

Aipl1 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Aipl1

Project type

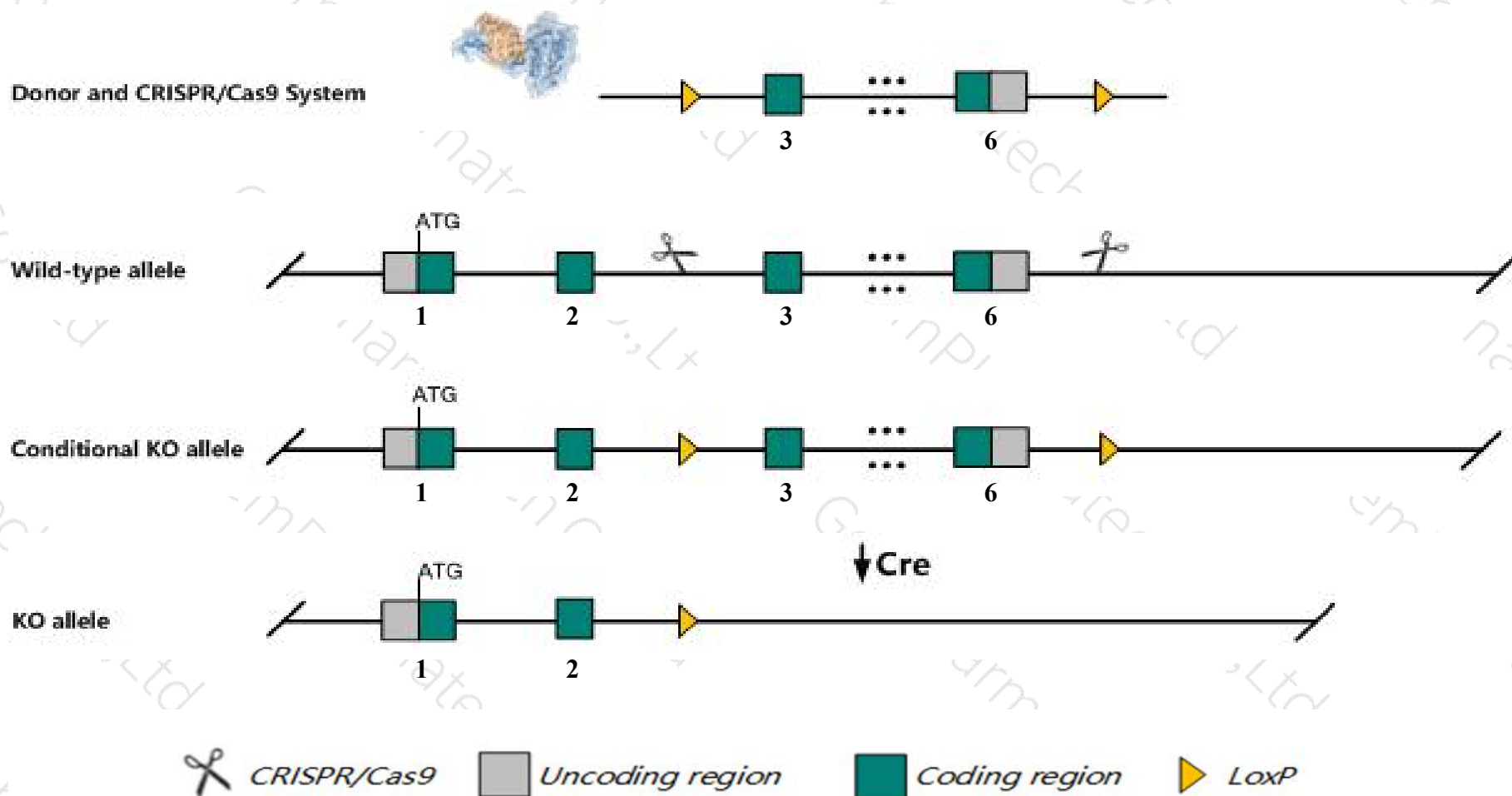
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Aipl1* gene. The schematic diagram is as follows:



- The *Aipl1* gene has 2 transcripts. According to the structure of *Aipl1* gene, exon3-exon6 of *Aipl1-201* (ENSMUST00000048207.9) transcript is recommended as the knockout region. The region contains most 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 *Aipl1* 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.

