

Usp36 Cas9-KO Strategy

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Project Overview

Project Name

Usp36

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Usp36* gene. The schematic diagram is as follows:



- The *Usp36* gene has 6 transcripts. According to the structure of *Usp36* gene, exon3-exon4 of *Usp36*-202(ENSMUST00000106296.8) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Usp36* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- According to the existing MGI data, mice homozygous for a gene trap allele display lethality before implantation and arrest at the morula stage.
- The *Usp36* 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.
- This strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Usp36 ubiquitin specific peptidase 36 [Mus musculus (house mouse)]

Gene ID: 72344, updated on 13-Mar-2020

Summary



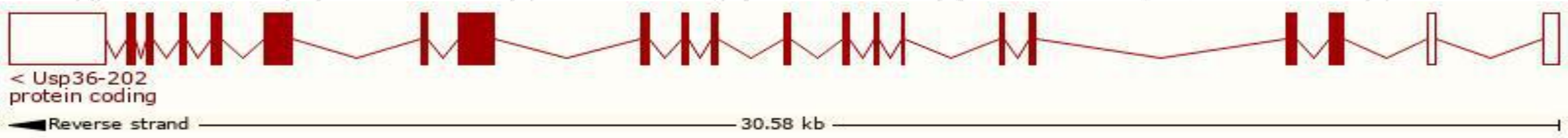
Official Symbol	Usp36 provided by MGI
Official Full Name	ubiquitin specific peptidase 36 provided by MGI
Primary source	MGI:MGI:1919594
See related	Ensembl:ENSMUSG00000033909
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2700002L06Rik, mKIAA1453
Expression	Ubiquitous expression in ovary adult (RPKM 8.8), limb E14.5 (RPKM 8.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

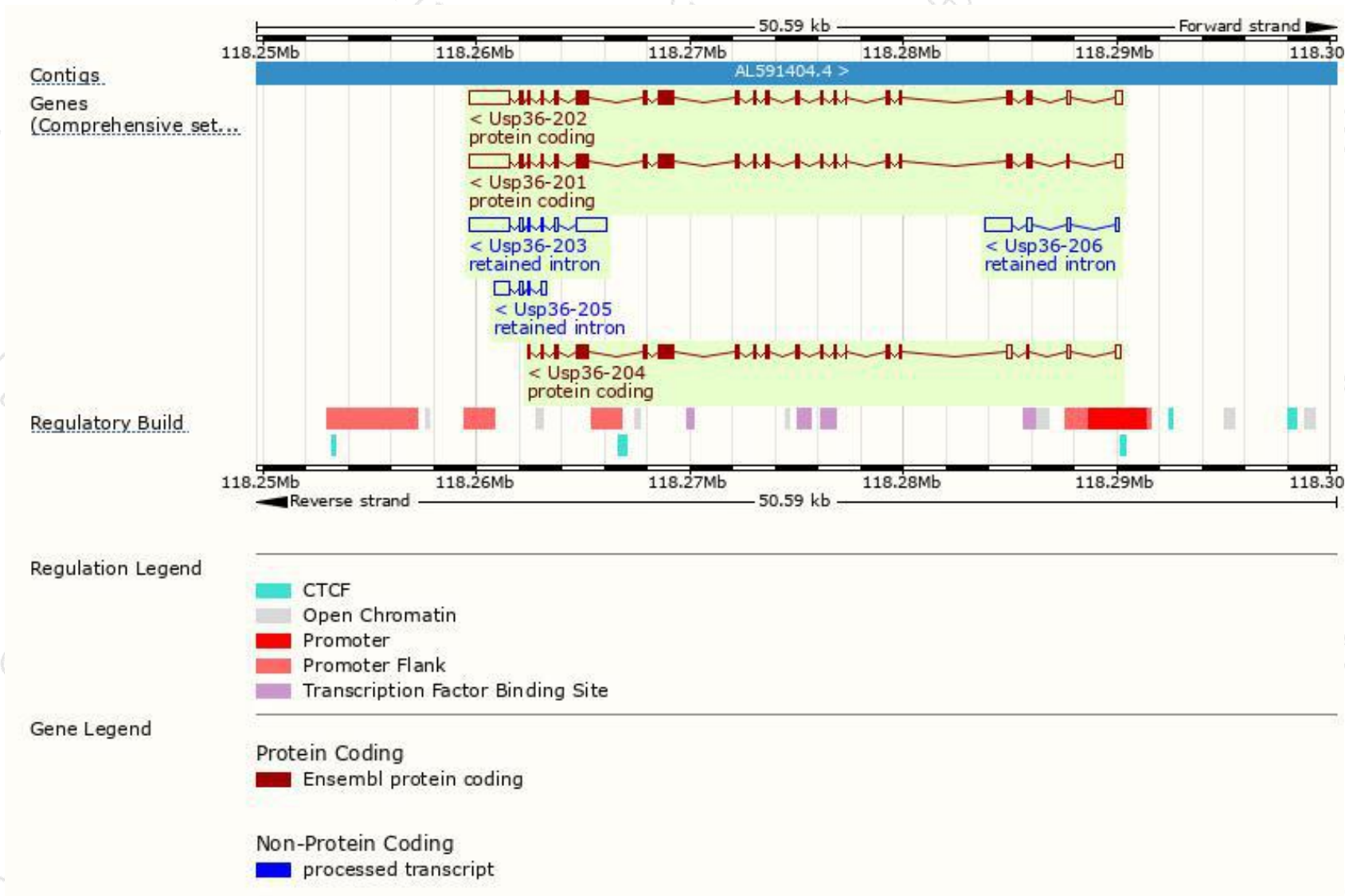
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Usp36-202	ENSMUST00000106296.8	5655	1098aa	Protein coding	CCDS48998	B1AQJ2	TSL:5 GENCODE basic APPRIS P1
Usp36-201	ENSMUST00000092382.9	5609	1098aa	Protein coding	CCDS48998	B1AQJ2	TSL:5 GENCODE basic APPRIS P1
Usp36-204	ENSMUST00000144153.7	3391	890aa	Protein coding	-	B0QZF8	CDS 3' incomplete TSL:5
Usp36-203	ENSMUST00000141647.7	3815	No protein	Retained intron	-	-	TSL:1
Usp36-206	ENSMUST00000151433.1	1821	No protein	Retained intron	-	-	TSL:1
Usp36-205	ENSMUST00000148998.1	1212	No protein	Retained intron	-	-	TSL:1

