

Dph6 Cas9-CKO Strategy

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Project Overview

Project Name

Dph6

Project type

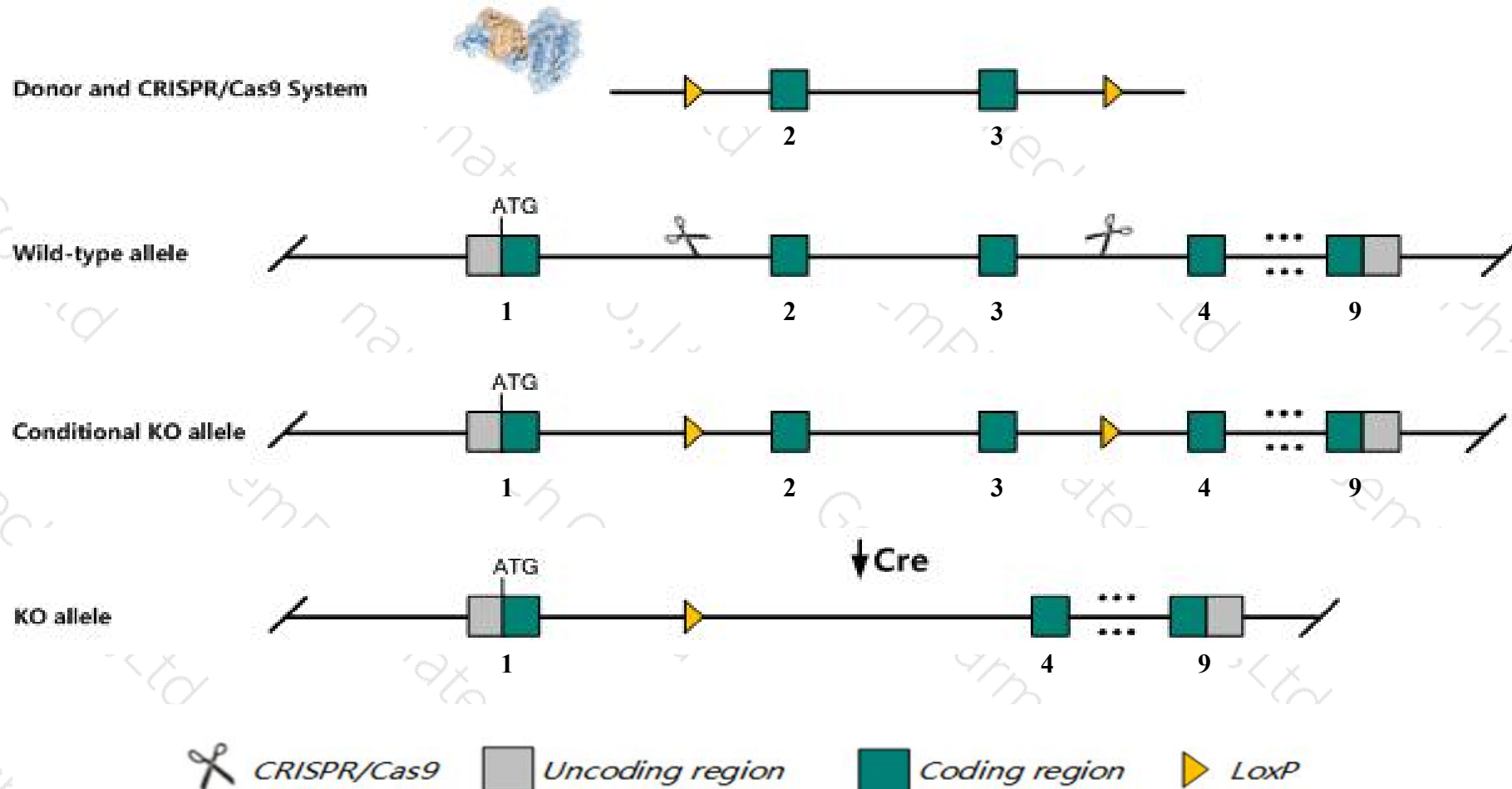
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dph6* gene. The schematic diagram is as follows:



- The *Dph6* gene has 6 transcripts. According to the structure of *Dph6* gene, exon2-exon3 of *Dph6-203* (ENSMUST00000102542.9) transcript is recommended as the knockout region. The region contains 289bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dph6* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- The *Dph6* gene is located on the Chr2. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Dph6 diphthamine biosynthesis 6 [Mus musculus (house mouse)]

Gene ID: 66632, updated on 13-Mar-2020

Summary



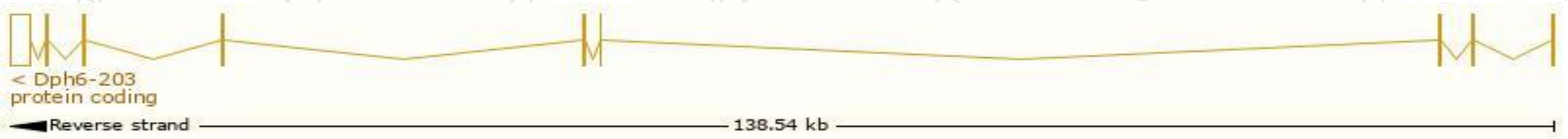
Official Symbol	Dph6 provided by MGI
Official Full Name	diphthamine biosynthesis 6 provided by MGI
Primary source	MGI:MGI:1913882
See related	Ensembl:ENSMUSG00000057147
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5730421E18Rik, Atpbd4
Expression	Ubiquitous expression in limb E14.5 (RPKM 4.9), bladder adult (RPKM 3.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