- According to the existing MGI data, Homozygous null mice display complete retinal degeneration and a lack of electroretinographic responses. Homozygous hypomorphic mutants display less severe retinal degeneration and impaired electroretinographic responses.
- The *Aipl1* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Aipl1 aryl hydrocarbon receptor-interacting protein-like 1 [Mus musculus (house mouse)]

Gene ID: 114230, updated on 31-Jan-2019

Summary



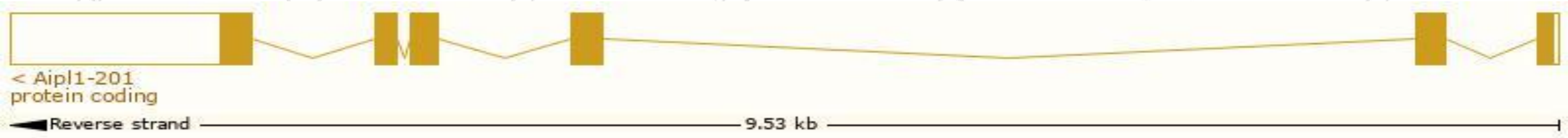
Official Symbol	Aipl1 provided by MGI
Official Full Name	aryl hydrocarbon receptor-interacting protein-like 1 provided by MGI
Primary source	MGI:MGI:2148800
See related	Ensembl:ENSMUSG00000040554
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A930007I01Rik
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

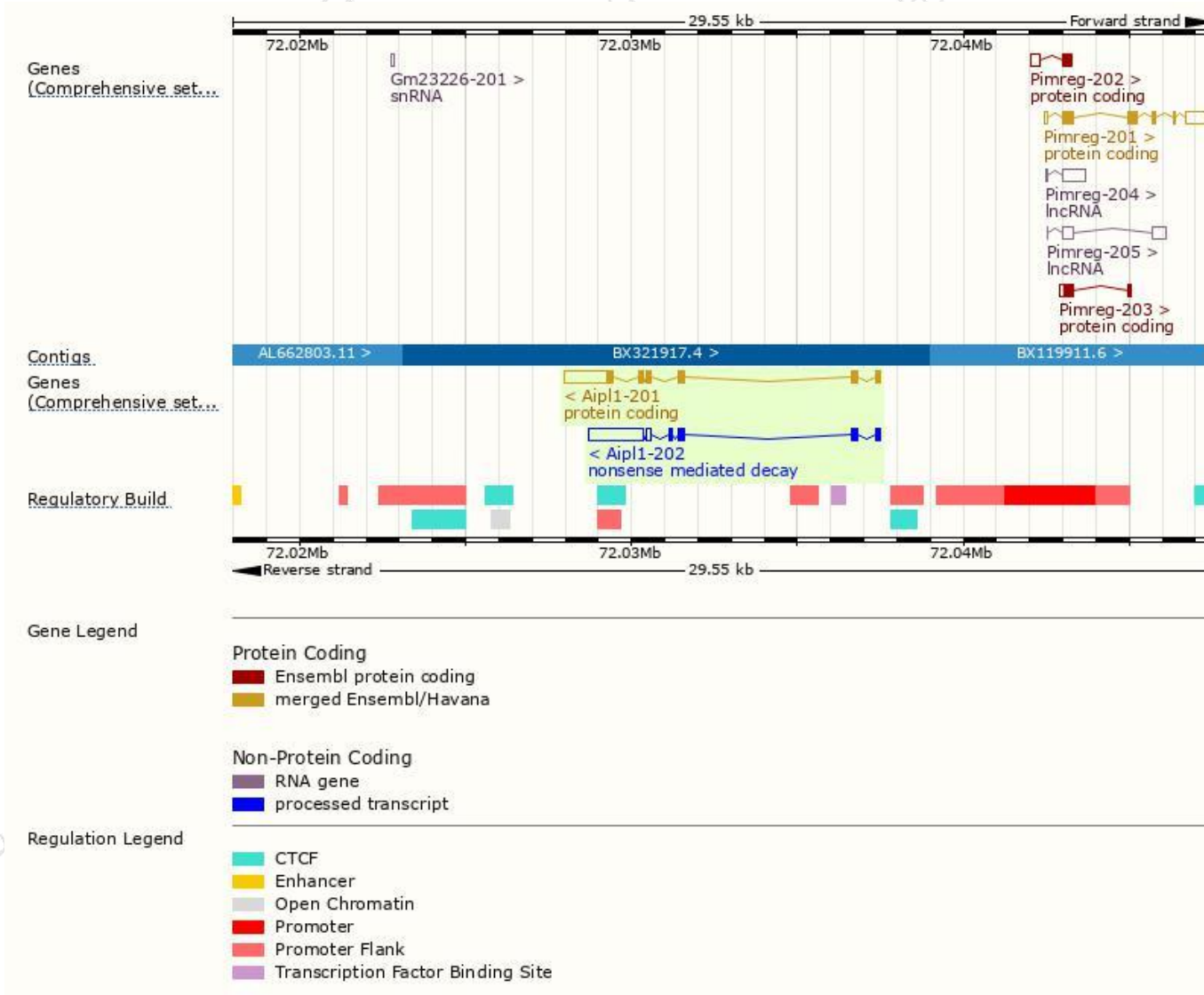
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Aipl1-201	ENSMUST00000048207.9	2309	328aa	Protein coding	CCDS24976	Q924K1	TSL:1 GENCODE basic APPRIS P1
Aipl1-202	ENSMUST00000059082.3	2403	179aa	Nonsense mediated decay	-	I6L993	TSL:2

