

***Senp2* Cas9-CKO Strategy**

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Project Overview

Project Name

Senp2

Project type

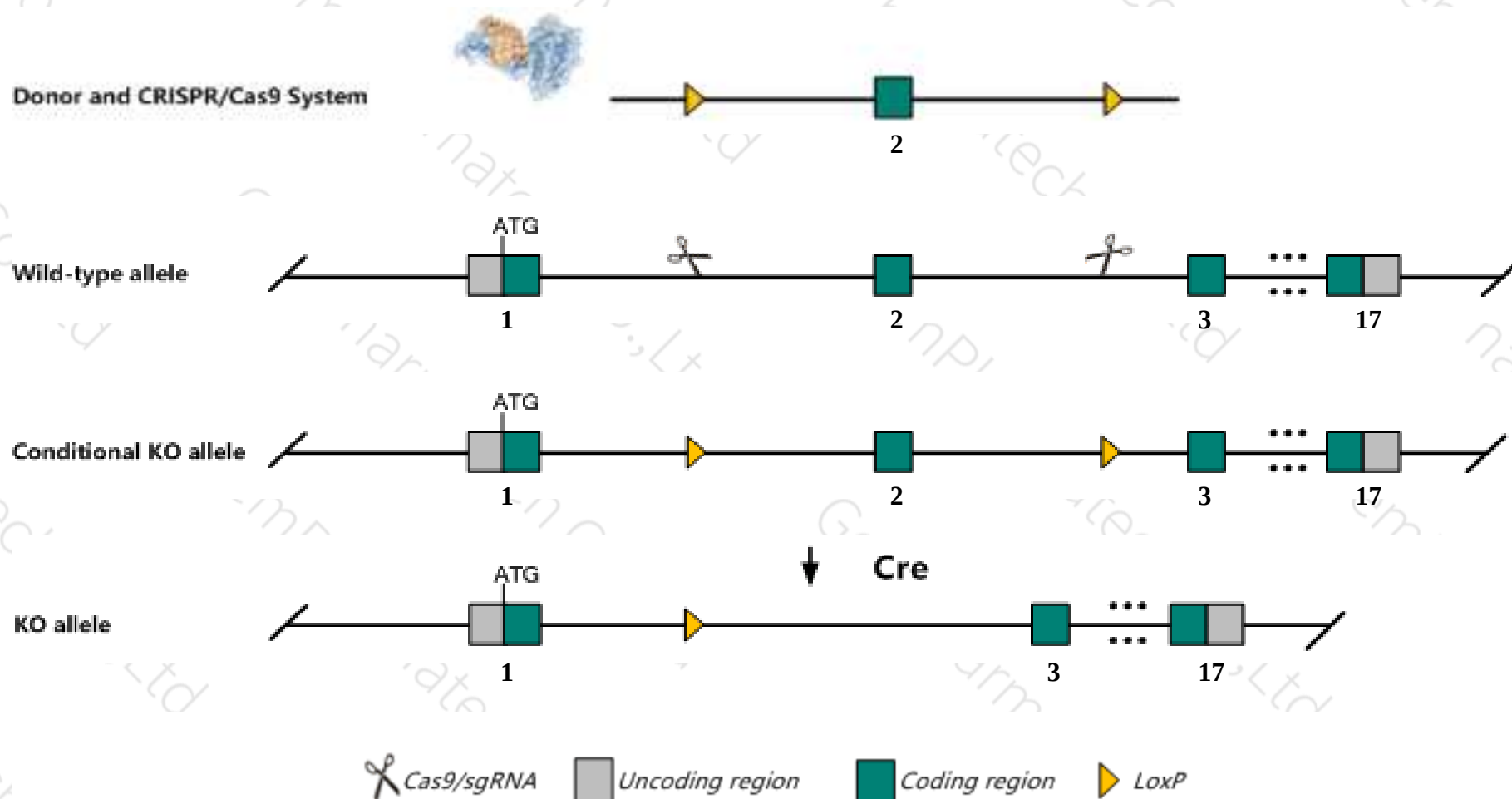
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Senp2* gene. The schematic diagram is as follows:



- The *Senp2* gene has 8 transcripts. According to the structure of *Senp2* gene, exon2 of *Senp2-201* (ENSMUST00000023561.7) transcript is recommended as the knockout region. The region contains 59bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Senp2* 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.

