Rbbp5 Cas9-KO Strategy

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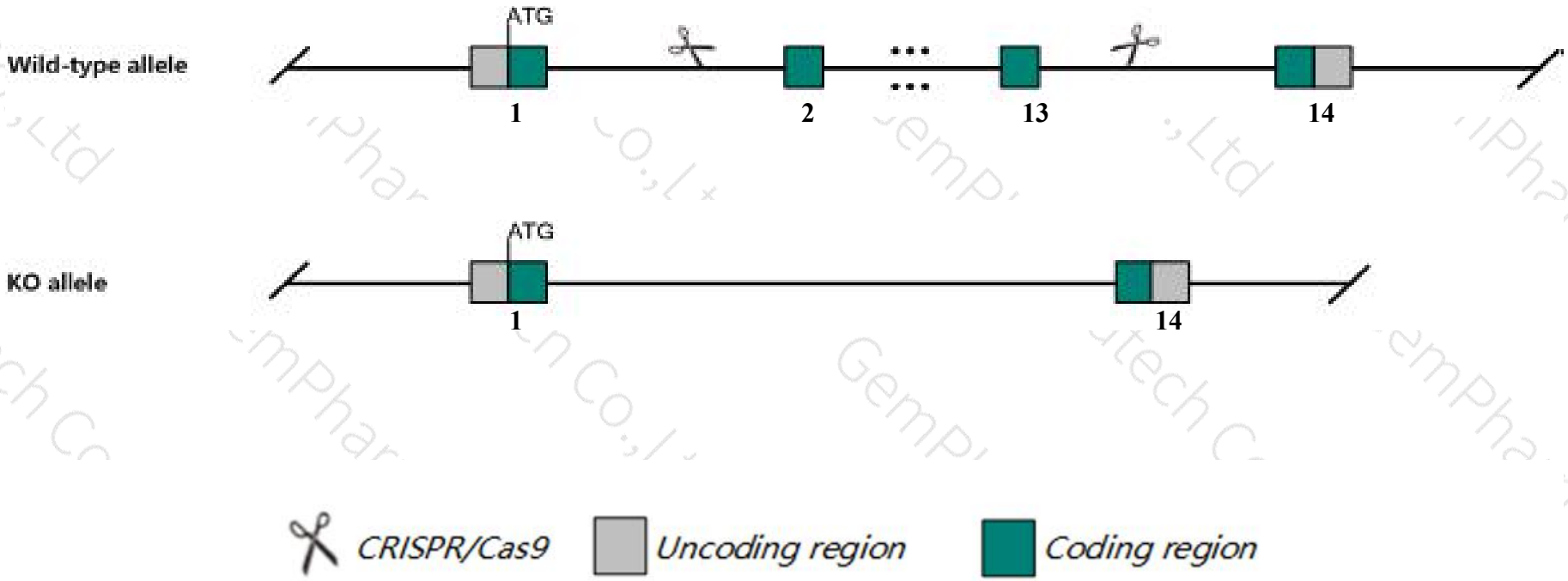
Date:2020-02-07

Project Overview

Project Name	***Rbbp5***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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



Technical routes

➢ 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

Notice

- Transcript *Rbbp5*-203 may not be affected.
- The knockout 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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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

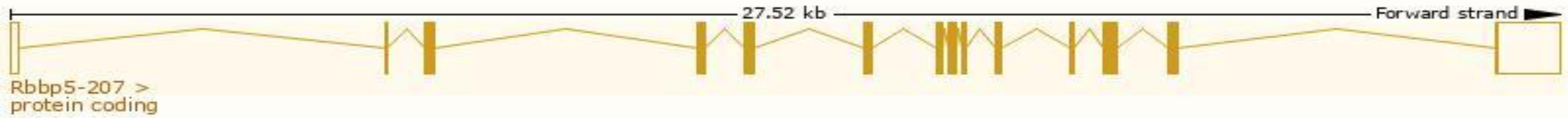
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	1	NC_000067.6 (132477348..132505665)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	1	NC_000067.5 (134373944..134402242)

