Rabl6 Cas9-KO Strategy

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Design Date: 2021-6-7

Project Overview

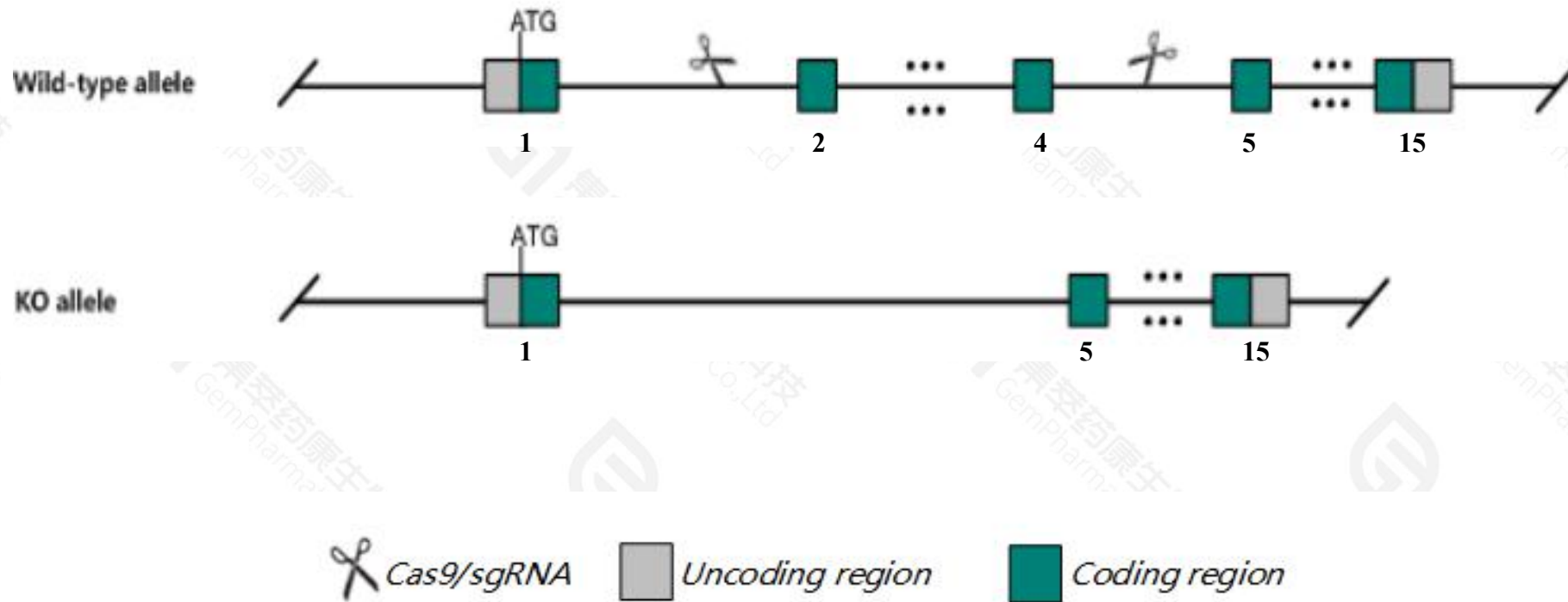|	
Project Name	*Rabl6*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rabl6* gene. The schematic diagram is as follows:

Technical routes

➤ The *Rabl6* gene has 9 transcripts. According to the structure of *Rabl6* gene, exon2-exon4 of *Rabl6-201*(ENSMUST00000058137.9) transcript is recommended as the knockout region.The region contains 236bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Rabl6* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA 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.

Notice

➢ The *Rabl6* gene is located on the Chr2. 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）

Rabl6 RAB, member RAS oncogene family-like 6 [Mus musculus (house mouse)]

