

Rubcn Cas9-KO Strategy

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Project Overview

Project Name

Rubcn

Project type

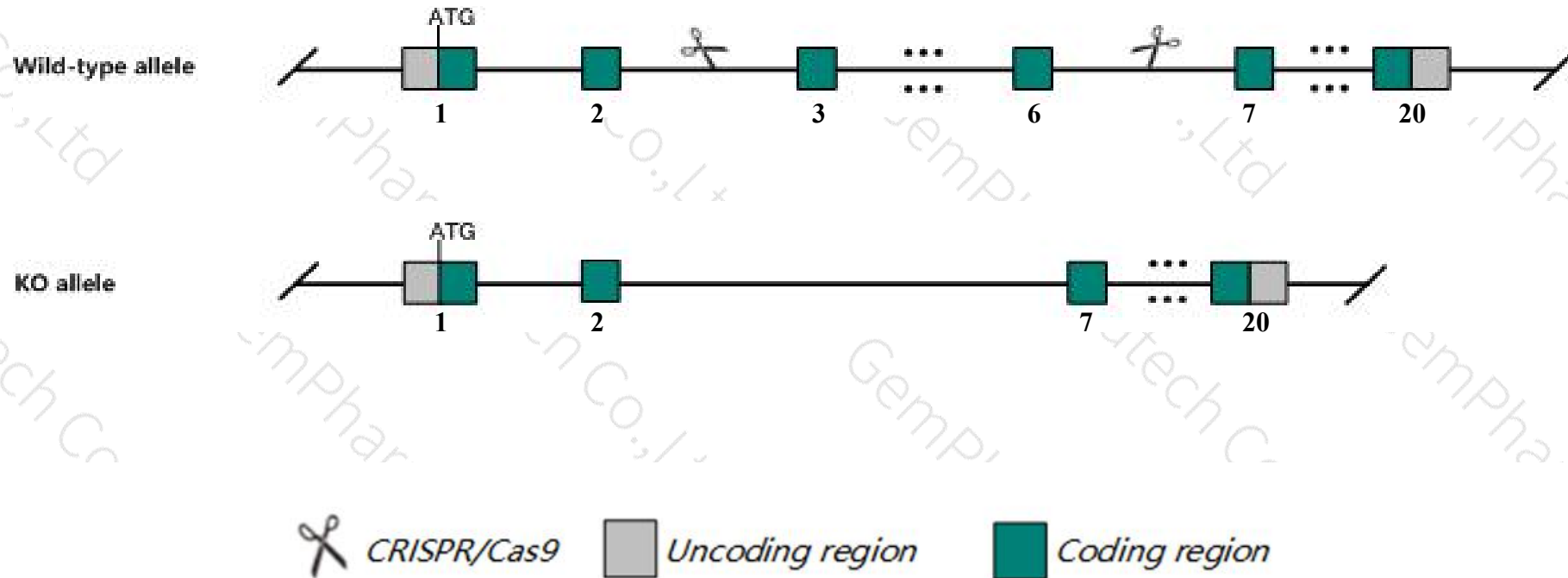
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Rubcn* gene has 9 transcripts. According to the structure of *Rubcn* gene, exon3-exon6 of *Rubcn-202* (ENSMUST00000089684.9) 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 *Rubcn* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous knockout affects the functioning of LAP (LC3-associated phagocytosis)-engaged phagosomes.
- The *Rubcn* gene is located on the Chr16. 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)

Rubcn RUN domain and cysteine-rich domain containing, Beclin 1-interacting protein [Mus musculus (house mouse)]