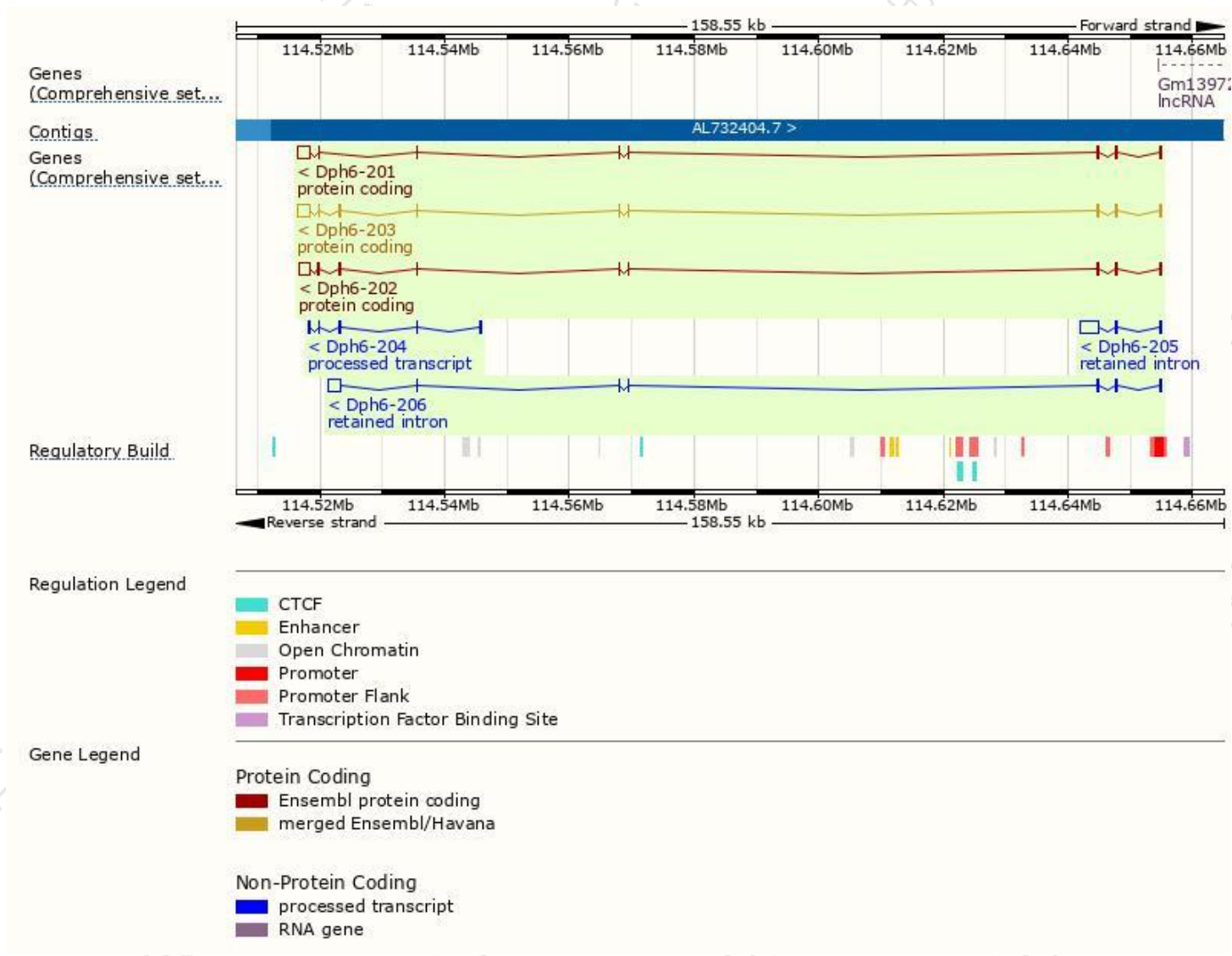
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dph6-203	ENSMUST00000102542.9	2734	267aa	Protein coding	CCDS16567	Q9CQ28	TSL:1 GENCODE basic APPRIS P1
Dph6-201	ENSMUST00000028640.13	2632	225aa	Protein coding	-	Q9CQ28	TSL:1 GENCODE basic
Dph6-202	ENSMUST00000055144.7	2476	271aa	Protein coding	-	Q9CQ28	TSL:1 GENCODE basic
Dph6-204	ENSMUST00000138106.7	556	No protein	Processed transcript	-	-	TSL:2
Dph6-205	ENSMUST00000138975.1	3010	No protein	Retained intron	-	-	TSL:1
Dph6-206	ENSMUST00000150447.7	2590	No protein	Retained intron	-	-	TSL:1

