Sept2 Cas9-KO Strategy

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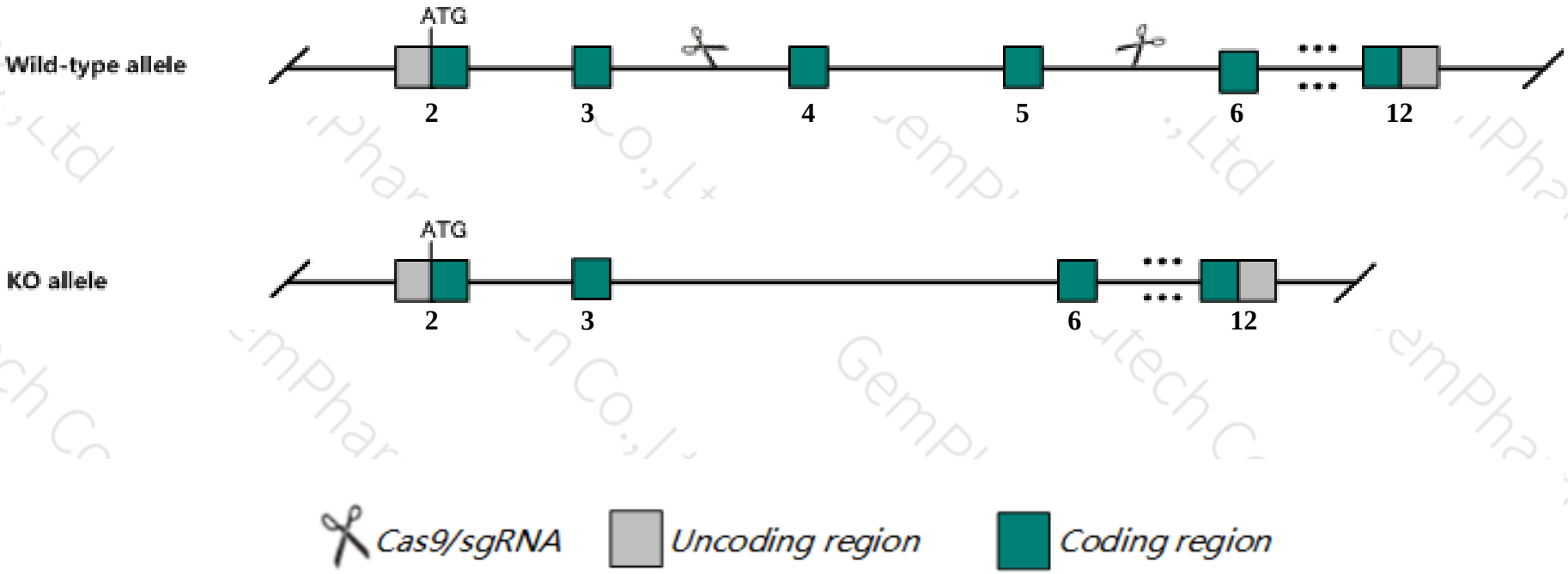
Project Overview

Project Name	***Sept2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sept2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Sept2* gene has 16 transcripts. According to the structure of *Sept2* gene, exon4-exon5 of *Sept2-201* (ENSMUST00000027495.14) transcript is recommended as the knockout region.The region contains 211bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Sept2* 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

➢ The *Sept2* gene is located on the Chr1. 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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Sept2 septin 2 [Mus musculus (house mouse)]

Gene ID: 18000, updated on 19-Mar-2019

Summary

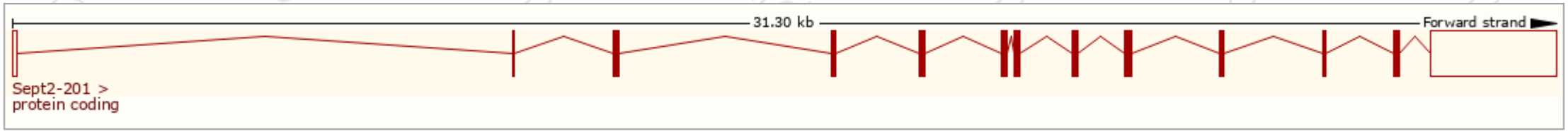
Official Symbol	Sept2 provided by MGI
Official Full Name	septin 2 provided by MGI
Primary source	MGI:MGI:97298
See related	Ensembl:ENSMUSG00000026276 Ensembl:ENSMUSG00000116048
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW208991, Nedd-5, Nedd5, Septin2, mKIAA0158
Expression	Ubiquitous expression in placenta adult (RPKM 64.8), bladder adult (RPKM 49.3) and 24 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

