Pik3c2b Cas9-KO Strategy

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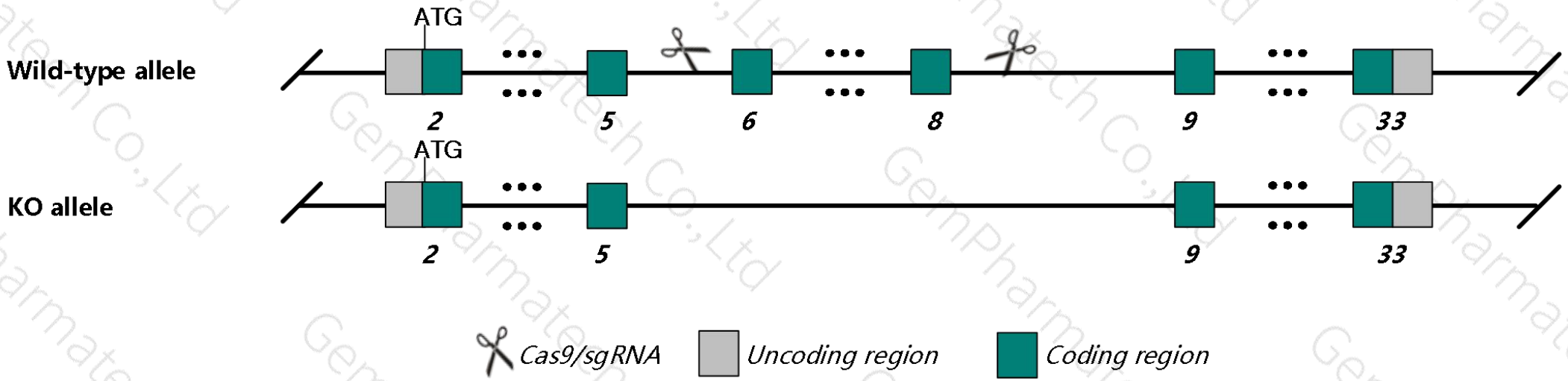
Design Date: 2020-3-17

Project Overview

Project Name	***Pik3c2b***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pik3c2b* gene. The schematic diagram is as follows:



Technical routes

➢ The *Pik3c2b* gene has 4 transcripts. According to the structure of *Pik3c2b* gene, exon6-exon8 of *Pik3c2b-201* (ENSMUST00000077730.6) transcript is recommended as the knockout region.The region contains 1234bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Pik3c2b* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

➢ According to the existing MGI data,Mice homozygous for a knock-out allele exhibit normal epidermal growth, differentiation and function.

➢Some amino acids will remain at the N-terminus and some functions may be retained.

➢Transcript 204 CDS 3' incomplete the influences is unknown.

➢ The *Pik3c2b* gene is located on the Chr1.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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Pik3c2b phosphatidylinositol-4-phosphate 3-kinase catalytic subunit type 2 beta [*Mus musculus* (house mouse)]

Gene ID: 240752, updated on 13-Mar-2020

Summary

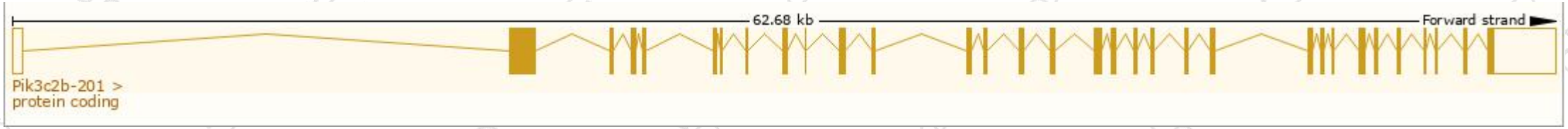
Official Symbol	Pik3c2b provided by MGI
Official Full Name	phosphatidylinositol-4-phosphate 3-kinase catalytic subunit type 2 beta provided by MGI
Primary source	MGI:MGI:2685045
See related	Ensembl:ENSMUSG00000026447
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gm199; PI3KC2beta; PI3K-C2beta; C330011J12Rik
Expression	Ubiquitous expression in colon adult (RPKM 14.0), spleen adult (RPKM 10.9) and 24 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

