Usp45 Cas9-KO Strategy

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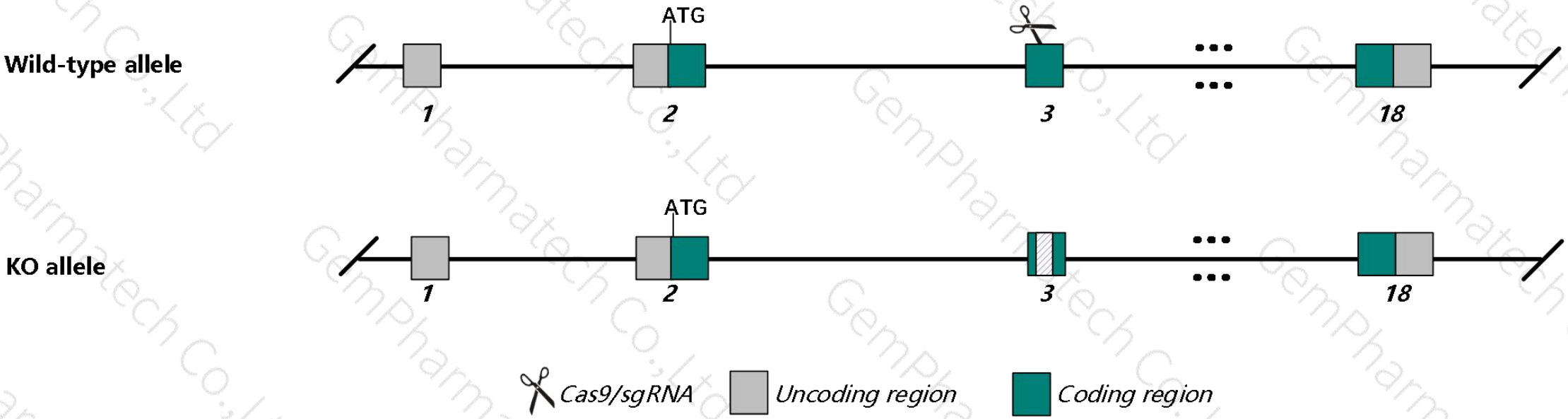
Project Overview

Project Name	***Usp45***
Project type	**Cas9-KO**
Strain background	**C57BL/6N**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Usp45* gene. The schematic diagram is as follows:



Technical routes

- In this project we use CRISPR/Cas9 technology to modify *Usp45* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6N 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/6N mice.

Notice

- The *Usp45* gene is located on the Chr4. 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）

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Usp45 ubiquitin specific petidase 45 [*Mus musculus* (house mouse)]

Gene ID: 77593, updated on 13-Aug-2019

Summary

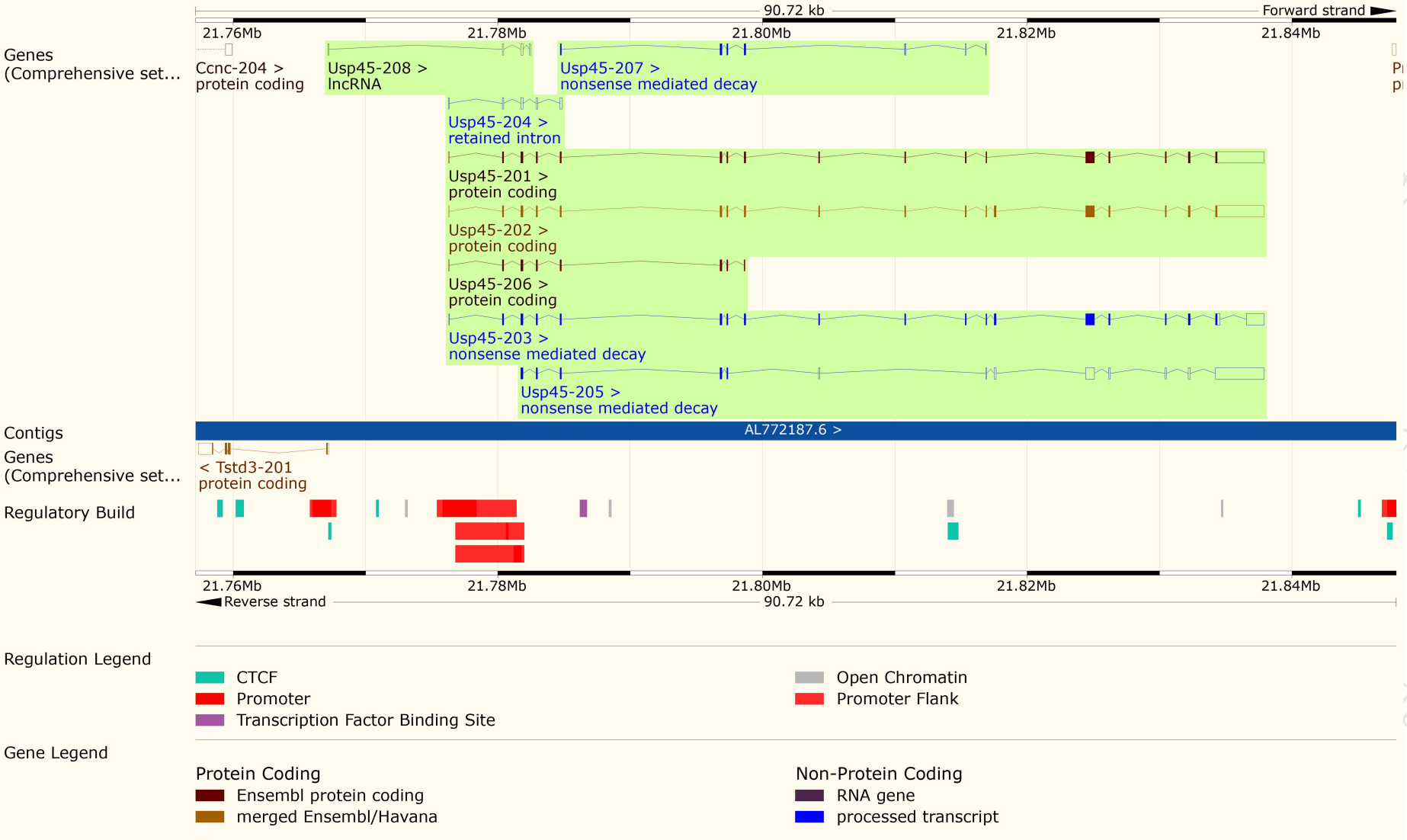
Official Symbol	Usp45 provided by MGI
Official Full Name	ubiquitin specific petidase 45 provided by MGI
Primary source	MGI:MGI:101850
See related	Ensembl:ENSMUSG00000040455
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gcap7; AI843191; 3110003C05Rik; 4930550B20Rik
Expression	Ubiquitous expression in liver E14 (RPKM 6.8), liver E14.5 (RPKM 5.5) and 27 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

