

Rps6kb2 Cas9-KO Strategy

Designer:

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Design Date:

2019-9-5

Project Overview

Project Name

Rps6kb2

Project type

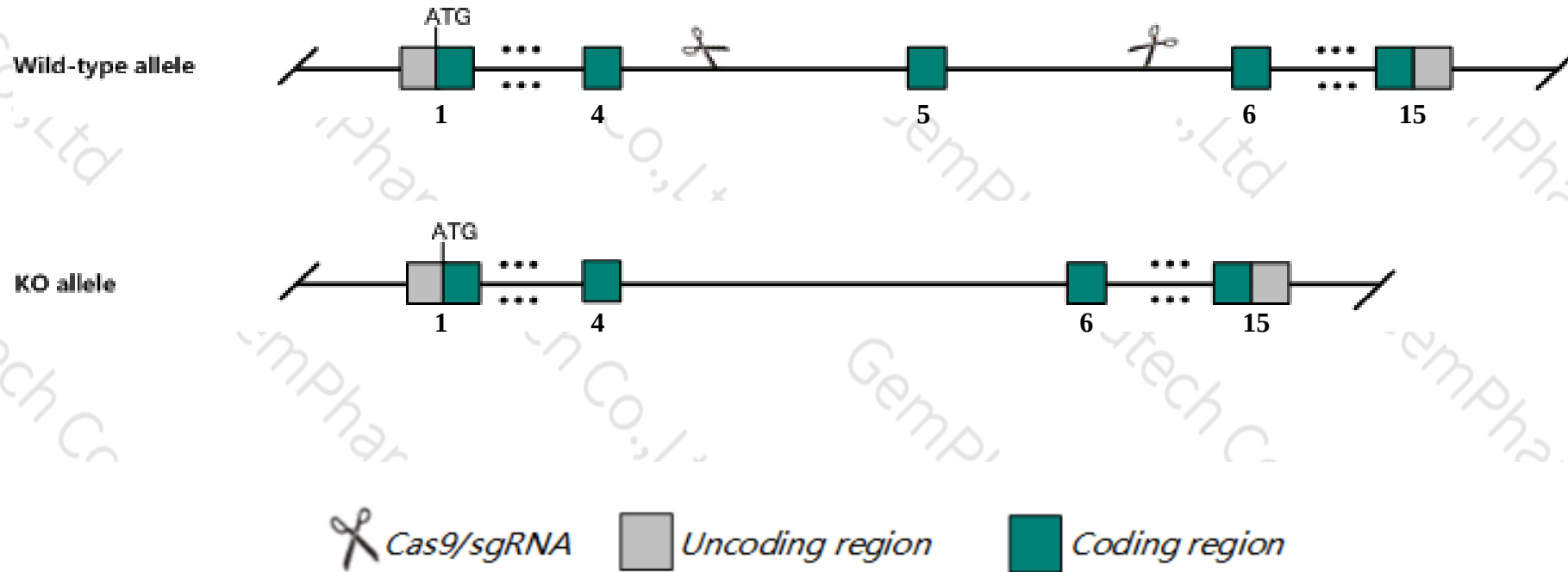
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- 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. Cas9 and sgRNA 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.

- 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

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:ENSMUSG000000024830](#)

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](#)

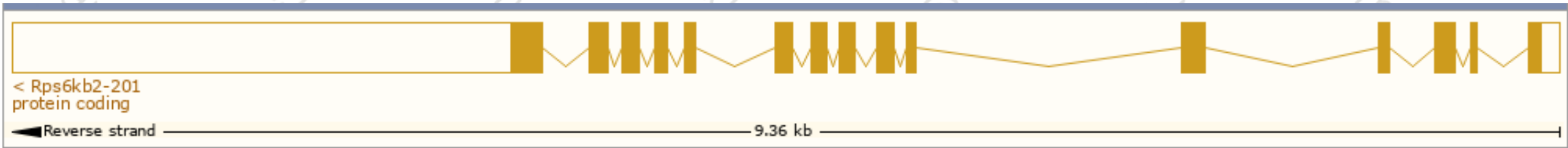
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

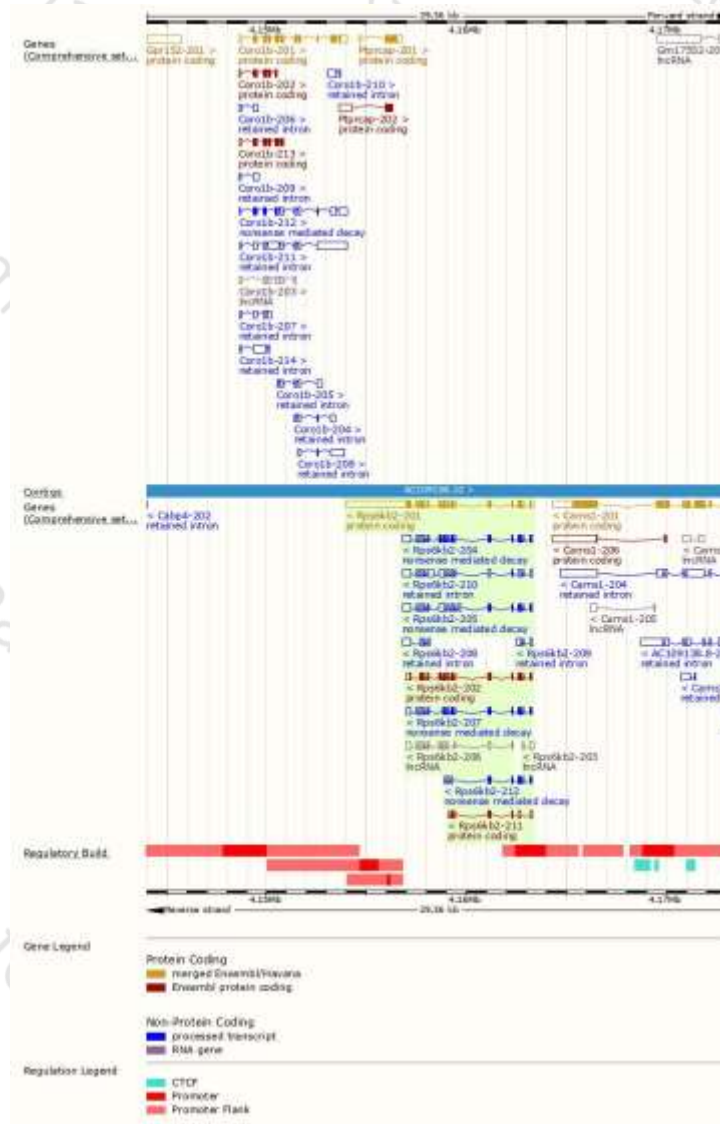
The gene has 12 transcripts,all transcripts are shown below:

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



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

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