

Ptger2 Cas9-CKO Strategy

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Reviewer:

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Project Overview



Project Name

Ptger2

Project type

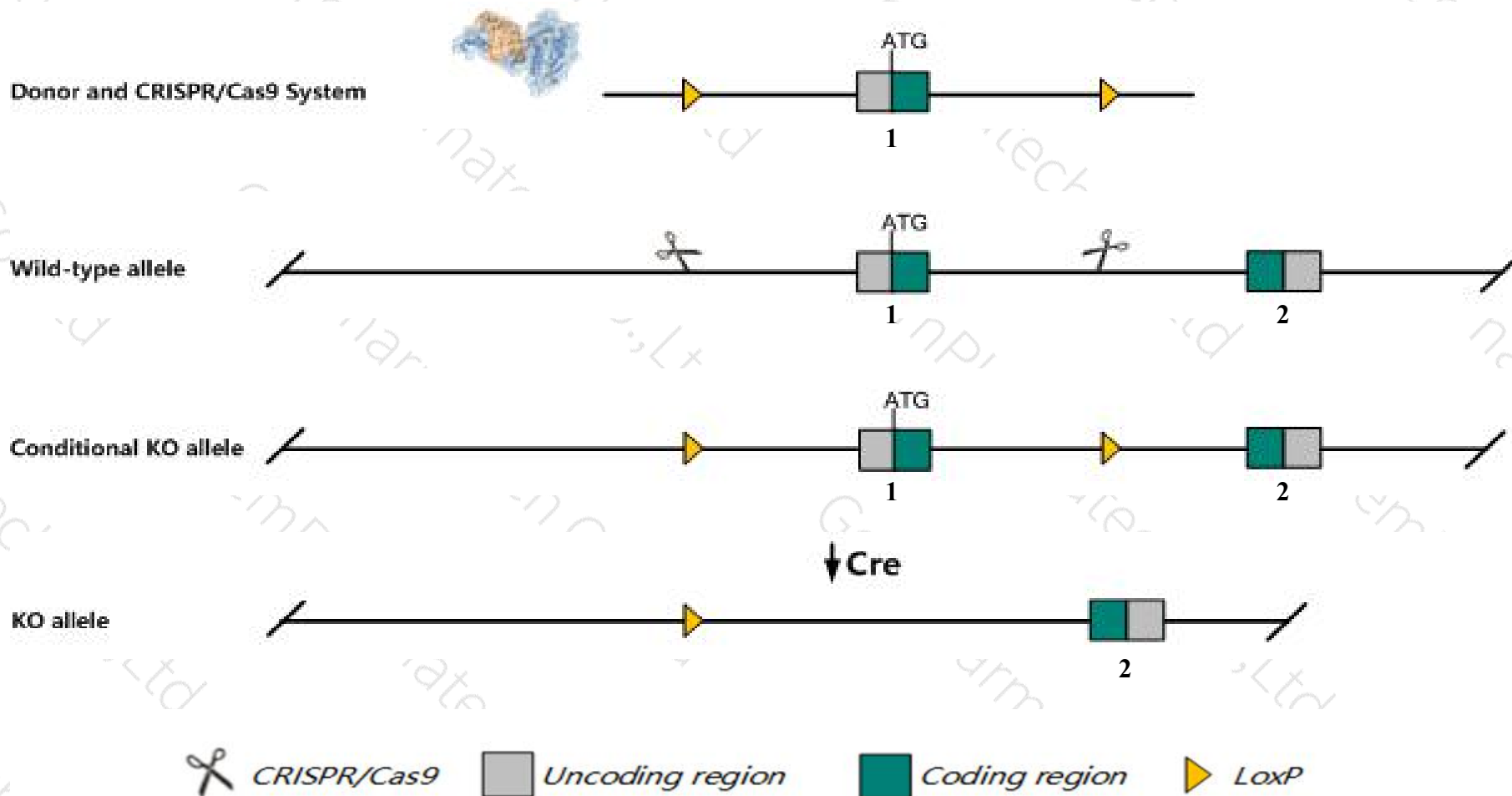
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ptger2* gene. The schematic diagram is as follows:



Technical routes

- The *Ptger2* gene has 2 transcripts. According to the structure of *Ptger2* gene, exon1 of *Ptger2-201* (ENSMUST00000046891.5) 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 *Ptger2* 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, Homozygotes for one targeted null mutation exhibit increased blood pressure when fed a high-salt diet. Female mutants for 2 null alleles have small litters due to impaired ovulation.
- The KO region contains functional region of *Gm17173* and *Gm49364* gene. Knockout the region may affect the function of *Gm17173* and *Gm49364* gene.
- The *Ptger2* gene is located on the Chr14. 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)

Ptger2 prostaglandin E receptor 2 (subtype EP2) [*Mus musculus* (house mouse)]

Gene ID: 19217, updated on 13-Jan-2020

Summary

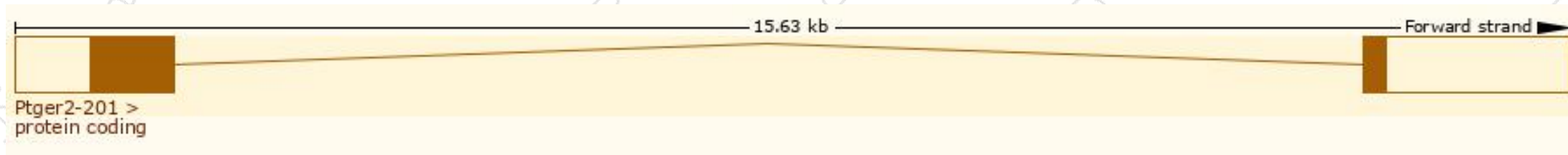
Official Symbol	Ptger2 provided by MGI
Official Full Name	prostaglandin E receptor 2 (subtype EP2) provided by MGI
Primary source	MGI:MGI:97794
See related	Ensembl:ENSMUSG00000037759
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	EP2; Ptgerep2
Expression	Broad expression in ovary adult (RPKM 4.1), lung adult (RPKM 2.0) and 15 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

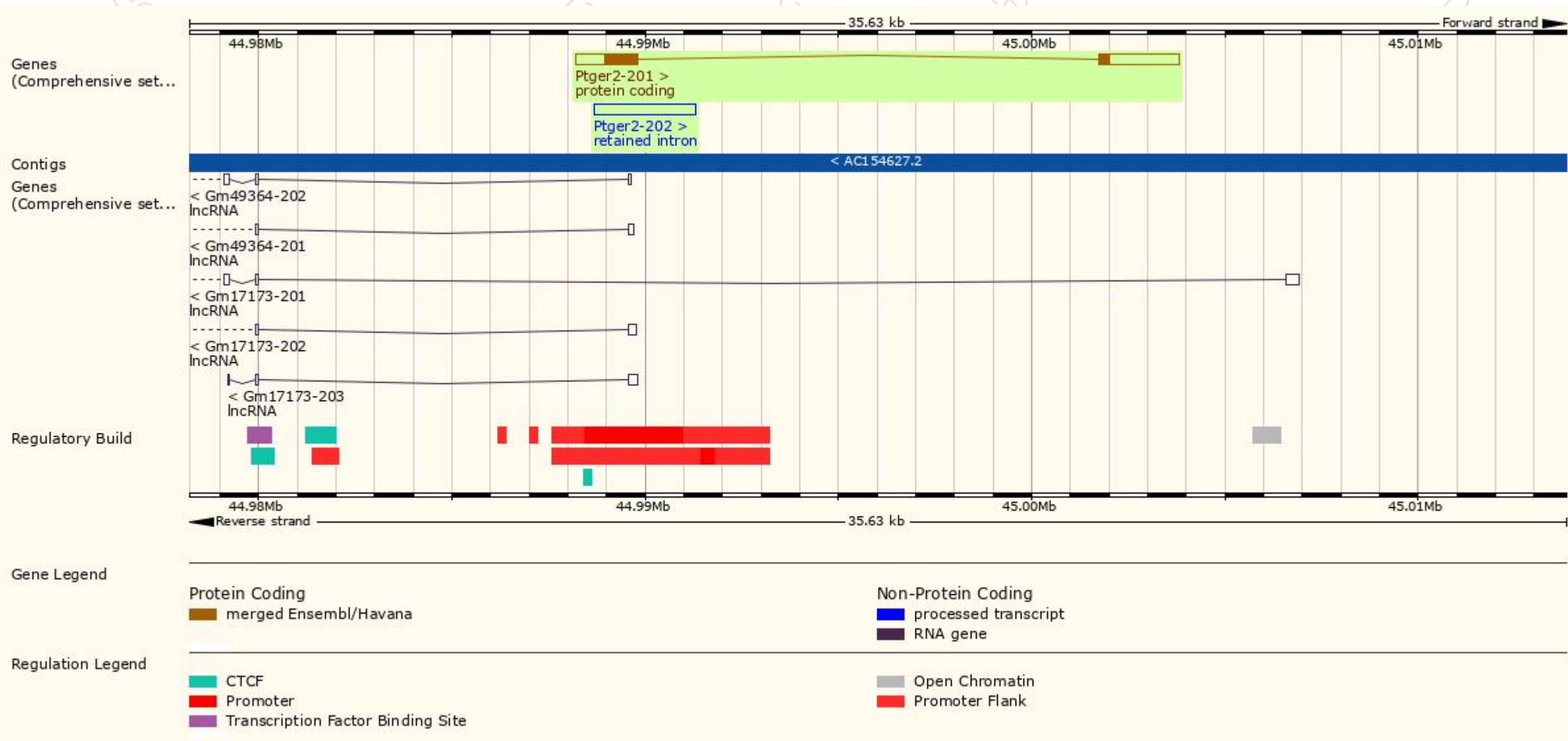
The gene has 2 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptger2-202	ENSMUST00000227198.1	2651	No protein	Retained intron	-	-	-
Ptger2-201	ENSMUST00000046891.5	3684	362aa	Protein coding	CCDS26972	Q543A9 Q62053	TSL:1 Gencode basic APPRIS P1

