Pspc1 Cas9-KO Strategy

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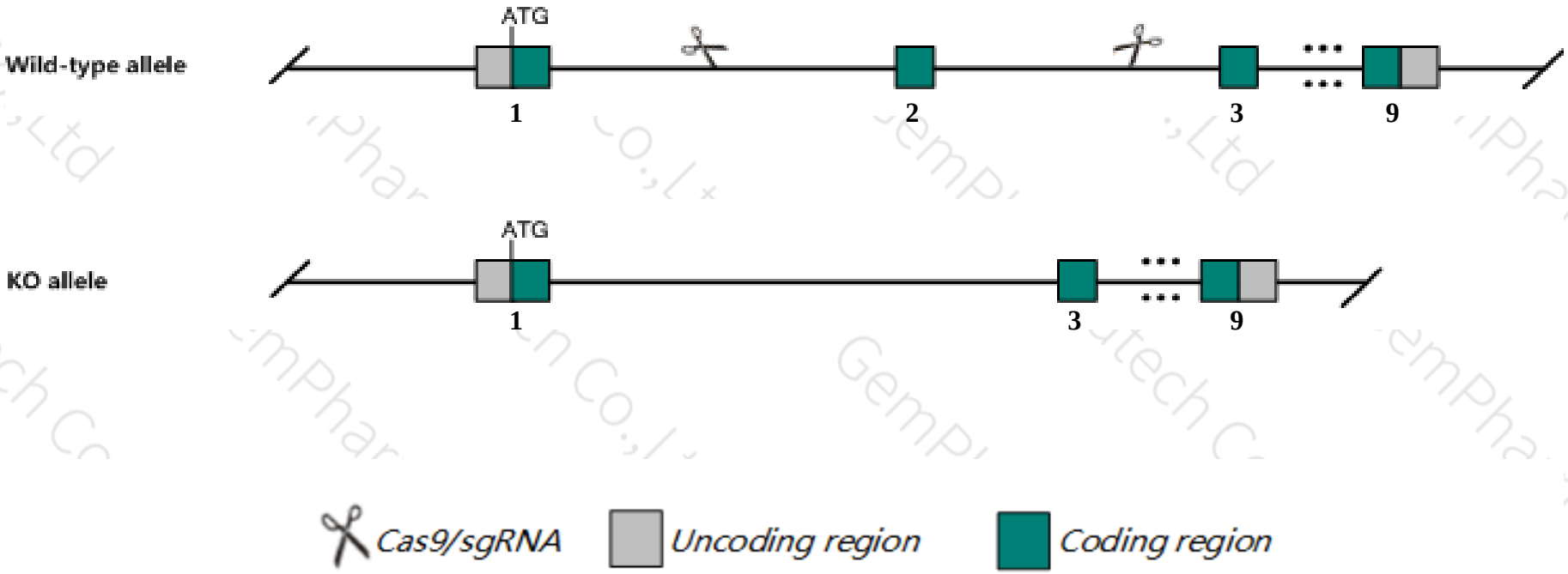
Project Overview

Project Name	***Pspc1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pspc1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Pspc1* gene has 4 transcripts. According to the structure of *Pspc1* gene, exon2 of *Pspc1-201* (ENSMUST00000022507.12) transcript is recommended as the knockout region.The region contains 302bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Pspc1* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA 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

➢ According to the existing MGI data,Mice homozygous for a gene trap allele do not display any gross abnormalities.

➢ The *Pspc1* 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 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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Pspc1 paraspeckle protein 1 [Mus musculus (house mouse)]

Gene ID: 66645, updated on 19-Feb-2019

Summary

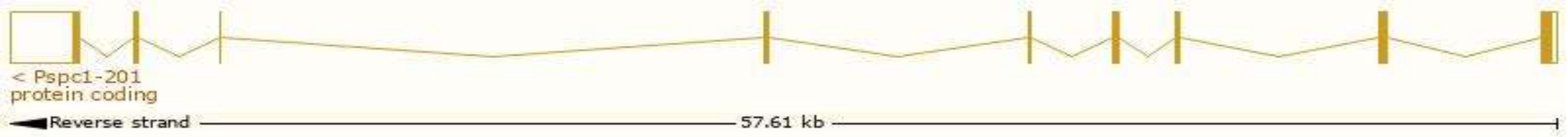
Official Symbol	Pspc1 provided by MGI
Official Full Name	paraspeckle protein 1 provided by MGI
Primary source	MGI:MGI:1913895
See related	Ensembl:ENSMUSG00000021938
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5730470C09Rik, AI327109, AI449052, PSP1
Expression	Broad expression in CNS E11.5 (RPKM 31.2), CNS E14 (RPKM 27.7) and 24 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

