Rps24 Cas9-CKO Strategy

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Project Overview

Project Name	***Rps24***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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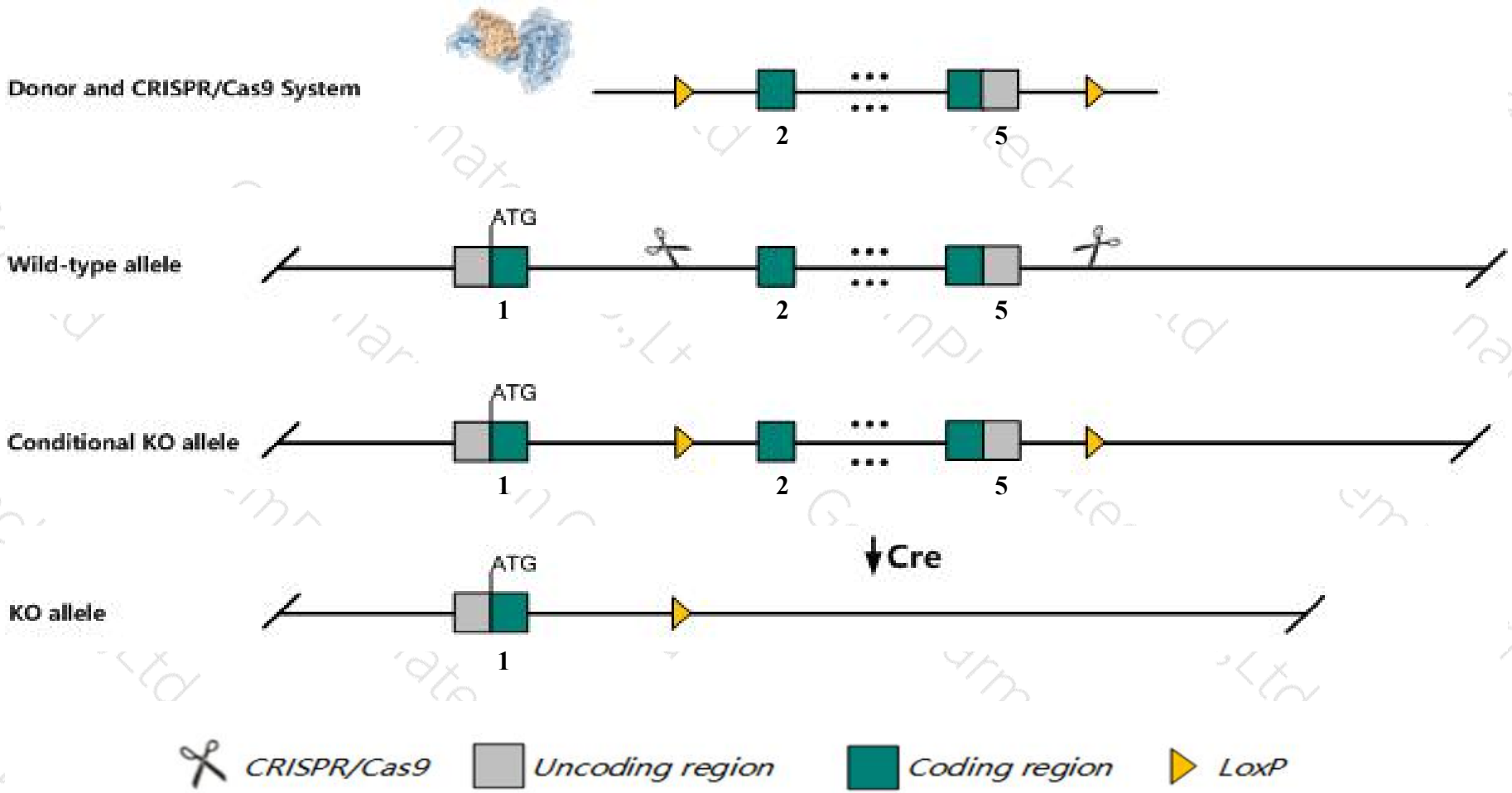
This model will use CRISPR/Cas9 technology to edit the *Rps24* gene. The schematic diagram is as follows:



Technical routes

- The *Rps24* gene has 12 transcripts. According to the structure of *Rps24* gene, exon2-exon5 of *Rps24-210* (ENSMUST00000225023.1) transcript is recommended as the knockout region.The region contains most 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 *Rps24* 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

- Transcript *Rps24*-206&208&209 may be destroyed directly.

- The floxed region is near to the N-terminal of *Polr3a* gene,this strategy may influence the regulatory function of the N-terminal of *Polr3a* gene.

