Rbm24 Cas9-KO Strategy

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Reviewer: Huan Fan

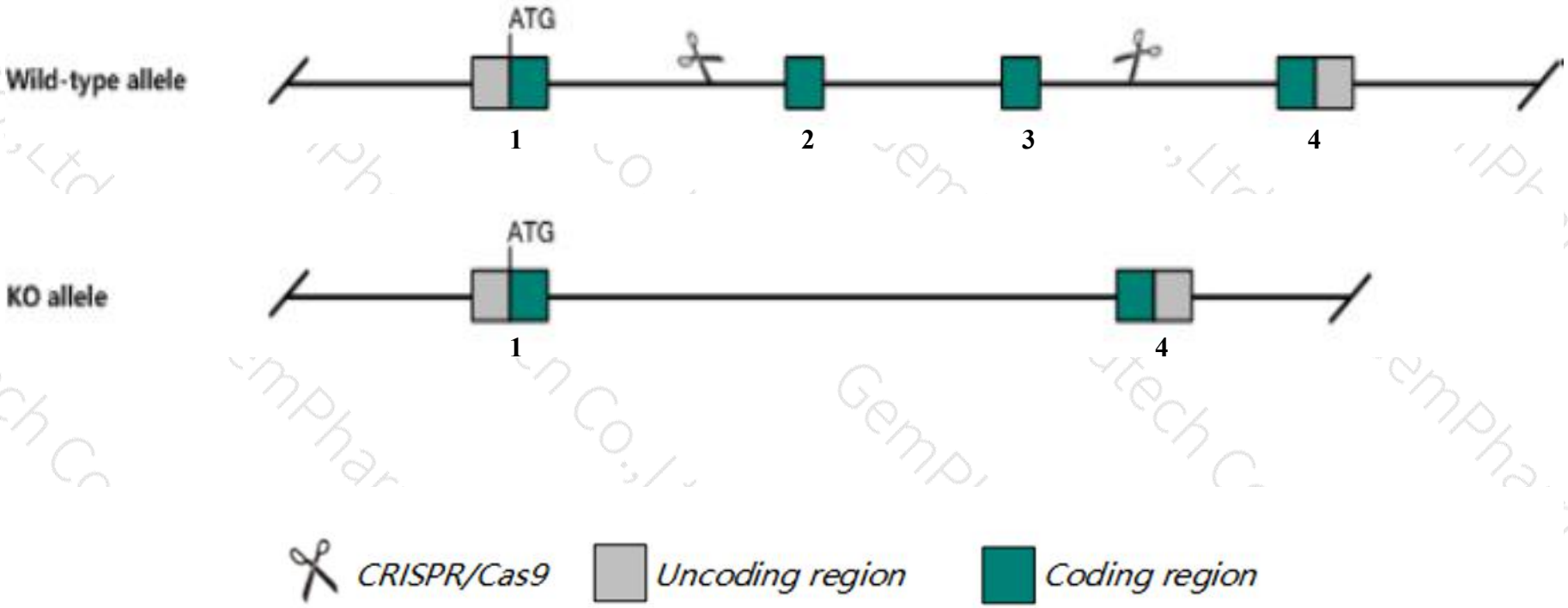
Design Date: 2020-4-23

Project Overview

Project Name	***Rbm24***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rbm24* gene. The schematic diagram is as follows:



Technical routes

➢ The *Rbm24* gene has 5 transcripts. According to the structure of *Rbm24* gene, exon2-exon3 of *Rbm24-201* (ENSMUST00000037923.4) transcript is recommended as the knockout region.The region contains 179bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Rbm24* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,mice homozygous for a knock-out allele exhibit lethality between e12.5 and e13.5 with embryonic growth retardation, thin and unfused atrioventricular cushions, reduced myocardial trabeculation and increased apoptosis in the heart.
- The *Rbm24* gene is located on the Chr13. 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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Rbm24 RNA binding motif protein 24 [Mus musculus (house mouse)]

Gene ID: 666794, updated on 31-Jan-2019

Summary

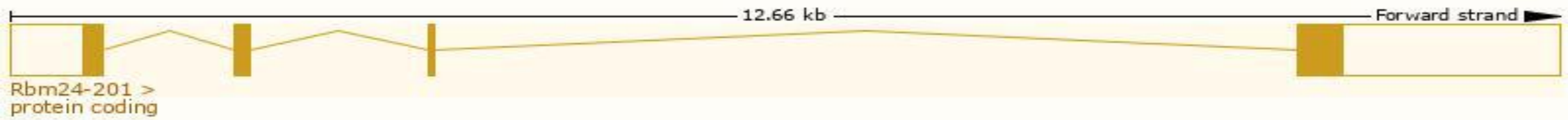
Official Symbol	Rbm24 provided by MGI
Official Full Name	RNA binding motif protein 24 provided by MGI
Primary source	MGI:MGI:3610364
See related	Ensembl:ENSMUSG00000038132
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	6330546B05Rik, AI606861
Expression	Broad expression in heart adult (RPKM 43.8), bladder adult (RPKM 10.5) and 17 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