Gene ID: 100502698, updated on 31-Jan-2019

Summary



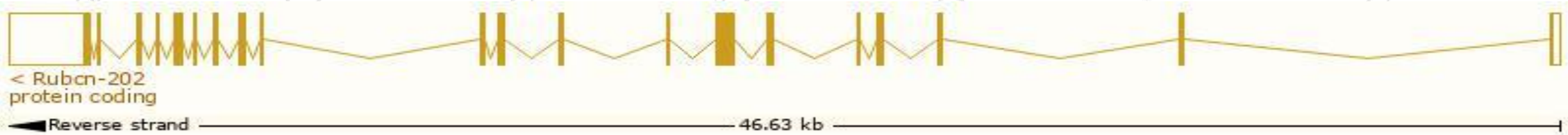
Official Symbol	Rubcn provided by MGI
Official Full Name	RUN domain and cysteine-rich domain containing, Beclin 1-interacting protein provided by MGI
Primary source	MGI:MGI:1915160
See related	Ensembl:ENSMUSG00000035629
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700021K19Rik, 5330403K09, Rubicon, mKIAA0226
Expression	Ubiquitous expression in spleen adult (RPKM 22.1), testis adult (RPKM 17.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

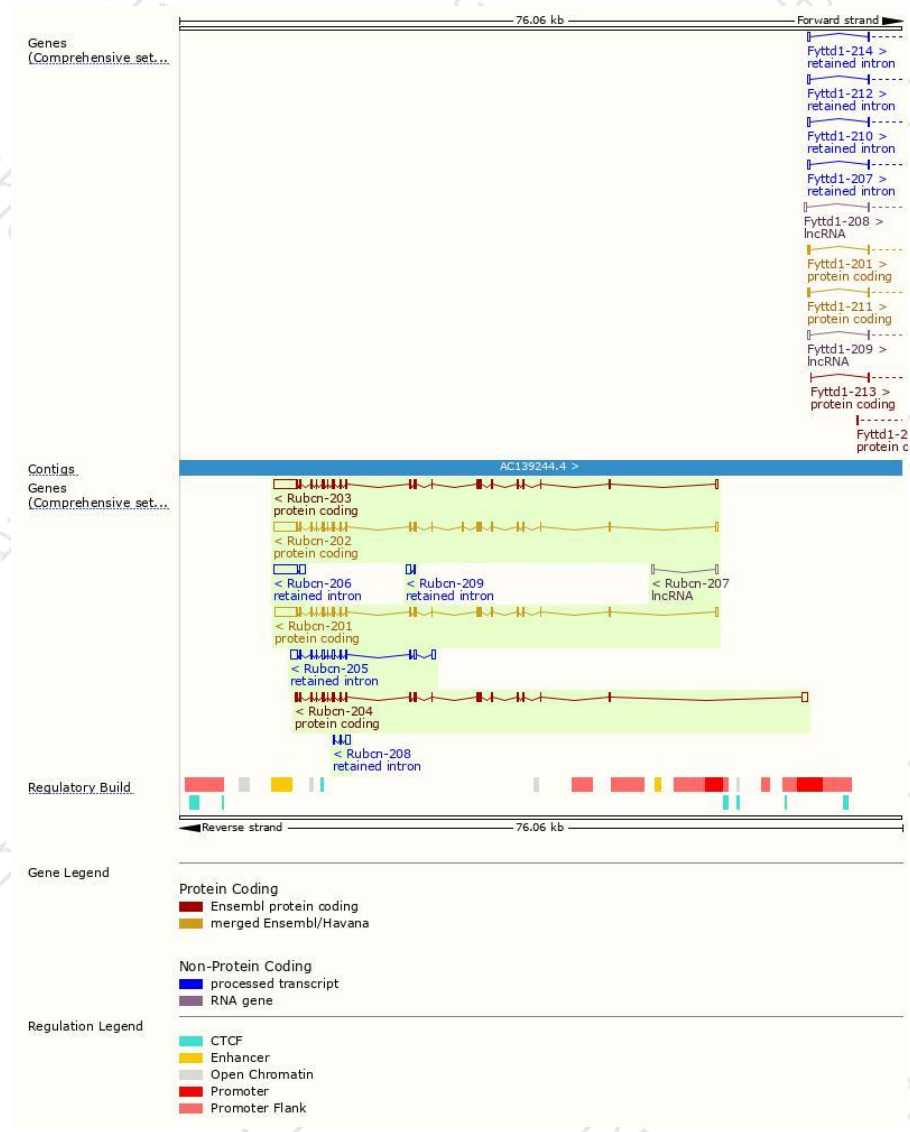
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rubcn-202	ENSMUST00000089684.9	5311	956aa	Protein coding	CCDS49832	Q80U62	TSL:1 GENCODE basic APPRIS ALT2
Rubcn-201	ENSMUST00000040986.14	5257	941aa	Protein coding	CCDS28124	Q80U62	TSL:1 GENCODE basic APPRIS P3
Rubcn-203	ENSMUST00000115105.8	5255	927aa	Protein coding	-	Q80U62	TSL:5 GENCODE basic APPRIS ALT2
Rubcn-204	ENSMUST00000119810.1	3371	880aa	Protein coding	-	D3Z7B1	TSL:5 GENCODE basic APPRIS ALT2
Rubcn-206	ENSMUST00000140229.1	2982	No protein	Retained intron	-	-	TSL:1
Rubcn-205	ENSMUST00000135480.7	2301	No protein	Retained intron	-	-	TSL:1
Rubcn-208	ENSMUST00000152920.1	664	No protein	Retained intron	-	-	TSL:3
Rubcn-209	ENSMUST00000153556.1	653	No protein	Retained intron	-	-	TSL:3
Rubcn-207	ENSMUST00000149621.1	404	No protein	lncRNA	-	-	TSL:3