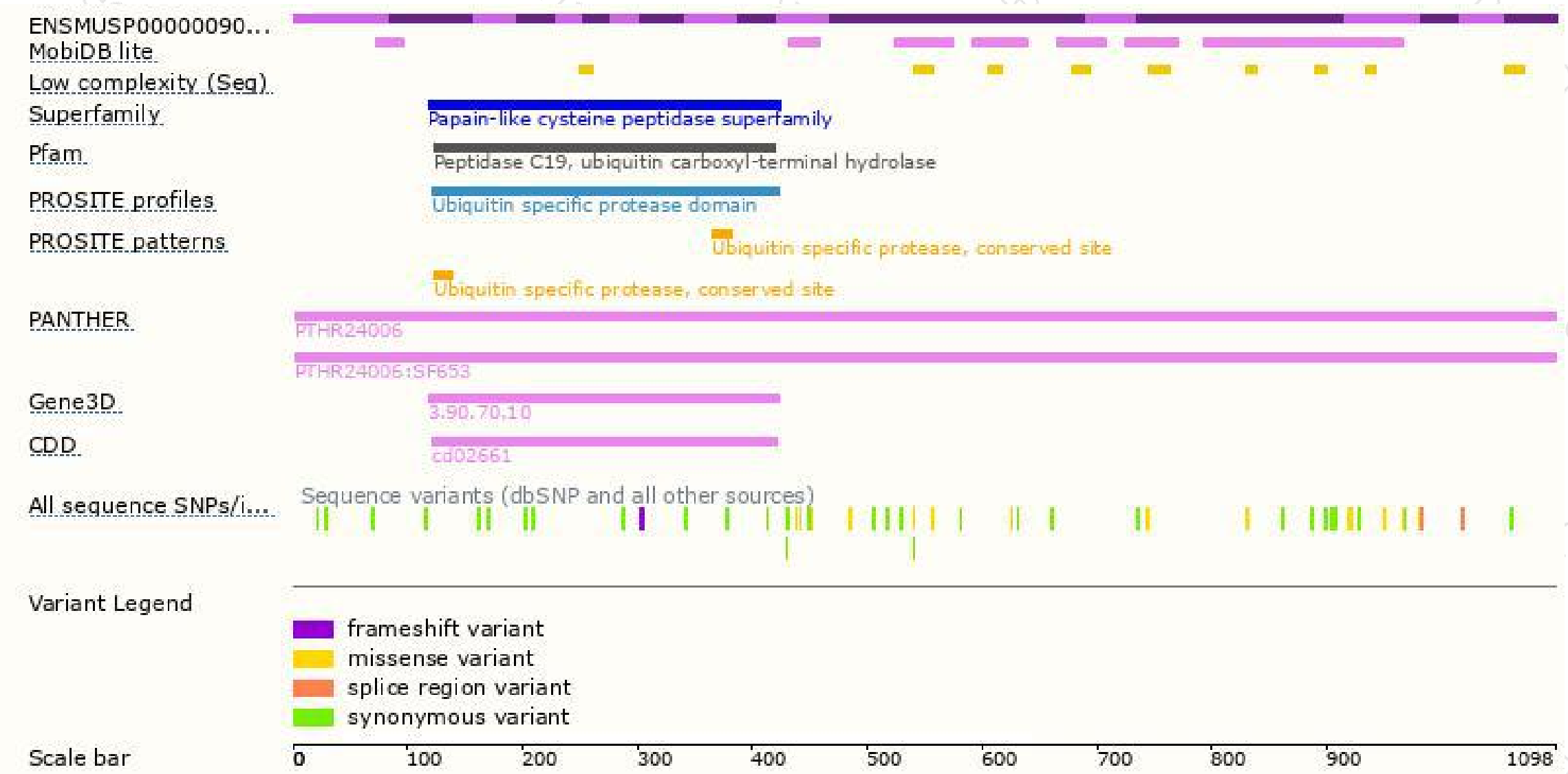
The strategy is based on the design of *Usp36-202* transcript,the transcription is shown below:



