Usp11 Cas9-CKO Strategy

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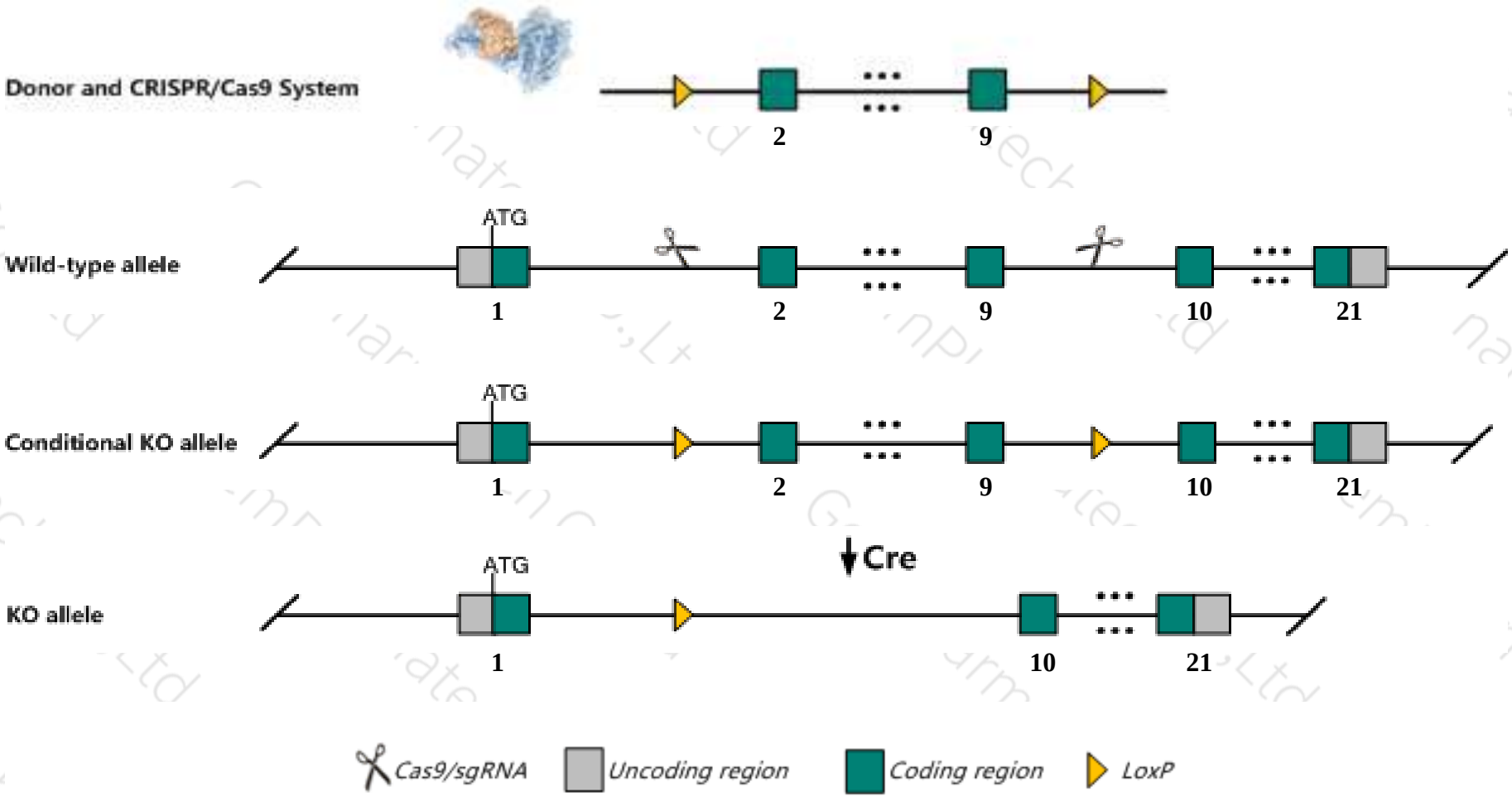
Project Overview

Project Name	***Usp11***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Usp11* gene. The schematic diagram is as follows:



Technical routes

- The *Usp11* gene has 4 transcripts. According to the structure of *Usp11* gene, exon2-exon9 of *Usp11-201* (ENSMUST00000033383.2) transcript is recommended as the knockout region.The region contains 1000bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Usp11* 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 size of intron 9 for 3'-loxP site insertion is 334 bp.
- The *Usp11* gene is located on the ChrX. 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）

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Usp11 ubiquitin specific peptidase 11 [*Mus musculus* (house mouse)]

