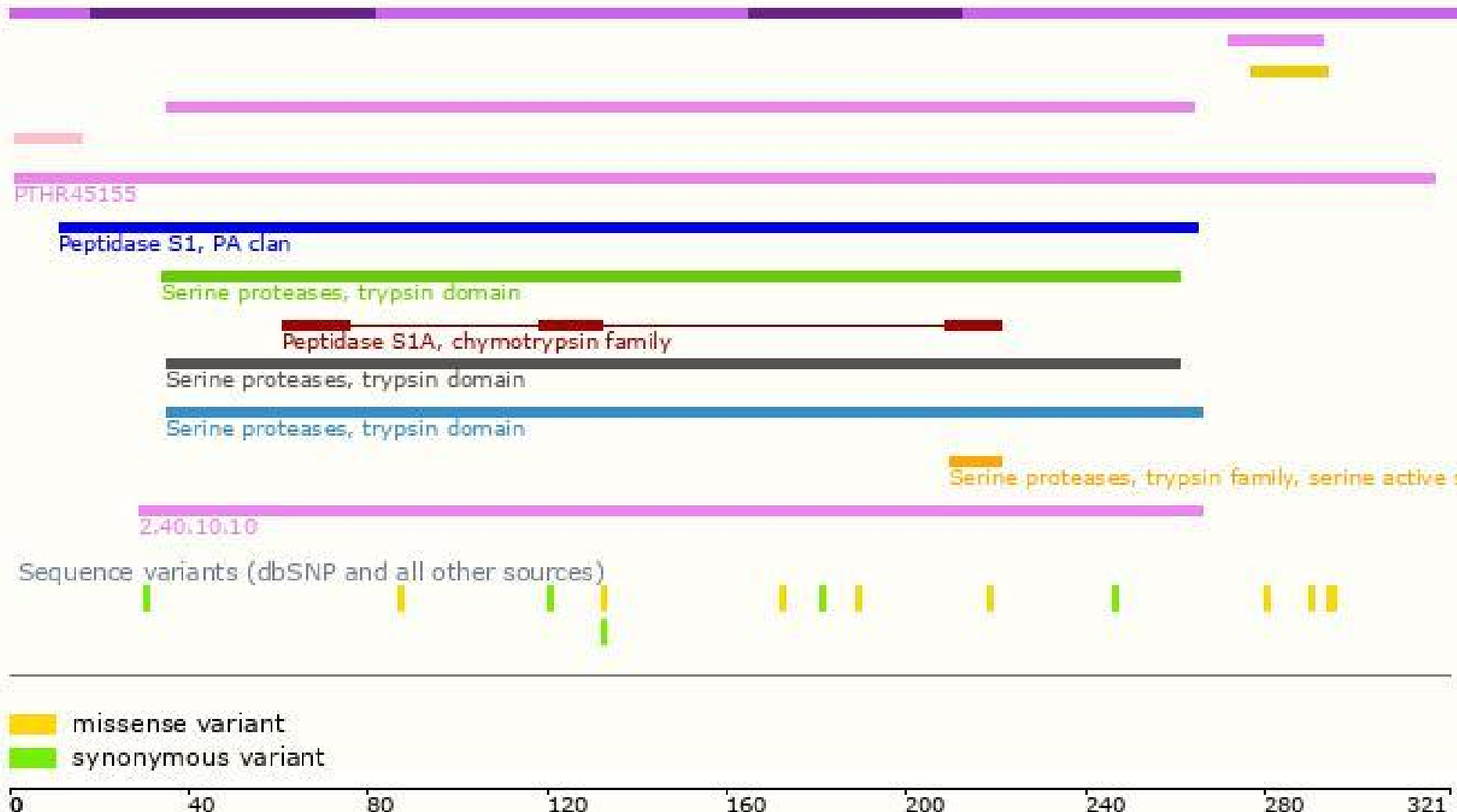
If you have any questions, you are welcome to inquire.
Tel: 400-9660890

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GemPharmatech Co.,Ltd