Pik3cb Cas9-CKO Strategy

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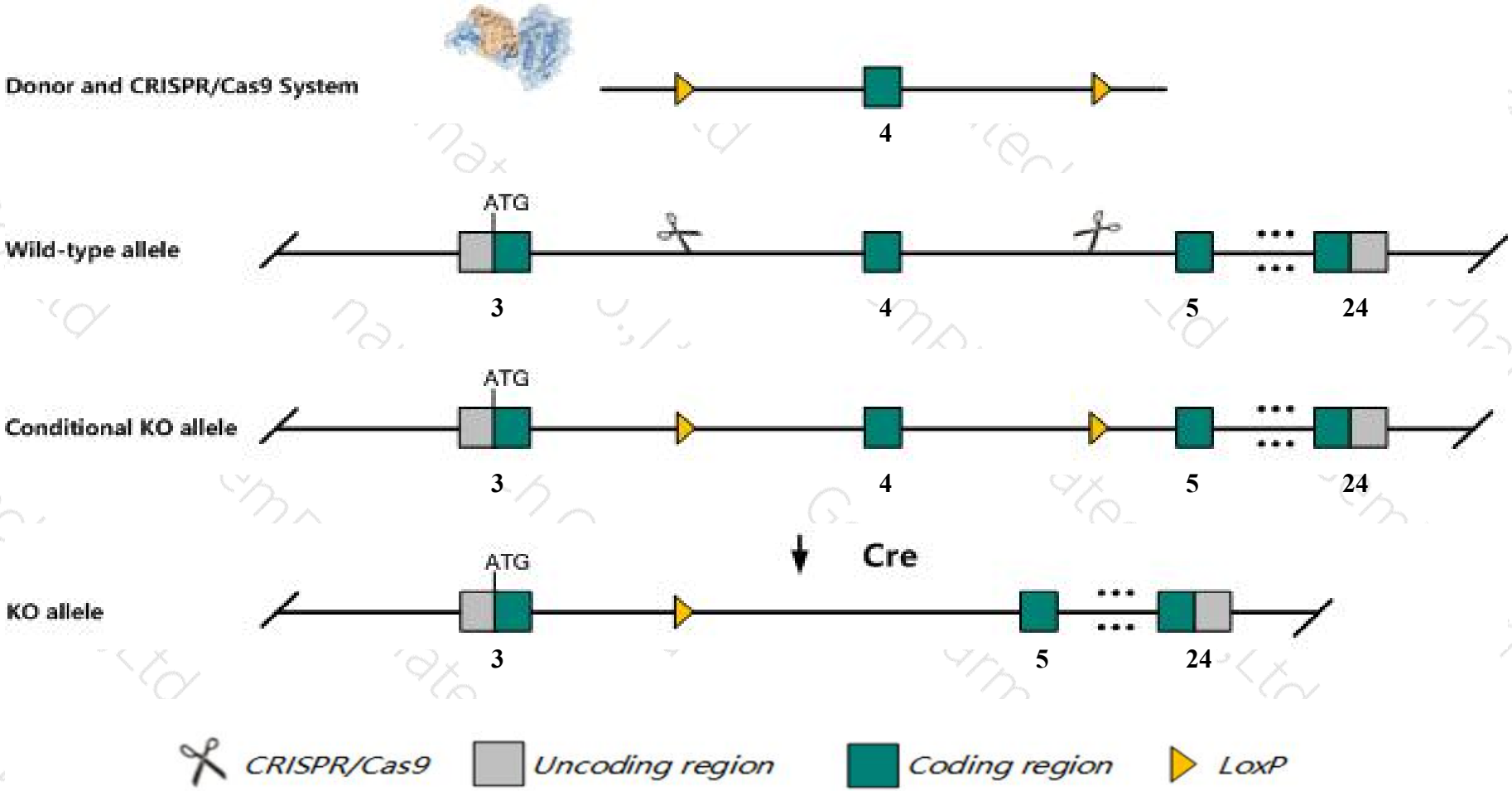
Project Overview

