Smarcb1 Cas9-KO Strategy

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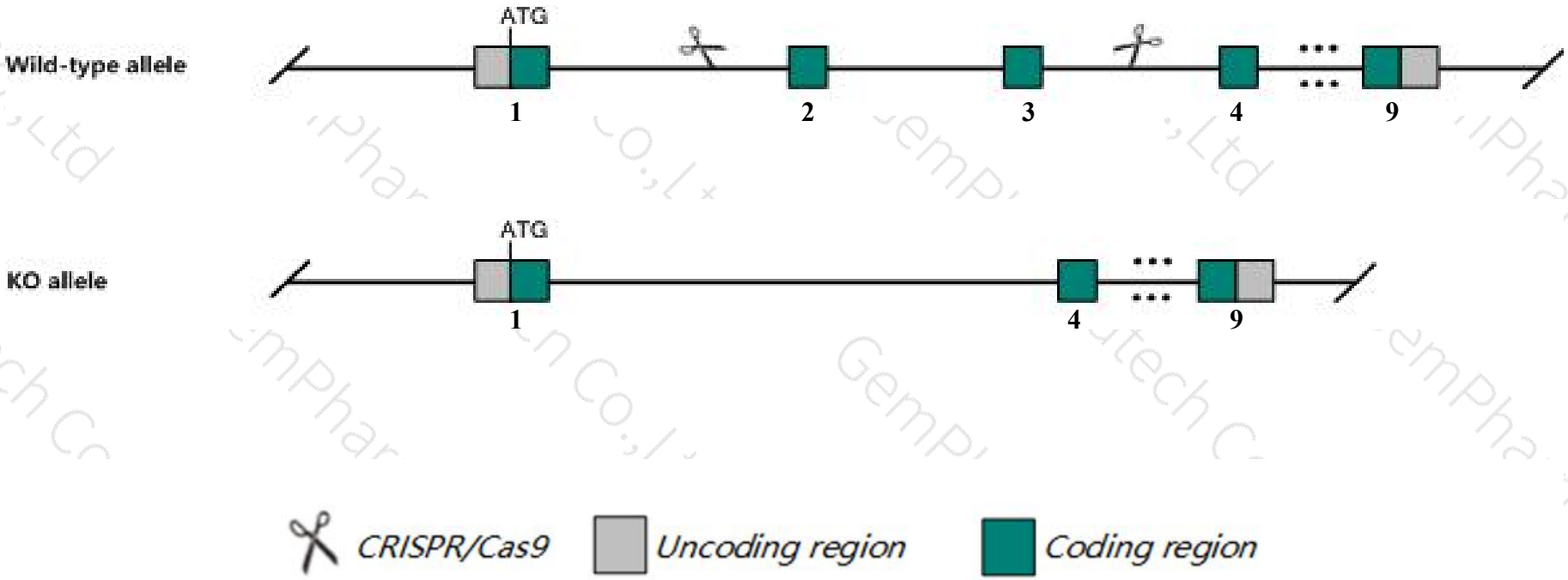
Project Overview

Project Name	***Smarcb1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Smarcb1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Smarcb1* gene has 6 transcripts. According to the structure of *Smarcb1* gene, exon2-exon3 of *Smarcb1-201* (ENSMUST00000000925.9) transcript is recommended as the knockout region.The region contains 269bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Smarcb1* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- According to the existing MGI data,Homozygous inactivation of this gene leads to peri-implantation lethality, likely due to an inability of the blastocysts to hatch and implant in the uterus. A subset of heterozygous null mice develop a variety of tumors in the soft tissues of the head and neck.

- The *Smarcb1* gene is located on the Chr10. 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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Smarcb1 SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily b, member 1 [*Mus musculus* (house mouse)]

Gene ID: 20587, updated on 12-Aug-2019

Summary

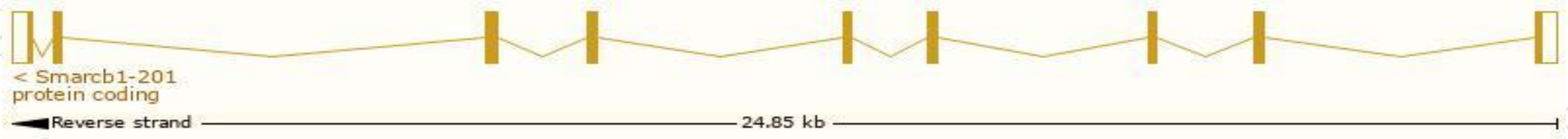
Official Symbol	Smarcb1 provided by MGI
Official Full Name	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily b, member 1 provided by MGI
Primary source	MGI:MGI:1328366
See related	Ensembl:ENSMUSG00000000902
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ini1; Snf5; Baf47; AU020204; SNF5/INI1
Expression	Ubiquitous expression in adrenal adult (RPKM 44.4), CNS E11.5 (RPKM 42.9) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

