

Srsf10 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Srsf10

Project type

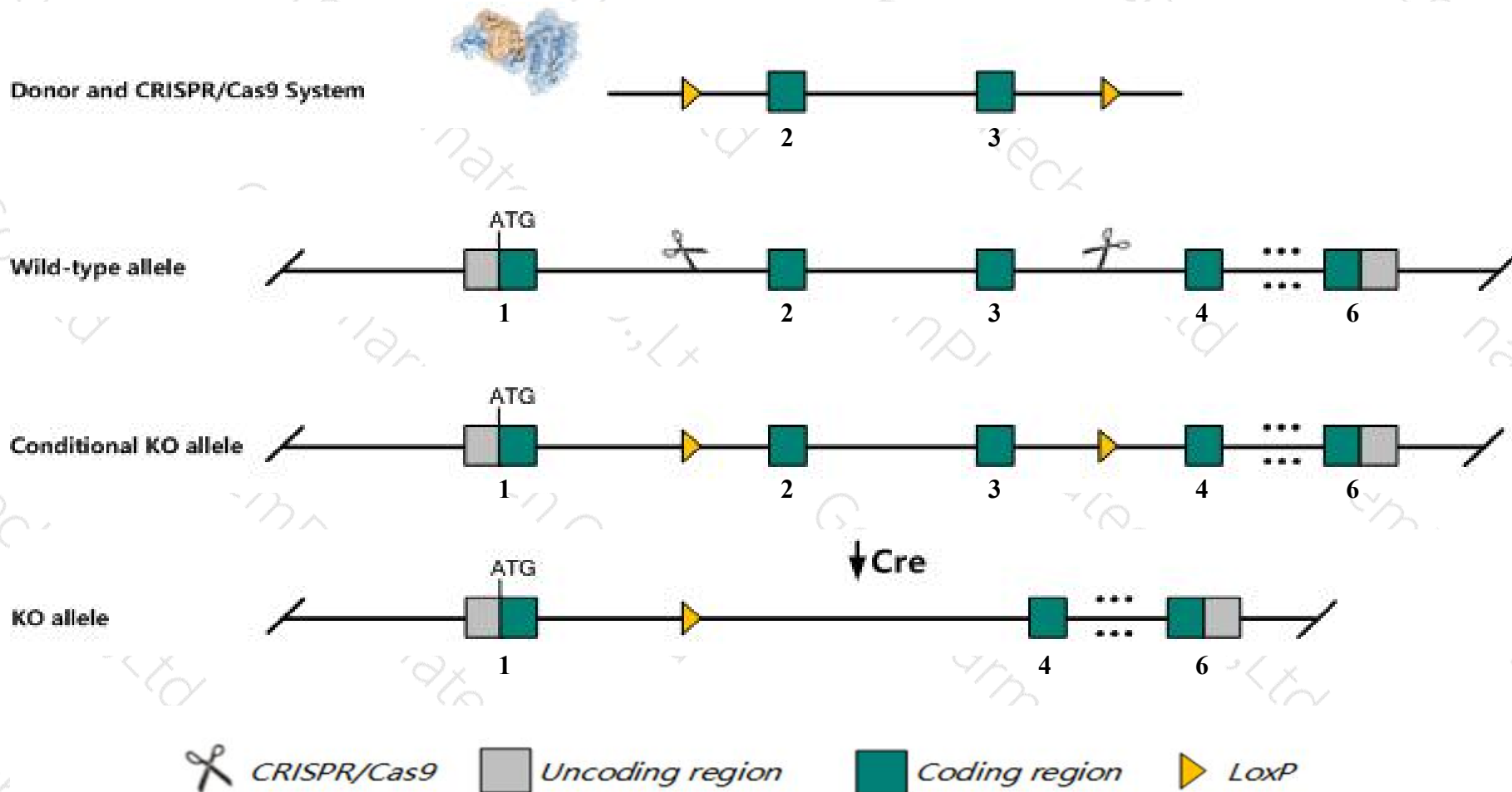
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Srsf10* gene. The schematic diagram is as follows:



Technical routes

- The *Srsf10* gene has 10 transcripts. According to the structure of *Srsf10* gene, exon2-exon3 of *Srsf10*-205 (ENSMUST00000126641.1) transcript is recommended as the knockout region. The region contains 209bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Srsf10* gene. The brief process is as follows: CRISPR/Cas9 system 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 will be 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.