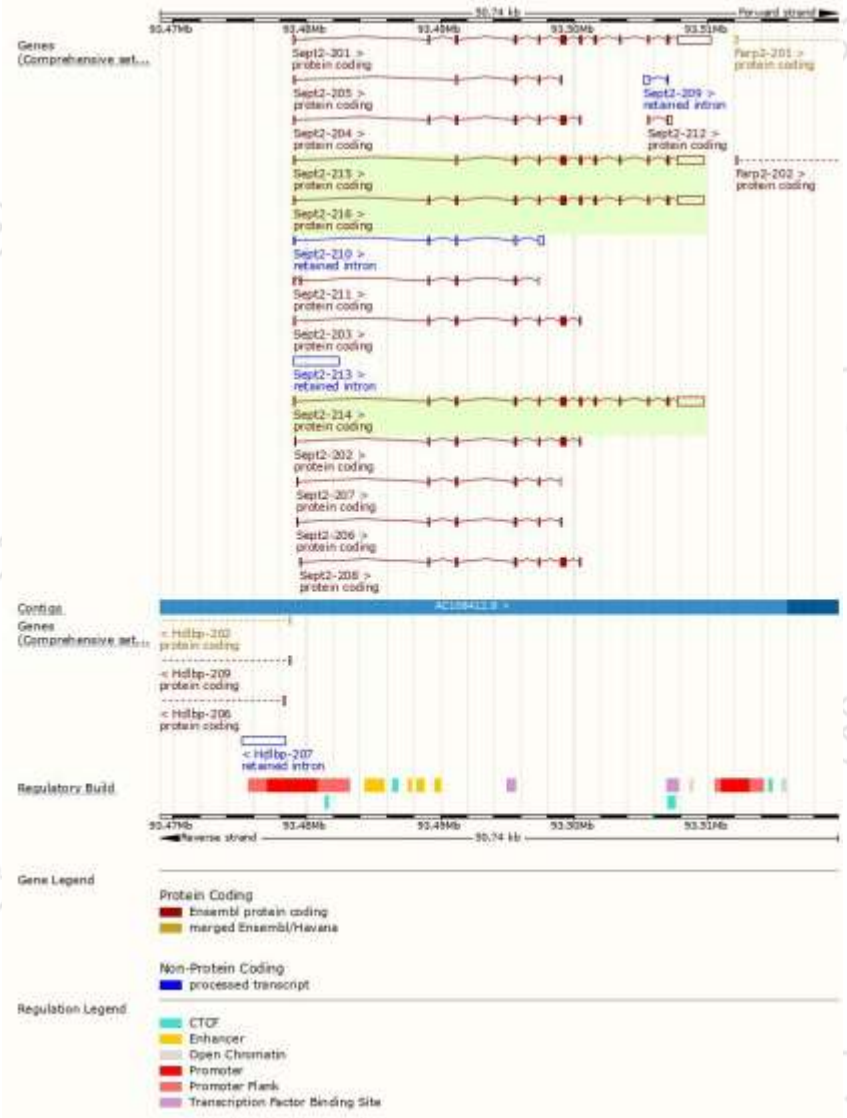
The gene has 16 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sept2-201	ENSMUST00000027495.14	3779	361aa	Protein coding	CCDS15190	P42208	TSL:1 GENCODE basic APPRIS P1
Sept2-203	ENSMUST00000129211.7	784	213aa	Protein coding	-	D3YYB1	CDS 3' incomplete TSL:5
Sept2-208	ENSMUST00000150931.1	779	221aa	Protein coding	-	D3Z3C0	CDS 3' incomplete TSL:3
Sept2-202	ENSMUST00000112912.7	756	221aa	Protein coding	-	D3Z3C0	CDS 3' incomplete TSL:5
Sept2-204	ENSMUST00000131175.8	730	212aa	Protein coding	-	F6WYM0	CDS 3' incomplete TSL:5
Sept2-206	ENSMUST00000142401.7	552	177aa	Protein coding	-	D3Z1S1	CDS 3' incomplete TSL:2
Sept2-205	ENSMUST00000136182.7	512	107aa	Protein coding	-	F6UKN5	CDS 3' incomplete TSL:2
Sept2-207	ENSMUST00000149532.7	477	120aa	Protein coding	-	D3YZU7	CDS 3' incomplete TSL:5
Sept2-211	ENSMUST00000153826.7	424	77aa	Protein coding	-	D3YV76	CDS 3' incomplete TSL:5
Sept2-212	ENSMUST00000157021.1	418	45aa	Protein coding	-	G3UYQ0	CDS 5' incomplete TSL:2
Sept2-213	ENSMUST00000188923.1	3310	No protein	Retained intron	-	-	TSL:NA
Sept2-210	ENSMUST00000152778.1	696	No protein	Retained intron	-	-	TSL:2
Sept2-209	ENSMUST00000152476.1	466	No protein	Retained intron	-	-	TSL:2

