

Usp33 Cas9-CKO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Usp33

Project type

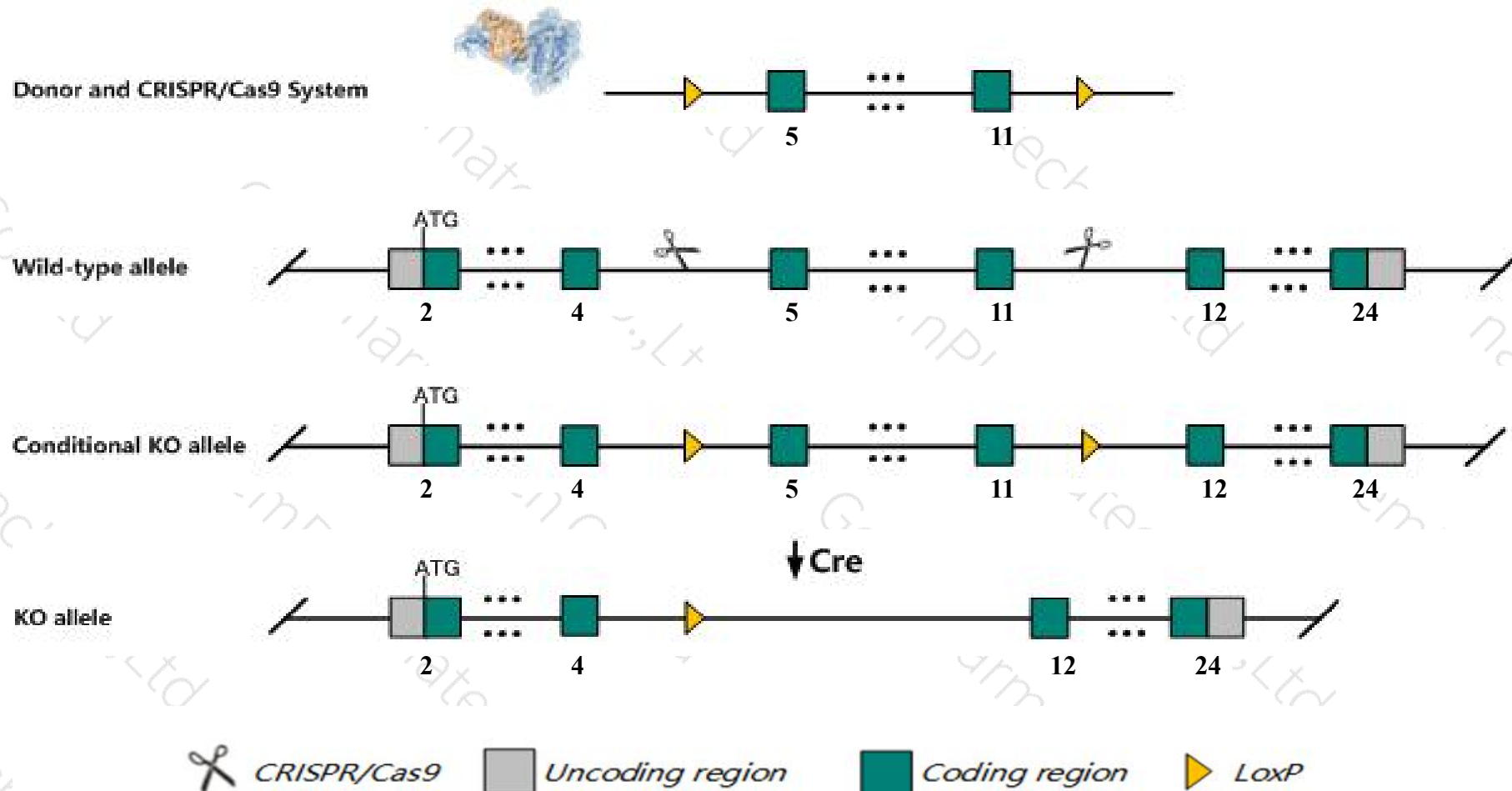
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Usp33* gene. The schematic diagram is as follows:



Technical routes

- The *Usp33* gene has 11 transcripts. According to the structure of *Usp33* gene, exon5-exon11 of *Usp33-209* (ENSMUST00000197748.4) transcript is recommended as the knockout region. The region contains 1075bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Usp33* 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.