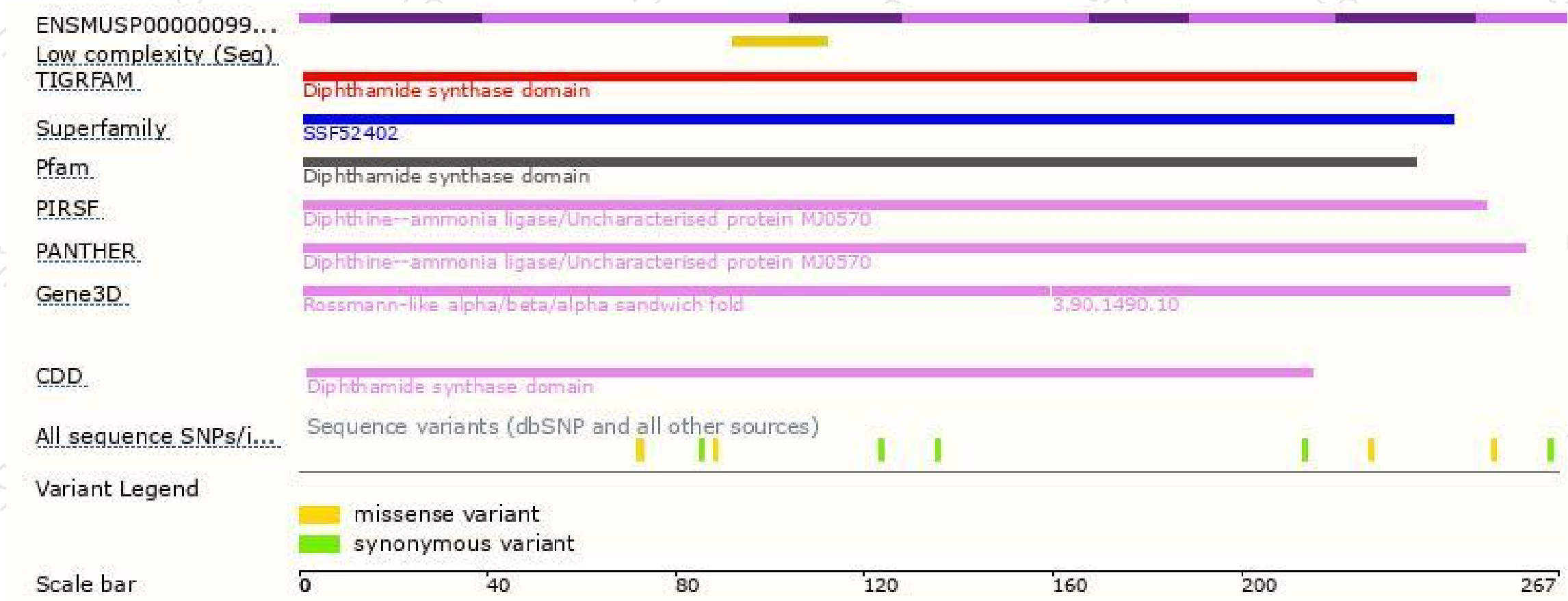
The strategy is based on the design of *Dph6-203* transcript,The transcription is shown below



Genomic location distribution

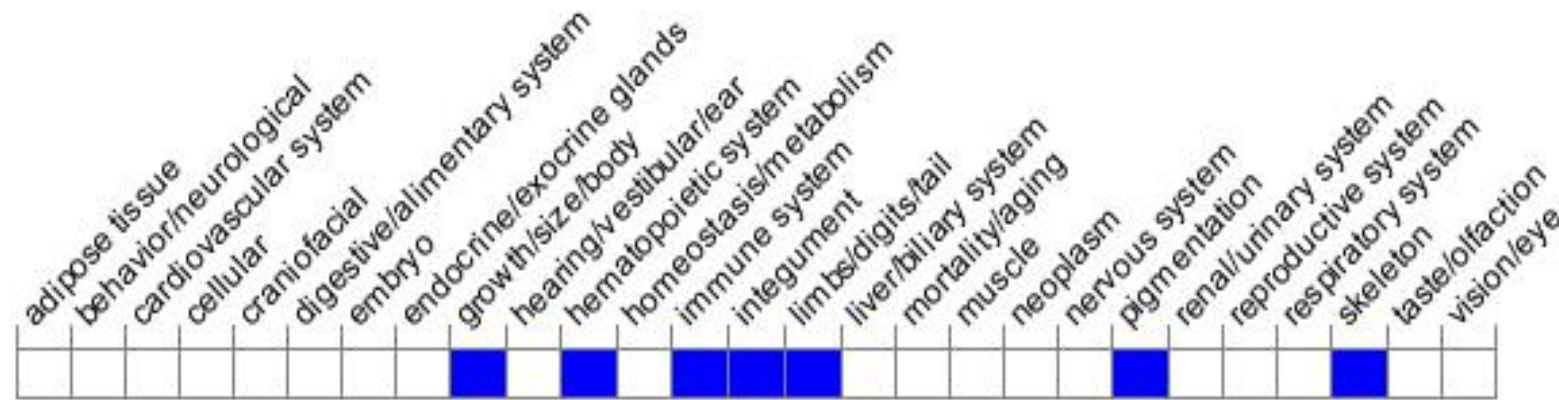


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

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

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