

Senp8 Cas9-CKO Strategy

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Project Overview

Project Name

Senp8

Project type

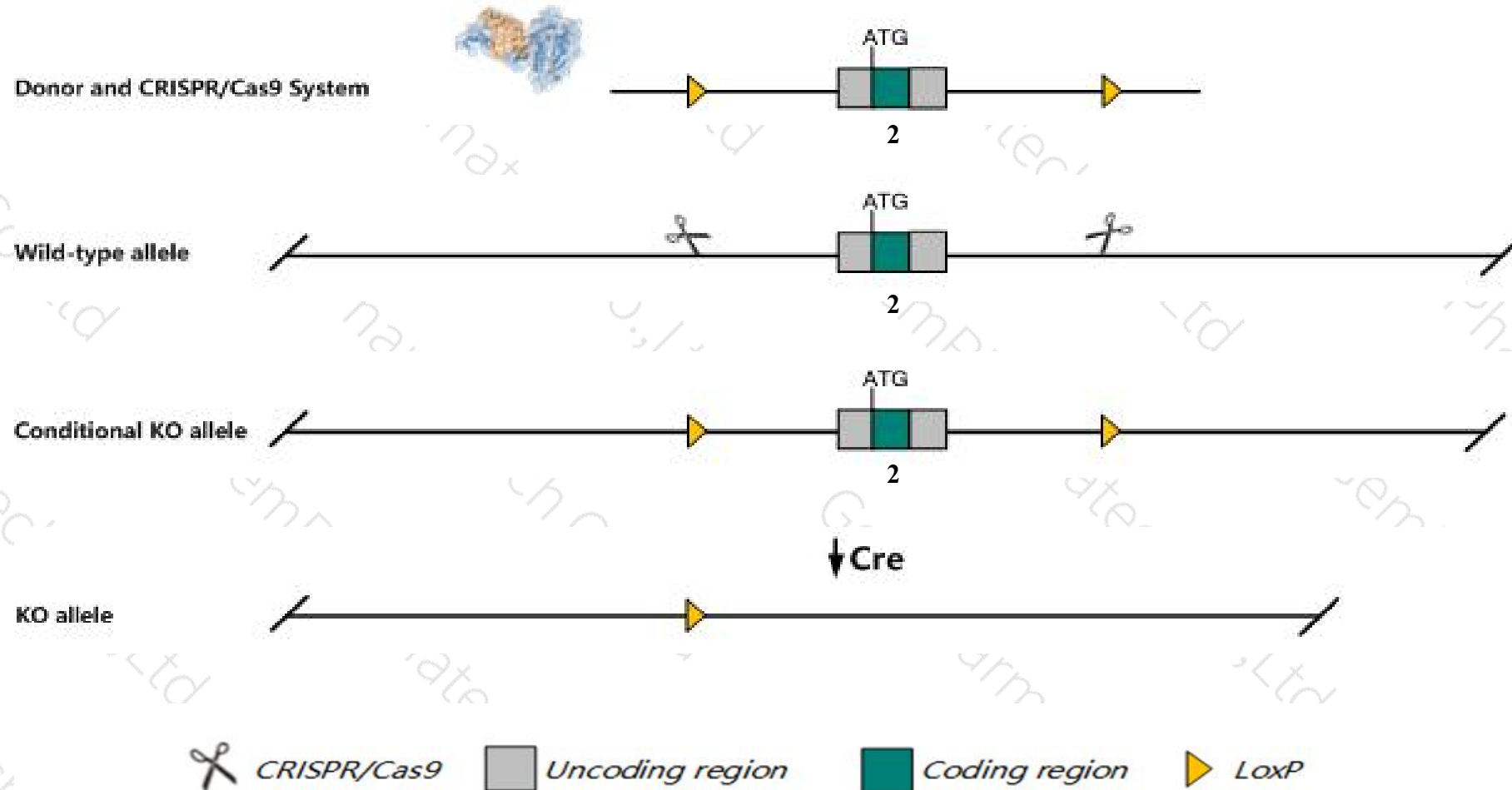
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Senp8* gene. The schematic diagram is as follows:



Technical routes

- The *Senp8* gene has 7 transcripts. According to the structure of *Senp8* gene, exon2 of *Senp8-201*(ENSMUST00000051039.4) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Senp8* 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.

- The *Senp8* gene is located on the Chr9. 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)

Senp8 SUMO/sentrin specific peptidase 8 [Mus musculus (house mouse)]

Gene ID: 71599, updated on 13-Mar-2020

Summary



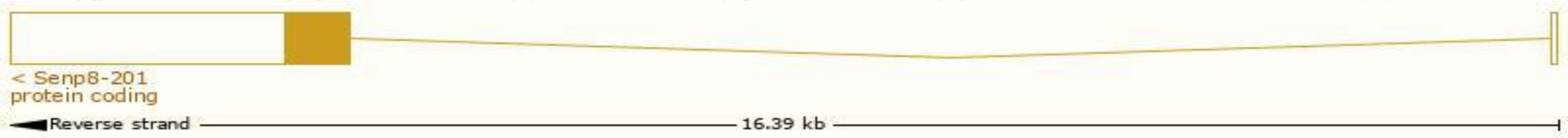
Official Symbol	Senp8 provided by MGI
Official Full Name	SUMO/sentrin specific peptidase 8 provided by MGI
Primary source	MGI:MGI:1918849
See related	Ensembl:ENSMUSG00000051705
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9130010J17Rik, AU020827, Den1, Nedp1, Prsc2
Expression	Ubiquitous expression in CNS E11.5 (RPKM 2.5), placenta adult (RPKM 1.9) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