Notice

- The *Usp33* gene is located on the Chr3. 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)

Usp33 ubiquitin specific peptidase 33 [Mus musculus (house mouse)]

Gene ID: 170822, updated on 31-Jan-2019

Summary



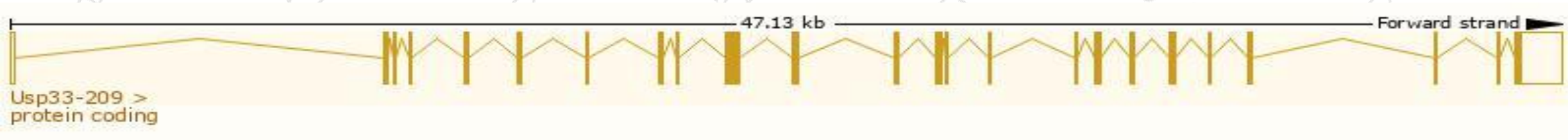
Official Symbol	Usp33 provided by MGI
Official Full Name	ubiquitin specific peptidase 33 provided by MGI
Primary source	MGI:MGI:2159711
See related	Ensembl:ENSMUSG00000025437
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9830169D19Rik, AA409780, Vdu1
Expression	Broad expression in CNS E18 (RPKM 26.3), CNS E14 (RPKM 24.1) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

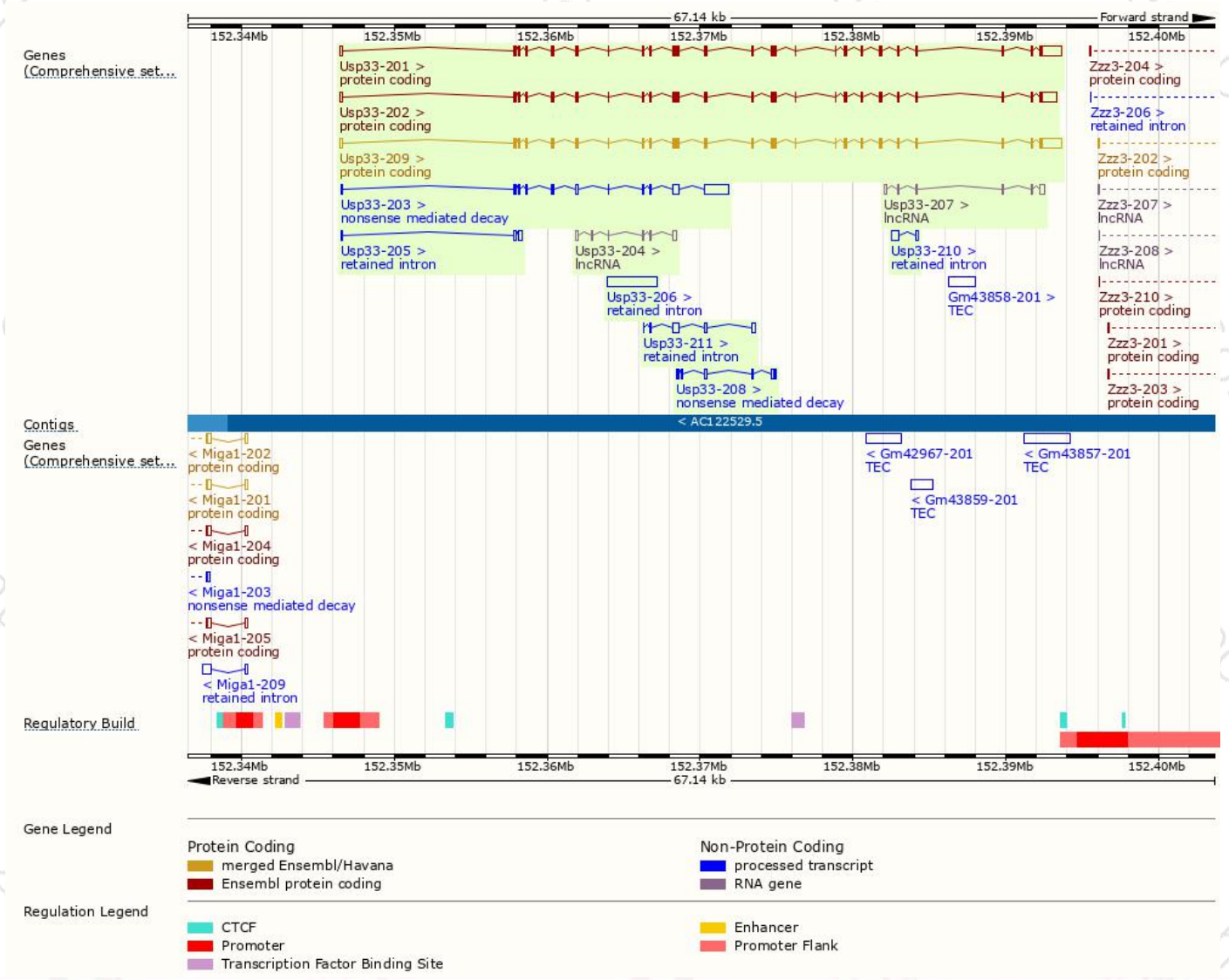
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Usp33-209	ENSMUST00000197748.4	4183	909aa	Protein coding	CCDS17918	Q8R5K2	TSL:1 GENCODE basic APPRIS P3
Usp33-201	ENSMUST00000026507.12	4153	897aa	Protein coding	CCDS80064	A0A0H2UKB8	TSL:1 GENCODE basic
Usp33-202	ENSMUST00000117492.8	3886	901aa	Protein coding	CCDS57261	Q8R5K2	TSL:1 GENCODE basic APPRIS ALT2
Usp33-203	ENSMUST00000123237.7	2935	91aa	Nonsense mediated decay	-	D6RES0	TSL:1
Usp33-208	ENSMUST00000197600.1	821	99aa	Nonsense mediated decay	-	A0A0G2JF82	CDS 5' incomplete TSL:3
Usp33-206	ENSMUST00000196811.1	3256	No protein	Retained intron	-	-	TSL:NA
Usp33-211	ENSMUST00000198950.4	923	No protein	Retained intron	-	-	TSL:2
Usp33-210	ENSMUST00000198596.1	596	No protein	Retained intron	-	-	TSL:3
Usp33-205	ENSMUST00000142969.1	460	No protein	Retained intron	-	-	TSL:3
Usp33-207	ENSMUST00000197325.1	780	No protein	lncRNA	-	-	TSL:3
Usp33-204	ENSMUST00000138575.5	746	No protein	lncRNA	-	-	TSL:3

