Sh2d6 Cas9-CKO Strategy

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Design Date: 2021-2-8

Project Overview

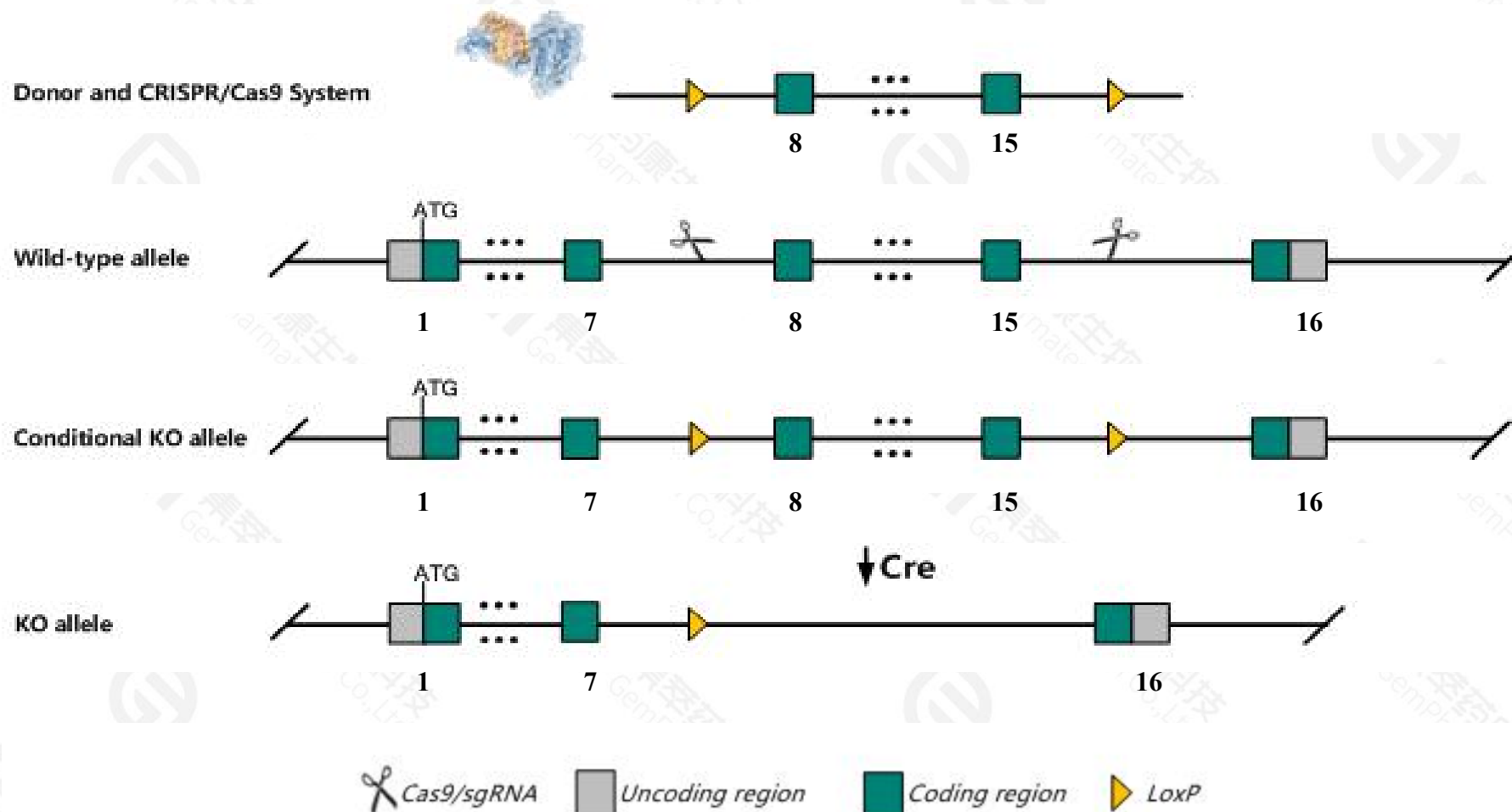|	
Project Name	*Sh2d6*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sh2d6* gene. The schematic diagram is as follows:

➢ The *Sh2d6* gene has 10 transcripts. According to the structure of *Sh2d6* gene, exon8-exon15 of *Sh2d6-209*(ENSMUST00000234615.1) transcript is recommended as the knockout region.The region contains 512bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Sh2d6* gene. The brief process is as follows:sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA 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 was 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

➢ The *Sh2d6* gene is located on the Chr6. 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）

Sh2d6 SH2 domain containing 6 [Mus musculus (house mouse)]

