

Usp32 Cas9-CKO Strategy

Designer

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Reviewer

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2018-6-6

Project Overview

Project Name

Usp32

Project type

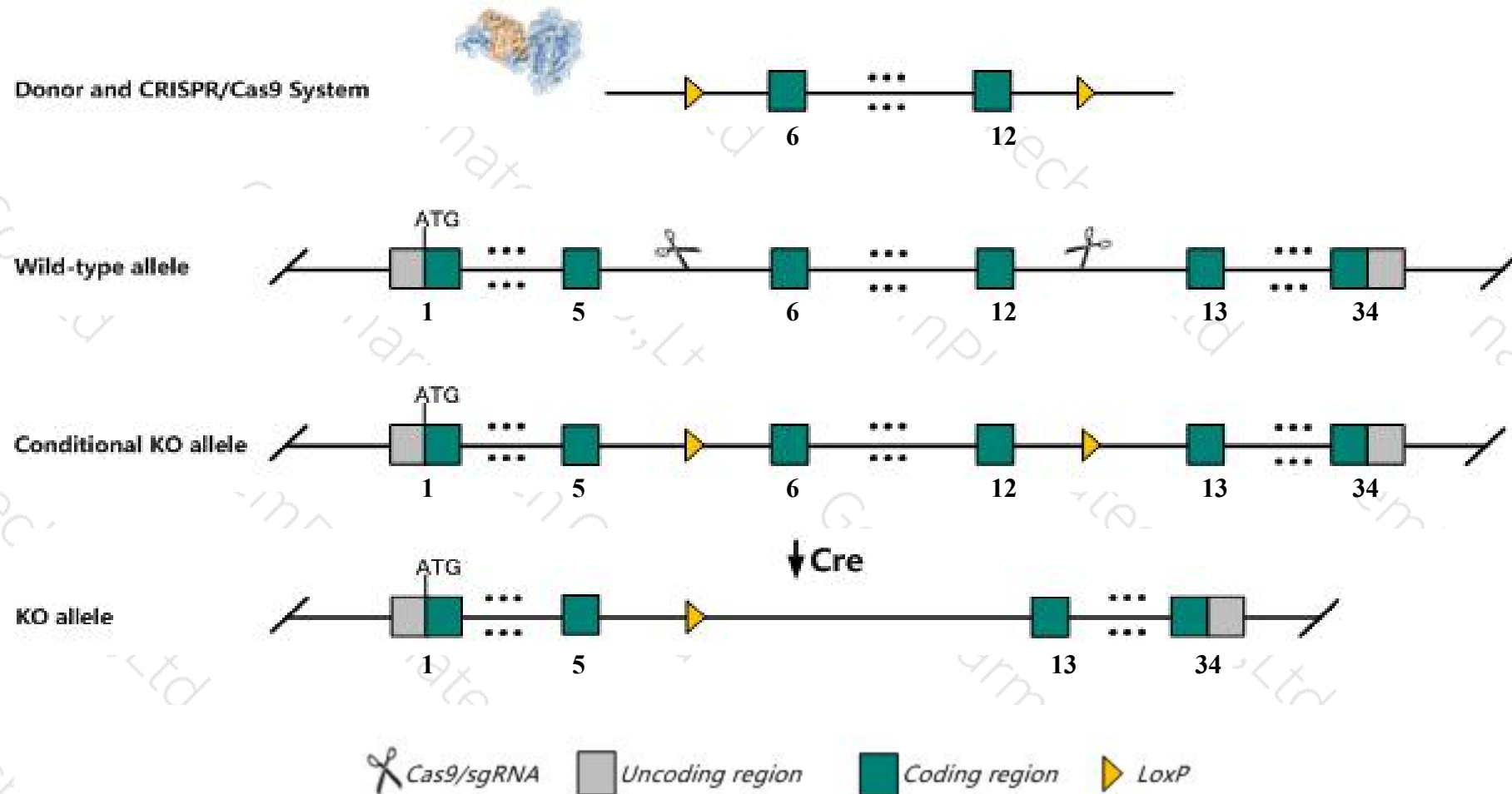
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Usp32* gene. The schematic diagram is as follows:



- The *Usp32* gene has 9 transcripts. According to the structure of *Usp32* gene, exon6-exon12 of *Usp32-202* (ENSMUST00000108075.8) transcript is recommended as the knockout region. The region contains 668bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Usp32* 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 *Usp32* gene is located on the Chr11. 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.
- Transcript *Usp32-201/204/206/207/208/209* may not be affected.
- 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)

Usp32 ubiquitin specific peptidase 32 [*Mus musculus* (house mouse)]