- The *Rps24* gene is located on the Chr14. 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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Rps24 ribosomal protein S24 [*Mus musculus* (house mouse)]

Gene ID: 20088, updated on 24-Oct-2019

Summary

Official Symbol	Rps24 provided by MGI
Official Full Name	ribosomal protein S24 provided by MGI
Primary source	MGI:MGI:98147
See related	Ensembl:ENSMUSG00000025290
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
Expression	Ubiquitous expression in CNS E11.5 (RPKM 223.6), bladder adult (RPKM 143.0) and 24 other tissues See more
Orthologs	human all

Genomic context

Location: 14; 14 A3

See Rps24 in Genome Data Viewer

Exon count: 8

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	14	NC_000080.6 (24490678..24496960)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	14	NC_000080.5 (25309903..25315368)

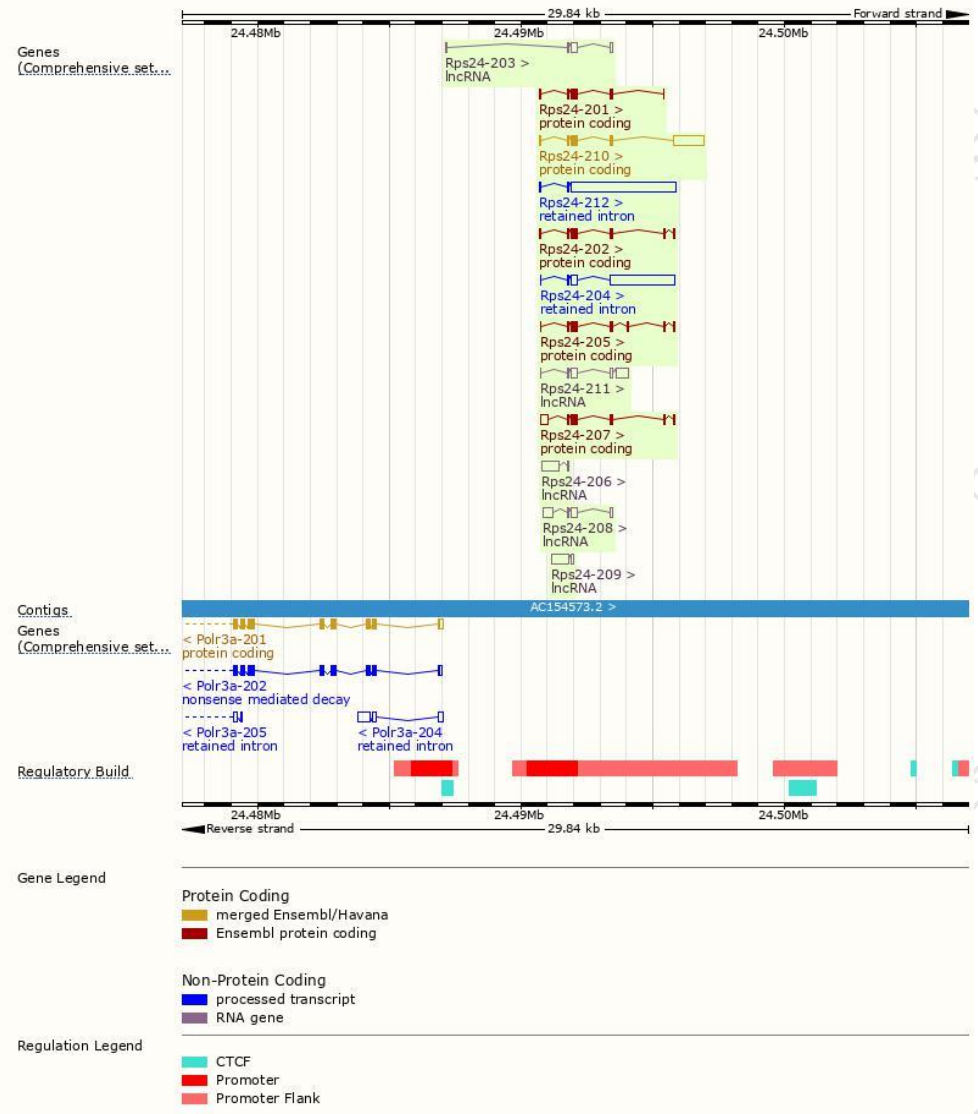
Transcript information（Ensembl）

The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rps24-210	ENSMUST00000225023.1	1613	133aa	Protein coding	CCDS36829	P62849 Q5M9M7	GENCODE basic APPRIS P4
Rps24-202	ENSMUST00000169826.2	519	130aa	Protein coding	CCDS36830	P62849	TSL:1 GENCODE basic APPRIS ALT1
Rps24-201	ENSMUST00000112384.9	468	130aa	Protein coding	CCDS36830	P62849	TSL:5 GENCODE basic APPRIS ALT1
Rps24-207	ENSMUST00000224568.1	714	118aa	Protein coding	-	A0A286YEB7	GENCODE basic
Rps24-205	ENSMUST00000223999.1	525	131aa	Protein coding	-	P62849	GENCODE basic APPRIS ALT1
Rps24-212	ENSMUST00000225994.1	4059	No protein	Retained intron	-	-	
Rps24-204	ENSMUST00000223939.1	2769	No protein	Retained intron	-	-	
Rps24-211	ENSMUST00000225117.1	887	No protein	lncRNA	-	-	
Rps24-209	ENSMUST00000224699.1	750	No protein	lncRNA	-	-	
Rps24-206	ENSMUST00000224549.1	745	No protein	lncRNA	-	-	
Rps24-208	ENSMUST00000224569.1	686	No protein	lncRNA	-	-	
Rps24-203	ENSMUST00000223931.1	461	No protein	lncRNA	-	-	

The strategy is based on the design of *Rps24-210* 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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