Ppp1r13b Cas9-CKO Strategy

Designer: JiaYu

Reviewer: Xiaojing Li

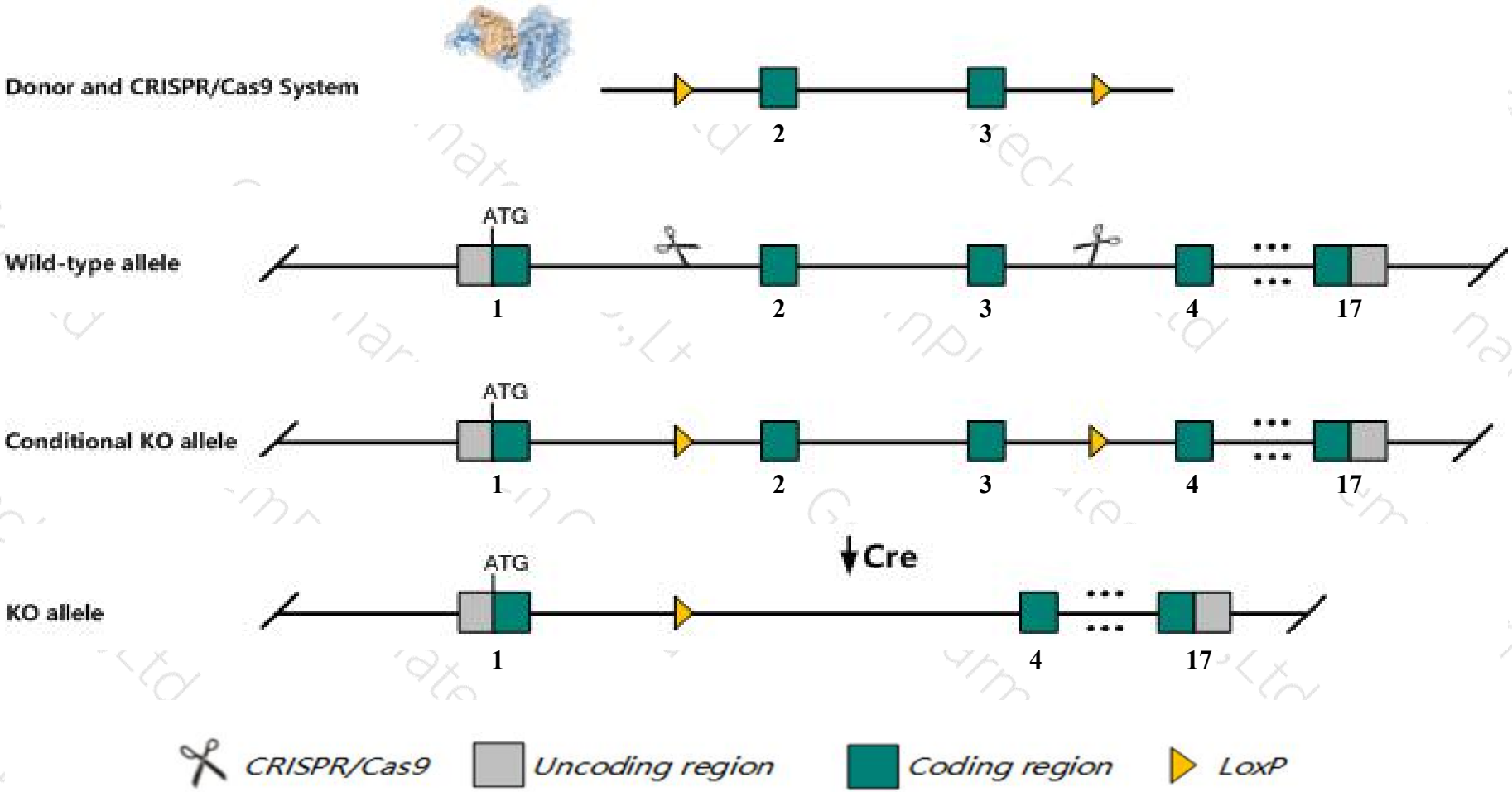
Design Date: 2020-2-19

Project Overview

Project Name	***Ppp1r13b***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ppp1r13b* gene. The schematic diagram is as follows:



Technical routes

- The *Ppp1r13b* gene has 4 transcripts. According to the structure of *Ppp1r13b* gene, exon2-exon3 of *Ppp1r13b-201* (ENSMUST00000054815.14) transcript is recommended as the knockout region.The region contains 268bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Ppp1r13b* gene. The brief process is as follows:CRISPR/Cas9 system and Donor 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.

- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- According to the existing MGI data,Homozygous null mutants show lymphatic vascular phenotypes with subcutaneous edema detected only during embryogenesis, delayed lymphatic vessel formation, and mispatterned collecting lymphatic vessels.

- Transcript 203 CDS 5' incomplete the influences is unknown.

- The *Ppp1r13b* gene is located on the Chr12. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

集萃药康 GemPharmatech

Ppp1r13b protein phosphatase 1, regulatory subunit 13B [Mus musculus (house mouse)]

Gene ID: 21981, updated on 31-Jan-2019

Summary

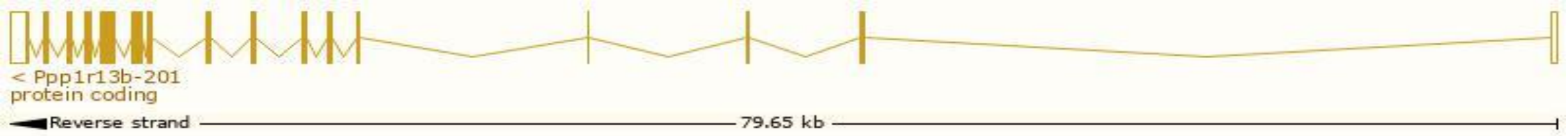
Official Symbol	Ppp1r13b provided by MGI
Official Full Name	protein phosphatase 1, regulatory subunit 13B provided by MGI
Primary source	MGI:MGI:1336199
See related	Ensembl:ENSMUSG00000021285
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI449786, ASPP1, AW545810, Tp53bp2, Trp53bp2, p85
Expression	Ubiquitous expression in lung adult (RPKM 13.8), genital fat pad adult (RPKM 10.7) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

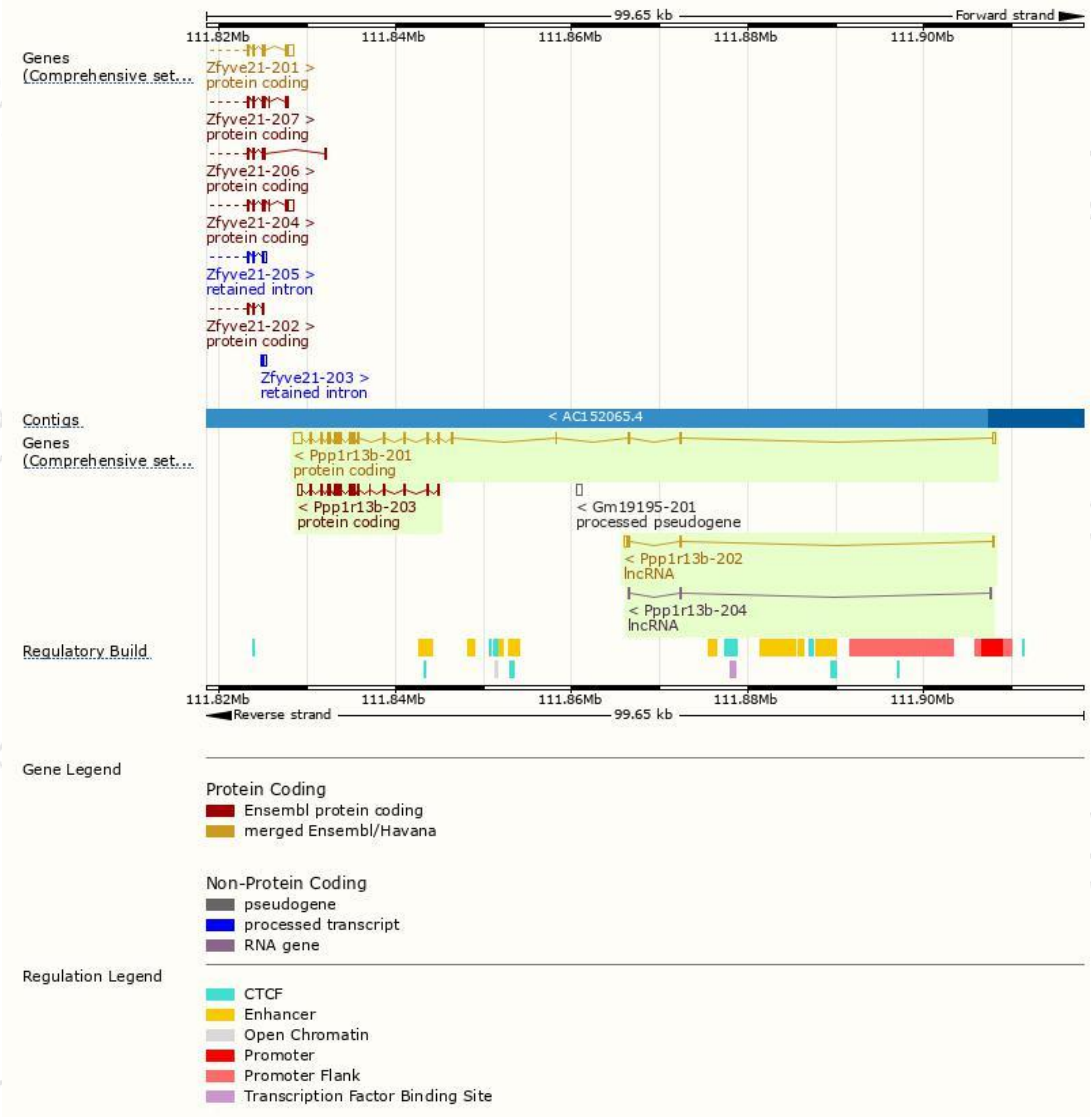
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppp1r13b-201	ENSMUST00000054815.14	4389	1087aa	Protein coding	CCDS56866	Q62415	TSL:1 GENCODE basic APPRIS P1
Ppp1r13b-203	ENSMUST00000220486.1	3343	964aa	Protein coding	-	A0A1Y7VJH3	CDS 5' incomplete TSL:5
Ppp1r13b-202	ENSMUST00000163747.3	770	No protein	lncRNA	-	-	TSL:1
Ppp1r13b-204	ENSMUST00000220927.1	320	No protein	lncRNA	-	-	TSL:3