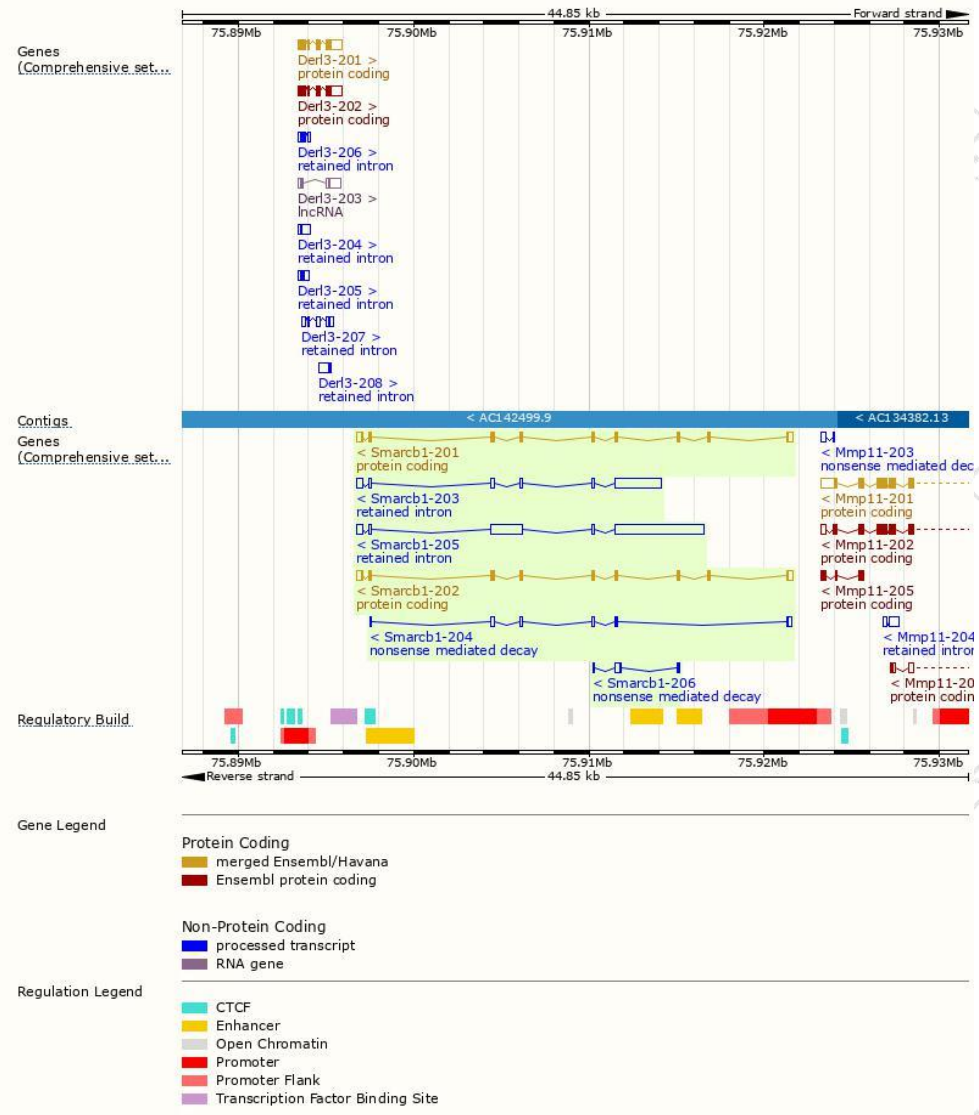
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Smarcb1-201	ENSMUST00000000925.9	1660	385aa	Protein coding	CCDS23936	Q6ZWP4 Q9Z0H3	TSL:1 GENCODE basic APPRIS P3
Smarcb1-202	ENSMUST00000121304.1	1622	376aa	Protein coding	CCDS48602	Q3UDA4 Q9Z0H3	TSL:1 GENCODE basic APPRIS ALT1
Smarcb1-204	ENSMUST00000140388.1	960	78aa	Nonsense mediated decay	-	D6RDC4	TSL:5
Smarcb1-206	ENSMUST00000146555.1	427	55aa	Nonsense mediated decay	-	F6U415	CDS 5' incomplete TSL:5
Smarcb1-205	ENSMUST00000140408.1	7441	No protein	Retained intron	-	-	TSL:1
Smarcb1-203	ENSMUST00000133189.7	3607	No protein	Retained intron	-	-	TSL:5

