Gprc5a Cas9-KO Strategy

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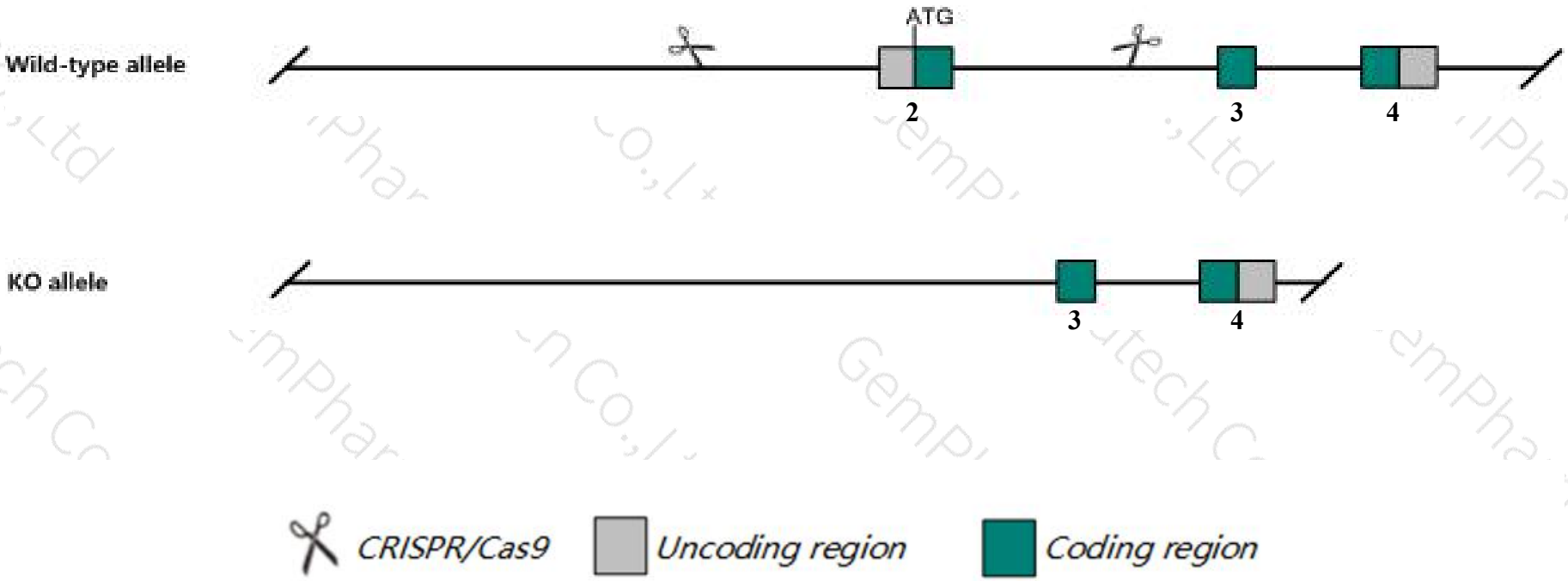
Design Date: 2019-08-06

Project Overview

Project Name	***Gprc5a***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gprc5a* gene. The schematic diagram is as follows:



Technical routes

➢ The *Gprc5a* gene has 1 transcript. According to the structure of *Gprc5a* gene, exon2 of *Gprc5a-201* (ENSMUST00000050104.7) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Gprc5a* gene. The brief process is as follows: CRISPR/Cas9 syster

Notice

- According to the existing MGI data,Mice homozygous for one knock-out allele are healthy and exhibit normal lung development and a normal life span. Mice homozygous for a different knock-out allele show a significantly increased incidence of acidophilic macrophage pneumonia and spontaneouslung tumors at 1-2 years of age.

