Rps6kb2 Cas9-CKO *Strategy*

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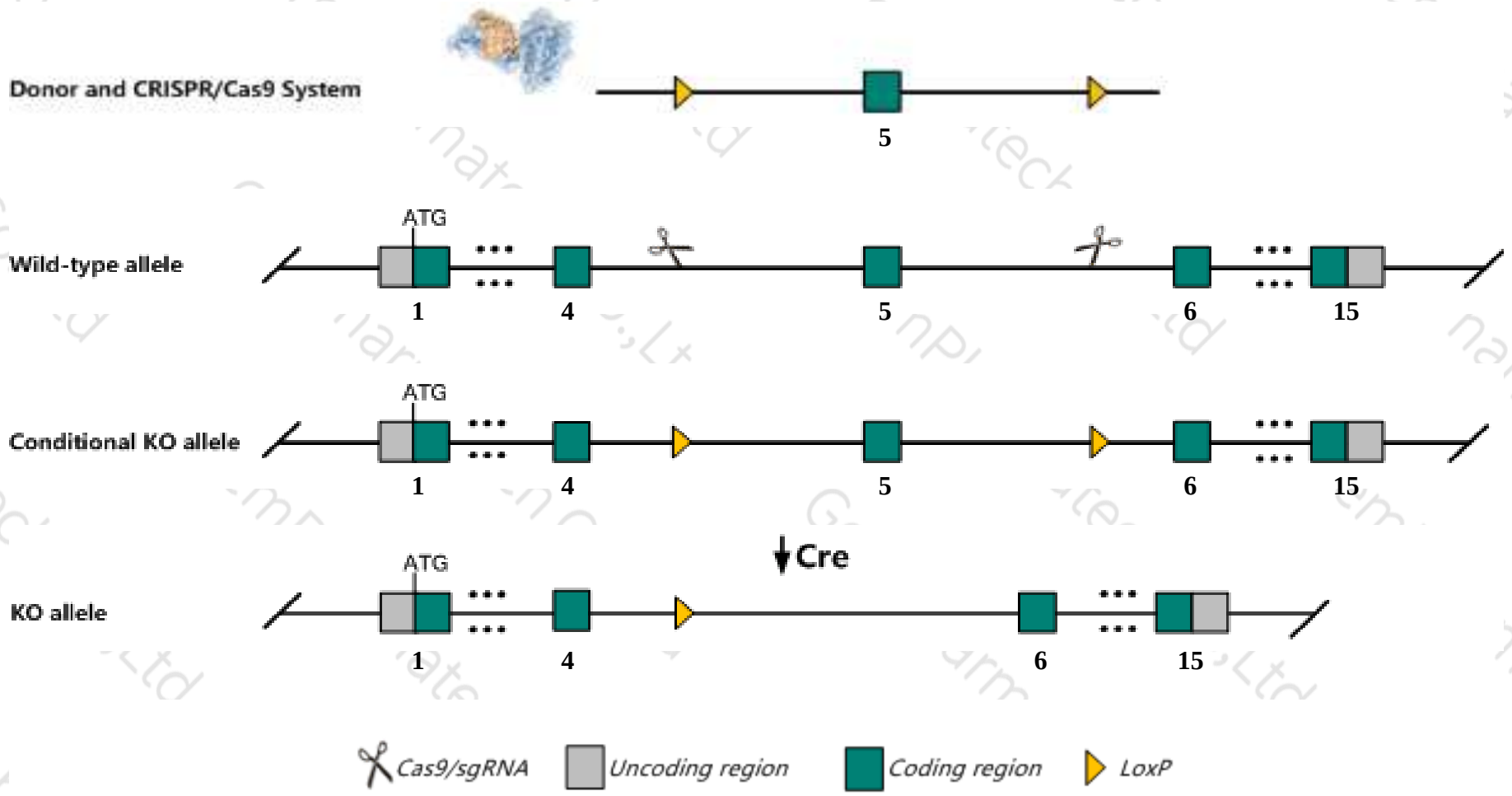
Project Overview

Project Name	***Rps6kb2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rps6kb2* gene. The schematic diagram is as follows:



Technical routes

- The *Rps6kb2* gene has 12 transcripts. According to the structure of *Rps6kb2* gene, exon5 of *Rps6kb2-201* (ENSMUST00000025749.14) transcript is recommended as the knockout region.The region contains 148bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Rps6kb2* 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

- According to the existing MGI data,Mice homozygous for a null allele exhibit no obvious abnormalities.

