

***Rbbp5* Cas9-CKO Strategy**

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Project Overview

Project Name

Rbbp5

Project type

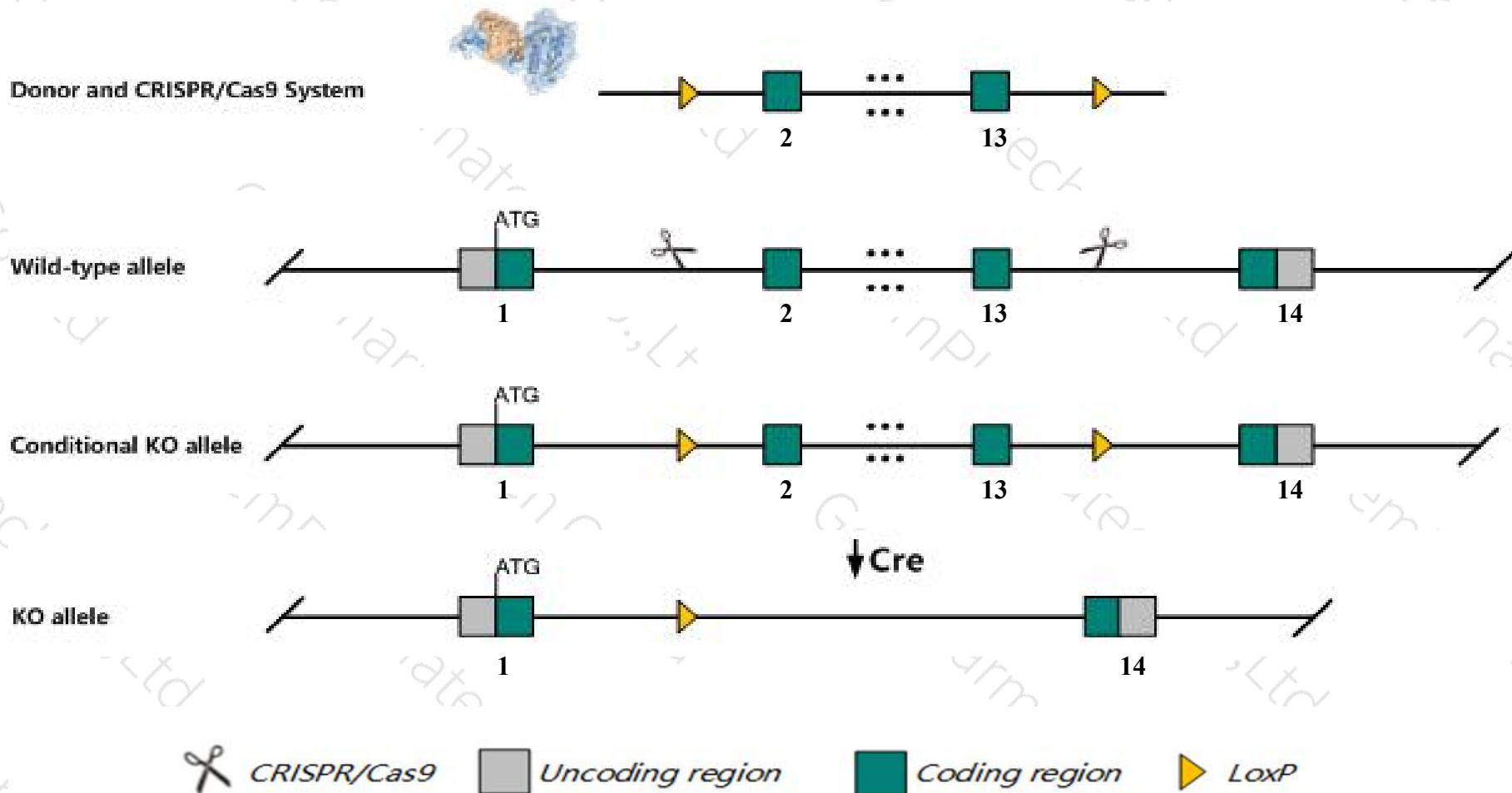
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rbbp5* gene. The schematic diagram is as follows:



- The *Rbbp5* gene has 7 transcripts. According to the structure of *Rbbp5* gene, exon2-exon13 of *Rbbp5*-207 (ENSMUST00000190997.6) 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 *Rbbp5* 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 *Rbbp5*-203 may not be affected.
- The floxed region is near to the N-terminal of *6030442K20Rik* gene and *Tmem81* gene, this strategy may influence the regulatory function of the N-terminal of these genes.
- The *Rbbp5* gene is located on the Chr1. 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)