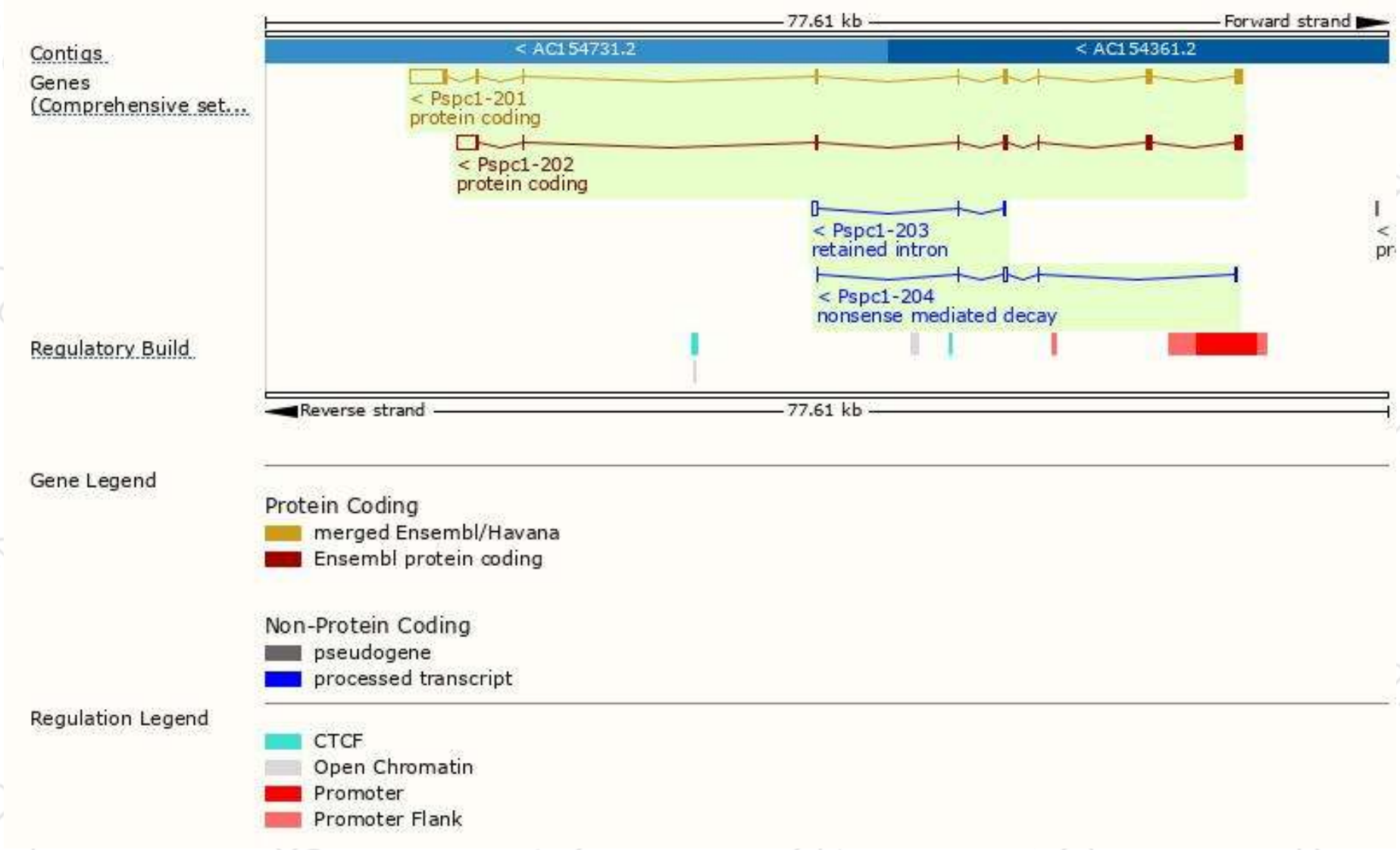
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pspc1-201	ENSMUST00000022507.12	4114	523aa	Protein coding	CCDS27151	Q8R326	TSL:1 GENCODE basic APPRIS P2
Pspc1-202	ENSMUST00000163924.1	2863	466aa	Protein coding	-	Q8R326	TSL:1 GENCODE basic APPRIS ALT2
Pspc1-204	ENSMUST00000168575.1	601	59aa	Nonsense mediated decay	-	F7D909	CDS 5' incomplete TSL:3
Pspc1-203	ENSMUST00000168524.7	528	No protein	Retained intron	-	-	TSL:2

