

Prss12 Cas9-KO Strategy

Designer:

Daohua Xu

Reviewer:

Huimin Su

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Project Overview

Project Name

Prss12

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Prss12* gene. The schematic diagram is as follows:



- The *Prss12* gene has 1 transcript. According to the structure of *Prss12* gene, exon2 of *Prss12-201* (ENSMUST00000029603.9) transcript is recommended as the knockout region. The region contains 151bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Prss12* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a targeted mutation display hypoactivity and increased anxiety.
- The *Prss12* gene is located on the Chr3. 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)

Prss12 protease, serine 12 neurotrypsin (motopsin) [Mus musculus (house mouse)]

Gene ID: 19142, updated on 31-Jan-2019

Summary



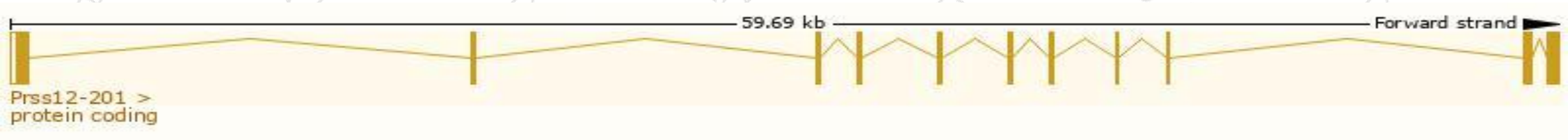
Official Symbol	Prss12 provided by MGI
Official Full Name	protease, serine 12 neurotrypsin (motopsin) provided by MGI
Primary source	MGI:MGI:1100881
See related	Ensembl:ENSMUSG000000027978
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Bssp-3, motopsin
Expression	Broad expression in limb E14.5 (RPKM 5.7), frontal lobe adult (RPKM 5.1) and 20 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

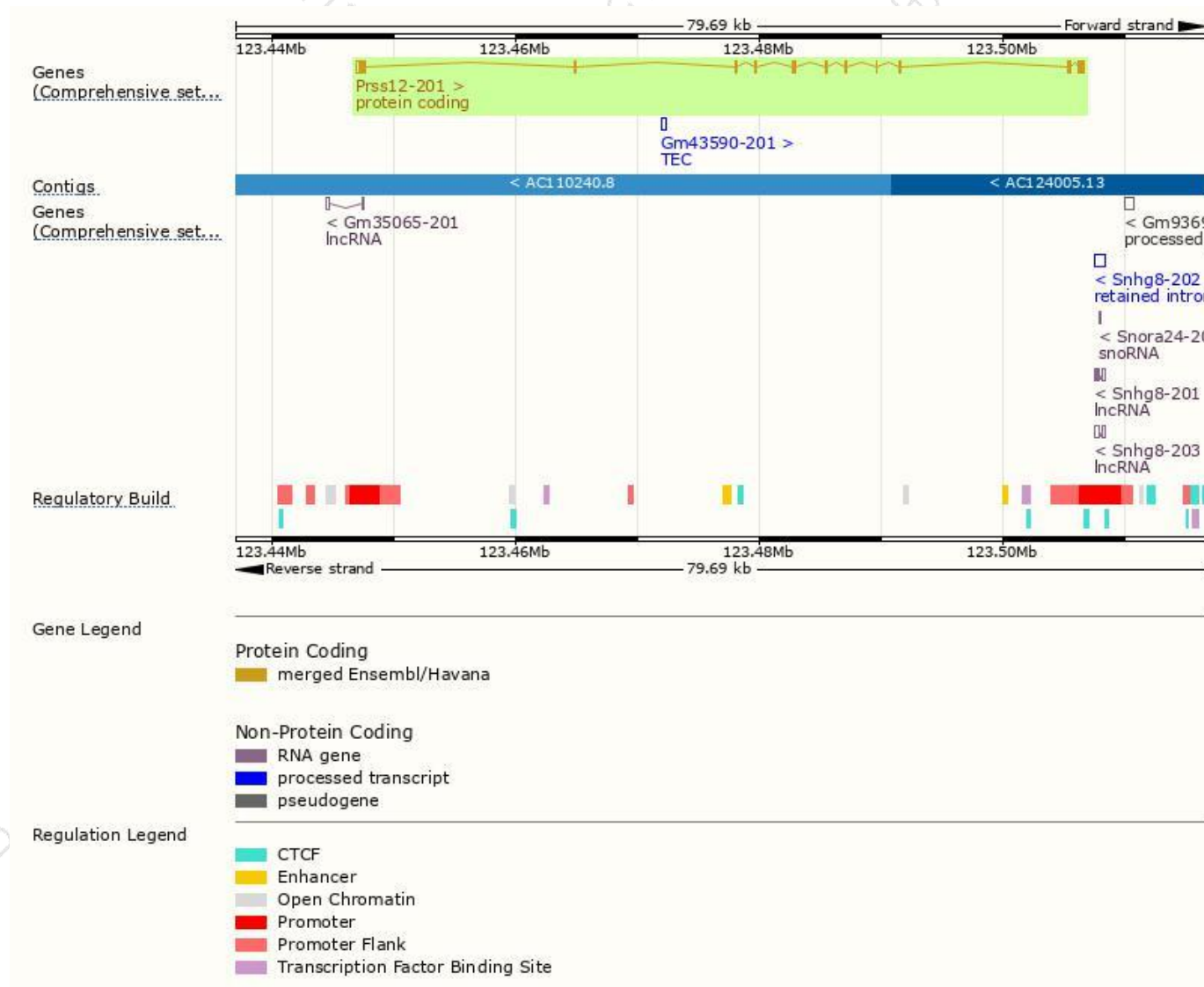
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Prss12-201	ENSMUST00000029603.9	2602	761aa	Protein coding	CCDS17817	O08762	TSL:1 GENCODE basic APPRIS P1