- The *Rps6kb2* gene is located on the Chr19. 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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Rps6kb2 ribosomal protein S6 kinase, polypeptide 2 [*Mus musculus* (house mouse)]

Gene ID: 58988, updated on 12-Aug-2019

Summary

Official Symbol	Rps6kb2 provided by MGI
Official Full Name	ribosomal protein S6 kinase, polypeptide 2 provided by MGI
Primary source	MGI:MGI:1927343
See related	Ensembl:ENSMUSG00000024830
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	S6K2; S6K-beta-2
Expression	Ubiquitous expression in thymus adult (RPKM 22.1), limb E14.5 (RPKM 19.7) and 28 other tissues See more
Orthologs	human all

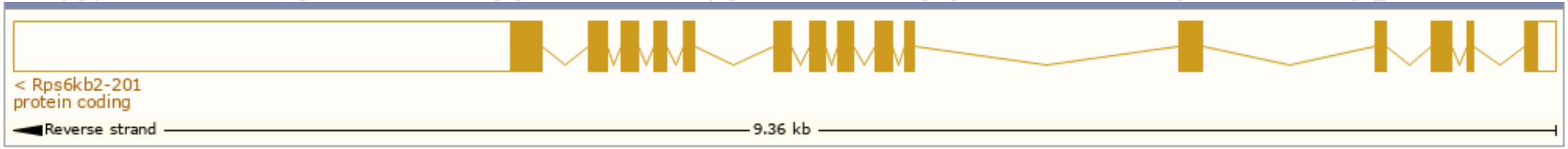
Transcript information（Ensembl）

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

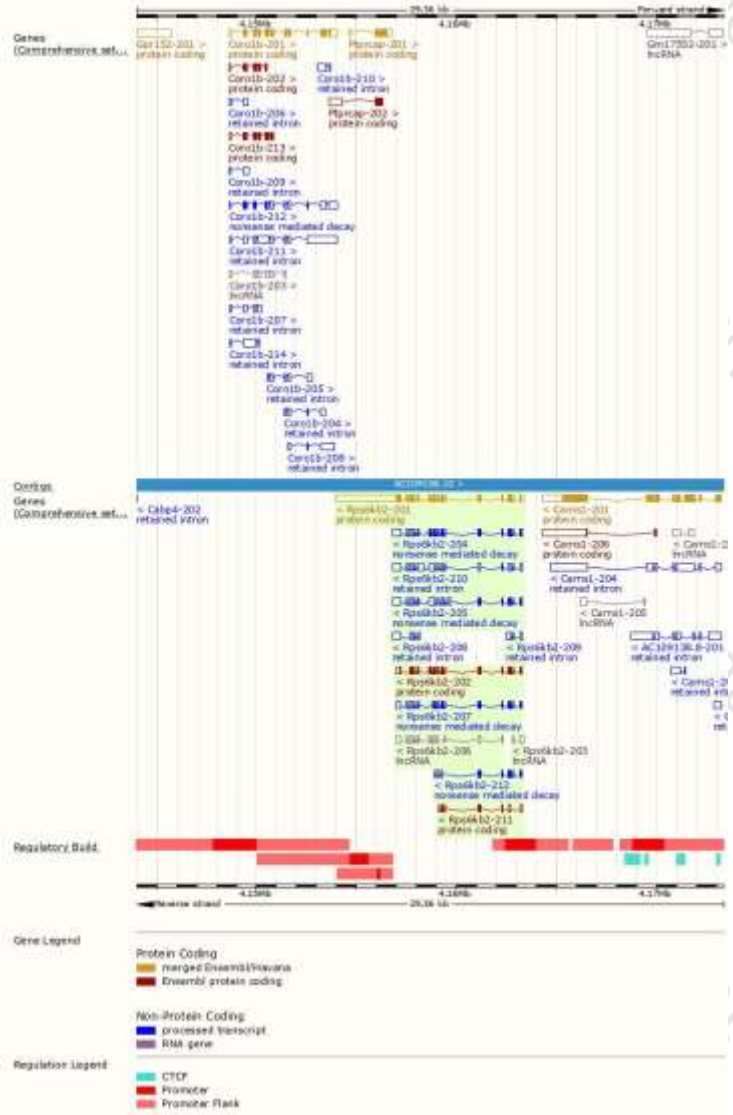
Show/hide columns (1 hidden) Filter

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rps6kb2-201	ENSMUST00000025749.14	4586	485aa	Protein coding	CCDS29419	Q9Z1M4	TSL:1 GENCODE basic APPRIS P1
Rps6kb2-202	ENSMUST00000118483.1	1409	392aa	Protein coding	-	D3YWB8	TSL:5 GENCODE basic
Rps6kb2-203	ENSMUST00000125057.1	235	No protein	lncRNA	-	-	TSL:5
Rps6kb2-204	ENSMUST00000127605.7	1753	312aa	Nonsense mediated decay	-	E9PUN3	TSL:5
Rps6kb2-205	ENSMUST00000130469.7	1979	153aa	Nonsense mediated decay	-	Q80X26	TSL:1
Rps6kb2-206	ENSMUST00000135911.7	1143	No protein	lncRNA	-	-	TSL:5
Rps6kb2-207	ENSMUST00000137431.7	1418	285aa	Nonsense mediated decay	-	D6RH86	TSL:5
Rps6kb2-208	ENSMUST00000141104.7	678	No protein	Retained intron	-	-	TSL:3
Rps6kb2-209	ENSMUST00000151727.1	411	No protein	Retained intron	-	-	TSL:2
Rps6kb2-210	ENSMUST00000154307.7	2090	No protein	Retained intron	-	-	TSL:1
Rps6kb2-211	ENSMUST00000155303.2	642	114aa	Protein coding	-	-	CDS 3' incomplete TSL:3
Rps6kb2-212	ENSMUST00000237691.1	693	160aa	Nonsense mediated decay	-	-	-

The strategy is based on the design of *Rps6kb2-201* 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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