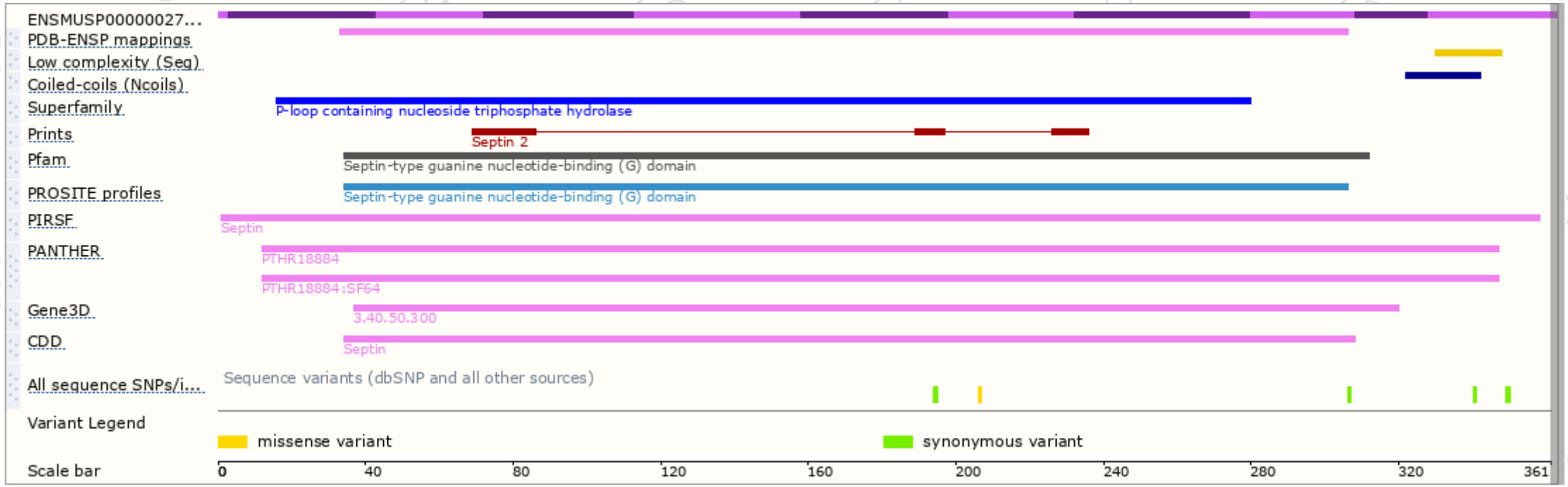
The strategy is based on the design of *Sept2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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