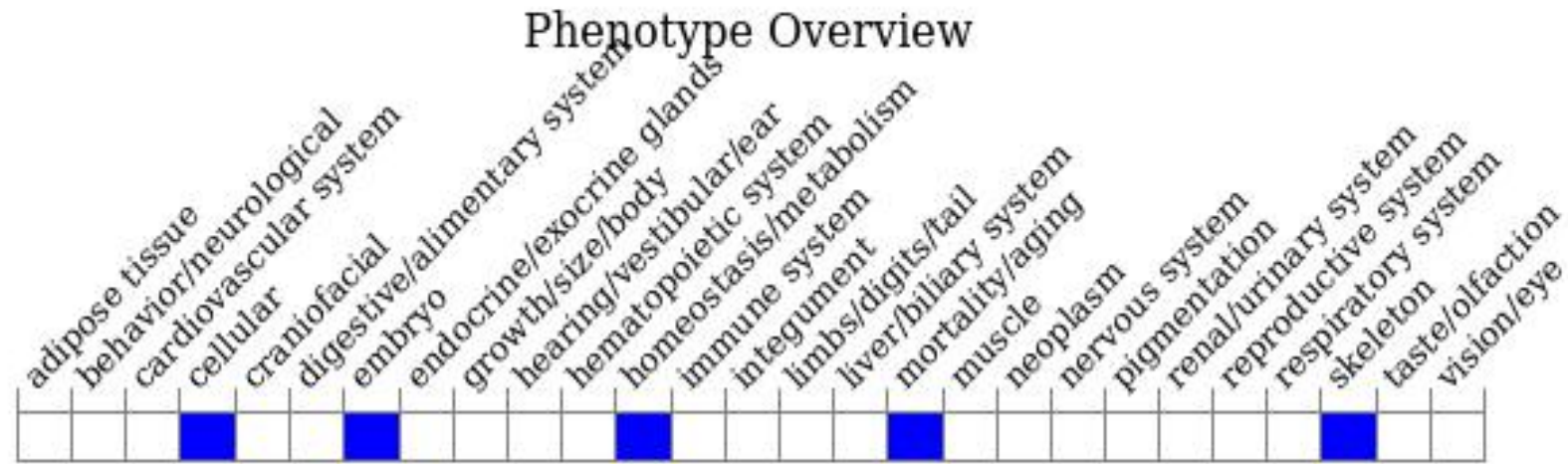
Genomic location distribution



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 gene trap allele display lethality before implantation and arrest at the morula stage.

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

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