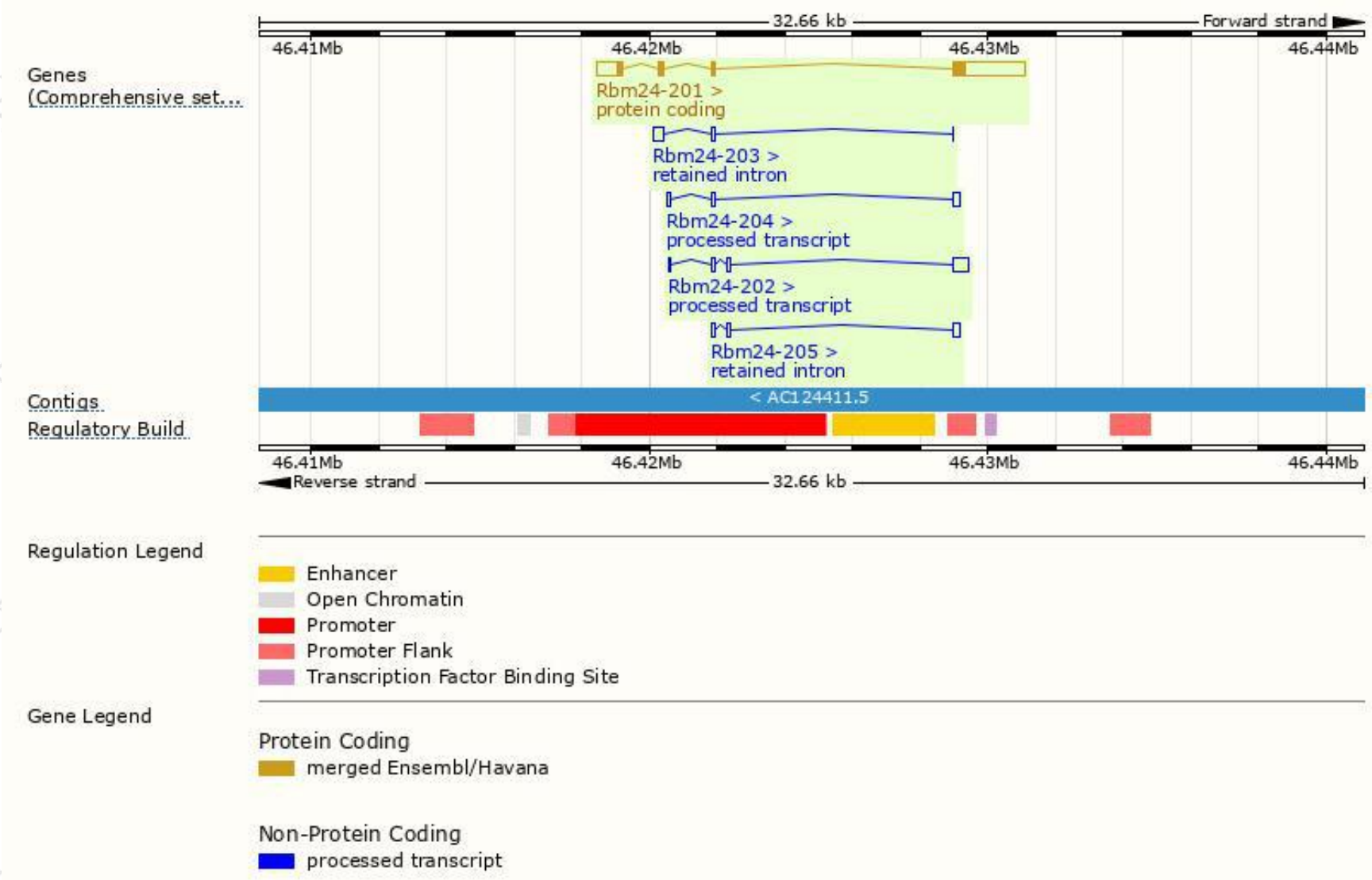
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rbm24-201	ENSMUST00000037923.4	3086	236aa	Protein coding	CCDS36651	D3Z4I3	TSL:2 GENCODE basic APPRIS P1
Rbm24-205	ENSMUST00000225890.1	437	No protein	Retained intron	-	-	
Rbm24-203	ENSMUST00000225221.1	391	No protein	Retained intron	-	-	
Rbm24-202	ENSMUST00000224638.1	679	No protein	lncRNA	-	-	
Rbm24-204	ENSMUST00000225727.1	353	No protein	lncRNA	-	-	

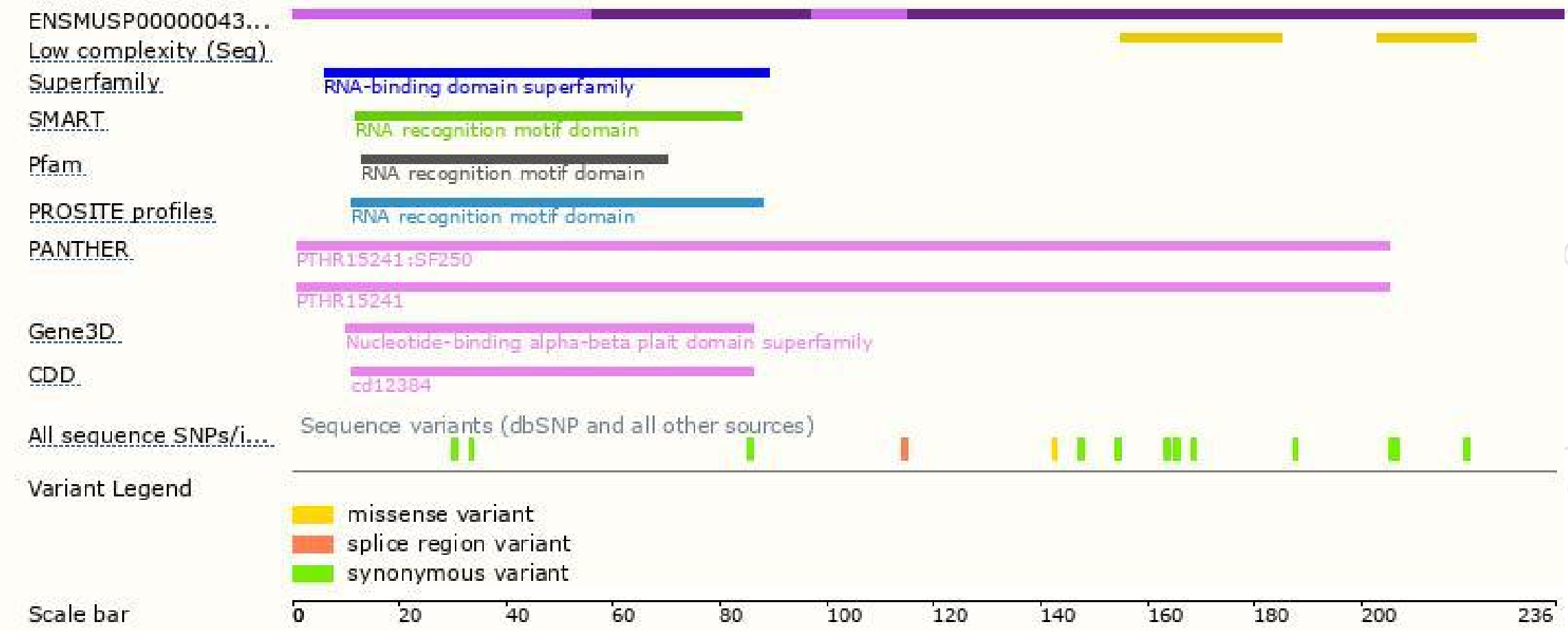
The strategy is based on the design of *Rbm24-201* transcript,the transcription is shown below:



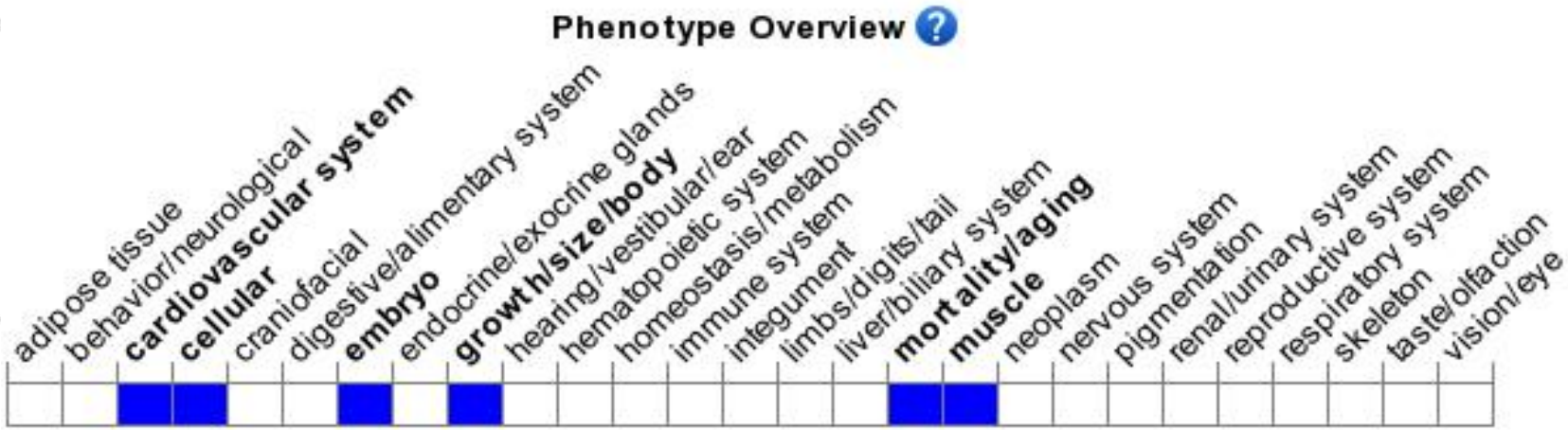
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



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

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

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