- The *Gprc5a* 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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Gprc5a G protein-coupled receptor, family C, group 5, member A [Mus musculus (house mouse)]

Gene ID: 232431, updated on 31-Jan-2019

Summary

Official Symbol	Gprc5a provided by MGI
Official Full Name	G protein-coupled receptor, family C, group 5, member A provided by MGI
Primary source	MGI:MGI:1891250
See related	Ensembl:ENSMUSG00000046733
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	Rai3, Raig1
Expression	Biased expression in lung adult (RPKM 130.8), colon adult (RPKM 45.8) and 4 other tissues See more
Orthologs	human all

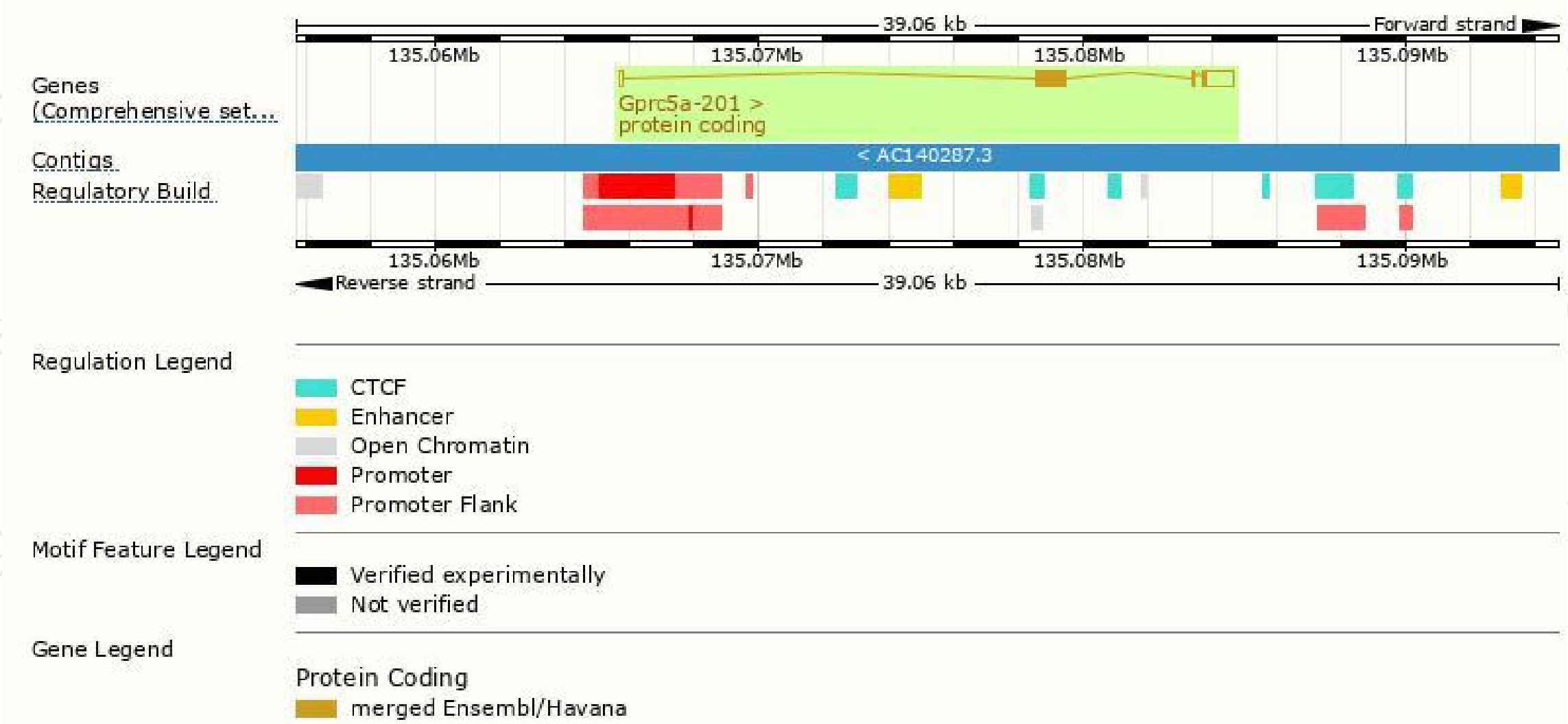
Transcript information（Ensembl）

The gene has 1 transcript,and the transcript is shown below:

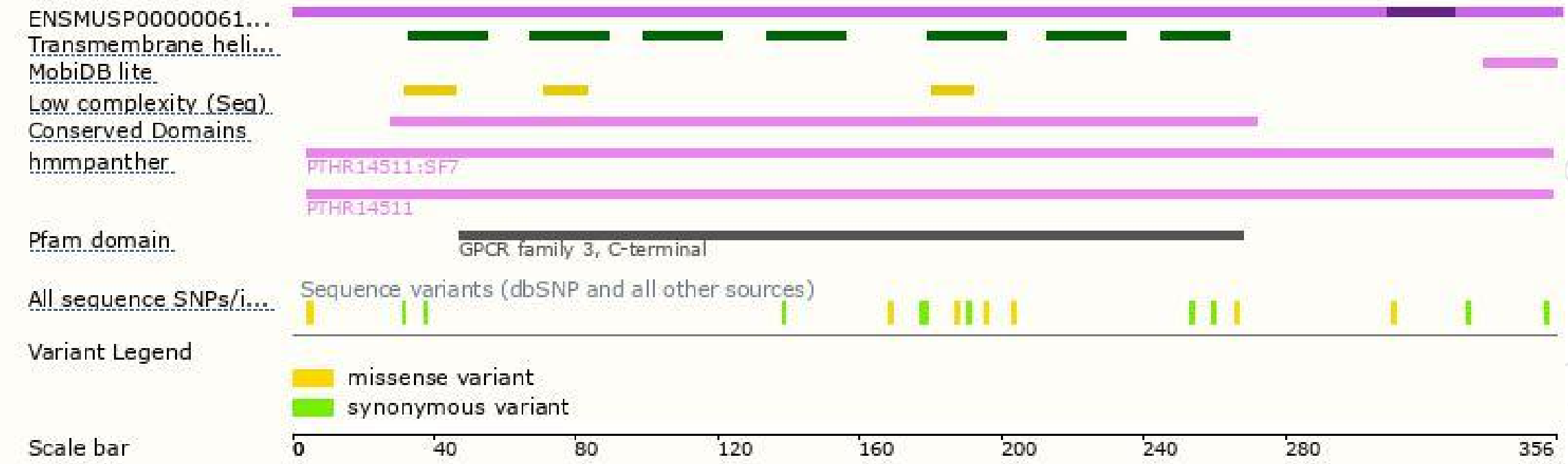
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gprc5a-201	ENSMUST00000050104.7	2083	356aa	Protein coding	CCDS20644	G5E8C3	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Gprc5a-201* transcript,The transcription is shown below

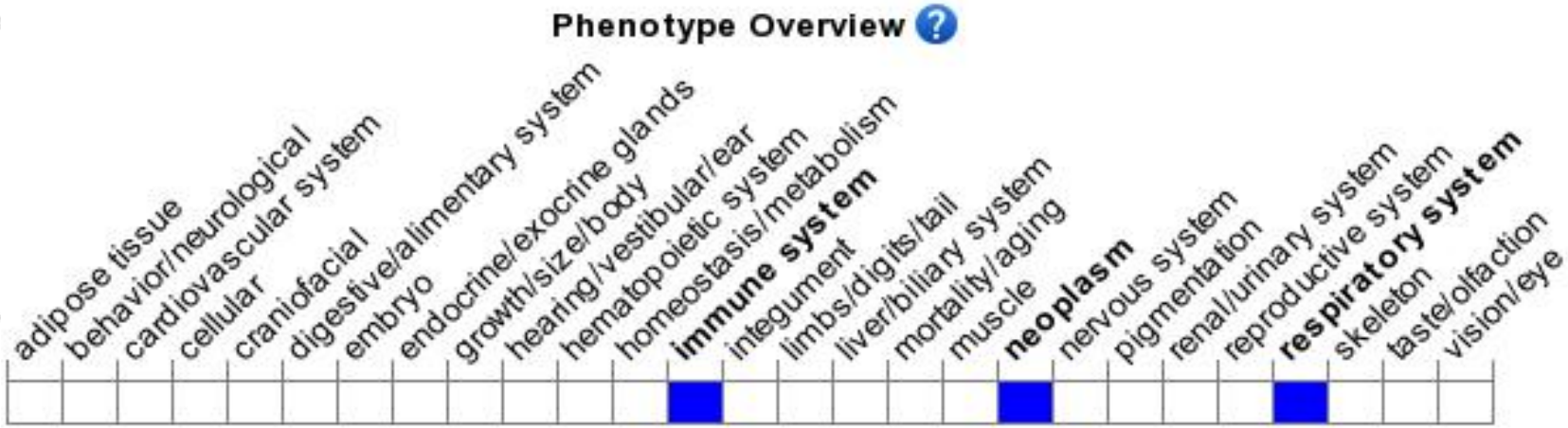
Genomic location distribution



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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