Ruvbl1 Cas9-KO Strategy

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Design Date: 2019-9-19
Reviewer: JiaYu

Project Overview

Project Name	***Ruvbl1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ruvbl1* gene. The schematic diagram is as follows:

Technical routes

➢ The *Ruvbl1* gene has 2 transcripts. According to the structure of *Ruvbl1* gene, exon3 of *Ruvbl1-201* (ENSMUST00000032165.15) transcript is recommended as the knockout region.The region contains 133bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ruvbl1* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,Mice homozygous for a null allele show impaired proliferation of the pluripotent inner mass cells and embryonic lethality before implantation. Conditional ablation of this gene in hematopoietic tissues leads to bone marrow failure involving apoptotic loss of hematopoietic stem cells.

- The *Ruvbl1* gene is located on the Chr6. 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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Ruvbl1 RuvB-like protein 1 [Mus musculus (house mouse)]

Gene ID: 56505, updated on 7-Apr-2019

Summary

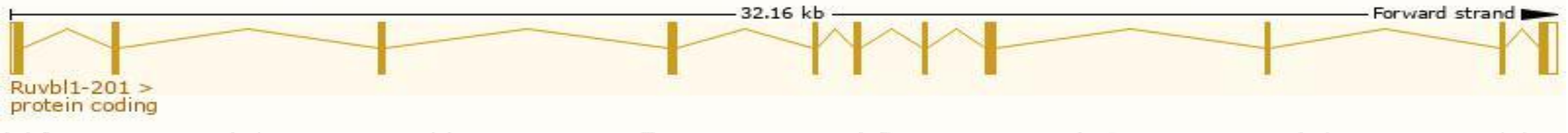
Official Symbol	Ruvbl1 provided by MGI
Official Full Name	RuvB-like protein 1 provided byMGI
Primary source	MGI:MGI:1928760
See related	Ensembl:ENSMUSG00000030079
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2510009G06Rik, Pontin52, Tip49a
Expression	Ubiquitous expression in CNS E11.5 (RPKM 29.2), liver E14 (RPKM 28.2) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

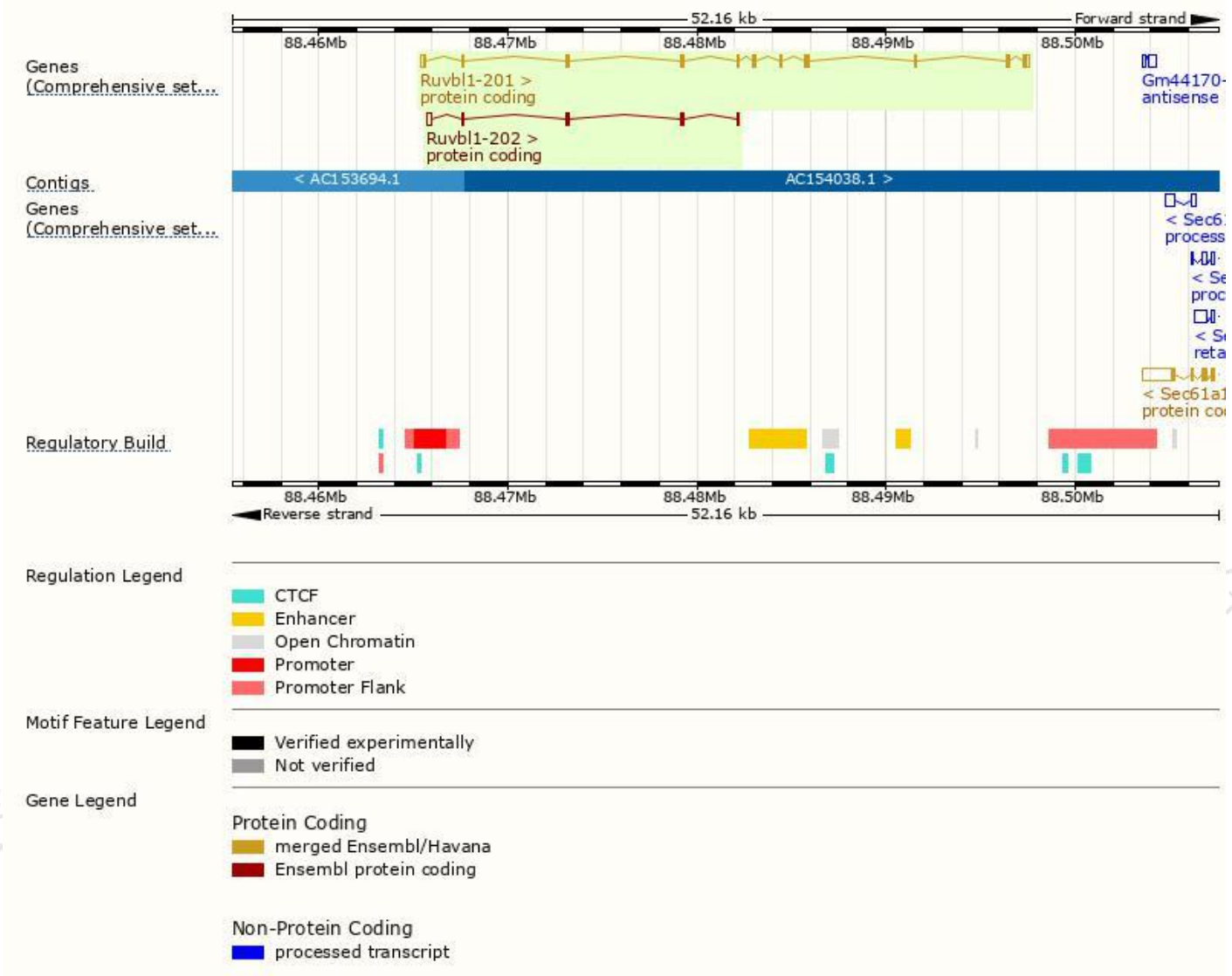
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ruvbl1-201	ENSMUST00000032165.15	1675	456aa	Protein coding	CCDS20336	P60122 Q3U1C2	TSL:1 GENCODE basic APPRIS P1
Ruvbl1-202	ENSMUST00000129035.1	666	134aa	Protein coding	-	D3YW60	CDS 3' incomplete TSL:3

