Phf2 Cas9-KO Strategy

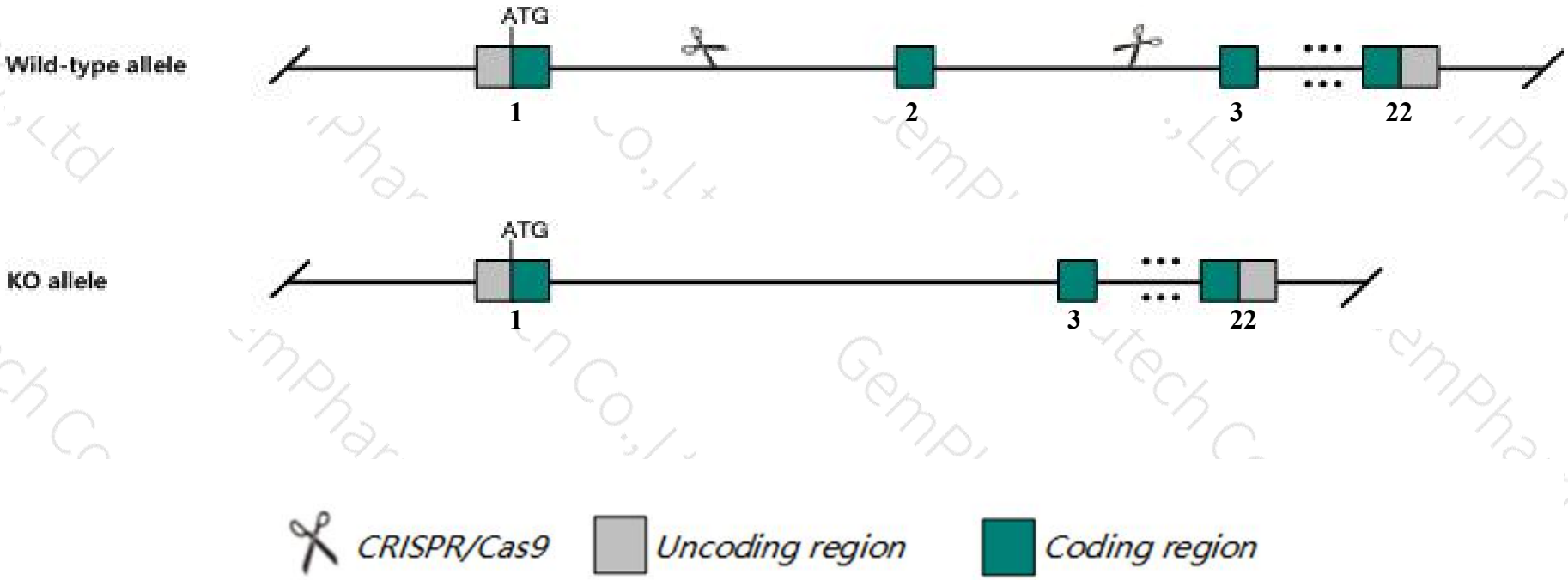
Designer: Yanhua Shen
Reviewer：Xueting Zhang
Design Date: 2020-2-4

Project Overview

Project Name	***Phf2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Phf2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Phf2* gene has 1 transcript. According to the structure of *Phf2* gene, exon2 of *Phf2-201* (ENSMUST00000035540.8) transcript is recommended as the knockout region.The region contains 86bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Phf2* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit partial postnatal lethality, decreased body weight, decreased adipocity and impaired adipogenesis.

- The *Phf2* gene is located on the Chr13. 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）

集萃药康 GemPharmatech

Phf2 PHD finger protein 2 [*Mus musculus* (house mouse)]

Gene ID: 18676, updated on 10-Oct-2019

Summary

Official Symbol	Phf2 provided by MGI
Official Full Name	PHD finger protein 2 provided by MGI
Primary source	MGI:MGI:1338034
See related	Ensembl:ENSMUSG00000038025
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	GRC5
Expression	Ubiquitous expression in thymus adult (RPKM 29.7), limb E14.5 (RPKM 14.9) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 13 A5; 13 24.96 cM