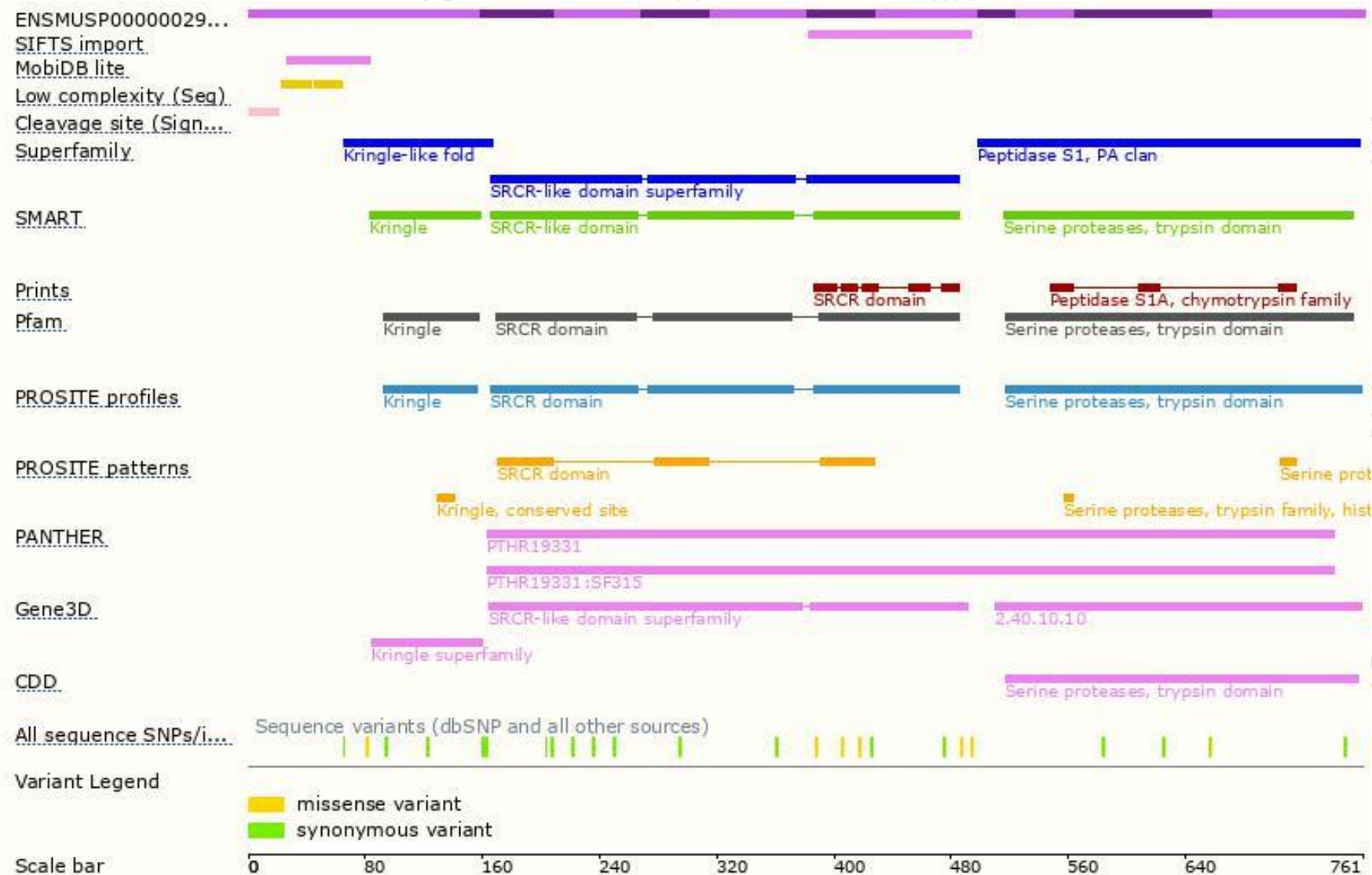
The strategy is based on the design of *Prss12-201* transcript, The transcription is shown below