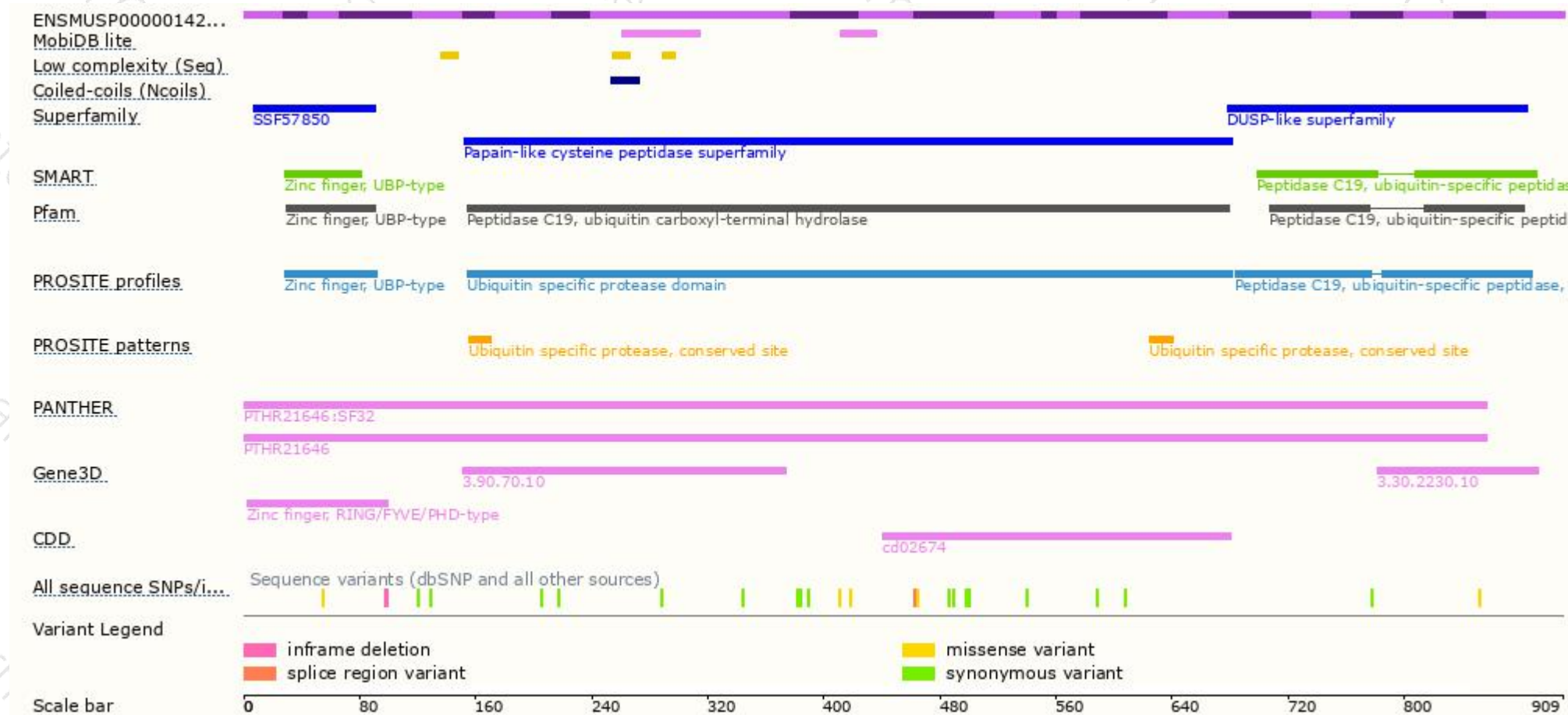
The strategy is based on the design of *Usp33-209* transcript,The transcription is shown below