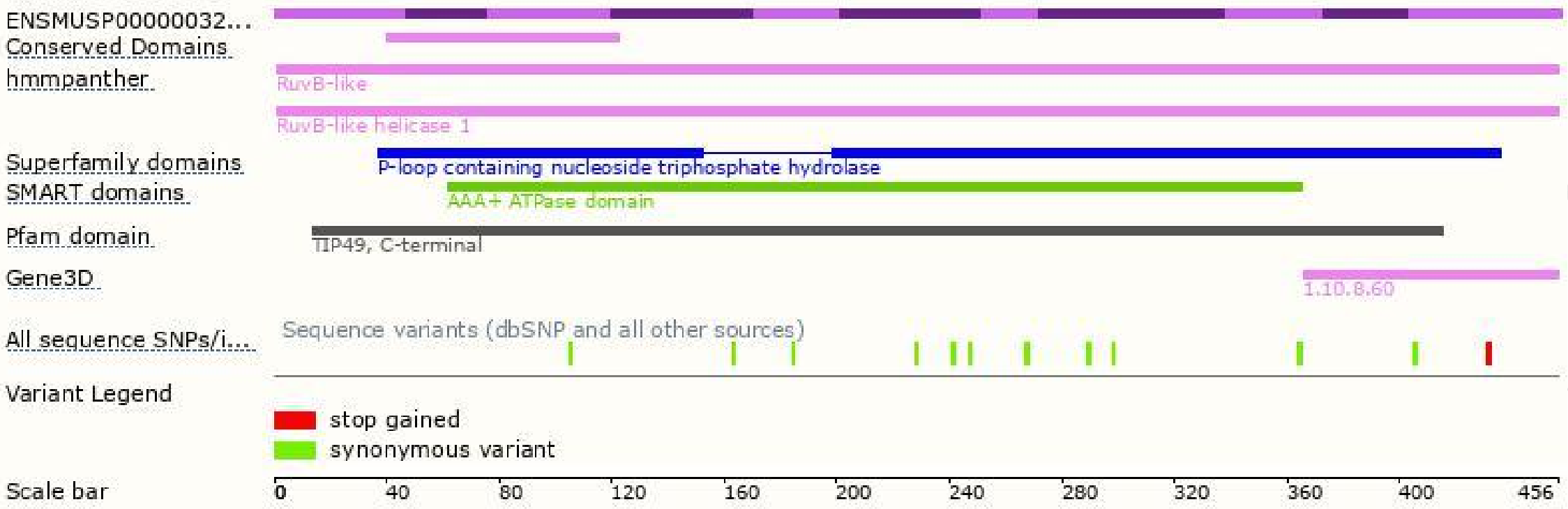
The strategy is based on the design of *Ruvbl1-201* transcript,The transcription is shown below



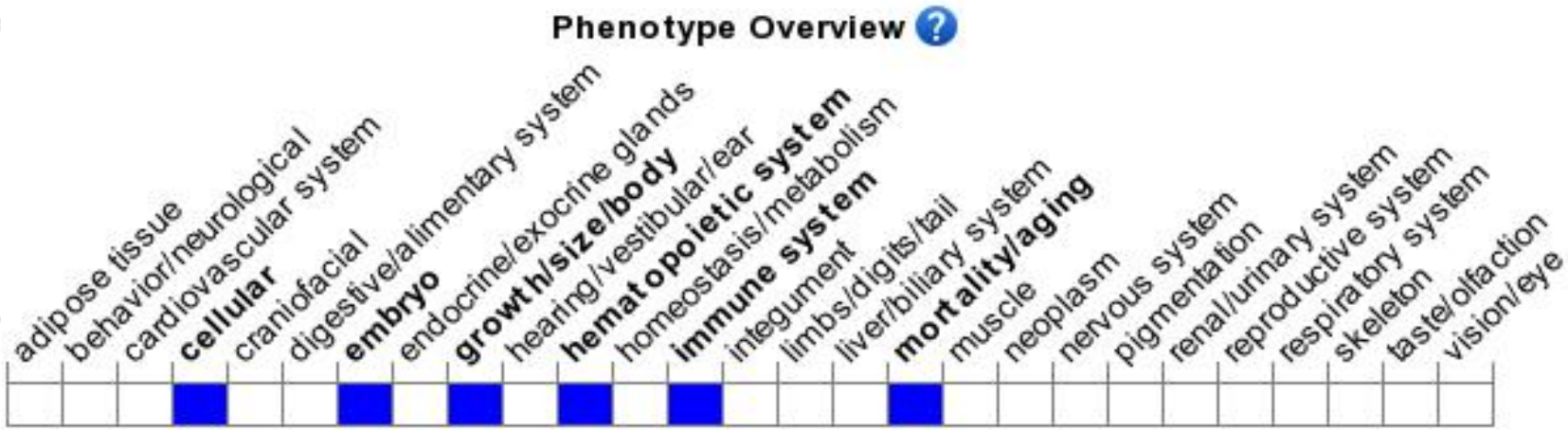
Genomic location distribution



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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