Project Name	***Pik3cb***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pik3cb* gene. The schematic diagram is as follows:



Technical routes

- The *Pik3cb* gene has 3 transcripts. According to the structure of *Pik3cb* gene, exon4 of *Pik3cb-201* (ENSMUST00000035037.13) transcript is recommended as the knockout region.The region contains 226bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Pik3cb* 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,Mice homozygous for a knock-out allele exhibit 30% fetal lethality, decreased size at birth and postnatally, abnormal glucose homeostasis, and dyslipidemia. Mice homozygous for a different knock-out allele die prior to E8.5

- The *Pik3cb* gene is located on the Chr9. 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）

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Pik3cb phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit beta [Mus musculus (house mouse)]

Gene ID: 74769, updated on 31-Jan-2019

Summary

Official Symbol	Pik3cb provided by MGI
Official Full Name	phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit beta provided by MGI
Primary source	MGI:MGI:1922019
See related	Ensembl:ENSMUSG00000032462
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	1110001J02Rik, AI447572, p110beta
Expression	Ubiquitous expression in placenta adult (RPKM 11.2), subcutaneous fat pad adult (RPKM 5.0) and 28 other tissues See more
Orthologs	human all

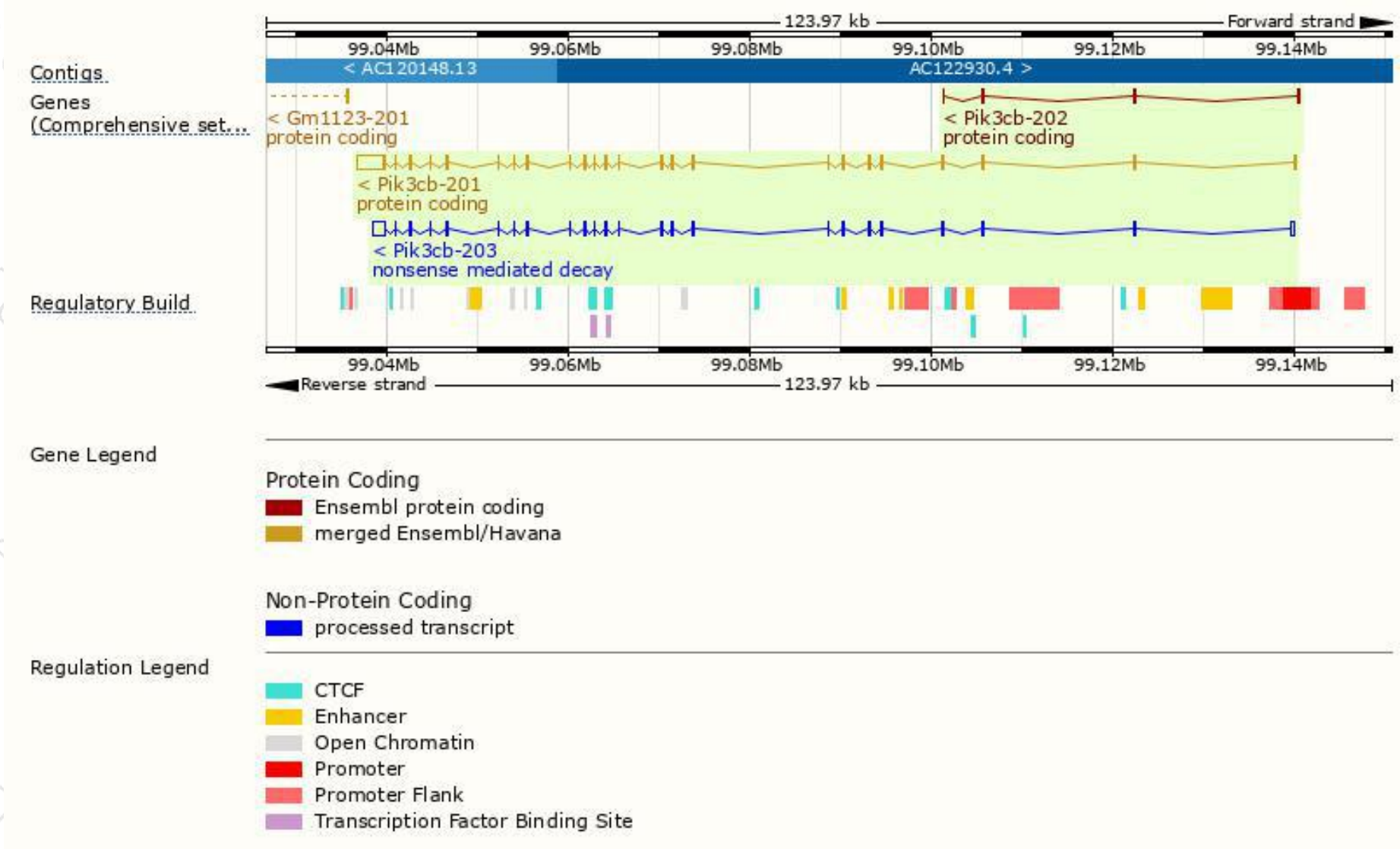
Transcript information（Ensembl）

The gene has 3 transcripts,all transcripts are shown below:

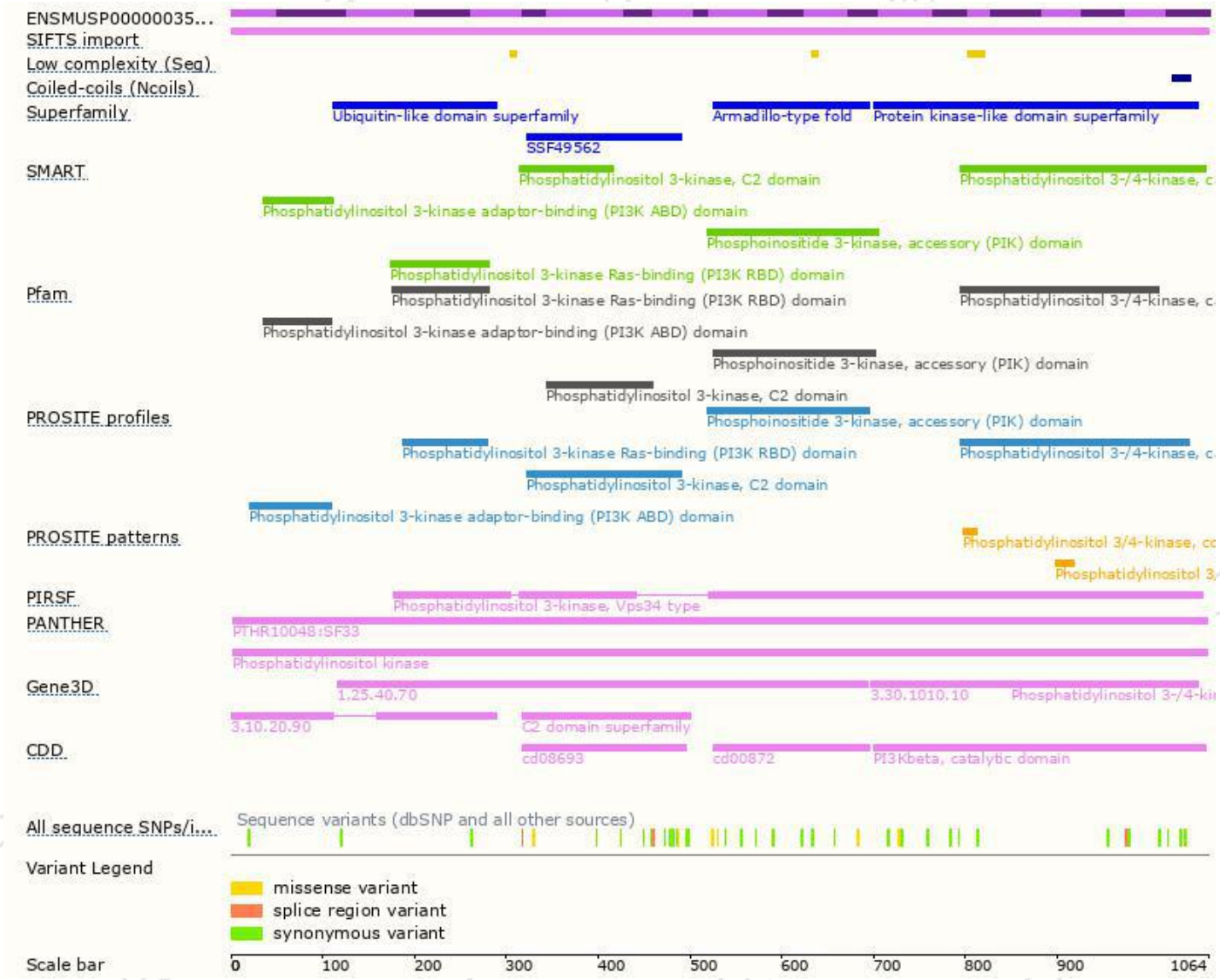
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pik3cb-201	ENSMUST00000035037.13	6478	1064aa	Protein coding	CCDS23432	Q8BTI9	TSL:1 GENCODE basic APPRIS P1
Pik3cb-202	ENSMUST00000124723.1	631	68aa	Protein coding	-	D3Z2Z7	CDS 3' incomplete TSL:5
Pik3cb-203	ENSMUST00000136965.7	5045	530aa	Nonsense mediated decay	-	S4R1S1	TSL:1

