

Phlda2 Cas9-KO Strategy

Designer:

Huan Fan

Reviewer:

Huan Wang

Design Date:

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Project Overview

Project Name

Phlda2

Project type

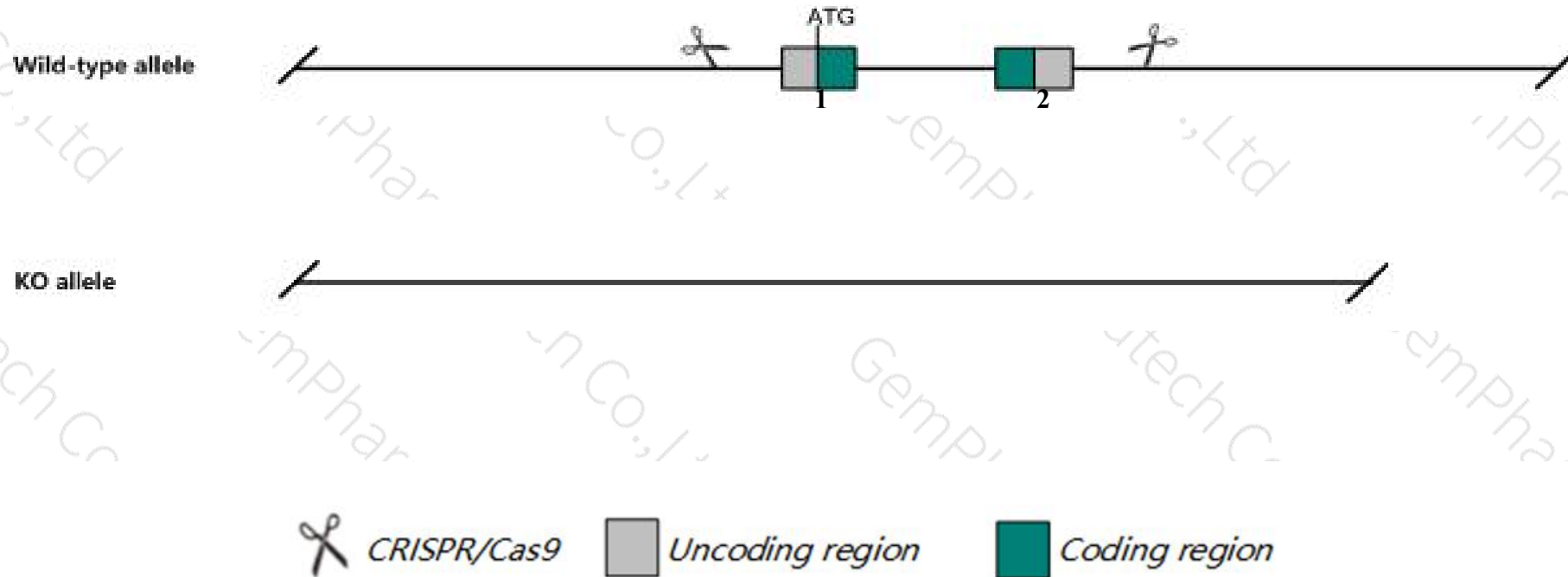
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Phlda2* gene. The schematic diagram is as follows:



- The *Phlda2* gene has 3 transcripts. According to the structure of *Phlda2* gene, exon1-exon2 of *Phlda2-201* (ENSMUST00000010904.4) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Phlda2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for disruptions in this gene have enlarged placentas but display little change in fetal weight.
- The *Phlda2* gene is located on the Chr7. 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)

Phlda2 pleckstrin homology like domain, family A, member 2 [Mus musculus (house mouse)]

Gene ID: 22113, updated on 26-Feb-2019

Summary



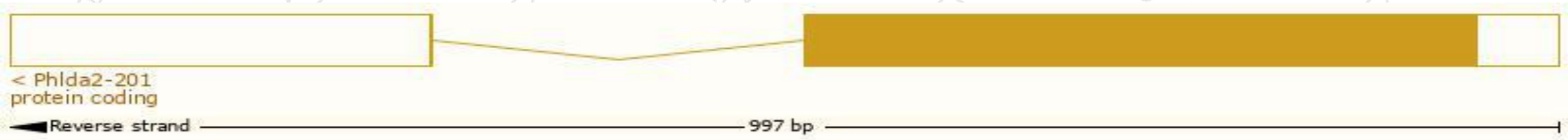
Official Symbol	Phlda2 provided by MGI
Official Full Name	pleckstrin homology like domain, family A, member 2 provided by MGI
Primary source	MGI:MGI:1202307
See related	Ensembl:ENSMUSG00000010760
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	lpl, Tssc3
Summary	This gene is one of several genes in the imprinted gene domain on chromosome 7. Studies using knockout mice have shown that the product of this gene regulates placental growth. Transcripts from this gene are most abundant in placenta and yolk sac, and are almost entirely transcribed from the maternal allele. [provided by RefSeq, Jul 2008]
Expression	Biased expression in placenta adult (RPKM 163.8), kidney adult (RPKM 10.9) and 1 other tissue See more
Orthologs	human all