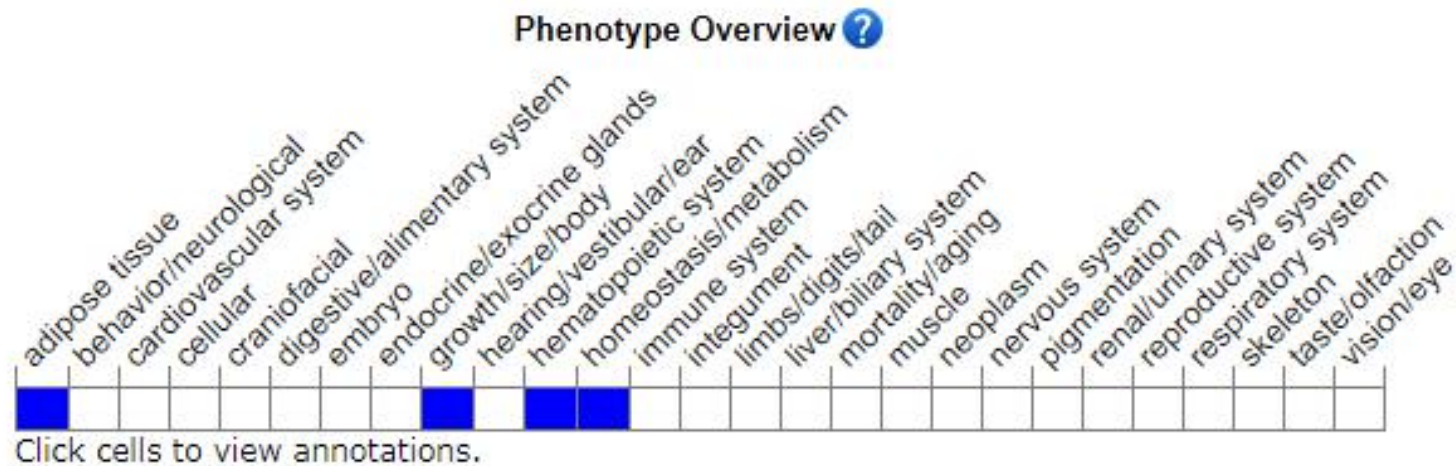
Genomic location distribution



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/>).

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

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