Rbbp5 retinoblastoma binding protein 5, histone lysine methyltransferase complex subunit [*Mus musculus* (house mouse)]

Gene ID: 213464, updated on 24-Oct-2019

Summary

- Official Symbol** Rbbp5 provided by MGI
- Official Full Name** retinoblastoma binding protein 5, histone lysine methyltransferase complex subunit provided by MGI
- Primary source** MGI:MGI:1918367
- See related** Ensembl:ENSMUSG00000026439
- 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** C330016J05; 4933411J24Rik
- Expression** Ubiquitous expression in CNS E11.5 (RPKM 7.4), cerebellum adult (RPKM 6.7) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 1; 1 E4

[See Rbbp5 in Genome Data Viewer](#)

Exon count: 15

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	1	NC_000067.6 (132477348..132505665)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	1	NC_000067.5 (134373944..134402242)

Transcript information (Ensembl)

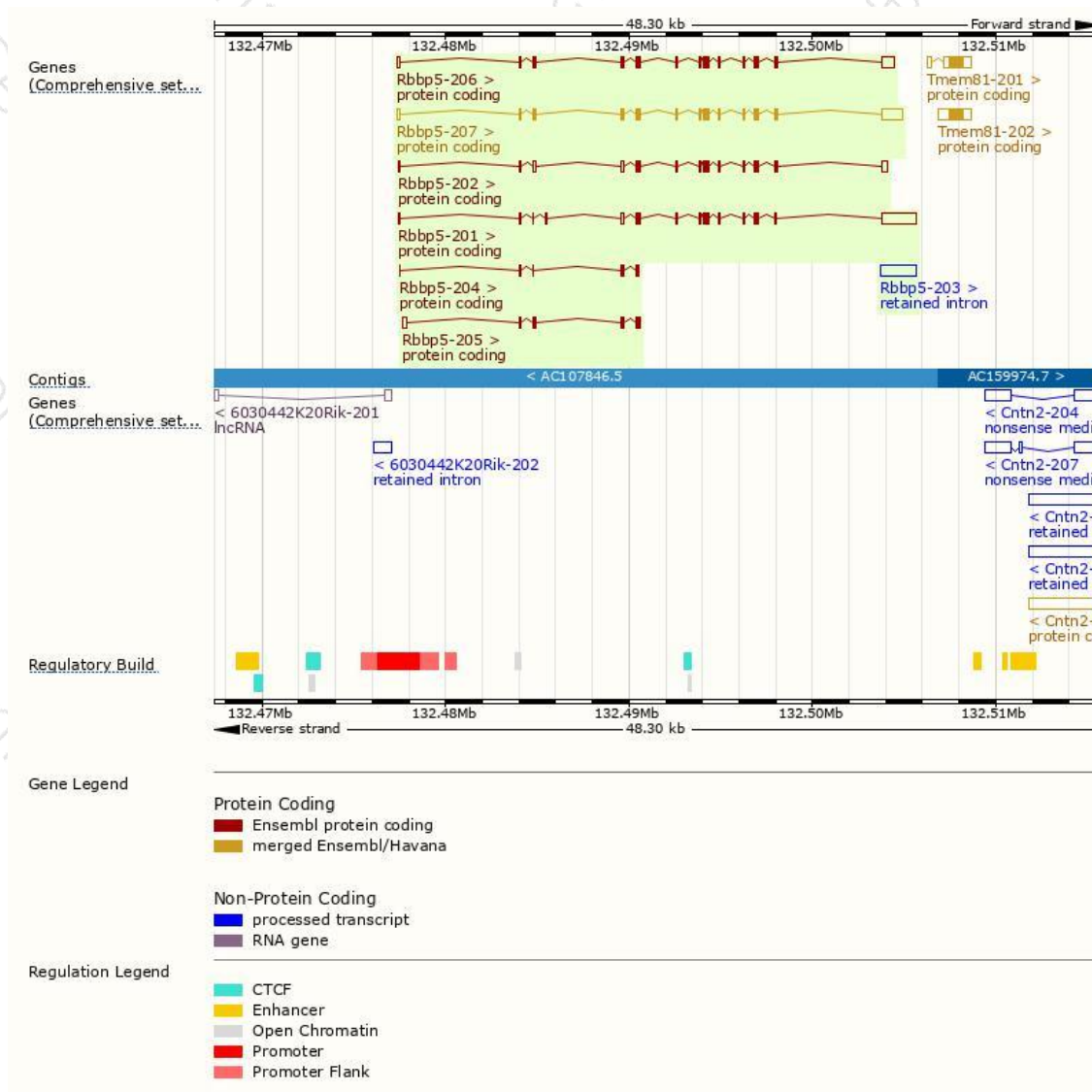
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rbbp5-207	ENSMUST00000190997.6	2856	538aa	Protein coding	CCDS15286	Q8BX09	TSL:1 GENCODE basic APPRIS P2
Rbbp5-201	ENSMUST00000027700.14	3385	373aa	Protein coding	-	Q8BX09	TSL:1 GENCODE basic
Rbbp5-206	ENSMUST00000190825.6	2456	537aa	Protein coding	-	A0A0R4J2B6	TSL:1 GENCODE basic APPRIS ALT 1
Rbbp5-202	ENSMUST00000187505.6	1977	410aa	Protein coding	-	A0A087WST2	TSL:5 GENCODE basic
Rbbp5-205	ENSMUST00000189786.2	716	149aa	Protein coding	-	A0A087WRV7	CDS 3' incomplete TSL:3
Rbbp5-204	ENSMUST00000188575.6	339	107aa	Protein coding	-	A0A087WQU2	CDS 3' incomplete TSL:1
Rbbp5-203	ENSMUST00000187834.1	1923	No protein	Retained intron	-	-	TSL:NA