Gene ID: 227624, updated on 3-Jan-2021

▲ Summary

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Official Symbol	Rabl6 provided by MGI
Official Full Name	RAB, member RAS oncogene family-like 6 provided by MGI
Primary source	MGI:MGI:2442633
See related	Ensembl:ENSMUSG00000015087
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	B230208H17Rik, Rbe, Rbel, Rbel1, Rbel1a, Rbel1b, parf
Expression	Ubiquitous expression in adrenal adult (RPKM 56.2), ovary adult (RPKM 45.2) and 28 other tissuesSee 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
Rabl6-201	ENSMUST00000058137.9	3230	725aa	Protein coding	CCDS38076		TSL:1 , GENCODE basic , APPRIS P1 ,
Rabl6-209	ENSMUST00000150206.8	3908	No protein	Processed transcript	-		TSL:1 ,
Rabl6-208	ENSMUST00000146012.8	2190	No protein	Processed transcript	-		TSL:1 ,
Rabl6-204	ENSMUST00000140635.8	1165	No protein	Processed transcript	-		TSL:5 ,
Rabl6-205	ENSMUST00000140778.2	734	No protein	Processed transcript	-		TSL:5 ,
Rabl6-206	ENSMUST00000140785.2	612	No protein	Processed transcript	-		TSL:3 ,
Rabl6-207	ENSMUST00000143855.2	600	No protein	Processed transcript	-		TSL:3 ,
Rabl6-203	ENSMUST00000135084.2	548	No protein	Processed transcript	-		TSL:2 ,
Rabl6-202	ENSMUST00000128942.2	312	No protein	Processed transcript	-		TSL:2 ,

The strategy is based on the design of *Rabl6-201* transcript,the transcription is shown below:

< Rabl6-201
protein coding
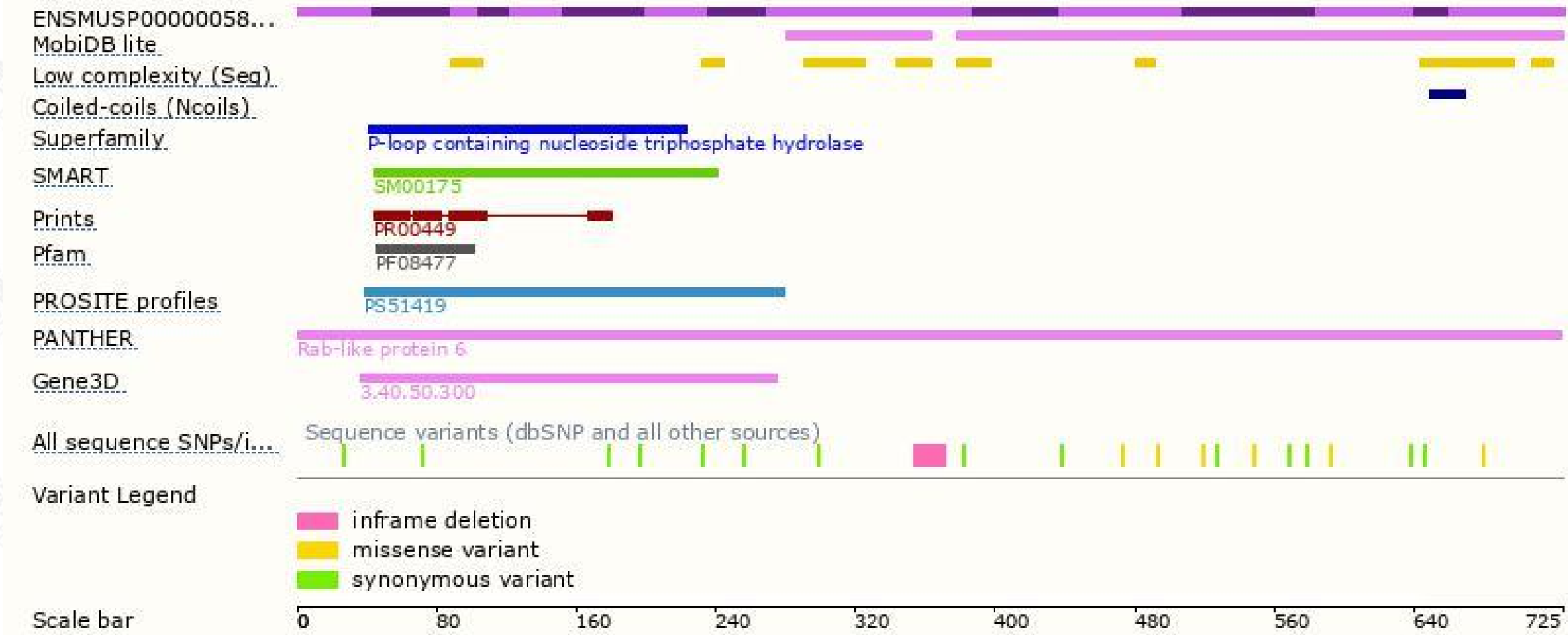
◀ Reverse strand