The strategy is based on the design of *Ptger2-201* transcript, the transcription is shown below:



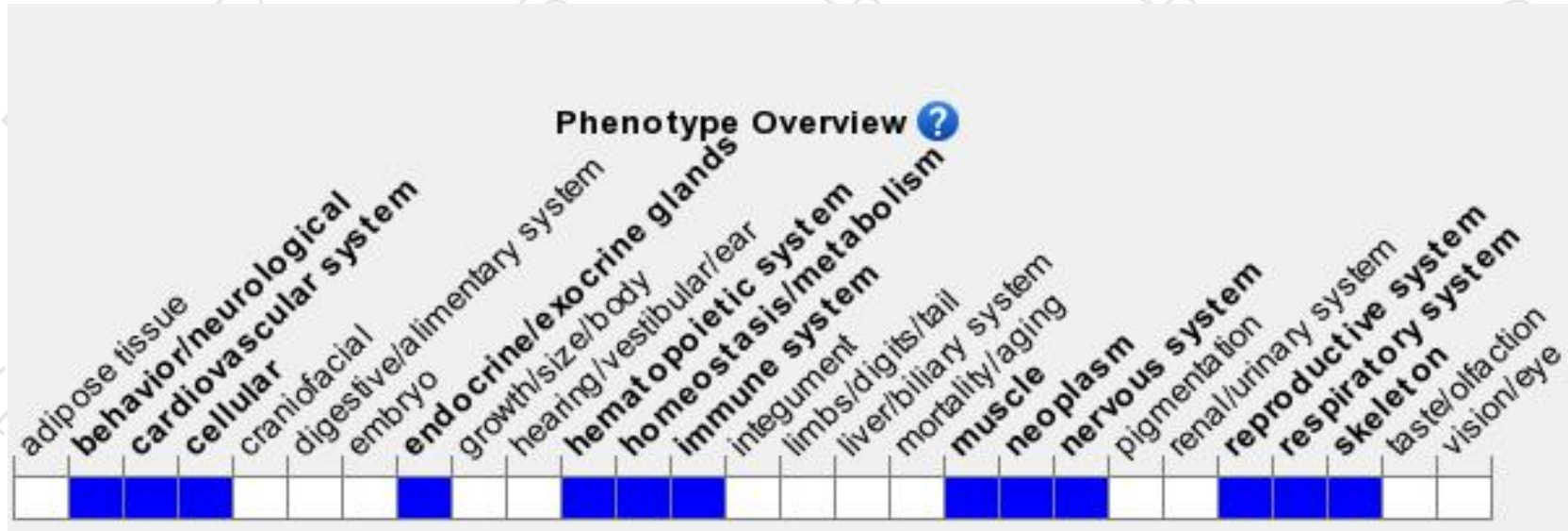
Genomic location distribution



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, Homozygotes for one targeted null mutation exhibit increased blood pressure when fed a high-salt diet. Female mutants for 2 null alleles have small litters due to impaired ovulation.

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

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