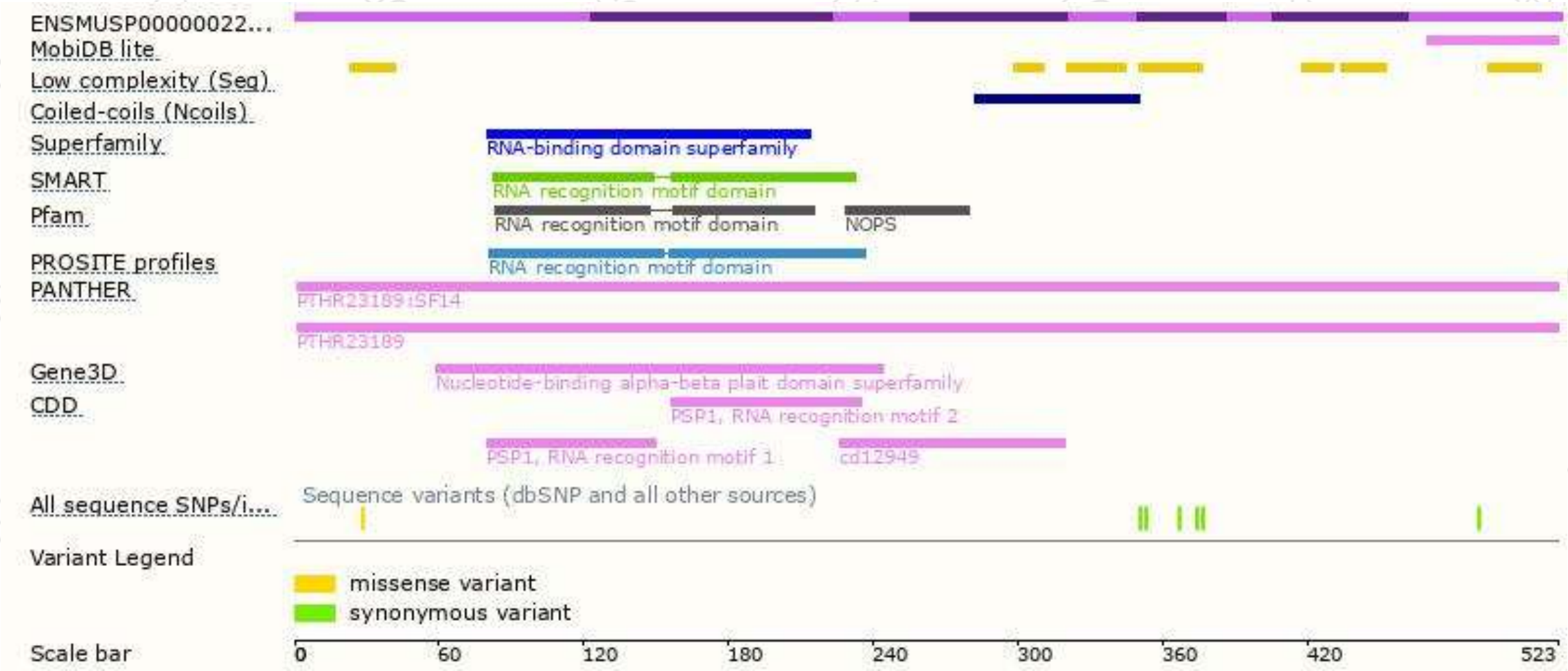
The strategy is based on the design of *Pspc1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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