Transcript information（Ensembl）

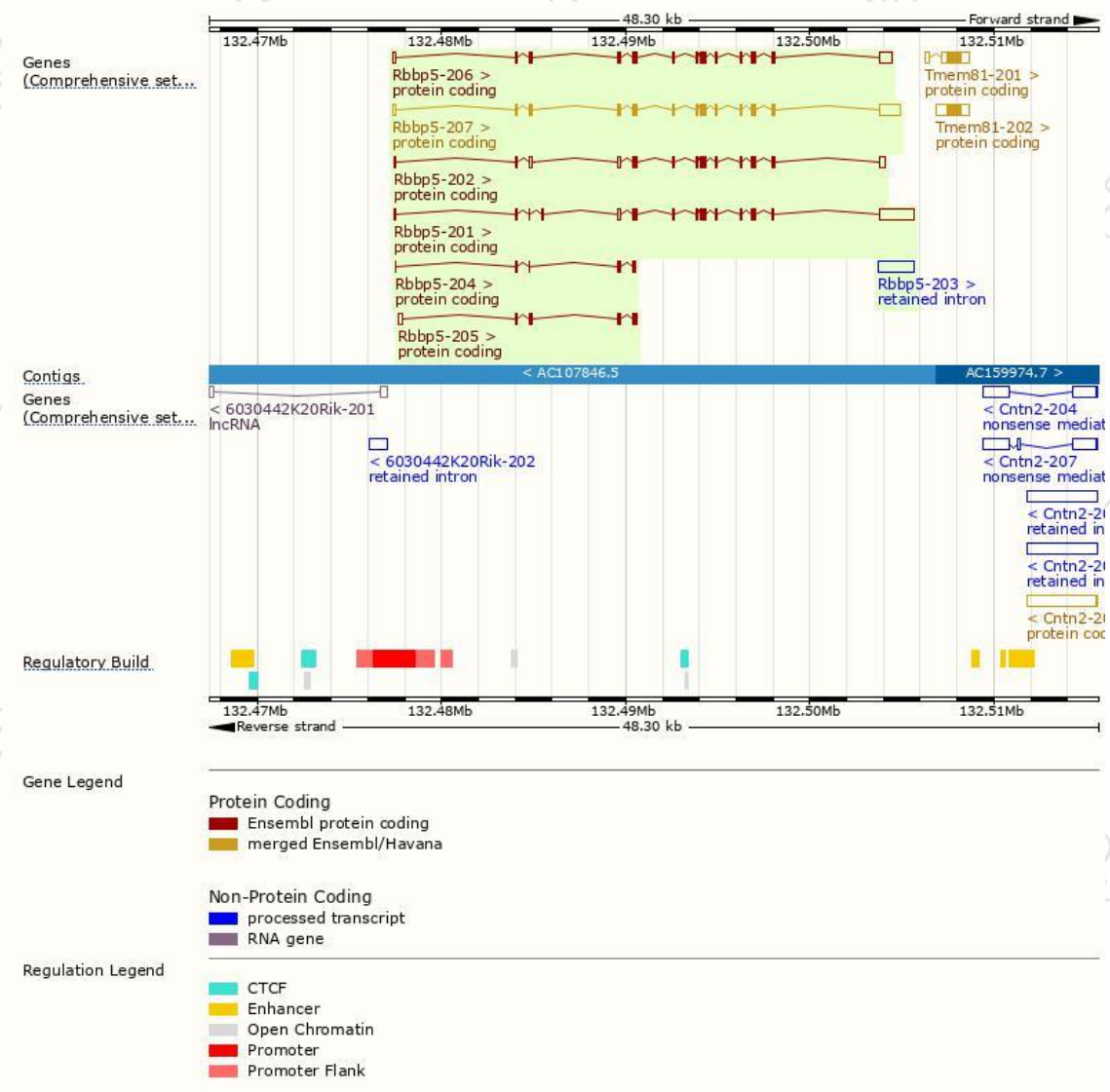
The gene has 7 transcripts,all transcripts are shown below:

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 ALT1
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

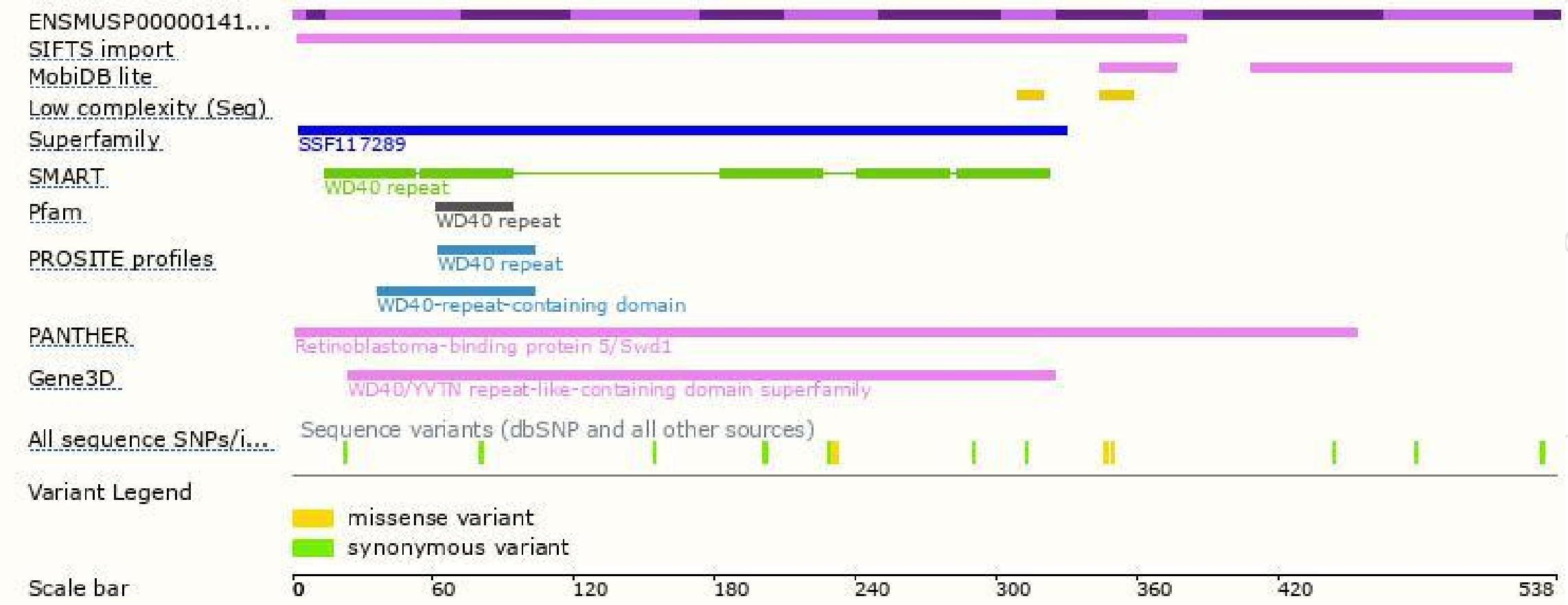
The strategy is based on the design of *Rbbp5-207* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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