- According to the existing MGI data, Homozygous null mice are embryonic lethal due to placental defects resulting from abnormal trophoblast maturation.
- The *Senp2* gene is located on the Chr16. 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)

Senp2 SUMO/sentrin specific peptidase 2 [Mus musculus (house mouse)]

Gene ID: 75826, updated on 31-Jan-2019

Summary



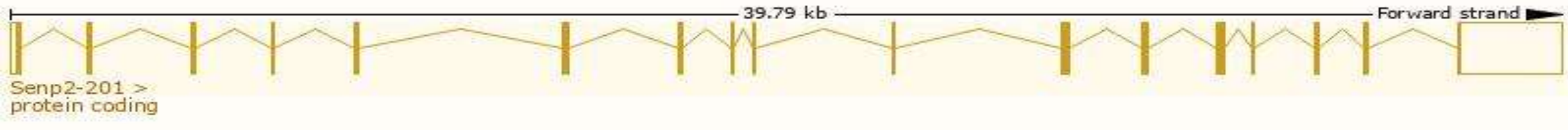
Official Symbol	Senp2 provided by MGI
Official Full Name	SUMO/sentrin specific peptidase 2 provided by MGI
Primary source	MGI:MGI:1923076
See related	Ensembl:ENSMUSG00000022855
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310007L05Rik, 4930538C18Rik, AI646780, AW554757, Smt3ip2, SuPr-1, mKIAA1331
Expression	Ubiquitous expression in testis adult (RPKM 18.7), placenta adult (RPKM 14.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

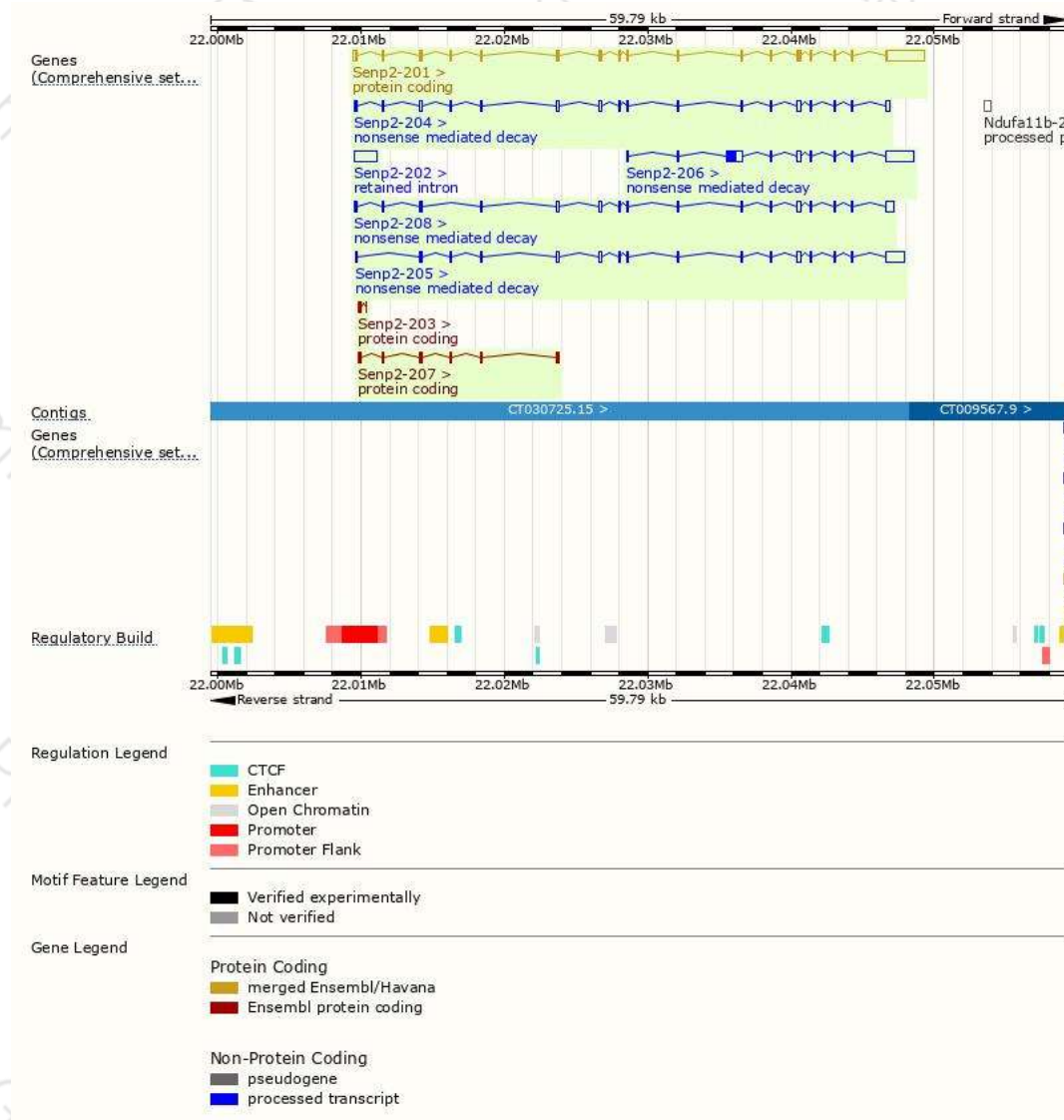
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Senp2-201	ENSMUST00000023561.7	4499	588aa	Protein coding	CCDS28065	Q91ZX6	TSL:1 Gencode basic APPRIS P1
Senp2-202	ENSMUST00000231408.1	1605	No protein	Retained intron	-	-	-
Senp2-203	ENSMUST00000231632.1	181	29aa	Protein coding	-	A0A338P6Y3	CDS 3' incomplete
Senp2-204	ENSMUST00000231724.1	2135	63aa	Nonsense mediated decay	-	A0A338P6J8	-
Senp2-205	ENSMUST00000231798.1	2883	64aa	Nonsense mediated decay	-	A0A338P710	CDS 5' incomplete
Senp2-206	ENSMUST00000232263.1	3702	222aa	Nonsense mediated decay	-	A0A338P6M2	CDS 5' incomplete
Senp2-207	ENSMUST00000232534.1	683	198aa	Protein coding	-	A0A338P6A3	CDS 3' incomplete
Senp2-208	ENSMUST00000232679.1	2239	105aa	Nonsense mediated decay	-	A0A338P790	-