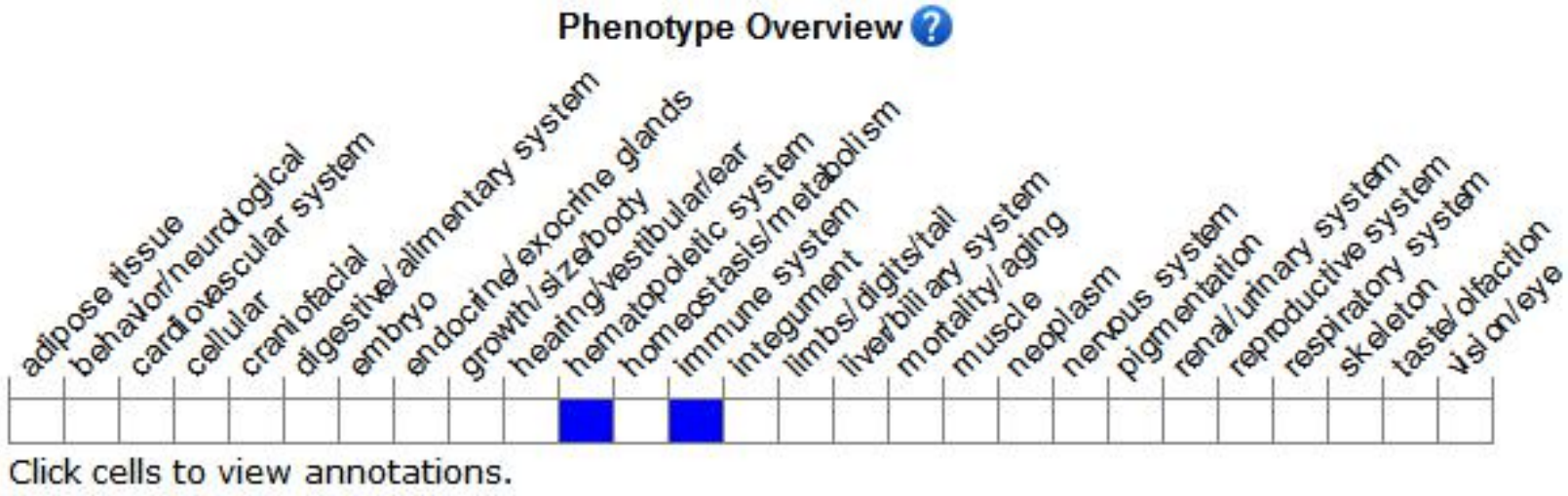
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Usp45-202	ENSMUST00000065111.14	6003	813aa	Protein coding	CCDS38700	Q8K387	TSL:5 GENCODE basic APPRIS P3
Usp45-201	ENSMUST00000040429.11	5861	765aa	Protein coding	CCDS71351	Q8K387	TSL:1 GENCODE basic APPRIS ALT2
Usp45-206	ENSMUST00000148304.7	818	257aa	Protein coding	-	E9Q4D8	CDS 3' incomplete TSL:3
Usp45-205	ENSMUST00000137293.7	5541	210aa	Nonsense mediated decay	-	F7CLE5	CDS 5' incomplete TSL:5
Usp45-203	ENSMUST00000108232.8	3977	813aa	Nonsense mediated decay	-	Q8K387	TSL:1
Usp45-207	ENSMUST00000148647.2	626	153aa	Nonsense mediated decay	-	F7BAC1	CDS 5' incomplete TSL:5
Usp45-204	ENSMUST00000125262.1	592	No protein	Retained intron	-	-	TSL:1
Usp45-208	ENSMUST00000156589.8	446	No protein	lncRNA	-	-	TSL:5

Genomic location distribution



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/) .

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

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