See Phf2 in Genome Data Viewer

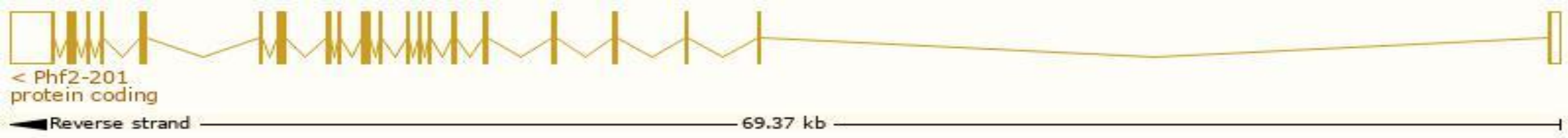
Exon count: 22

Transcript information（Ensembl）

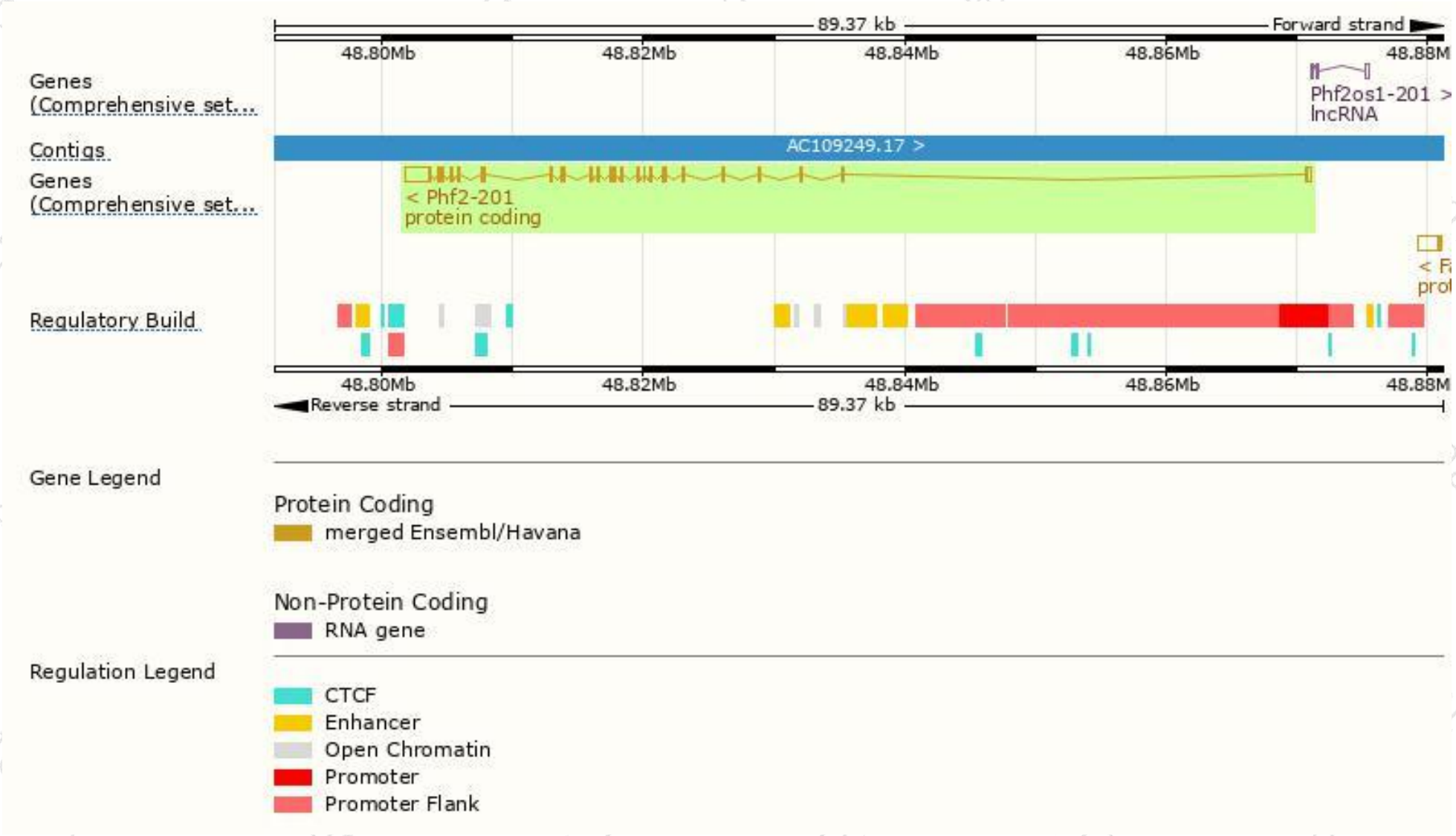
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Phf2-201	ENSMUST00000035540.8	5494	1096aa	Protein coding	CCDS26496	Q9WTU0	TSL:1 GENCODE basic APPRIS P1

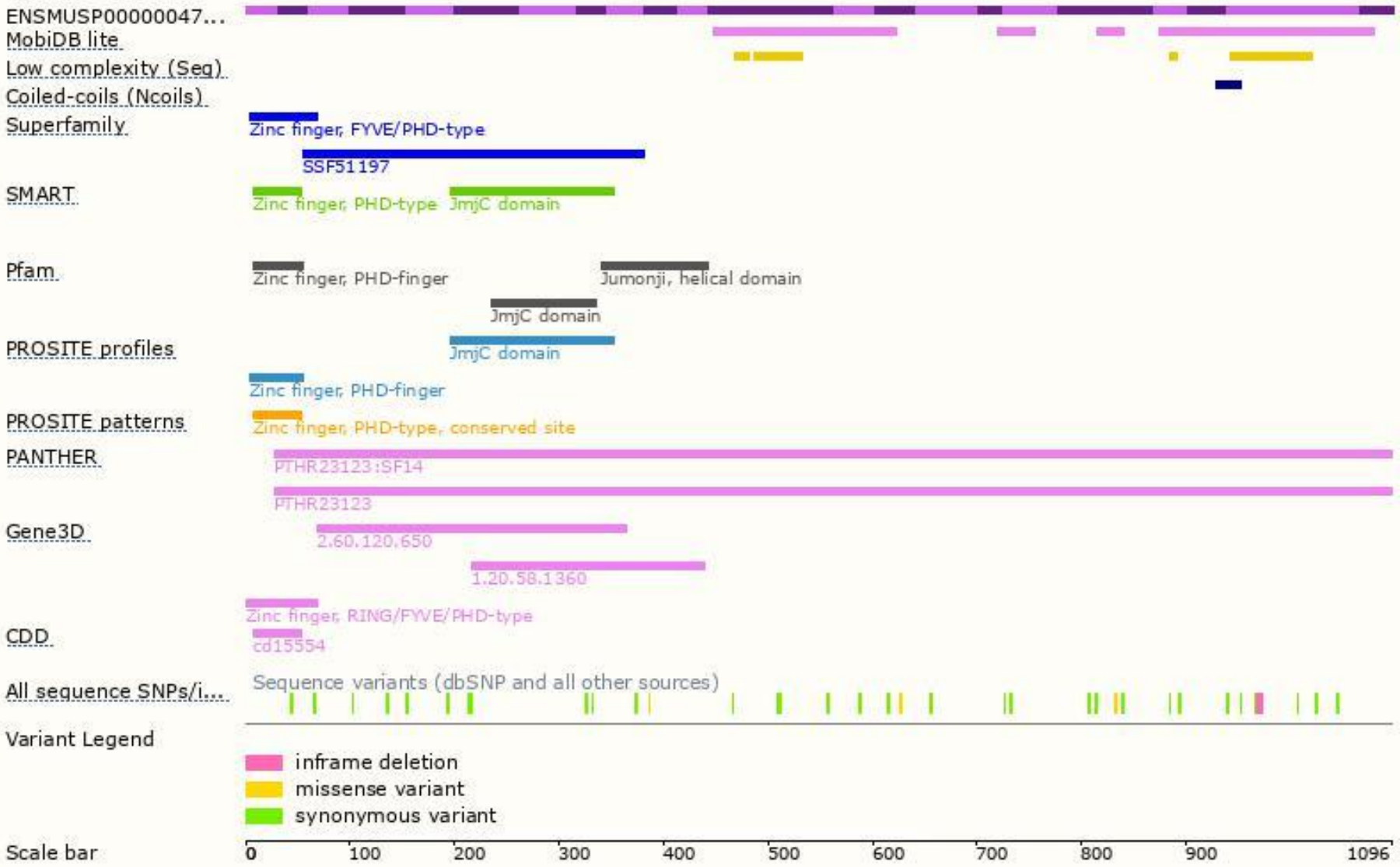
The strategy is based on the design of *Phf2-201* transcript,The transcription is shown below



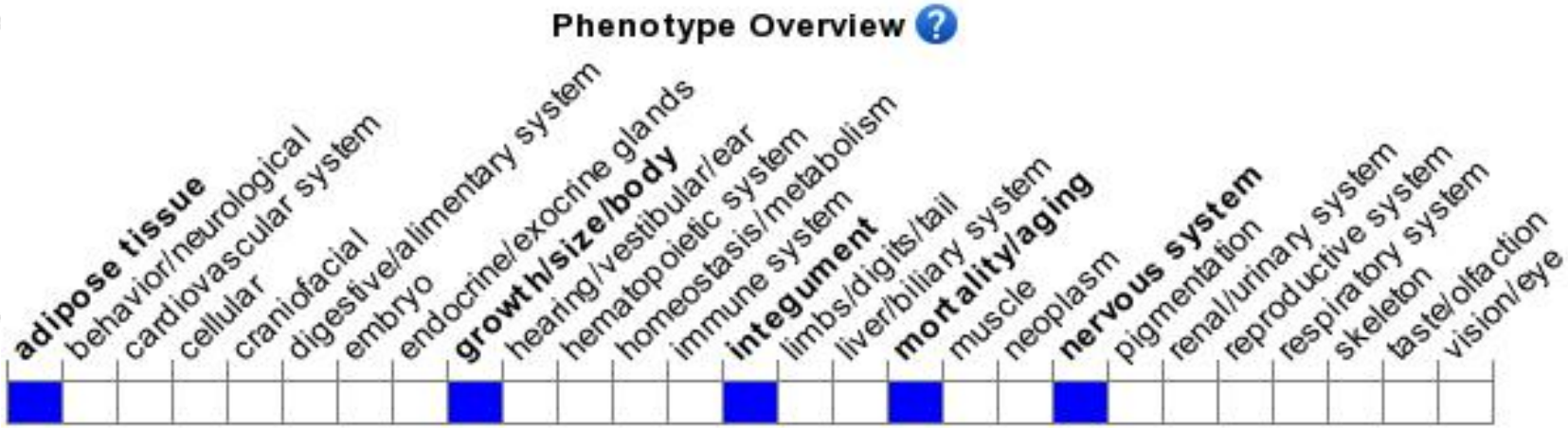
Genomic location distribution



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,Mice homozygous for a knock-out allele exhibit partial postnatal lethality, decreased body weight, decreased adipocity and impaired adipogenesis.

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