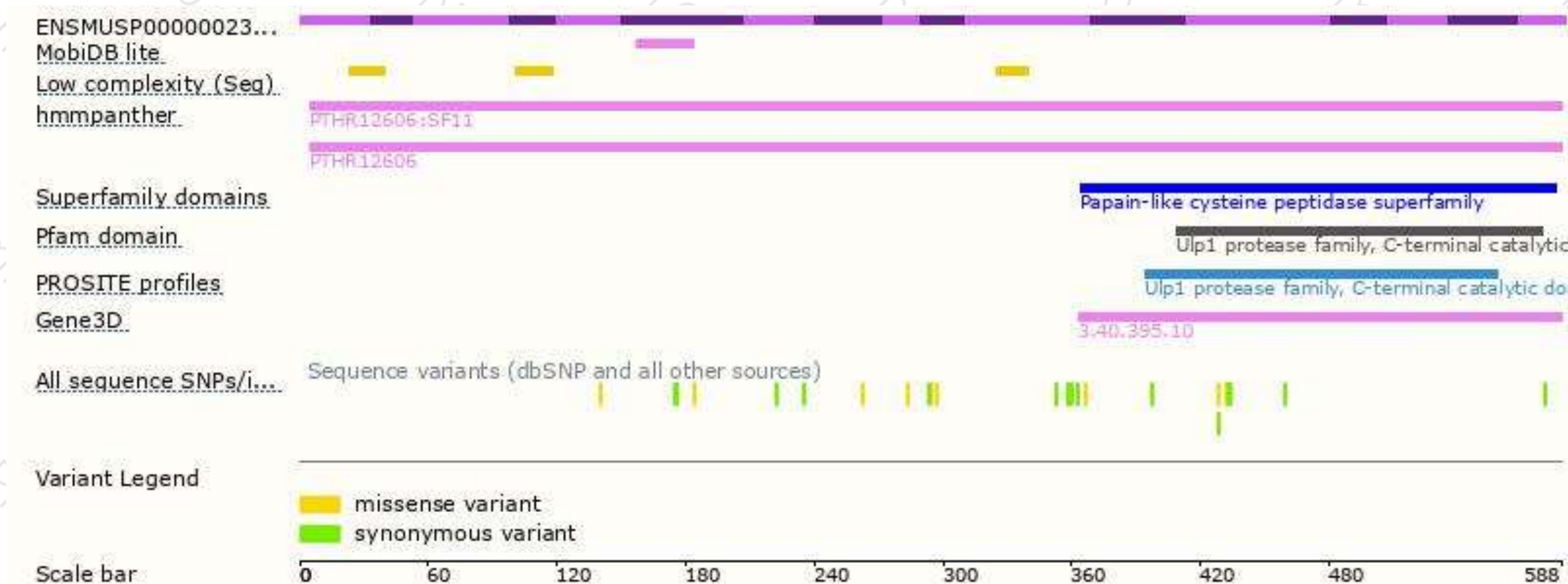
The strategy is based on the design of *Senp2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



集萃药康
GemPharmatech



According to the existing MGI data, Homozygous null mice are embryonic lethal due to placental defects resulting from abnormal trophoblast maturation.

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

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