Gene ID: 237898, updated on 31-Jan-2019

Summary

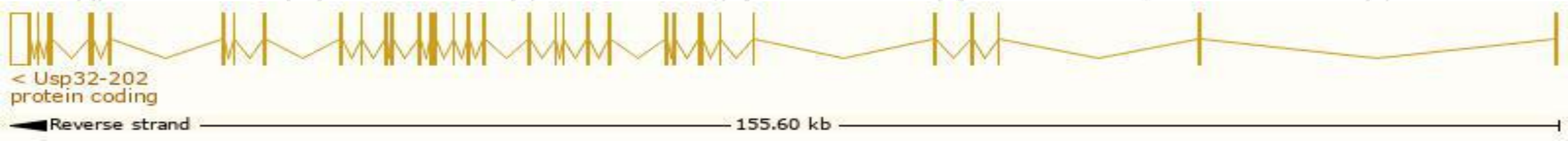
Official Symbol	Usp32 provided by MGI
Official Full Name	ubiquitin specific peptidase 32 provided by MGI
Primary source	MGI:MGI:2144475
See related	Ensembl:ENSMUSG00000000804
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW045245; 2900074J03Rik; 6430526O11Rik
Expression	Broad expression in liver E14 (RPKM 14.5), liver E14.5 (RPKM 12.8) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

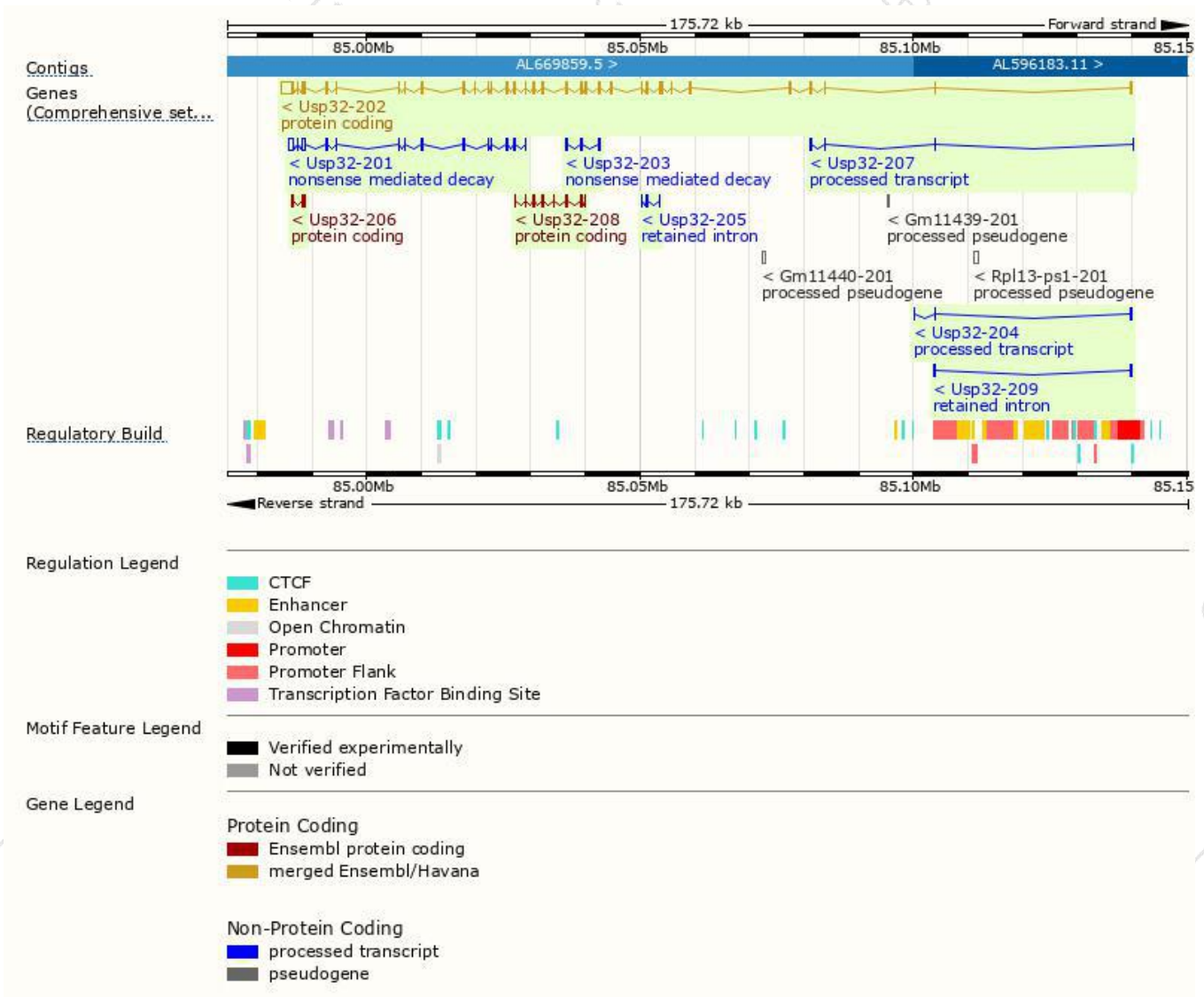
The gene has 9 transcripts,all transcripts are shown below:

Show/hide columns								Filter	
Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Translation ID ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲	
Usp32-201	ENSMUST00000000821.14	3362	287aa	ENSMUSP00000000821.8	Nonsense mediated decay	-	F6XDW8	CDS 5' incomplete	TSL:5
Usp32-202	ENSMUST00000108075.8	7053	1604aa	ENSMUSP00000103710.2	Protein coding	CCDS36264	F8VPZ3	TSL:2	GENCODE basic APPRIS P1
Usp32-203	ENSMUST00000172515.1	486	87aa	ENSMUSP00000133781.1	Nonsense mediated decay	-	G3UXQ4	CDS 5' incomplete	TSL:5
Usp32-204	ENSMUST00000172595.1	457	No protein	-	lncRNA	-	-	TSL:2	
Usp32-205	ENSMUST00000172950.1	361	No protein	-	Retained intron	-	-	TSL:5	
Usp32-206	ENSMUST00000173156.1	664	174aa	ENSMUSP00000133531.1	Protein coding	-	G3UX31	CDS 5' incomplete	TSL:3
Usp32-207	ENSMUST00000173271.7	372	No protein	-	lncRNA	-	-	TSL:3	
Usp32-208	ENSMUST00000174602.1	772	257aa	ENSMUSP00000134476.1	Protein coding	-	G3UZF4	CDS 5' and 3' incomplete	TSL:3
Usp32-209	ENSMUST00000174809.1	566	No protein	-	Retained intron	-	-	TSL:2	

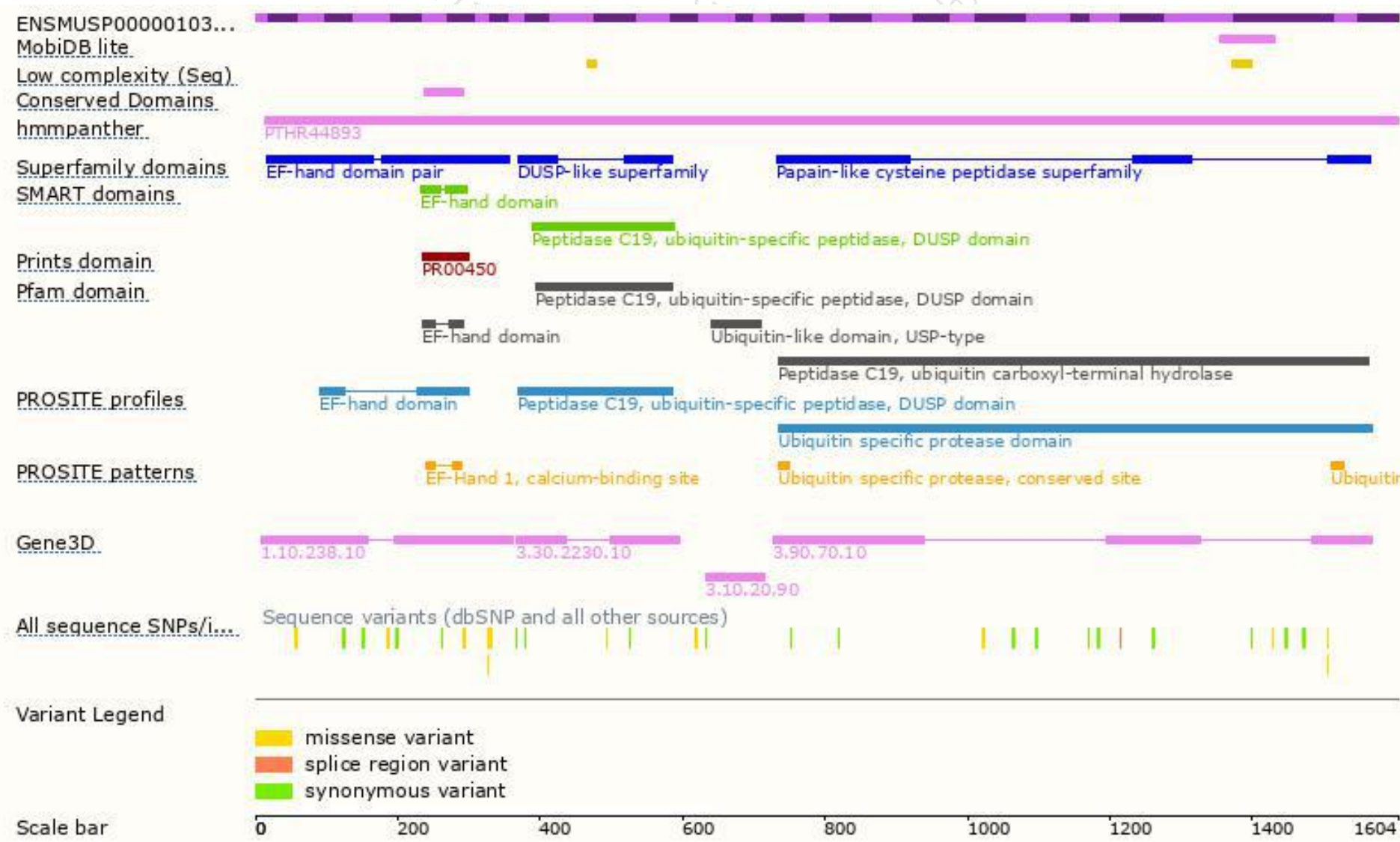
The strategy is based on the design of *Usp32-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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