Transcript information (Ensembl)

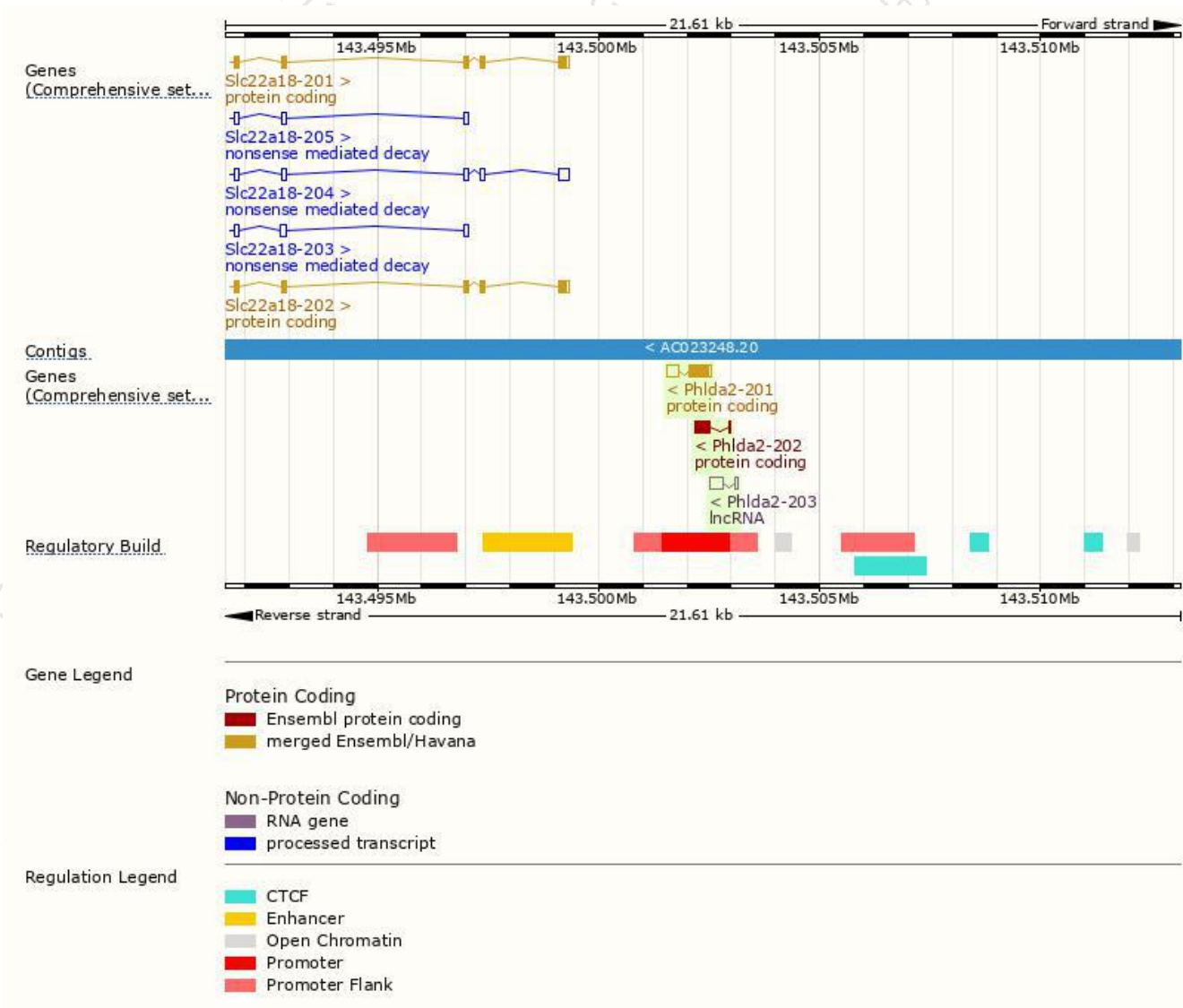
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Phlda2-201	ENSMUST00000010904.4	757	144aa	Protein coding	CCDS22042	O08969	TSL:1 GENCODE basic APPRIS P1
Phlda2-202	ENSMUST00000207425.1	376	105aa	Protein coding	-	A0A140LIM7	CDS 3' incomplete TSL:3
Phlda2-203	ENSMUST00000207561.1	363	No protein	lncRNA	-	-	TSL:3

