Rpl13 Cas9-CKO Strategy

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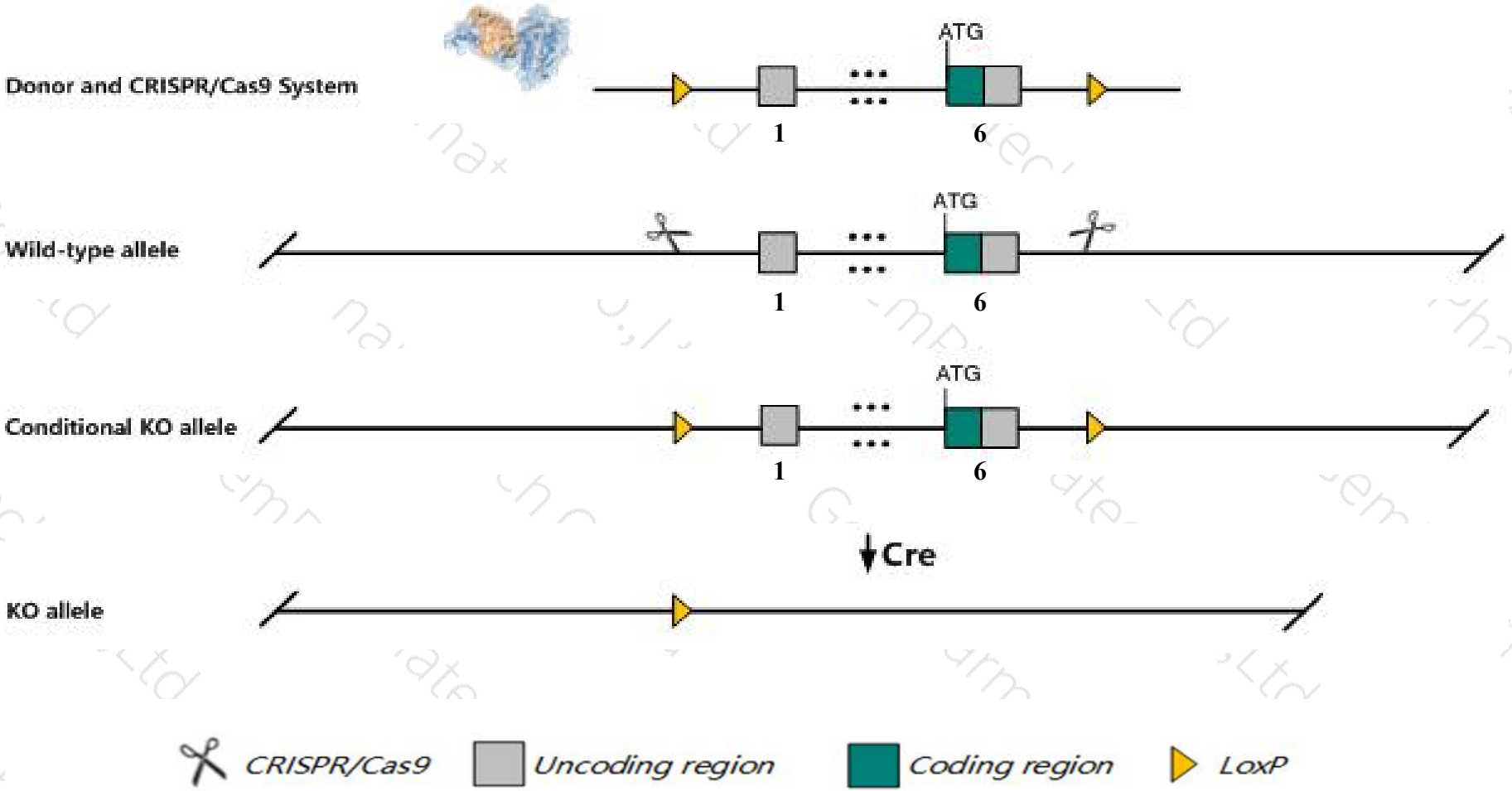
Project Overview

Project Name	***Rpl13***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rpl13* gene. The schematic diagram is as follows:



Technical routes

- The *Rpl13* gene has 5 transcripts. According to the structure of *Rpl13* gene, exon1-exon6 of *Rpl13-201* (ENSMUST00000000756.5) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Rpl13* 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 *Rpl13* gene is located on the Chr8. 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.
- *Snord68, Mir7079* will be deleted.
- 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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Rpl13 ribosomal protein L13 [Mus musculus (house mouse)]