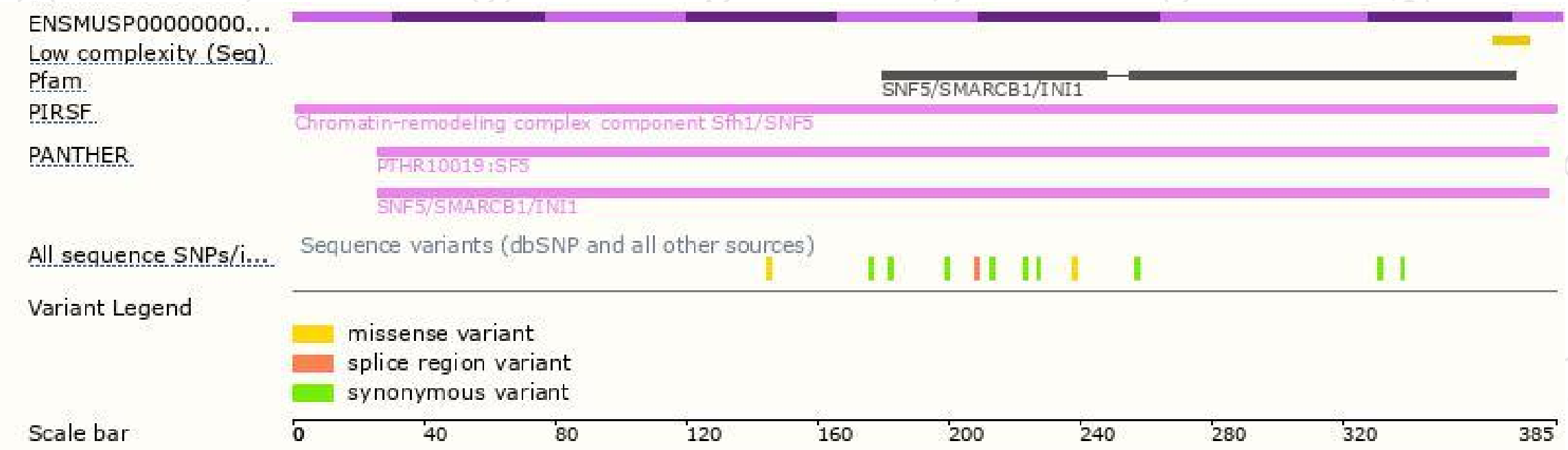
The strategy is based on the design of *Smarcb1-201* transcript,The transcription is shown below



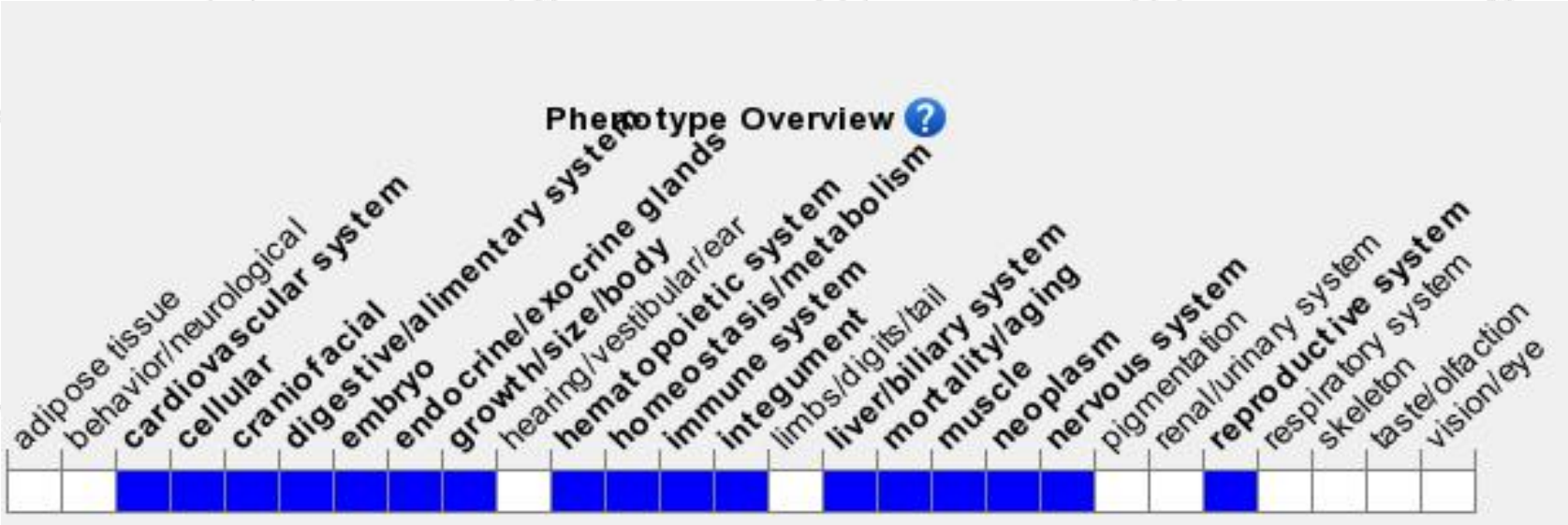
Genomic location distribution



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/).

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

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