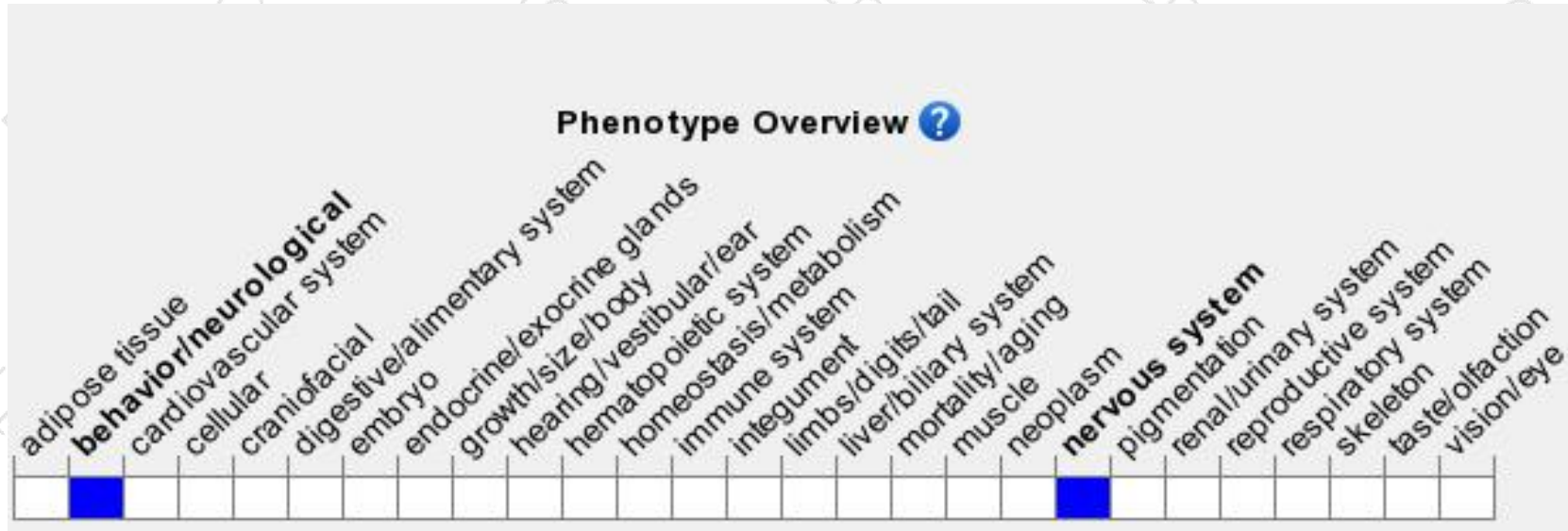
Genomic location distribution



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 targeted mutation display hypoactivity and increased anxiety.

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

Tel: 400-9660890