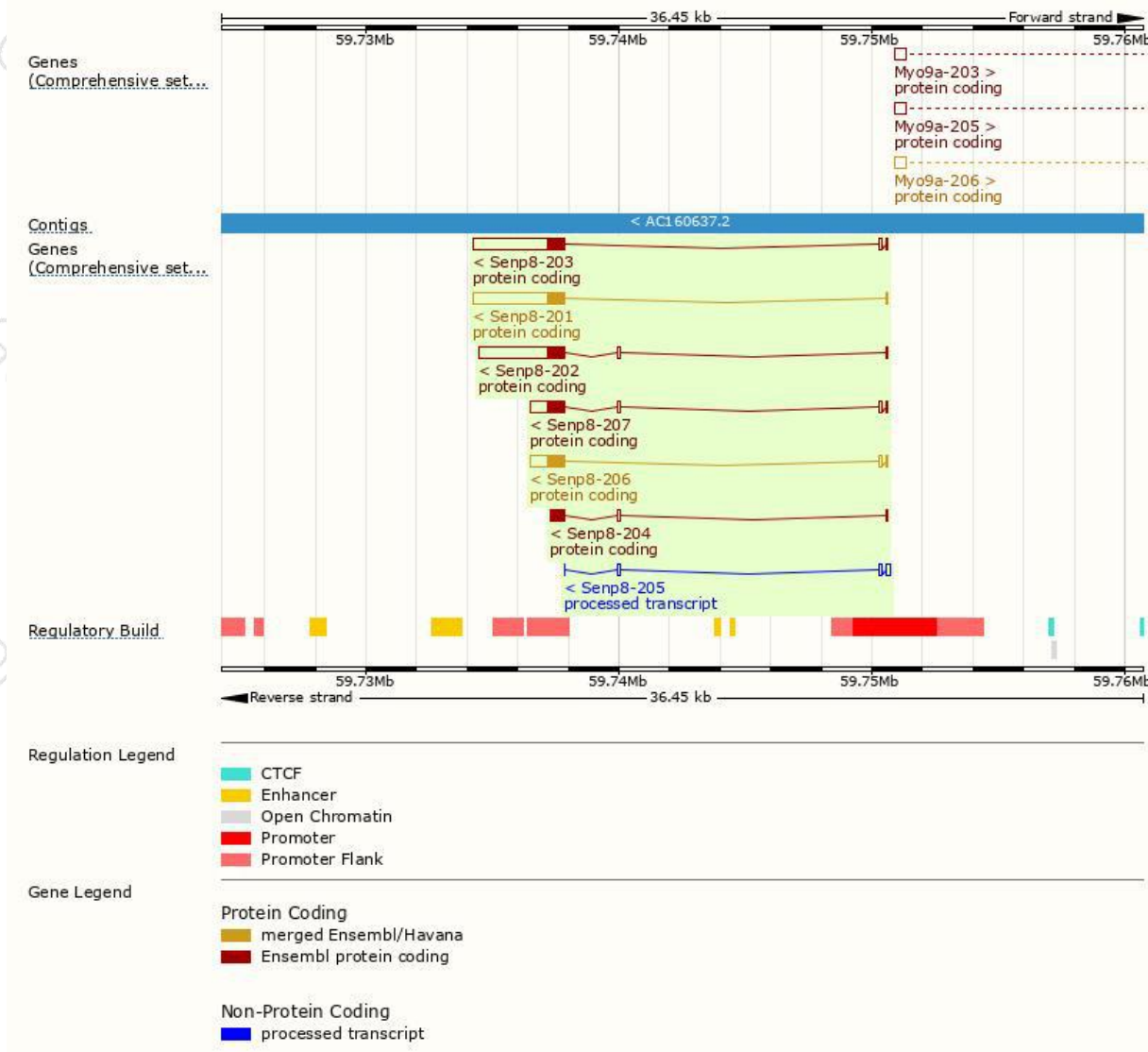
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Senp8-203	ENSMUST00000177963.7	3792	221aa	Protein coding	CCDS23254	Q9D2Z4	TSL:1 GENCODE basic APPRIS P3
Senp8-201	ENSMUST00000051039.4	3682	221aa	Protein coding	CCDS23254	Q9D2Z4	TSL:1 GENCODE basic APPRIS P3
Senp8-202	ENSMUST00000163586.8	3570	221aa	Protein coding	CCDS23254	A0A0R4J234 Q9D2Z4	TSL:1 GENCODE basic APPRIS P3
Senp8-207	ENSMUST00000217093.1	1663	221aa	Protein coding	CCDS23254	Q9D2Z4	TSL:1 GENCODE basic APPRIS P3
Senp8-206	ENSMUST00000216329.1	1559	234aa	Protein coding	CCDS52819	A0A1L1SRH8	TSL:1 GENCODE basic APPRIS ALT2
Senp8-204	ENSMUST00000213257.1	764	190aa	Protein coding	-	A0A1L1ST73	CDS 3' incomplete TSL:2
Senp8-205	ENSMUST00000216045.1	392	No protein	Processed transcript	-	-	TSL:5

The strategy is based on the design of *Senp8-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain

ENSMUSP00000129...

Superfamily

Papain-like cysteine peptidase superfamily

Pfam

Ulp1 protease family, C-terminal catalytic domain

PROSITE profiles

Ulp1 protease family, C-terminal catalytic domain

PANTHER

PTHR46468:SF1

PTHR46468

Gene3D

3.40.395.10

All sequence SNPs/i...

Sequence variants (dbSNP and all other sources)

Variant Legend

- frameshift variant
- missense variant
- synonymous variant

Scale bar

0 20 40 60 80 100 120 140 160 180 200 221

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

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