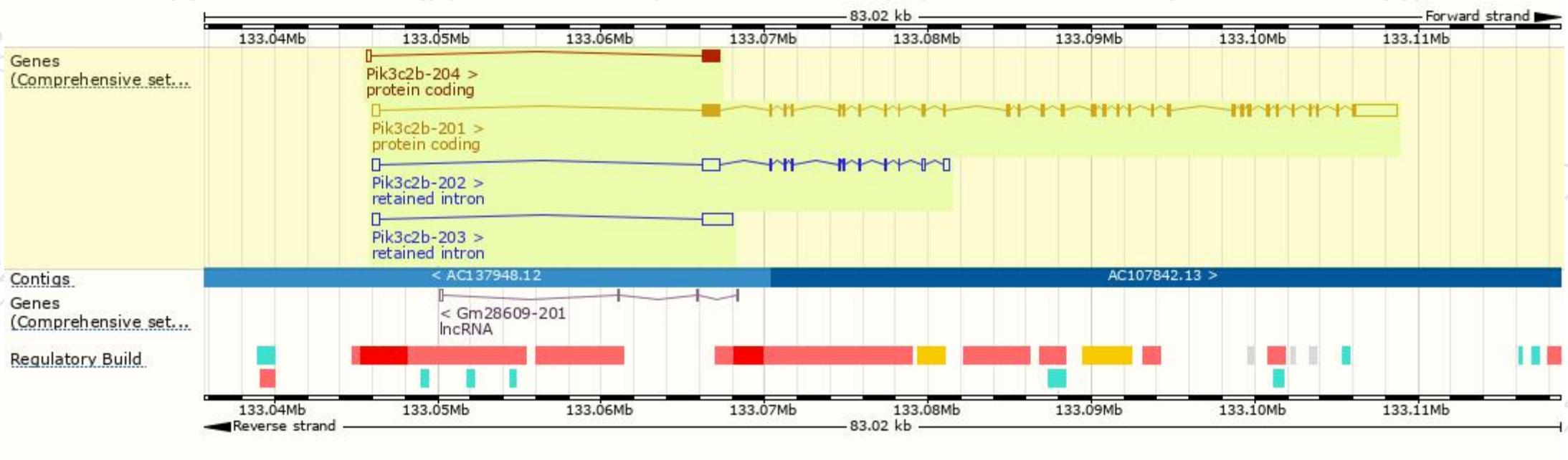
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pik3c2b-201	ENSMUST00000077730.6	7928	1632aa	Protein coding	CCDS48360	E9QAN8	TSL:5 GENCODE basic APPRIS P1
Pik3c2b-204	ENSMUST00000153707.7	1269	310aa	Protein coding	-	D3Z091	CDS 3' incomplete TSL:2
Pik3c2b-202	ENSMUST00000124934.7	2817	No protein	Retained intron	-	-	TSL:1
Pik3c2b-203	ENSMUST00000145153.7	2234	No protein	Retained intron	-	-	TSL:1

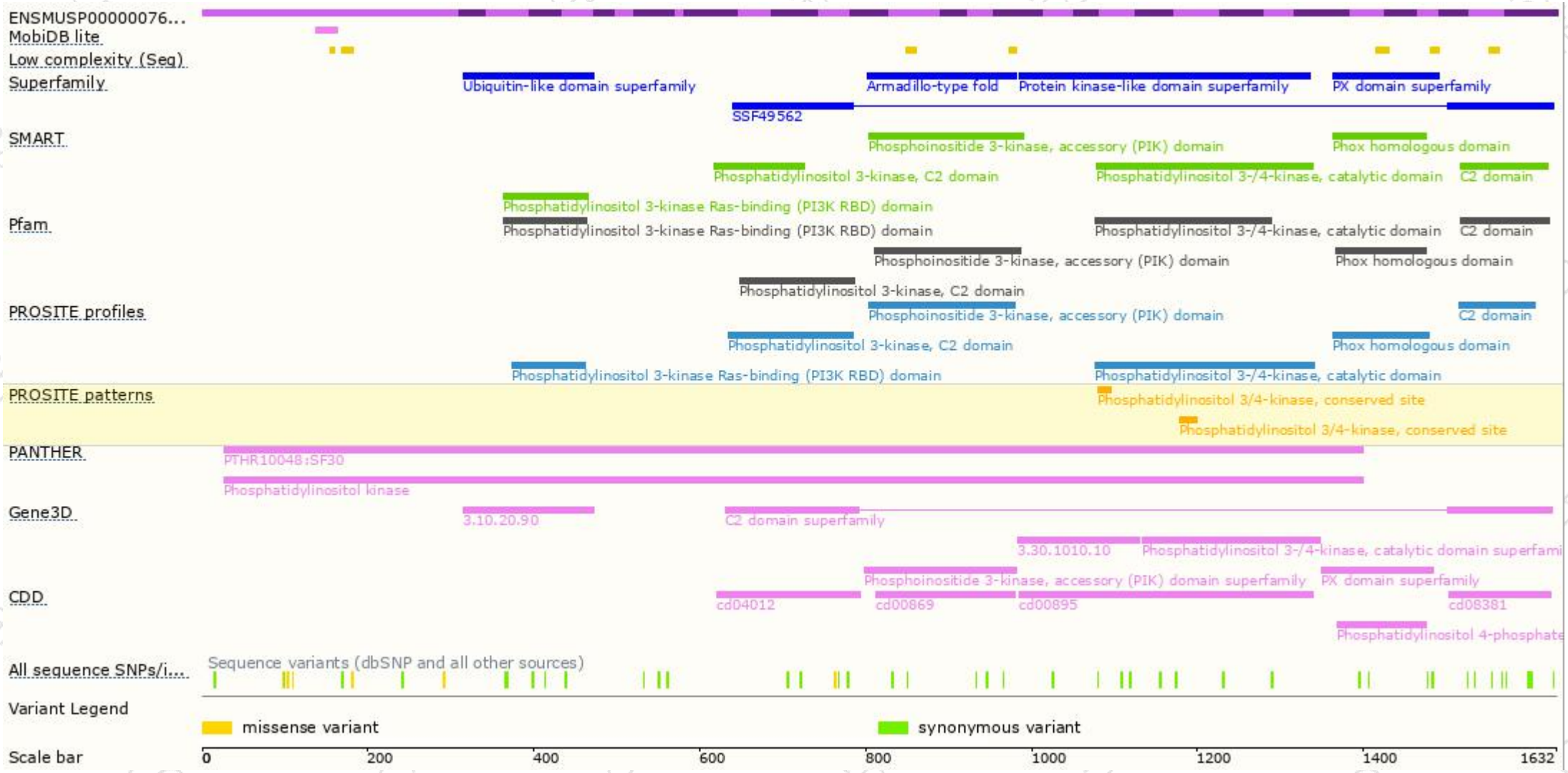
The strategy is based on the design of *Pik3c2b-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



Mouse phenotype description(MGI)

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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,Mice homozygous for a knock-out allele exhibit normal epidermal growth, differentiation and function.

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

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