The strategy is based on the design of *Aipl1-201* transcript,The transcription is shown below



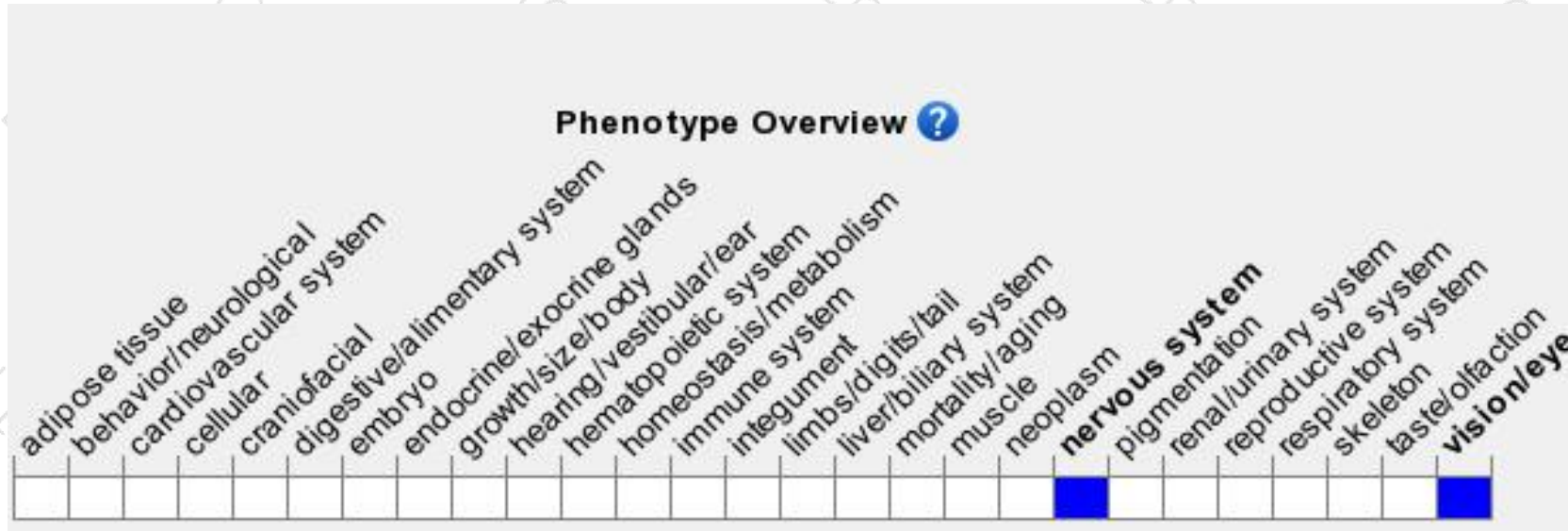
Genomic location distribution



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, Homozygous null mice display complete retinal degeneration and a lack of electroretinographic responses. Homozygous hypomorphic mutants display less severe retinal degeneration and impaired electroretinographic responses.

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

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