25.50 kb
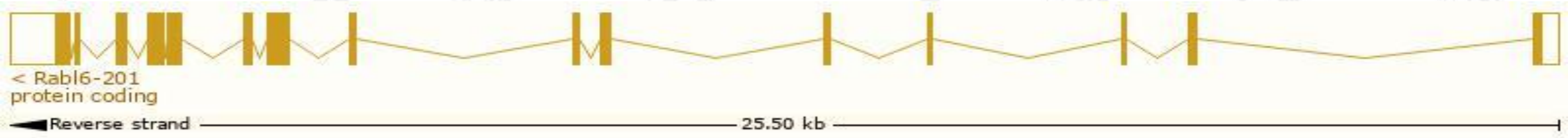
Genomic location distribution
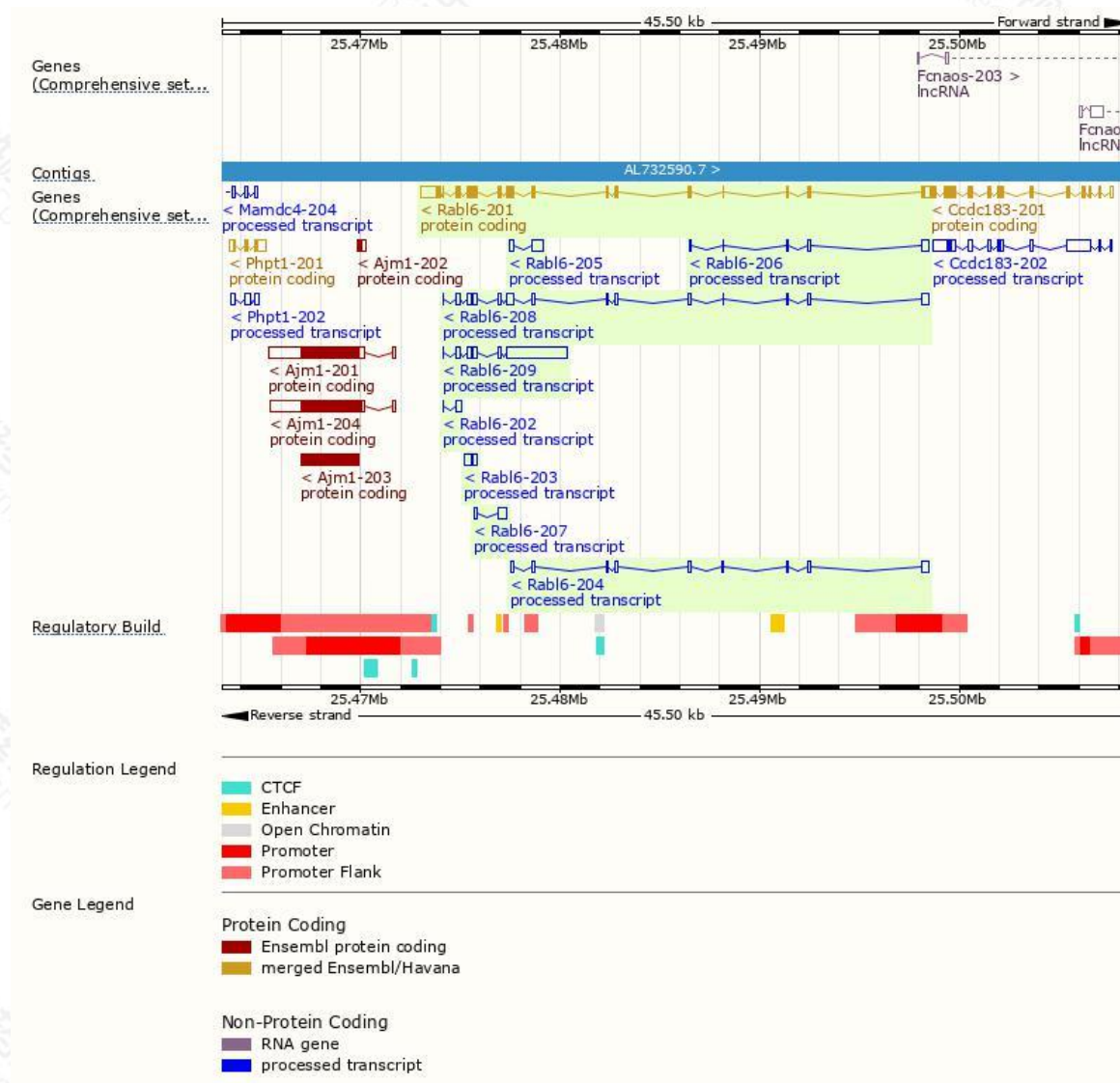
Protein domain

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