Gene ID: 270106, updated on 13-Mar-2020

Summary

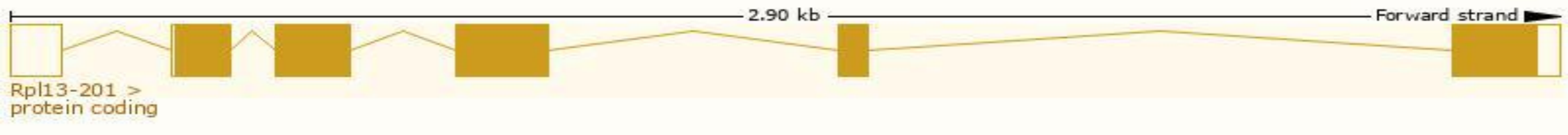
Official Symbol	Rpl13 provided by MGI
Official Full Name	ribosomal protein L13 provided byMGI
Primary source	MGI:MGI:105922
See related	Ensembl:ENSMUSG00000000740
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A52, L13
Expression	Ubiquitous expression in ovary adult (RPKM 1708.8), spleen adult (RPKM 1220.1) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

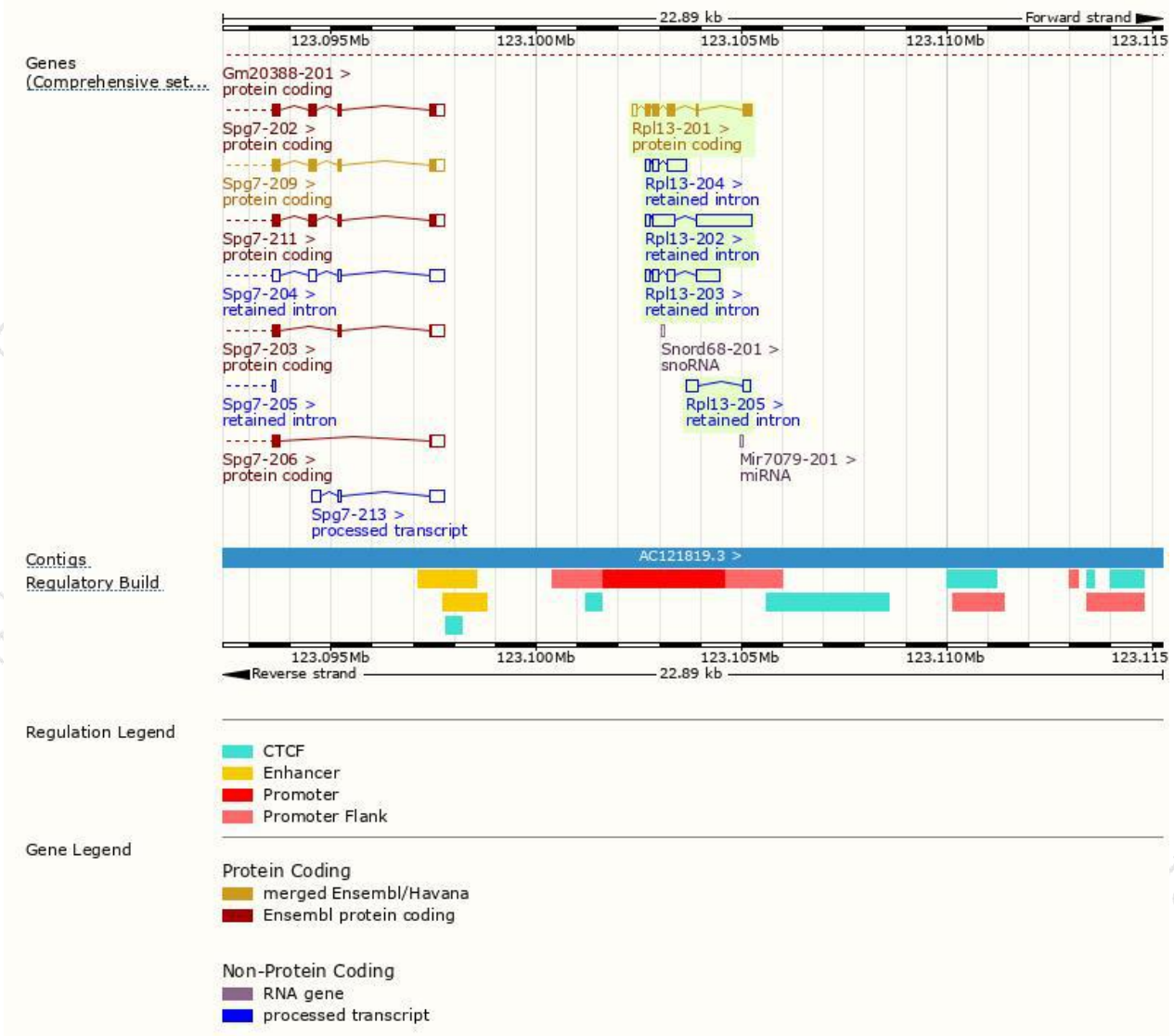
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rpl13-201	ENSMUST00000000756.5	780	211aa	Protein coding	CCDS22747	P47963	TSL:1 GENCODE basic APPRIS P1
Rpl13-202	ENSMUST00000129311.1	1969	No protein	Retained intron	-	-	TSL:1
Rpl13-203	ENSMUST00000132275.7	993	No protein	Retained intron	-	-	TSL:2
Rpl13-204	ENSMUST00000152444.7	713	No protein	Retained intron	-	-	TSL:2
Rpl13-205	ENSMUST00000212887.1	488	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Rpl13-201* 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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