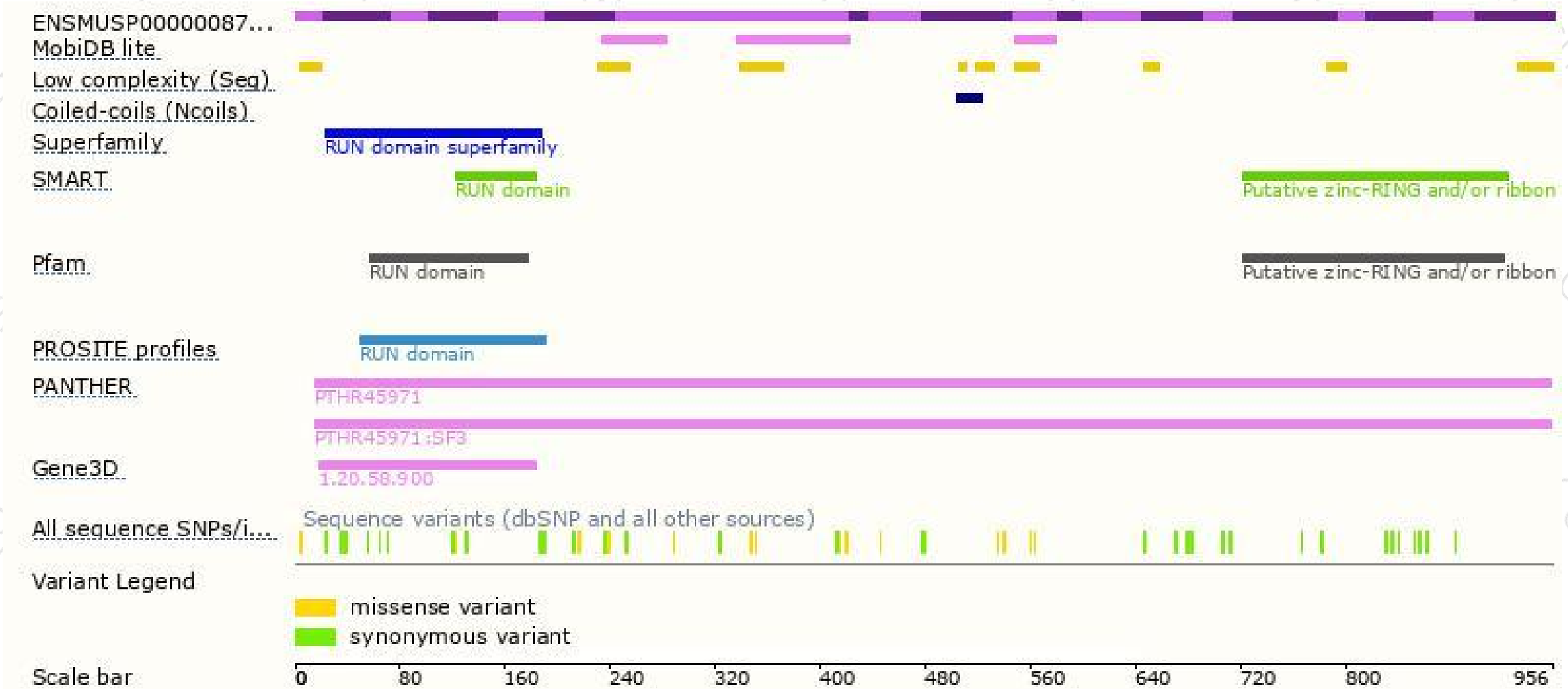
The strategy is based on the design of *Rubcn-202* transcript,The transcription is shown below