- According to the existing MGI data, Mice homozygous for a null allele exhibit fetal and neonatal lethality associated with edema and cardiac defects.
- The *Srsf10* gene is located on the Chr4. 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)

Srsf10 serine/arginine-rich splicing factor 10 [Mus musculus (house mouse)]

Gene ID: 14105, updated on 3-Feb-2019

Summary



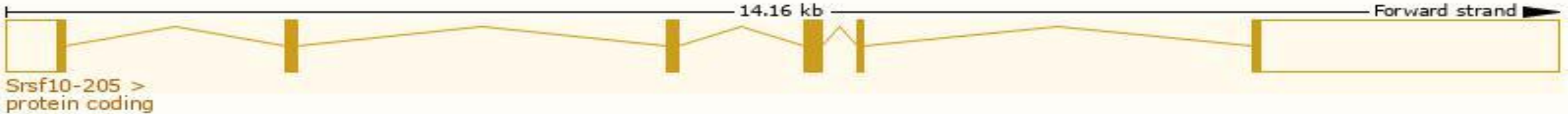
Official Symbol	Srsf10 provided by MGI
Official Full Name	serine/arginine-rich splicing factor 10 provided by MGI
Primary source	MGI:MGI:1333805
See related	Ensembl:ENSMUSG00000028676
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	FUSIP2, Fusip1, NSSR1, NSSR2, Nssr, SRrp40, Sfrs13a, Srsf13a, TASR, TASR1, TASR2
Expression	Ubiquitous expression in CNS E11.5 (RPKM 24.5), limb E14.5 (RPKM 19.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

