

***Rbbp6* Cas9-KO Strategy**

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Design Date: 2020-7-28

Project Overview

Project Name

Rbbp6

Project type

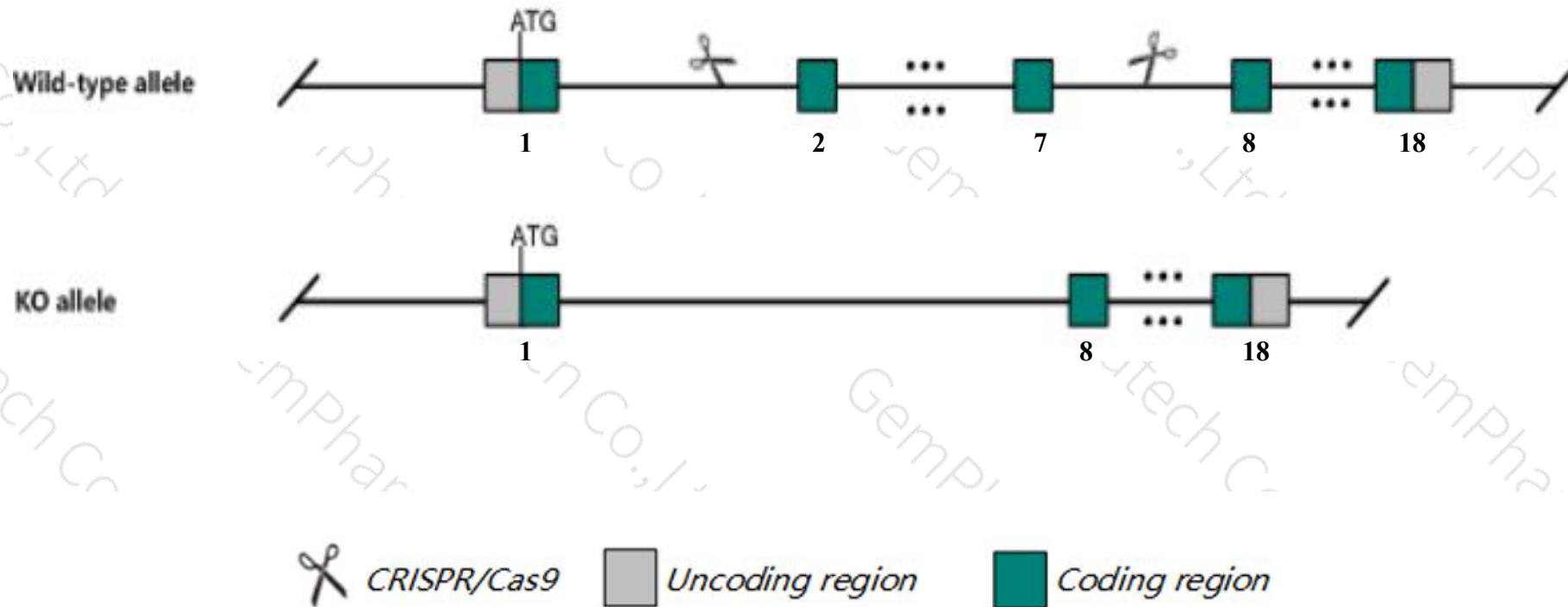
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rbbp6* gene. The schematic diagram is as follows:



- The *Rbbp6* gene has 10 transcripts. According to the structure of *Rbbp6* gene, exon2-exon7 of *Rbbp6*-201(ENSMUST00000052135.13) transcript is recommended as the knockout region. The region contains 511bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rbbp6* gene. The brief process is as follows: CRISPR/Cas9 system 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 embryonic lethality, reduced size, growth retardation and increased apoptosis.
- The *Rbbp6* gene is located on the Chr7. 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)

Rbbp6 retinoblastoma binding protein 6, ubiquitin ligase [Mus musculus (house mouse)]