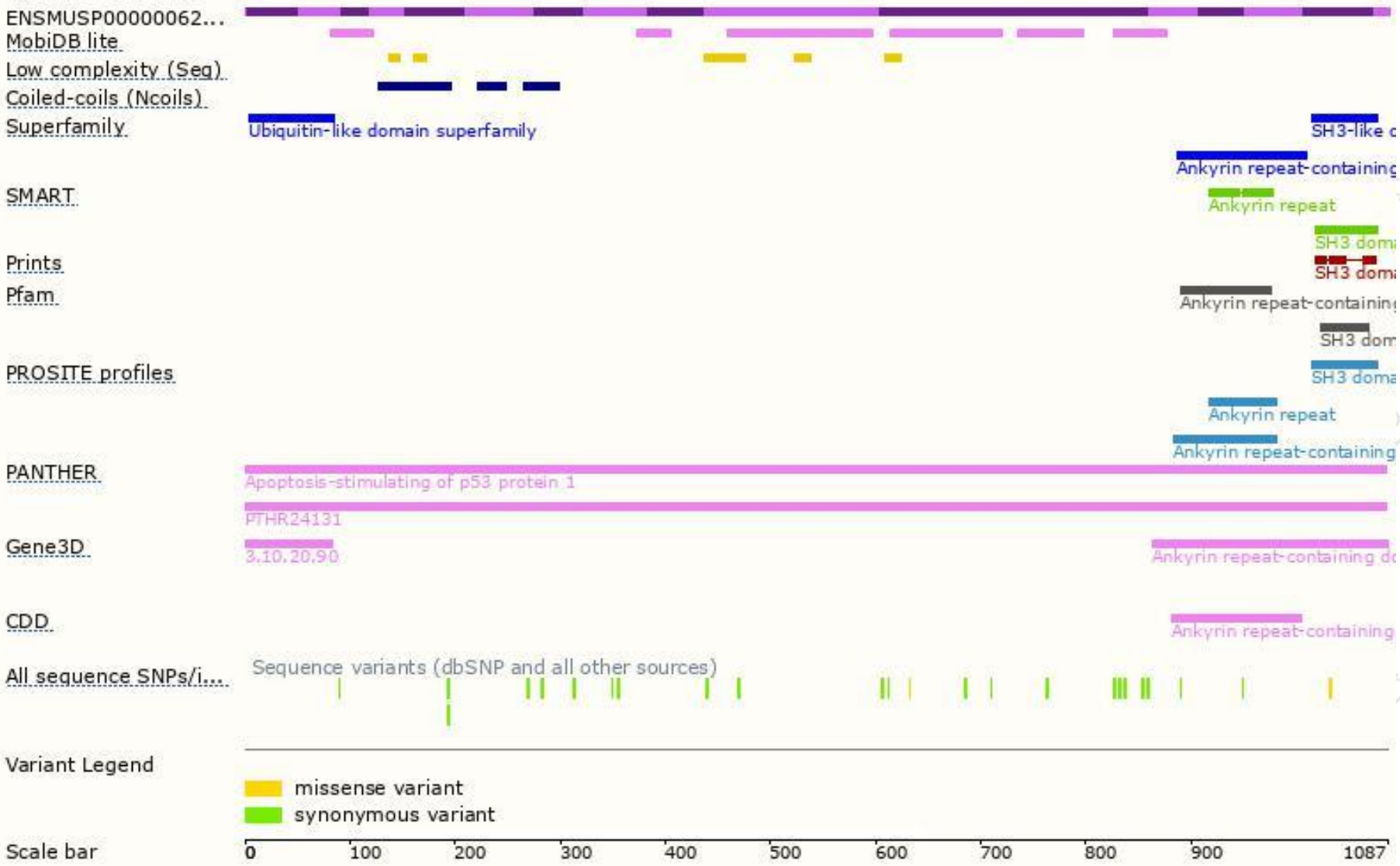
The strategy is based on the design of *Ppp1r13b-201* transcript,The transcription is shown below