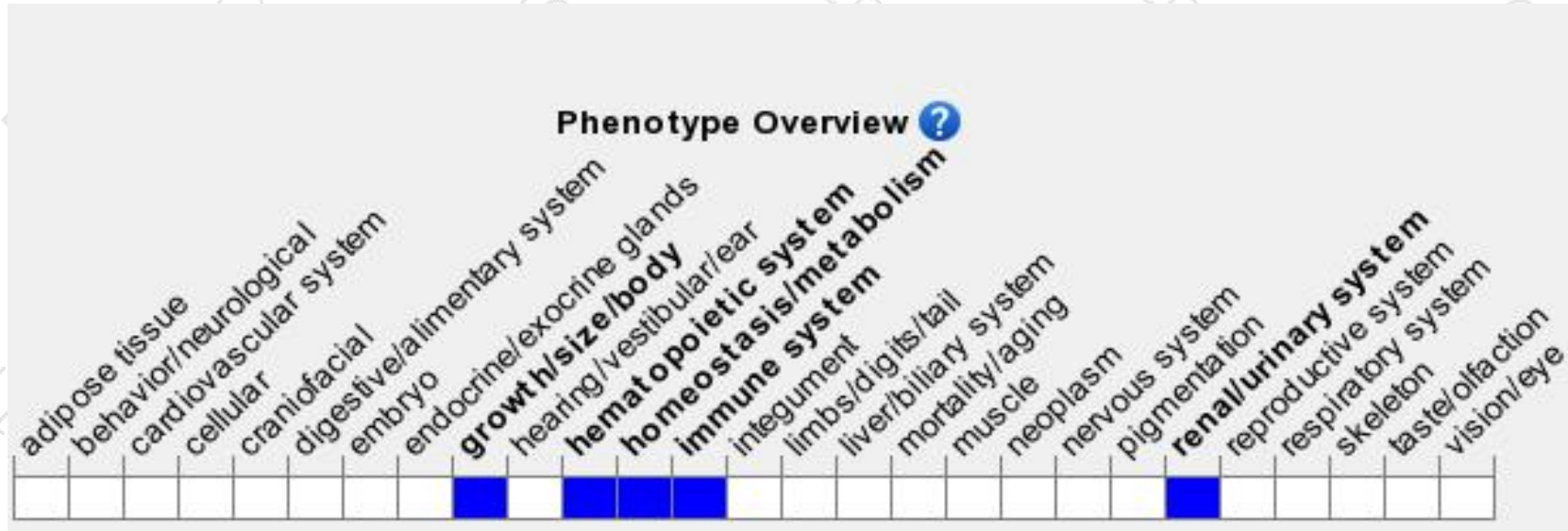
Genomic location distribution



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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