Gene ID: 19647, updated on 13-Mar-2020

Summary



Official Symbol	Rbbp6 provided by MGI
Official Full Name	retinoblastoma binding protein 6, ubiquitin ligase provided by MGI
Primary source	MGI:MGI:894835
See related	Ensembl:ENSMUSG00000030779
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	4933422O15Rik, AI316869, BB233631, C030034J04Rik, C77662, P2P-R, PACT
Expression	Ubiquitous expression in CNS E11.5 (RPKM 10.8), CNS E14 (RPKM 9.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

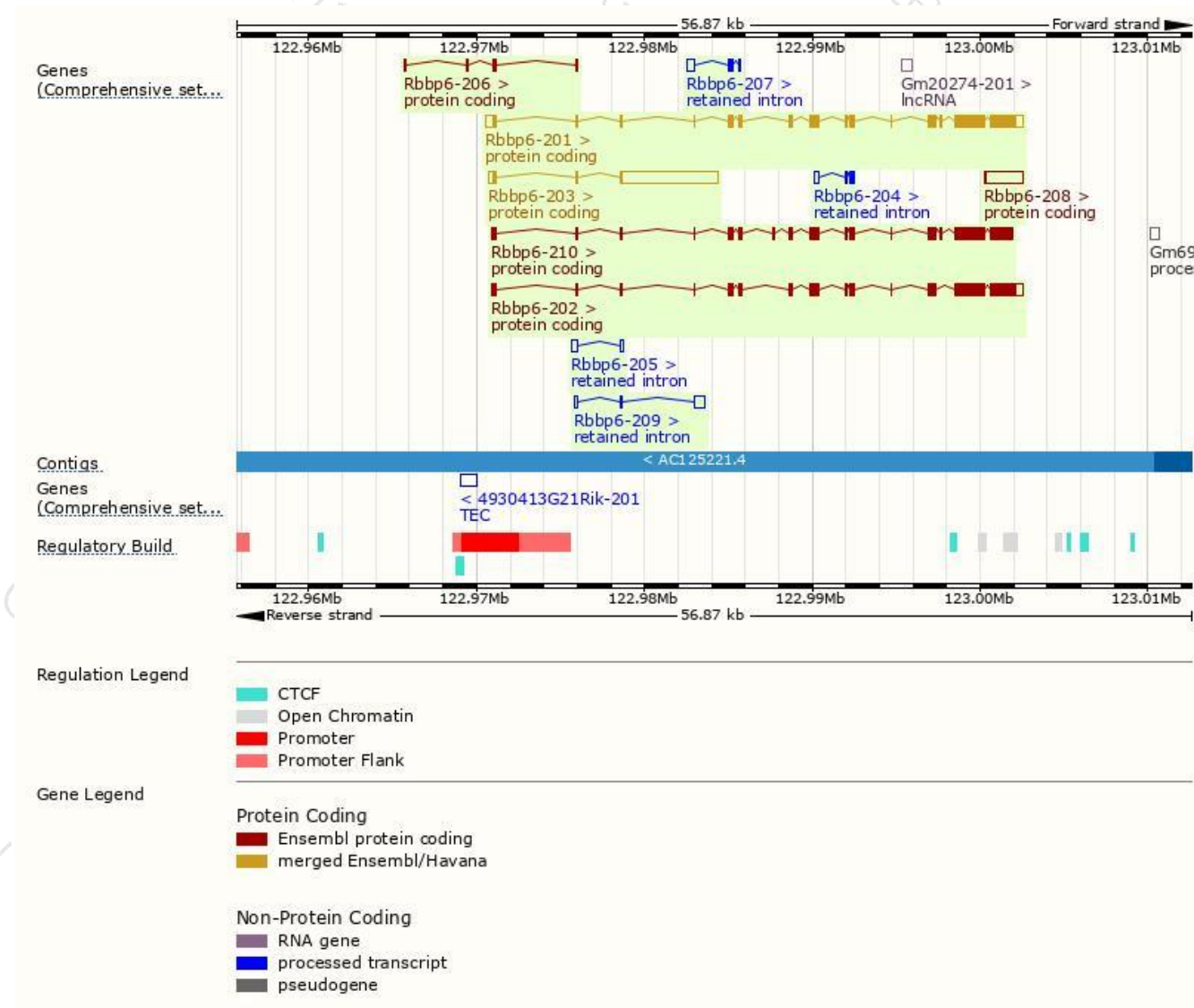
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rbbp6-203	ENSMUST00000098062.8	6345	123aa	Protein coding	CCDS21817	A0A0R4J165	TSL:1 GENCODE basic
Rbbp6-201	ENSMUST00000052135.13	6184	1790aa	Protein coding	CCDS52387	P97868	TSL:5 GENCODE basic APPRIS P2
Rbbp6-202	ENSMUST00000071590.5	5728	1756aa	Protein coding	-	P97868	TSL:5 GENCODE basic APPRIS ALT2
Rbbp6-210	ENSMUST00000231323.1	5331	1759aa	Protein coding	-	A0A338P6W1	CDS 3' incomplete
Rbbp6-208	ENSMUST00000205495.1	2276	19aa	Protein coding	-	A0A0U1RNZ1	CDS 5' incomplete TSL:NA
Rbbp6-206	ENSMUST00000148880.1	478	79aa	Protein coding	-	D3YZU8	CDS 3' incomplete TSL:5
Rbbp6-209	ENSMUST00000206179.1	809	No protein	Retained intron	-	-	TSL:3
Rbbp6-207	ENSMUST00000156738.1	698	No protein	Retained intron	-	-	TSL:3
Rbbp6-205	ENSMUST00000137860.1	582	No protein	Retained intron	-	-	TSL:2
Rbbp6-204	ENSMUST00000126053.1	542	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Rbbp6-201* transcript,the transcription is shown below:



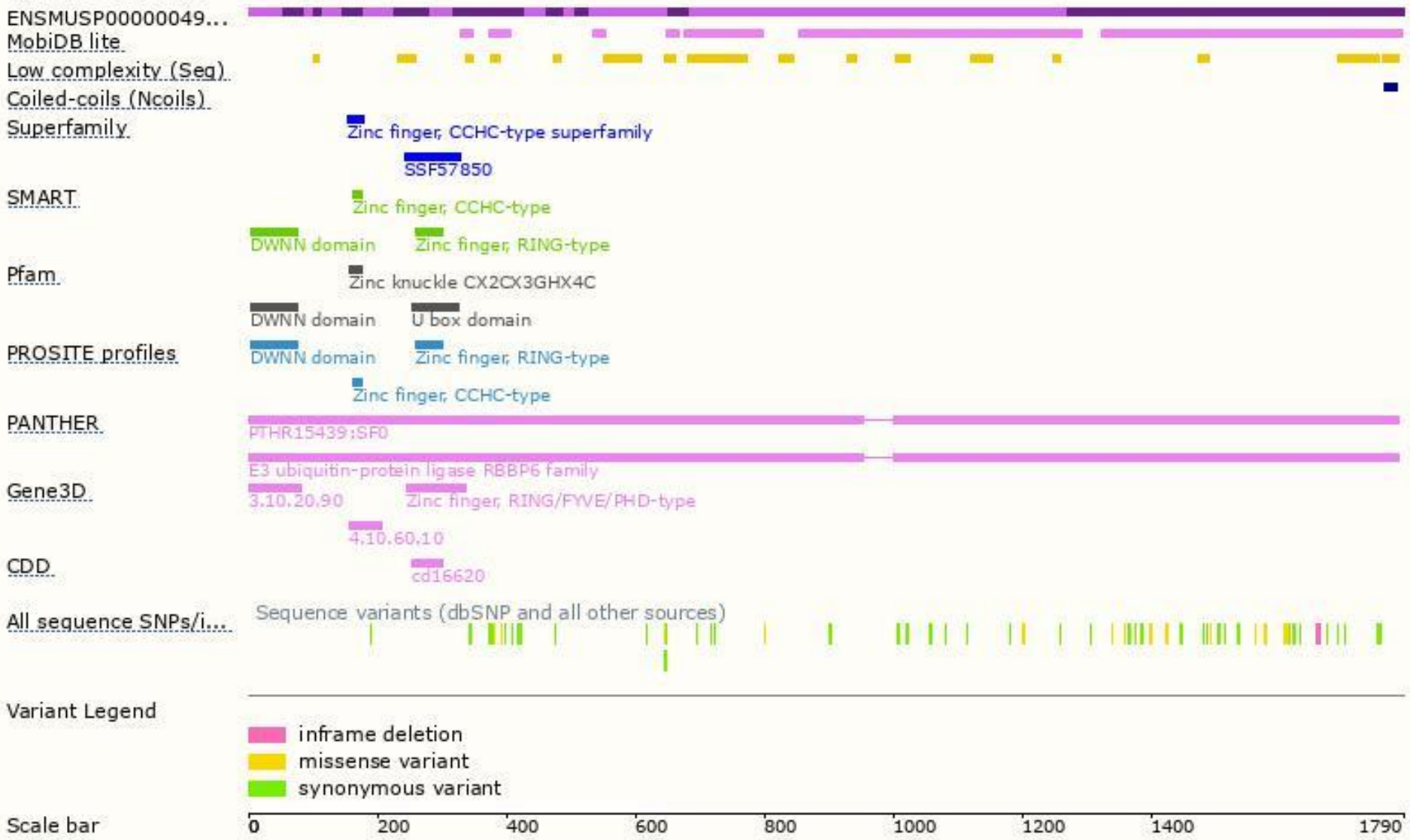
Genomic location distribution



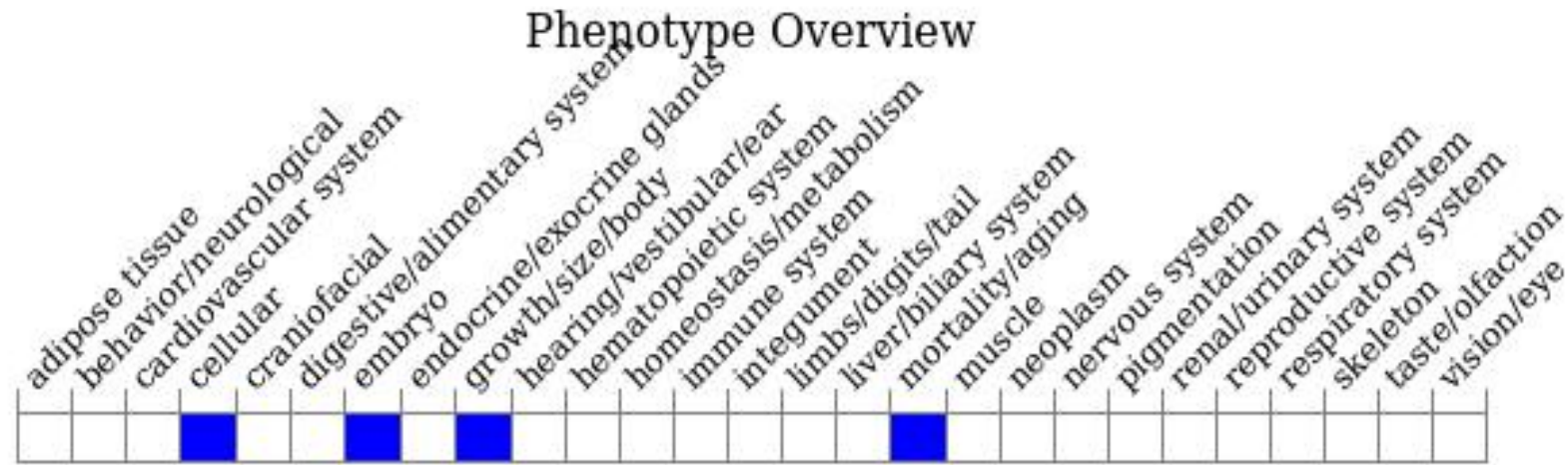
Protein domain



集萃药康
GemPharmatech



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, mice homozygous for a null allele exhibit embryonic lethality, reduced size, growth retardation and increased apoptosis.

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

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