Gene ID: 236733, updated on 12-Aug-2019

Summary

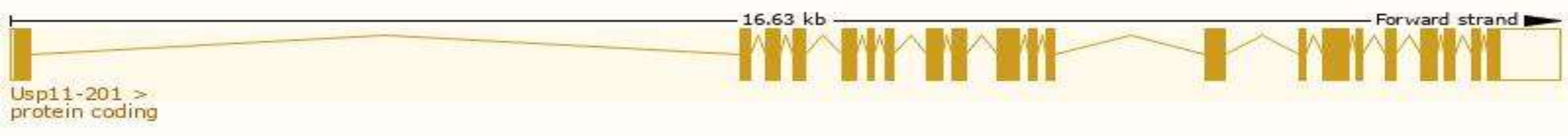
Official Symbol	Usp11 provided by MGI
Official Full Name	ubiquitin specific peptidase 11 provided by MGI
Primary source	MGI:MGI:2384312
See related	Ensembl:ENSMUSG00000031066
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	mKIAA4085; 6230415D12Rik
Expression	Broad expression in CNS E14 (RPKM 22.1), whole brain E14.5 (RPKM 21.8) and 23 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

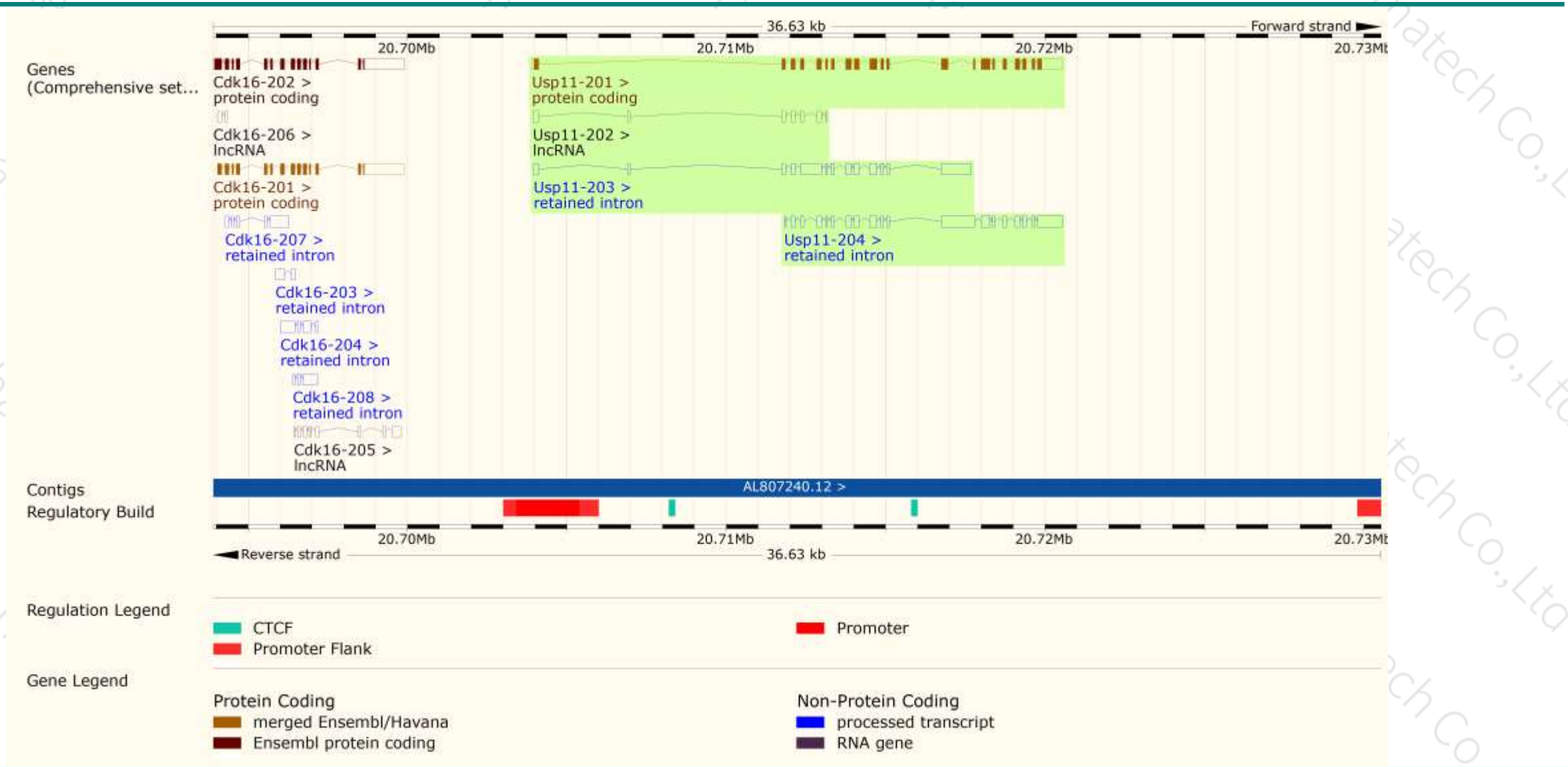
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Usp11-201	ENSMUST00000033383.2	3467	921aa	Protein coding	CCDS53015	Q99K46	TSL:2 GENCODE basic APPRIS P1
Usp11-202	ENSMUST00000127294.7	801	No protein	Processed transcript	-	-	TSL:3
Usp11-204	ENSMUST00000149960.1	3976	No protein	Retained intron	-	-	TSL:1
Usp11-203	ENSMUST00000137101.7	2967	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Usp11-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain

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

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