

Phospho1 Cas9-KO Strategy

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Project Overview

Project Name

Phospho1

Project type

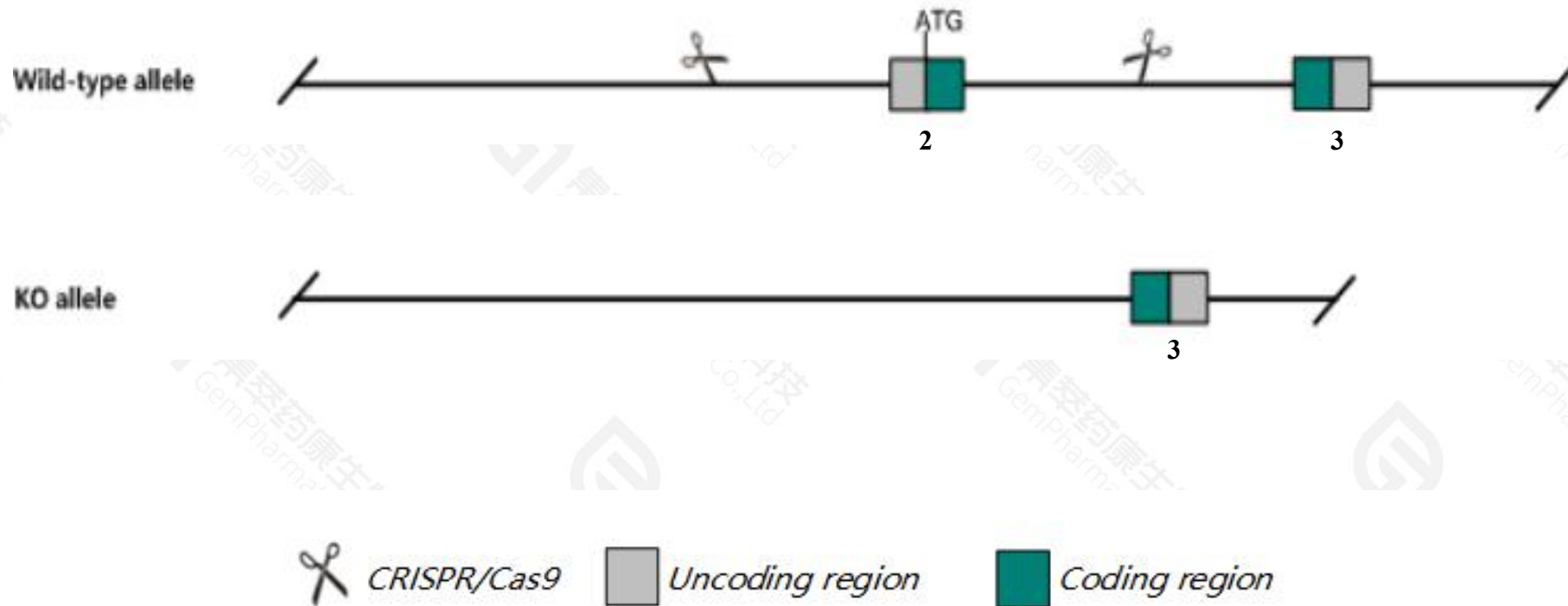
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Phospho1* gene. The schematic diagram is as follows:



- The *Phospho1* gene has 3 transcripts. According to the structure of *Phospho1* gene, exon2 of *Phospho1-201*(ENSMUST00000054173.4) 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 *Phospho1* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, mice homozygous for an ENU-induced mutation exhibit fractures, bowed long bones, osteomalacia, and scoliosis.
- The KO region overlaps with *Zfp652* gene. Knockout the region may affect the function of *Zfp652* gene.
- The KO region is close to *Abi3* gene. Knockout the region may affect the function of *Abi3* gene.
- In this strategy, the effect of protein transcripts *Phospho1-202* and *Phospho1-203* is unknown.
- The *Phospho1* gene is located on the Chr11. 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.

Phospho1 phosphatase, orphan 1 [Mus musculus (house mouse)]

Gene ID: 237928, updated on 4-Oct-2020

Summary



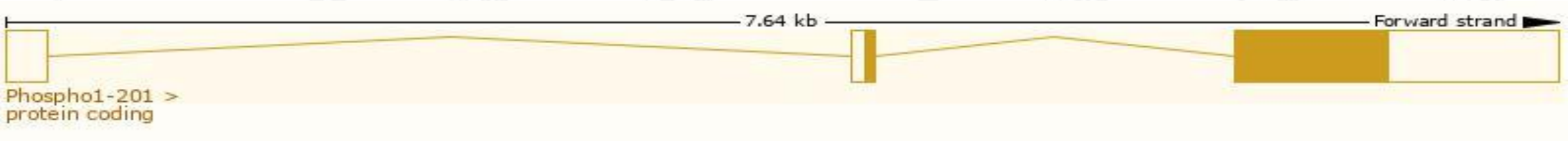
Official Symbol	Phospho1 provided by MGI
Official Full Name	phosphatase, orphan 1 provided by MGI
Primary source	MGI:MGI:2447348
See related	Ensembl:ENSMUSG00000050860
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	D11Moh3, D11Moh36, Phospo1
Expression	Broad expression in testis adult (RPKM 117.8), duodenum adult (RPKM 99.5) and 21 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

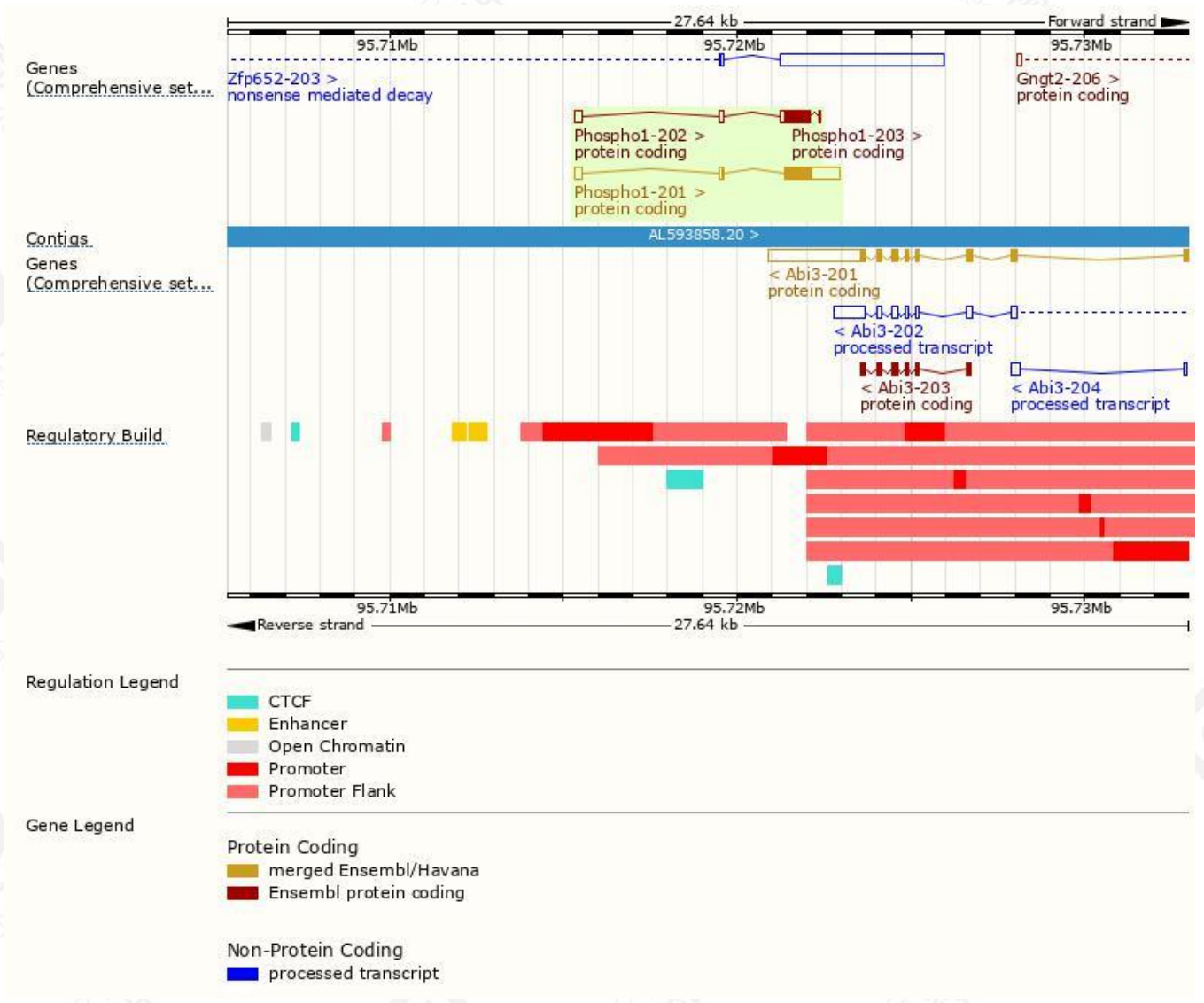
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Phospho1-201	ENSMUST00000054173.4	1910	267aa	Protein coding	CCDS36288		TSL:2 , GENCODE basic , APPRIS P1 ,
Phospho1-203	ENSMUST00000176538.2	594	191aa	Protein coding	-		CDS 5' incomplete , TSL:3 ,
Phospho1-202	ENSMUST00000150134.2	590	47aa	Protein coding	-		CDS 3' incomplete , TSL:2 ,

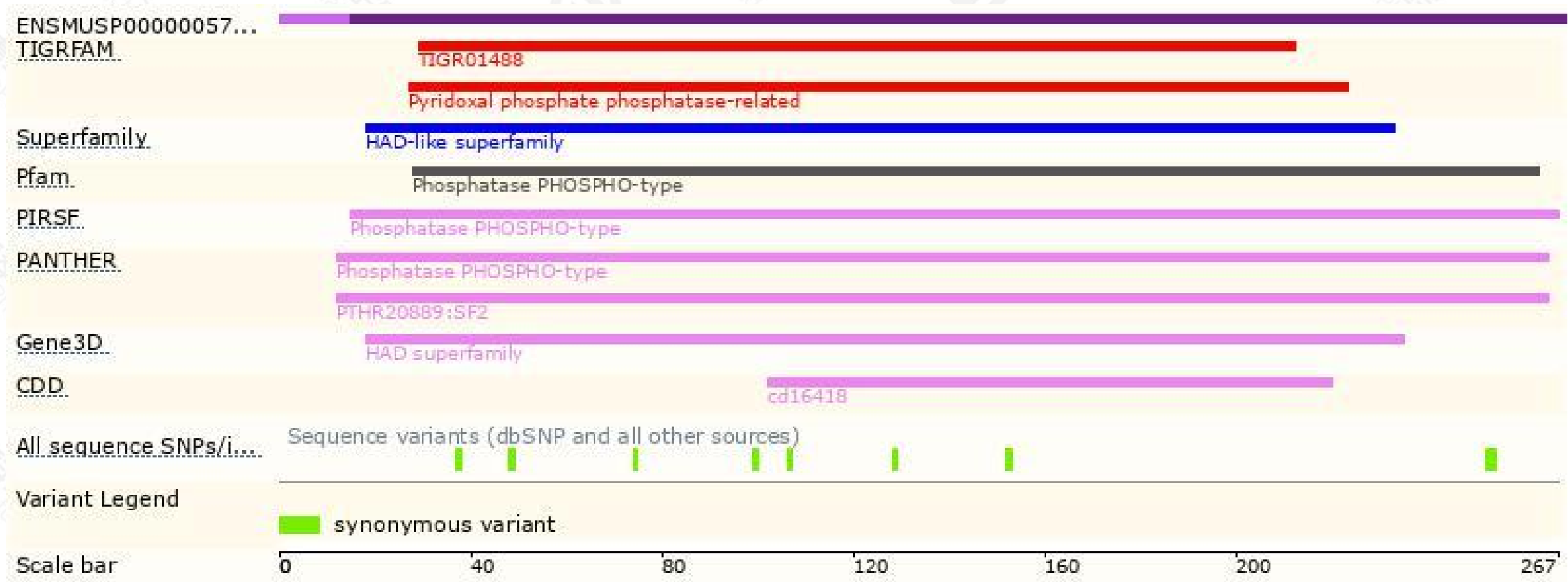
The strategy is based on the design of *Phospho1-201* transcript,the transcription is shown below:



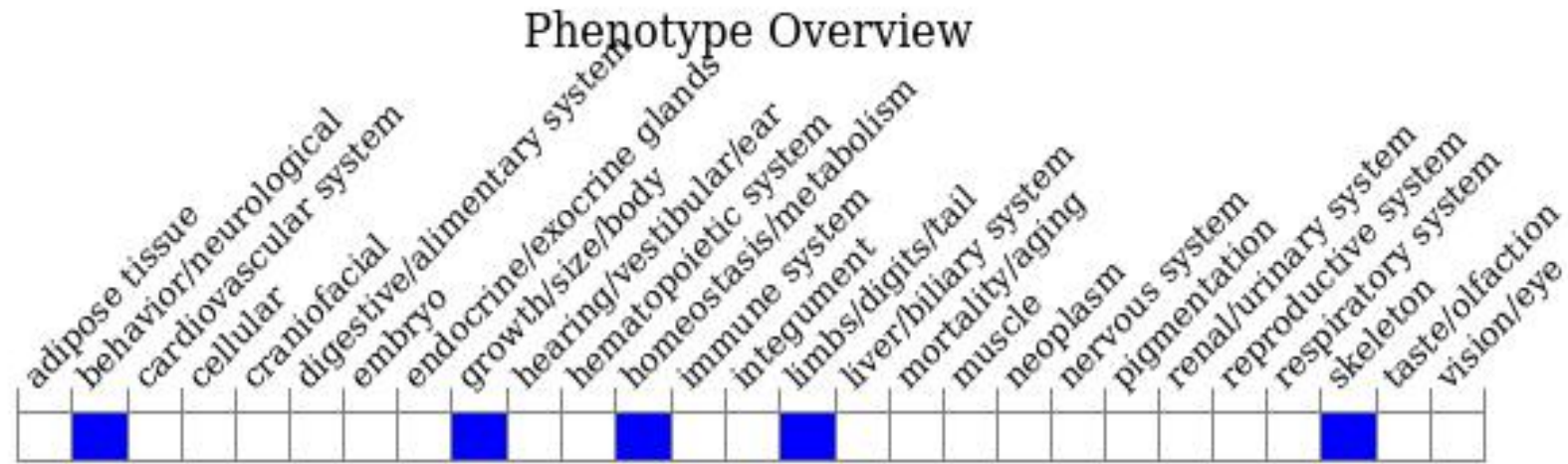
Genomic location distribution



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 an ENU-induced mutation exhibit fractures, bowed long bones, osteomalacia, and scoliosis.

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