Gene ID: 71130, updated on 13-Mar-2020

▲ Summary

Official Symbol	Sh2d6 provided by MGI
Official Full Name	SH2 domain containing 6 provided by MGI
Primary source	MGI:MGI:1918380
See related	Ensembl:ENSMUSG00000052631
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
Expression	Biased expression in testis adult (RPKM 14.4), duodenum adult (RPKM 4.1) and 6 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sh2d6-209	ENSMUST00000234615.1	1381	357aa	Protein coding	-	A0A3Q4ECA8	GENCODE basic APPRIS P5
Sh2d6-206	ENSMUST00000162561.8	1266	250aa	Protein coding	-	E0CYY5	TSL:1 GENCODE basic APPRIS ALT2
Sh2d6-208	ENSMUST00000234220.1	1254	276aa	Protein coding	-	A0A3Q4EGG3	GENCODE basic APPRIS ALT2
Sh2d6-210	ENSMUST00000235004.1	1239	250aa	Protein coding	-	E0CYY5	GENCODE basic APPRIS ALT2
Sh2d6-203	ENSMUST00000159877.2	1214	250aa	Protein coding	-	E0CYY5	TSL:1 GENCODE basic APPRIS ALT2
Sh2d6-207	ENSMUST00000234038.1	1166	250aa	Protein coding	-	E0CYY5	GENCODE basic APPRIS ALT2
Sh2d6-201	ENSMUST00000089687.10	1162	296aa	Protein coding	-	E9QJU1	TSL:5 GENCODE basic APPRIS ALT2
Sh2d6-204	ENSMUST00000160123.8	980	251aa	Protein coding	-	A0A3Q4EBW9	TSL:5 GENCODE basic
Sh2d6-205	ENSMUST00000160761.2	1308	213aa	Nonsense mediated decay	-	A0A3Q4EGW3	TSL:5
Sh2d6-202	ENSMUST00000159577.2	1109	112aa	Nonsense mediated decay	-	A0A3Q4EG63	TSL:3

The strategy is based on the design of *Sh2d6-209* transcript,the transcription is shown below:

< Sh2d6-209
protein coding

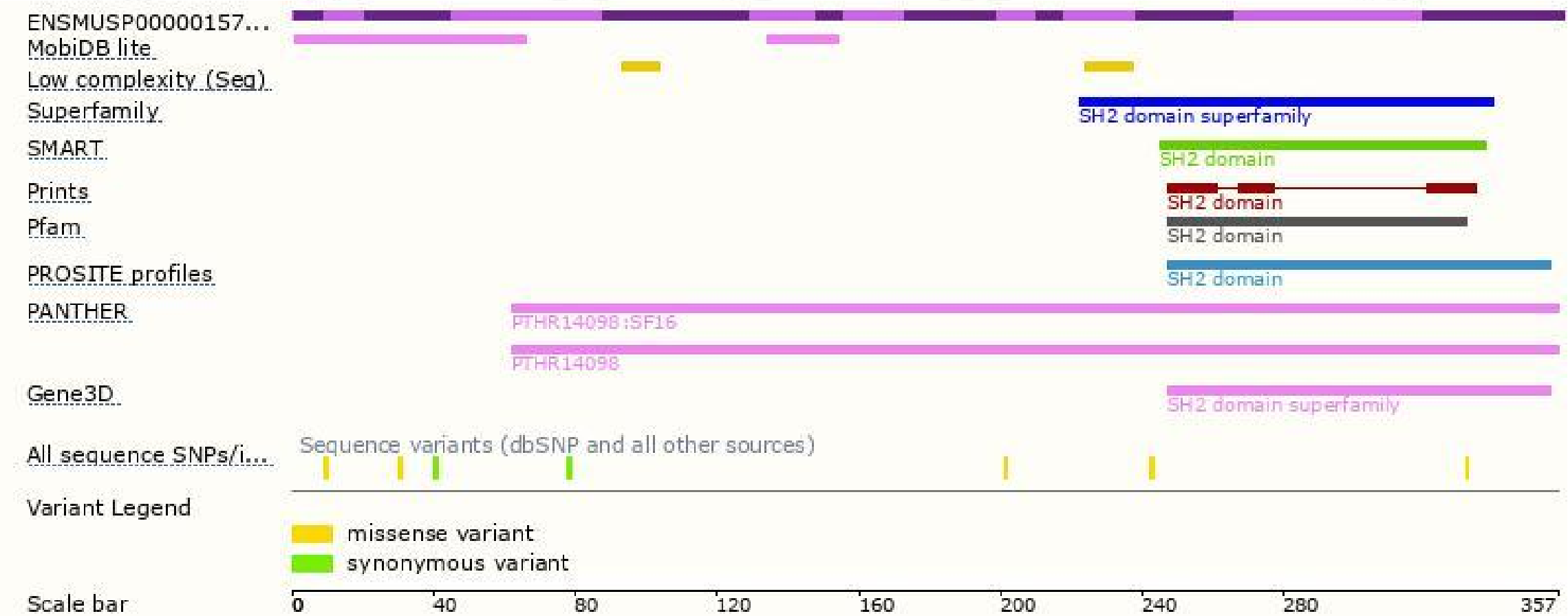◄— Reverse strand ———————————— 8.06 kb ————————————
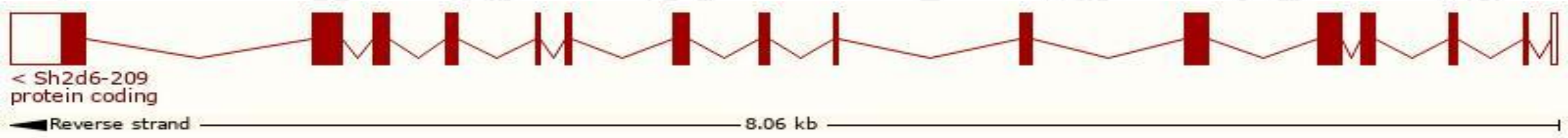
Genomic location distribution
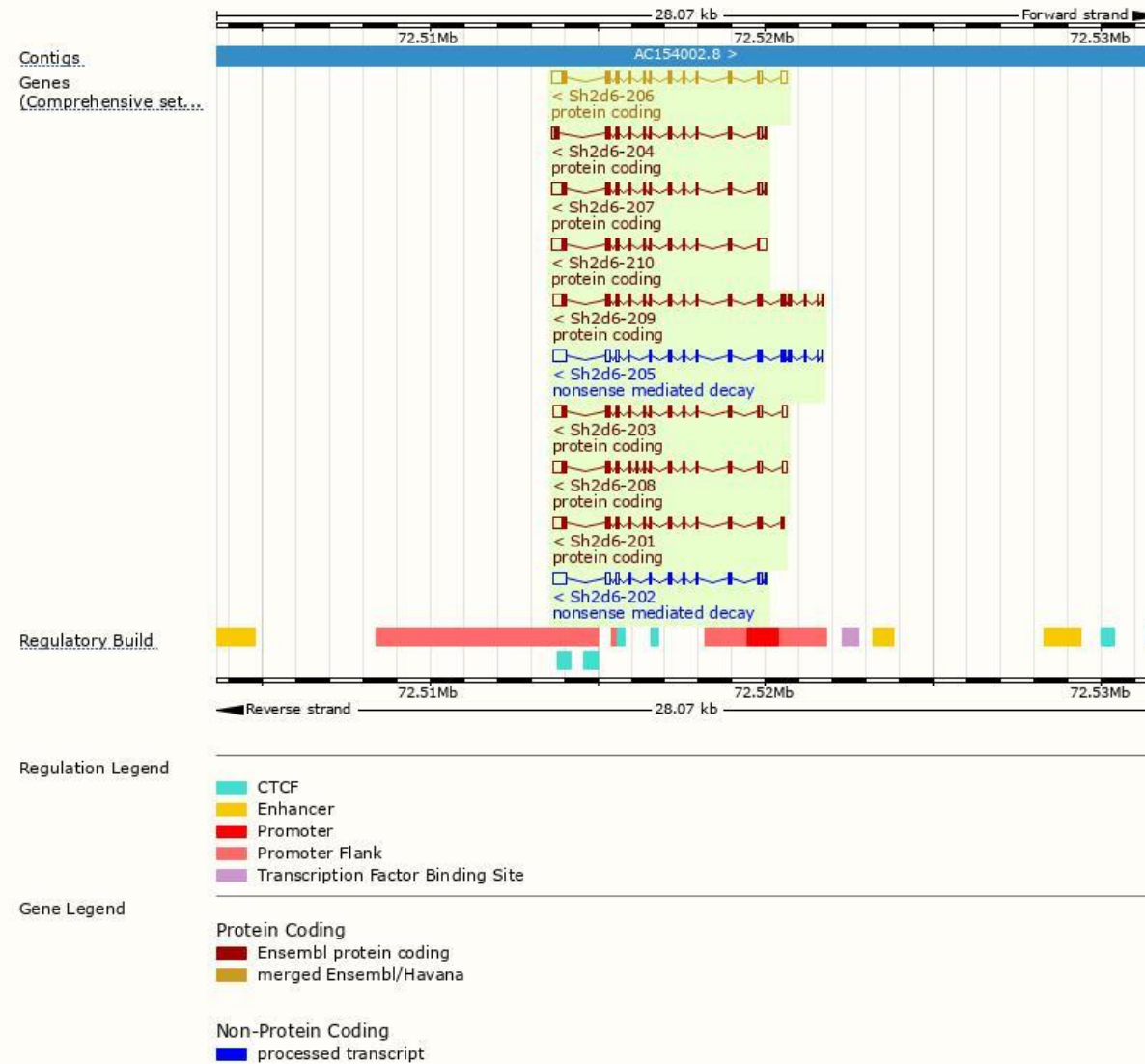
Protein domain

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