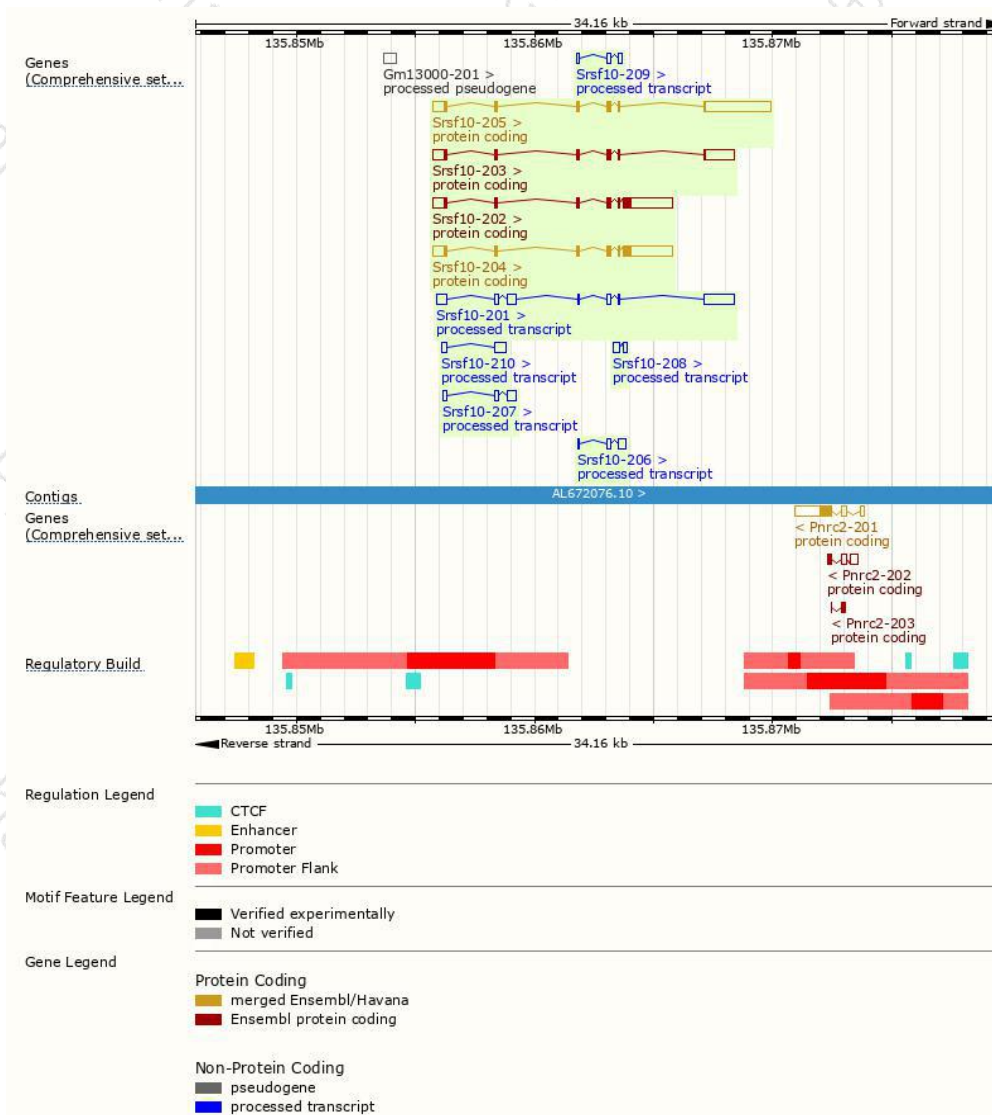
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Srsf10-210	ENSMUST00000154447.1	677	No protein	lncRNA	-	-	TSL:1
Srsf10-209	ENSMUST00000149878.7	394	No protein	lncRNA	-	-	TSL:3
Srsf10-208	ENSMUST00000142002.1	423	No protein	lncRNA	-	-	TSL:2
Srsf10-207	ENSMUST00000129718.1	717	No protein	lncRNA	-	-	TSL:1
Srsf10-206	ENSMUST00000129198.1	522	No protein	lncRNA	-	-	TSL:3
Srsf10-205	ENSMUST00000126641.1	3754	183aa	Protein coding	CCDS18791	Q3UA07 Q9R0U0	TSL:1 GENCODE basic APPRIS P3
Srsf10-204	ENSMUST00000105853.9	3058	262aa	Protein coding	CCDS38922	Q9R0U0	TSL:1 GENCODE basic APPRIS ALT1
Srsf10-203	ENSMUST00000102544.8	2225	182aa	Protein coding	CCDS71494	Q3TFP0	TSL:1 GENCODE basic APPRIS ALT1
Srsf10-202	ENSMUST00000097844.8	3055	261aa	Protein coding	CCDS71493	Q9R0U0	TSL:2 GENCODE basic APPRIS ALT1
Srsf10-201	ENSMUST00000030438.14	2493	No protein	lncRNA	-	-	TSL:5

