

Phip Cas9-KO Strategy

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Project Overview

Project Name

Phip

Project type

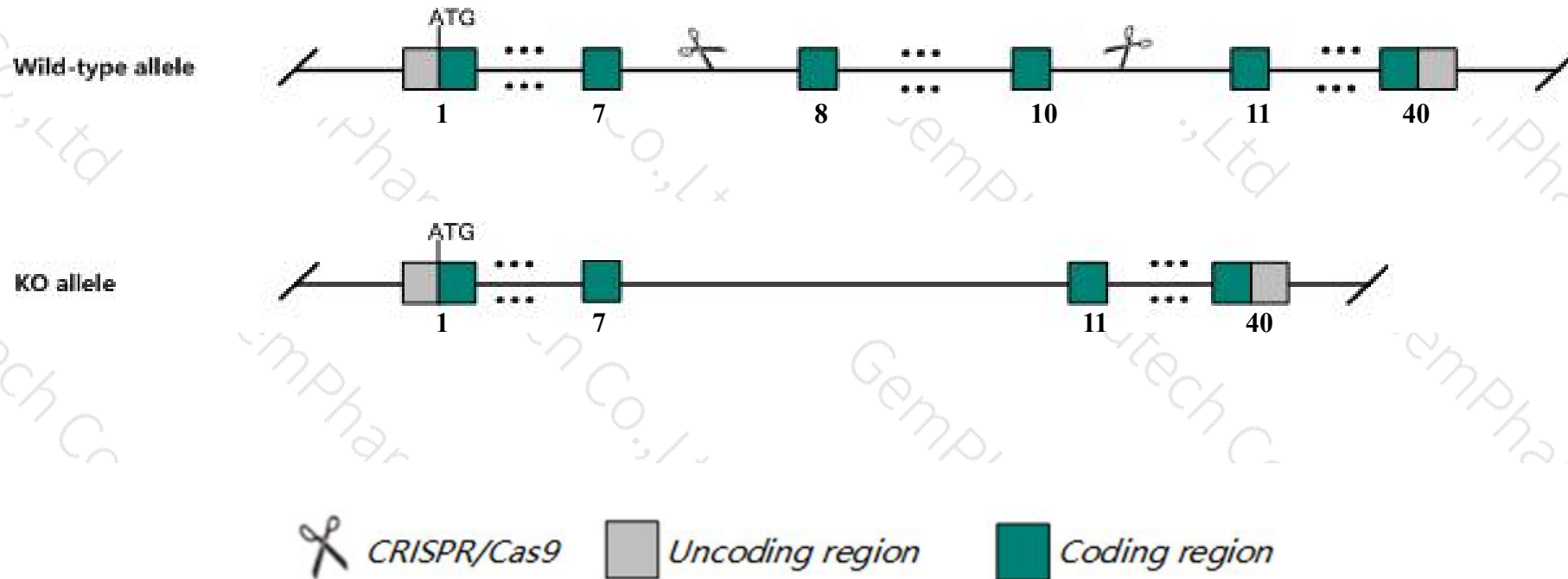
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Phip* gene has 16 transcripts. According to the structure of *Phip* gene, exon8-exon10 of *Phip-201* (ENSMUST00000034787.11) transcript is recommended as the knockout region. The region contains 394bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Phip* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Mice homozygous for a gene trapped allele exhibit postnatal and premature lethality associated with reduced body size, small myocardial cells and hepatocytes, hypoglycemia, increased insulin sensitivity, and reduced cell growth.
- The *Phip* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Phip pleckstrin homology domain interacting protein [Mus musculus (house mouse)]

Gene ID: 83946, updated on 5-Feb-2019

Summary



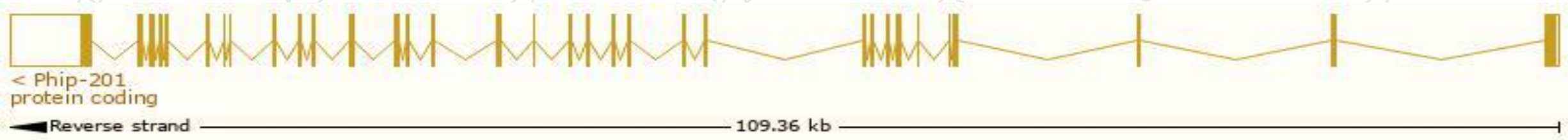
Official Symbol	Phip provided by MGI
Official Full Name	pleckstrin homology domain interacting protein provided by MGI
Primary source	MGI:MGI:1932404
See related	Ensembl:ENSMUSG00000032253
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2810004D21Rik, 4632404O06Rik, Ndrp, Wdr11
Expression	Broad expression in CNS E11.5 (RPKM 6.9), whole brain E14.5 (RPKM 6.8) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

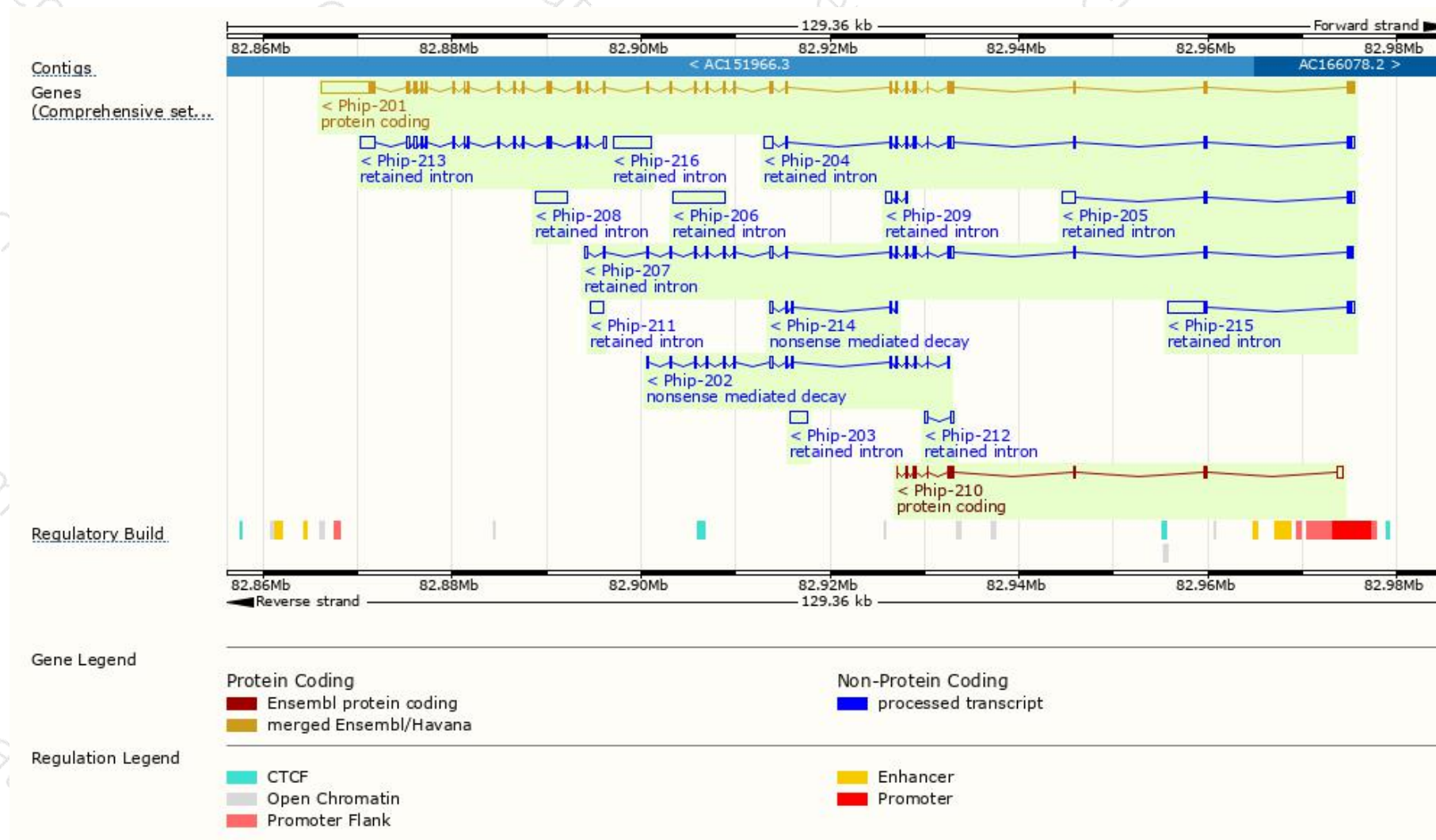
The gene has 16 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Phip-201	ENSMUST00000034787.11	10756	1821aa	Protein coding	CCDS40706	F8VQ93	TSL:1 GENCODE basic APPRIS P1
Phip-210	ENSMUST00000189985.1	1629	360aa	Protein coding	-	A0A087WR26	CDS 3' incomplete TSL:1
Phip-202	ENSMUST00000186089.6	1924	92aa	Nonsense mediated decay	-	A0A087WP89	CDS 5' incomplete TSL:1
Phip-214	ENSMUST00000190822.1	611	84aa	Nonsense mediated decay	-	A0A087WPP7	CDS 5' incomplete TSL:3
Phip-206	ENSMUST00000188850.1	5523	No protein	Retained intron	-	-	TSL:NA
Phip-215	ENSMUST00000190838.1	4274	No protein	Retained intron	-	-	TSL:2
Phip-216	ENSMUST00000190936.1	3949	No protein	Retained intron	-	-	TSL:NA
Phip-213	ENSMUST00000190774.1	3830	No protein	Retained intron	-	-	TSL:1
Phip-207	ENSMUST00000188868.6	3317	No protein	Retained intron	-	-	TSL:1
Phip-208	ENSMUST00000189209.1	3286	No protein	Retained intron	-	-	TSL:NA
Phip-204	ENSMUST00000187021.6	2623	No protein	Retained intron	-	-	TSL:1
Phip-205	ENSMUST00000188828.6	1979	No protein	Retained intron	-	-	TSL:1
Phip-203	ENSMUST00000186099.1	1794	No protein	Retained intron	-	-	TSL:NA
Phip-211	ENSMUST00000190101.1	1481	No protein	Retained intron	-	-	TSL:NA
Phip-209	ENSMUST00000189927.1	890	No protein	Retained intron	-	-	TSL:5
Phip-212	ENSMUST00000190405.1	596	No protein	Retained intron	-	-	TSL:2

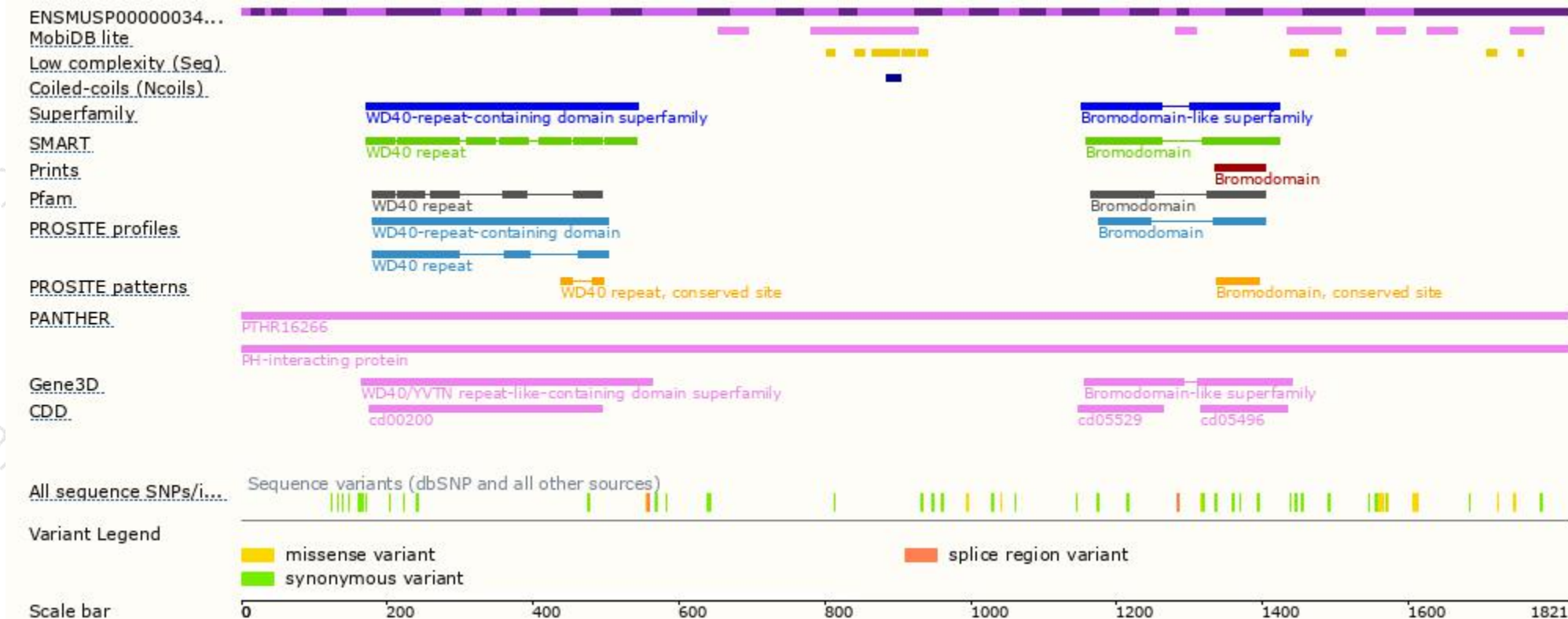
The strategy is based on the design of *Phip-201* transcript,The transcription is shown below



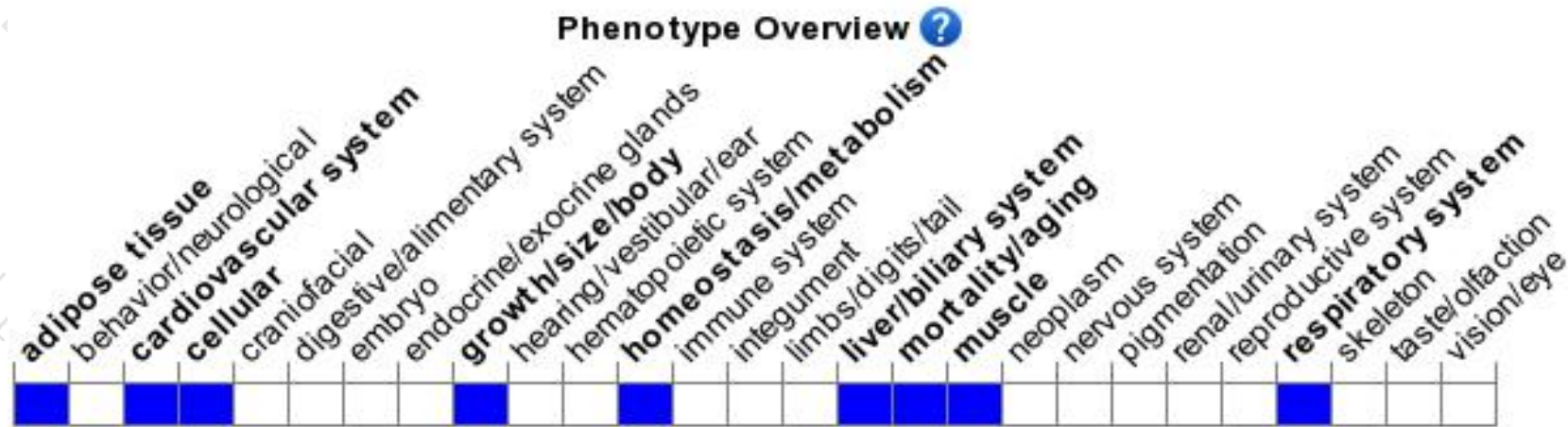
Genomic location distribution



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 gene trapped allele exhibit postnatal and premature lethality associated with reduced body size, small myocardial cells and hepatocytes, hypoglycemia, increased insulin sensitivity and reduced cell growth.

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

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