

P4hb Cas9-KO Strategy

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Project Overview

Project Name

P4hb

Project type

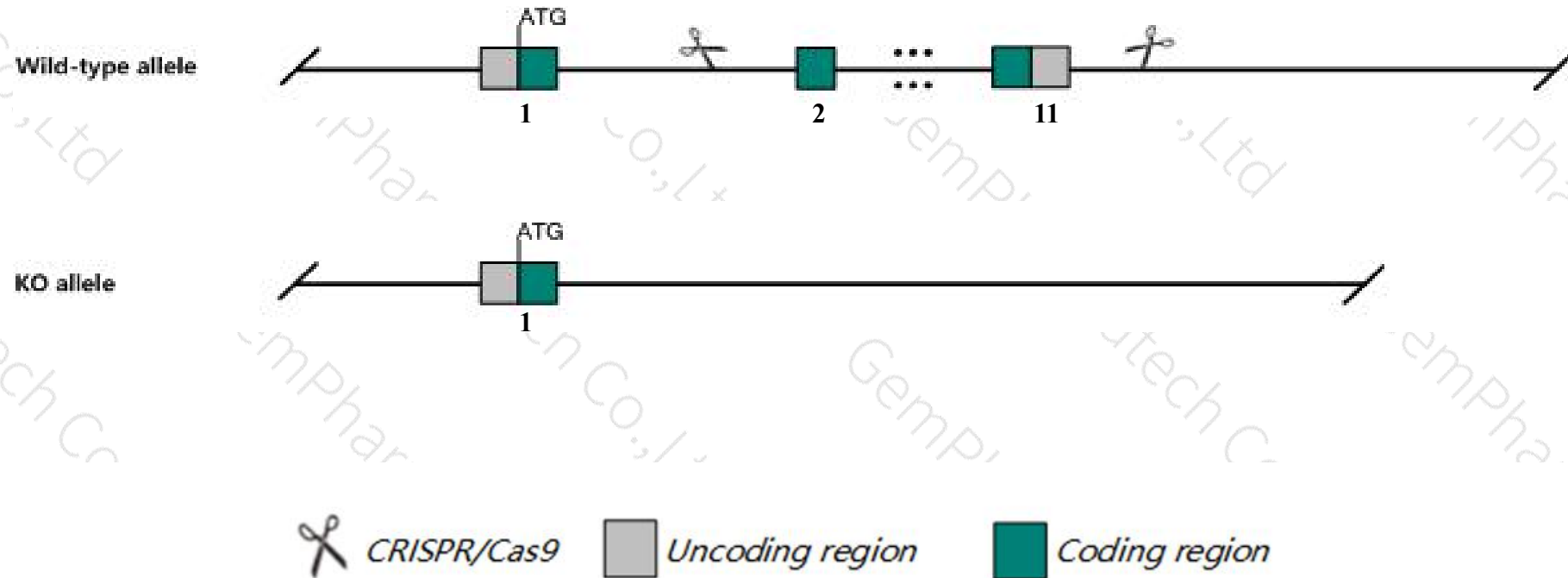
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *P4hb* gene. The schematic diagram is as follows:



- The *P4hb* gene has 3 transcripts. According to the structure of *P4hb* gene, exon2-exon11 of *P4hb-201* (ENSMUST00000026122.10) transcript is recommended as the knockout region. The region contains 1379bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *P4hb* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Mice heterozygous for a knock-out allele and conditional allele activated in immune cells exhibit impaired neutrophil recruitment.
- The *P4hb* 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.

Gene information (NCBI)

P4hb prolyl 4-hydroxylase, beta polypeptide [Mus musculus (house mouse)]

Gene ID: 18453, updated on 9-Apr-2019

Summary



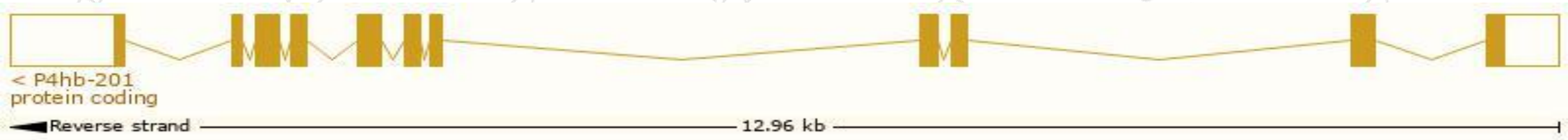
Official Symbol	P4hb provided by MGI
Official Full Name	prolyl 4-hydroxylase, beta polypeptide provided by MGI
Primary source	MGI:MGI:97464
See related	Ensembl:ENSMUSG00000025130
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	ERp59, PDI, Pdia1, Thbp
Expression	Ubiquitous expression in placenta adult (RPKM 477.0), liver adult (RPKM 327.1) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

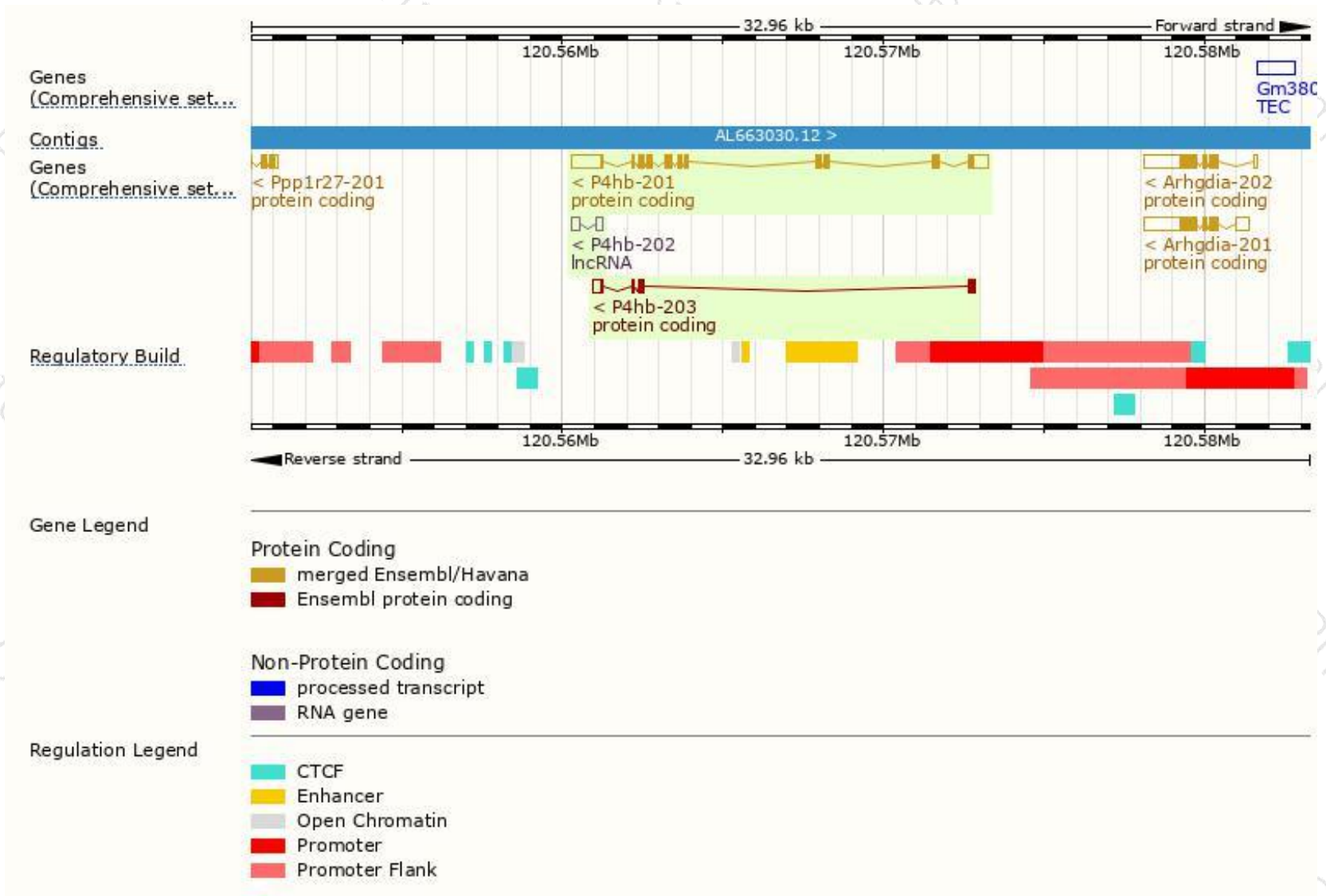
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
P4hb-201	ENSMUST00000026122.10	2861	509aa	Protein coding	CCDS25742	P09103	TSL:1 GENCODE basic APPRIS P1
P4hb-203	ENSMUST00000168360.1	770	165aa	Protein coding	-	E9Q8G8	TSL:3 GENCODE basic
P4hb-202	ENSMUST00000166620.1	414	No protein	lncRNA	-	-	TSL:2

The strategy is based on the design of *P4hb-201* transcript,The transcription is shown below



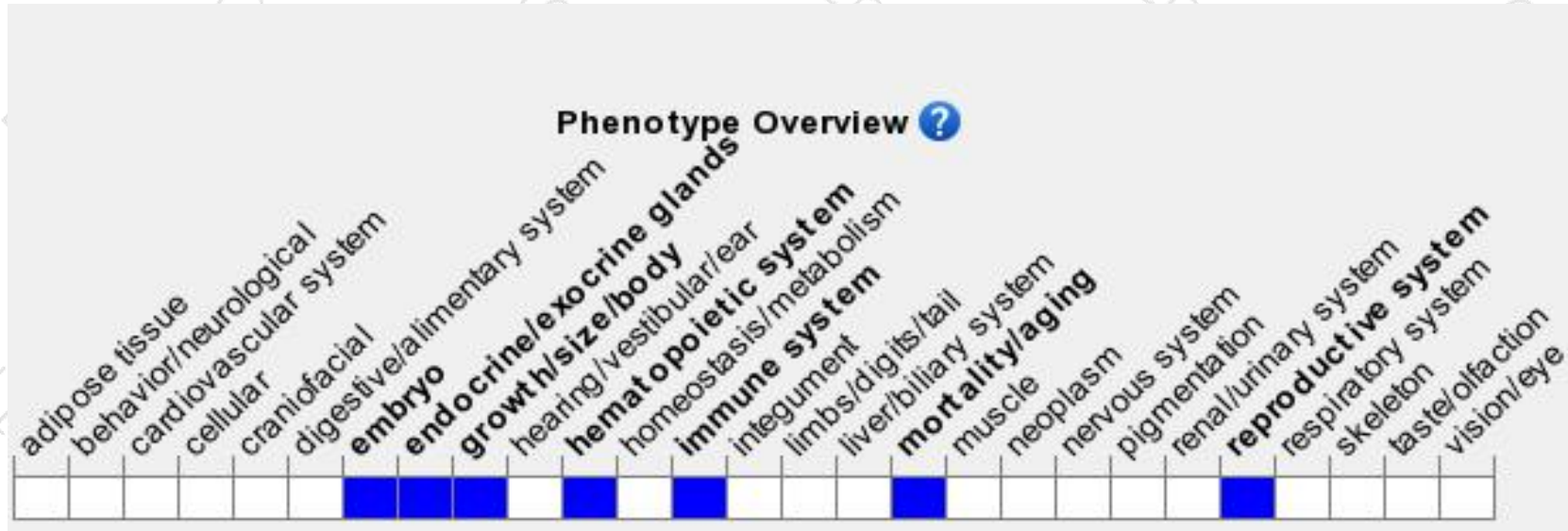
Genomic location distribution



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 heterozygous for a knock-out allele and conditional allele activated in immune cells exhibit impaired neutrophil recruitment.

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

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