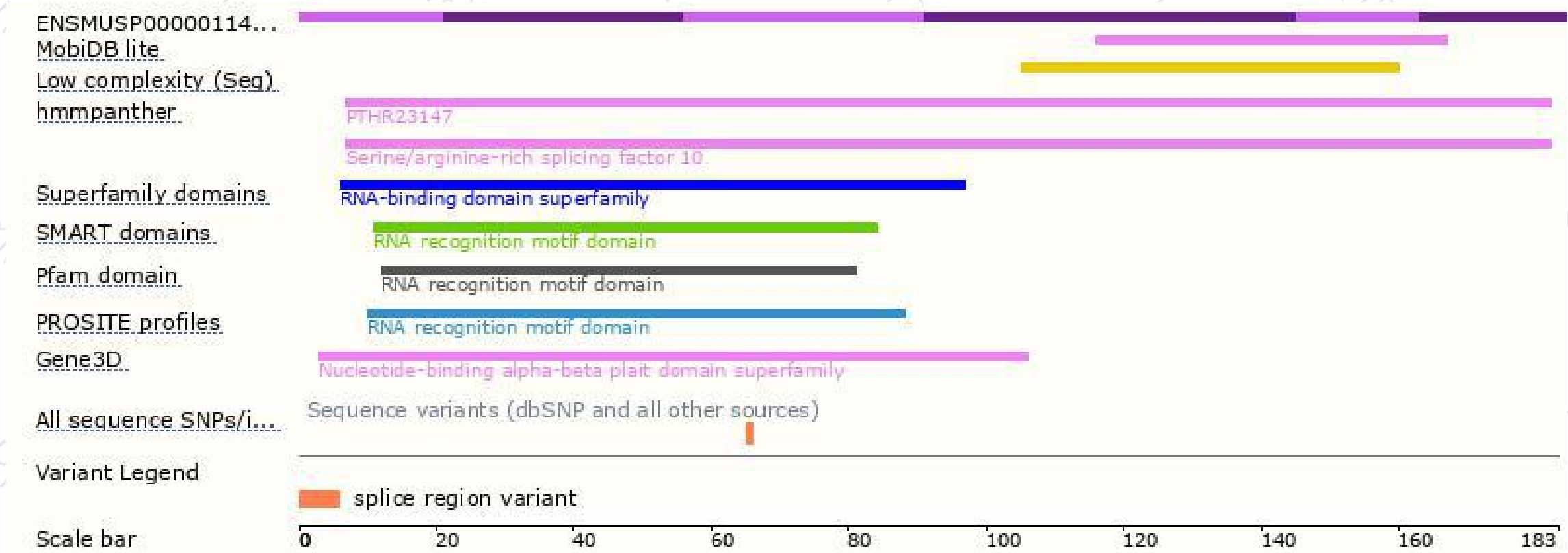
The strategy is based on the design of *Srsf10-205* transcript,The transcription is shown below



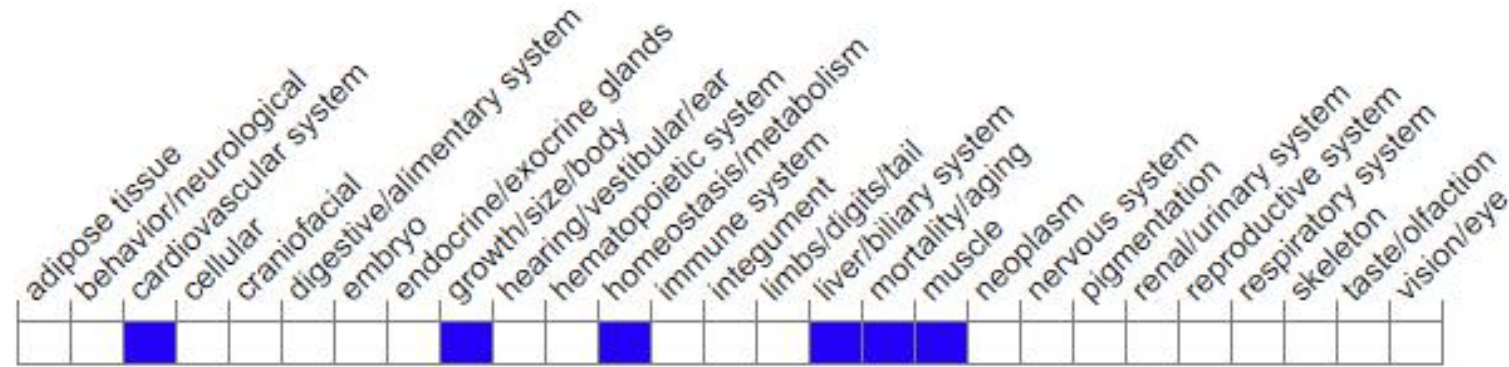
Genomic location distribution



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 null allele exhibit fetal and neonatal lethality associated with edema and cardiac defects.

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

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