The strategy is based on the design of *Pik3cb-201* transcript,The transcription is shown below

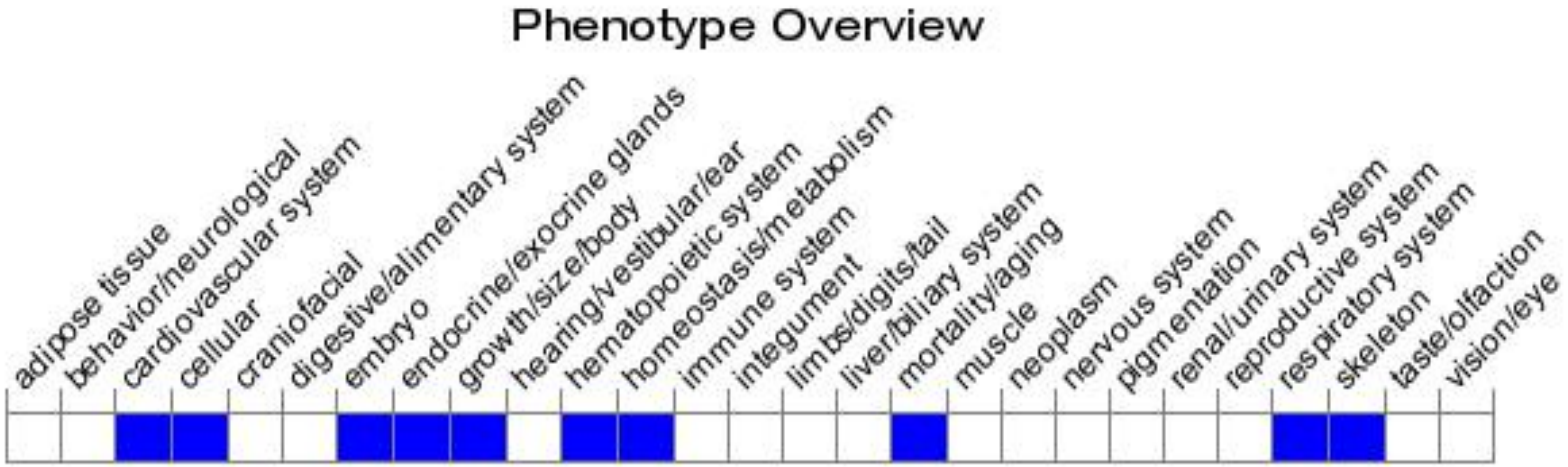
Genomic location distribution



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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