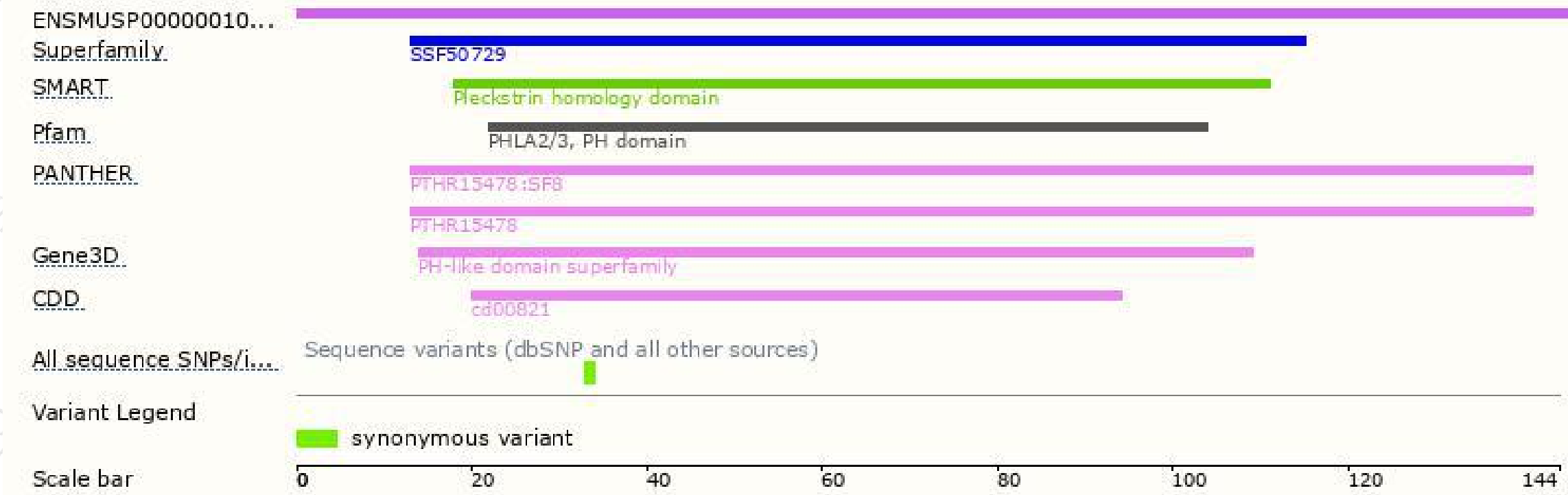
The strategy is based on the design of *Phlda2-201* transcript,The transcription is shown below



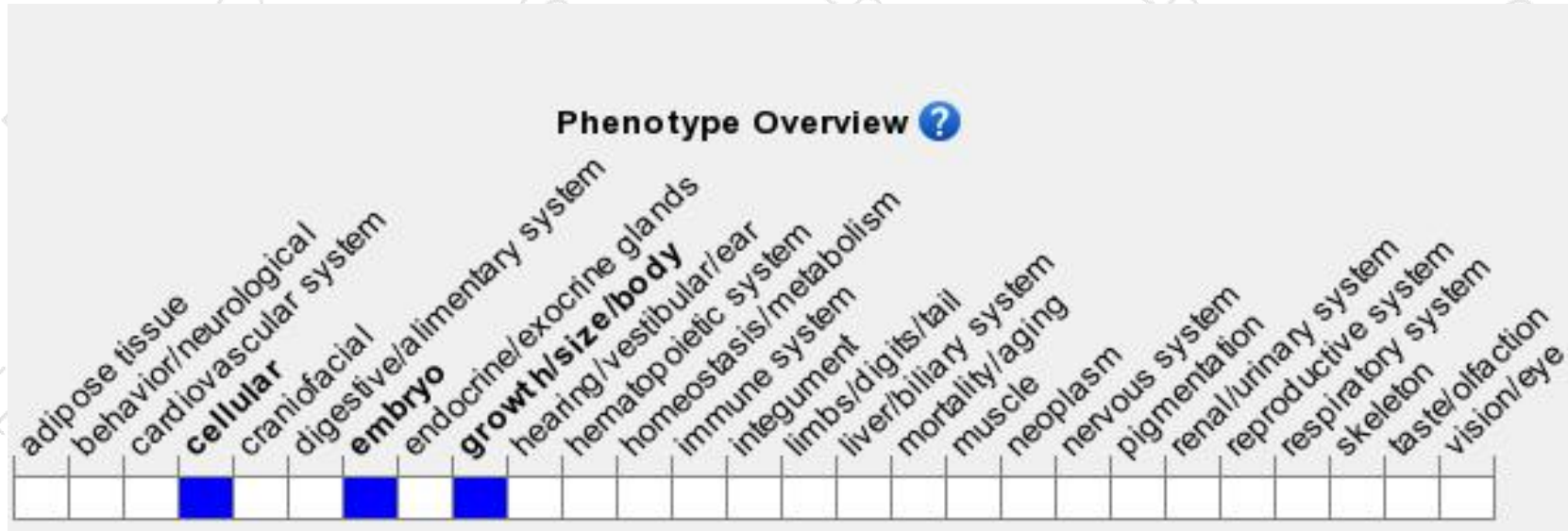
Genomic location distribution



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 disruptions in this gene have enlarged placentas but display little change in fetal weight.

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

Tel: 400-9660890