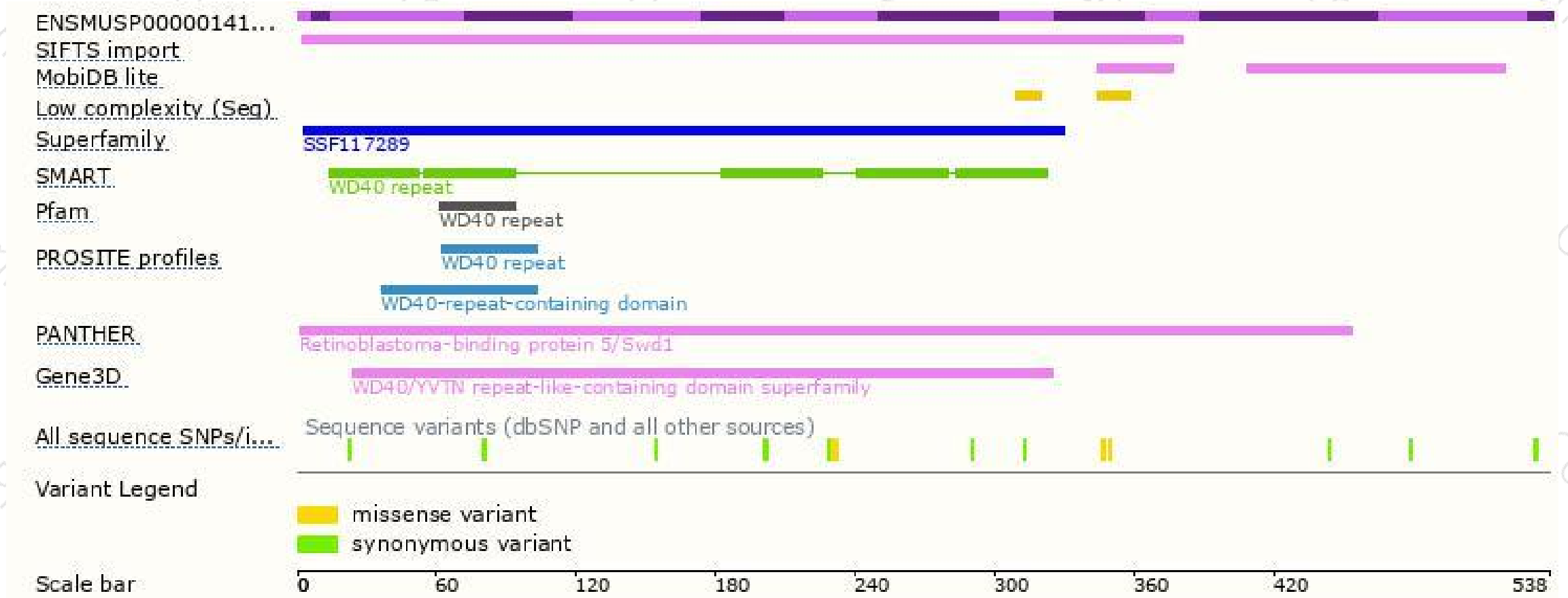
The strategy is based on the design of *Rbbp5-207* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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