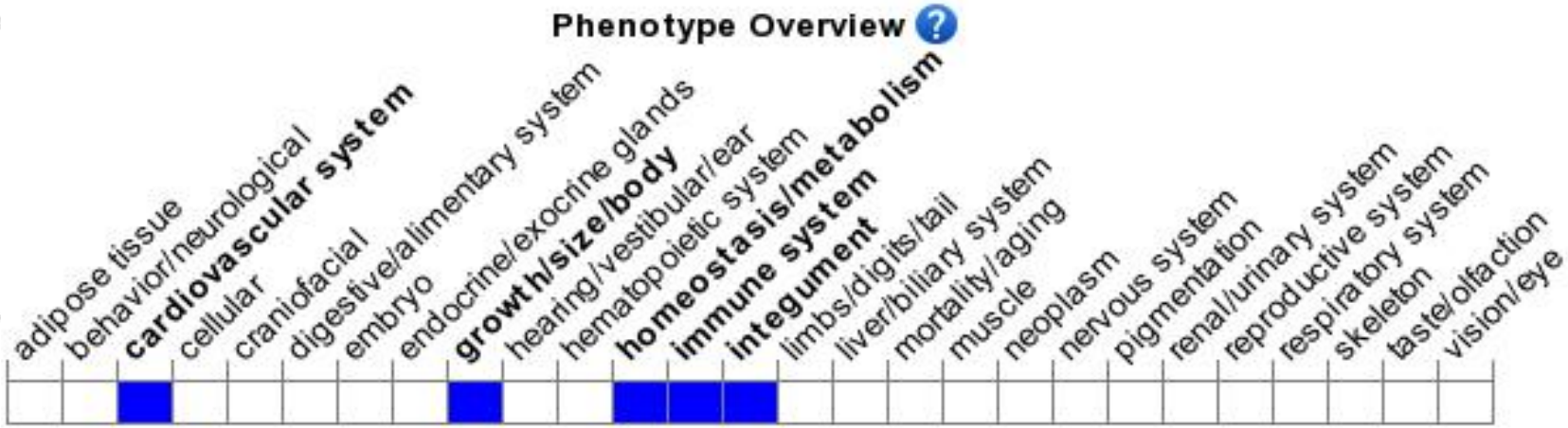
Genomic location distribution



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/).

According to the existing MGI data,Homozygous null mutants show lymphatic vascular phenotypes with subcutaneous edema detected only during embryogenesis, delayed lymphatic vessel formation, and mispatterned collecting lymphatic vessels.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd