

Ptger3 Cas9-CKO Strategy

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Project Overview

Project Name

Ptger3

Project type

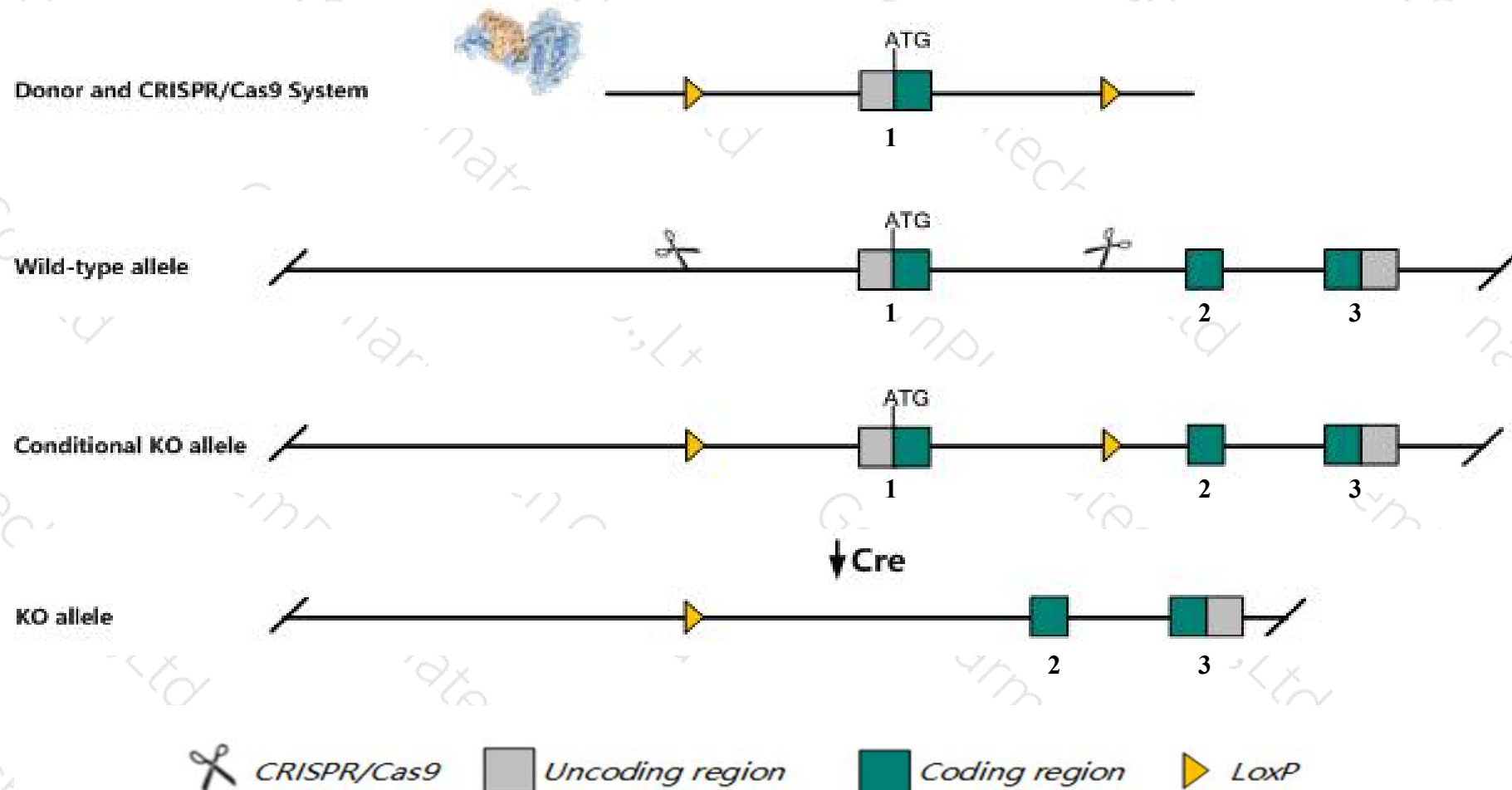
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ptger3* gene. The schematic diagram is as follows:



Technical routes

- The *Ptger3* gene has 3 transcripts. According to the structure of *Ptger3* gene, exon1 of *Ptger3-201* (ENSMUST00000041175.12) 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 *Ptger3* 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 targeted null mutations exhibit increased basal renal blood flow, decreased resting renal vascular resistance, impaired duodenal bicarbonate secretion and mucosal integrity, and impaired responses to endotoxin.
- The *Ptger3* gene is located on the Chr3. 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)

Ptger3 prostaglandin E receptor 3 (subtype EP3) [Mus musculus (house mouse)]

Gene ID: 19218, updated on 12-Feb-2019

Summary



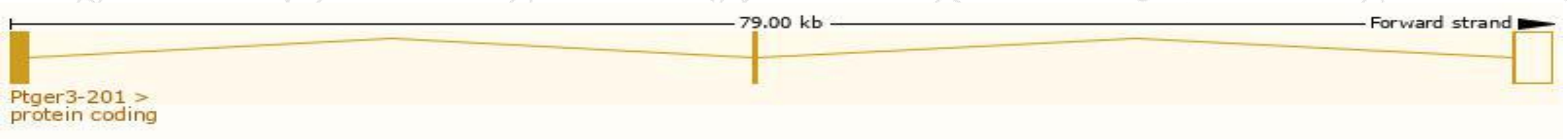
Official Symbol	Ptger3 provided by MGI
Official Full Name	prostaglandin E receptor 3 (subtype EP3) provided by MGI
Primary source	MGI:MGI:97795
See related	Ensembl:ENSMUSG00000040016
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	EP3, Pgerep3, Ptgerep3
Expression	Biased expression in mammary gland adult (RPKM 43.5), adrenal adult (RPKM 43.0) and 11 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

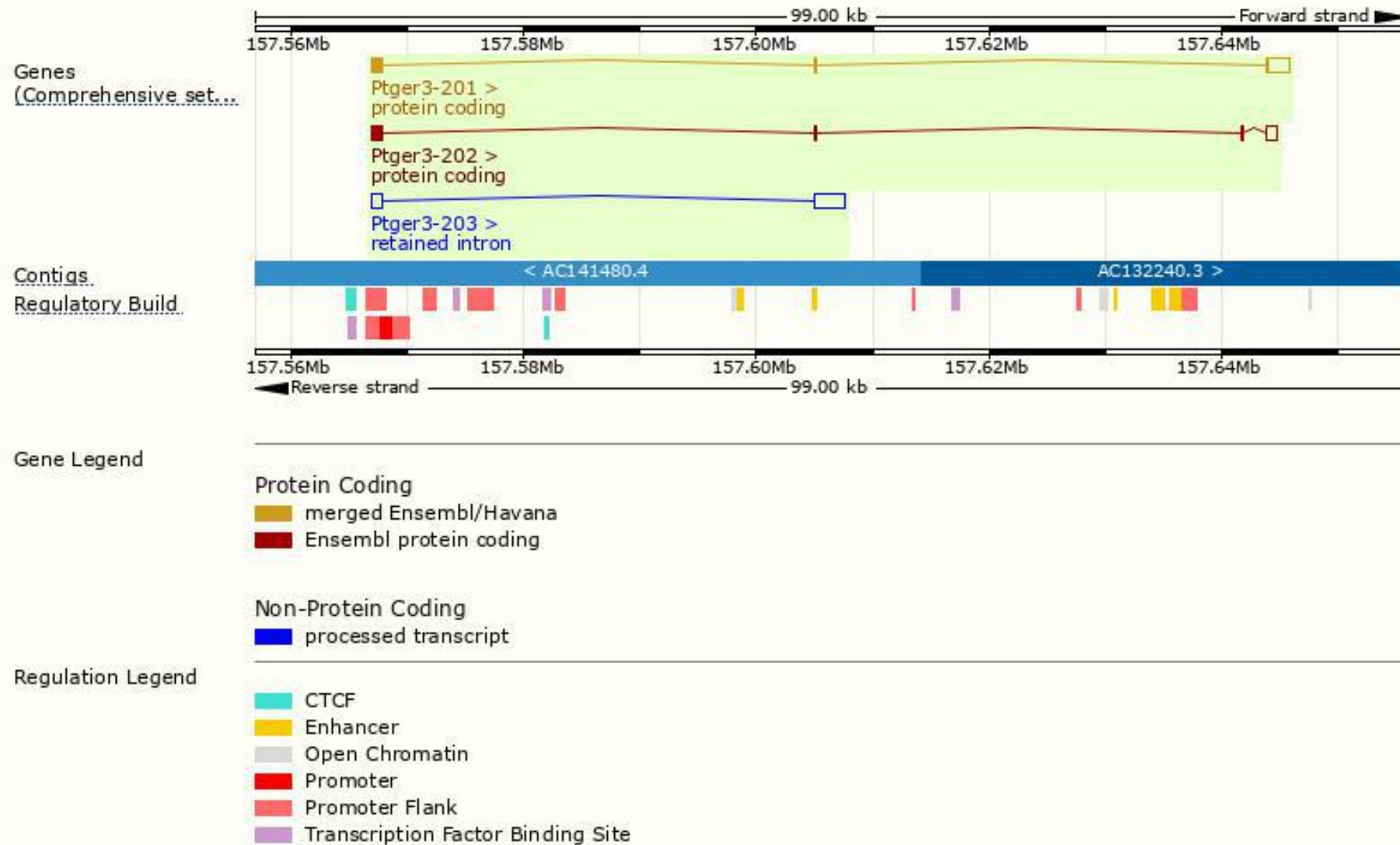
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptger3-201	ENSMUST00000041175.12	3148	362aa	Protein coding	CCDS17932	Q6PDF2	TSL:1 GENCODE basic APPRIS P2
Ptger3-202	ENSMUST00000173533.1	2097	366aa	Protein coding	-	G3UYL9	TSL:1 GENCODE basic APPRIS ALT2
Ptger3-203	ENSMUST00000196682.1	3577	No protein	Retained intron	-	-	TSL:1

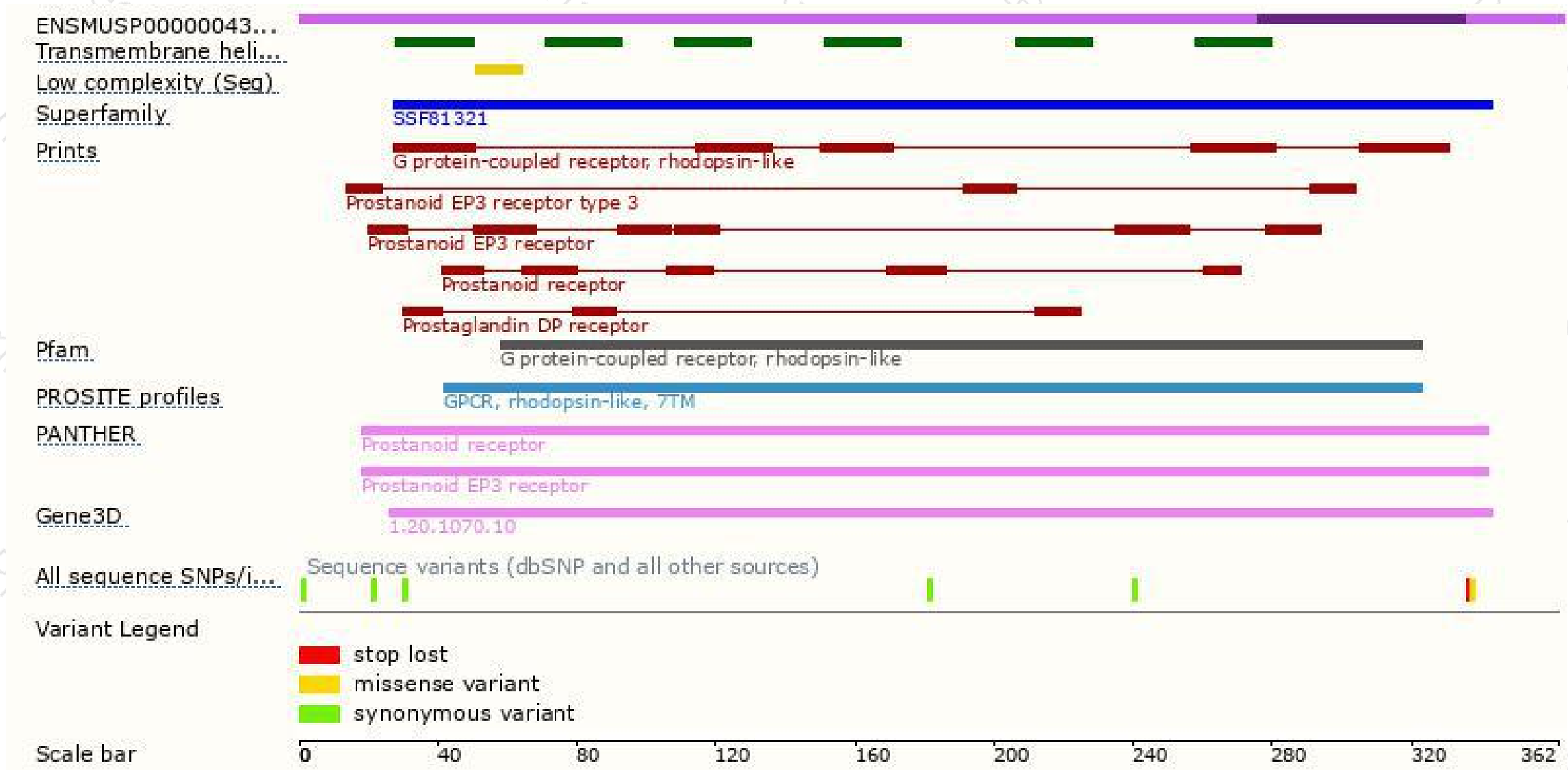
The strategy is based on the design of *Ptger3-201* transcript,The transcription is shown below



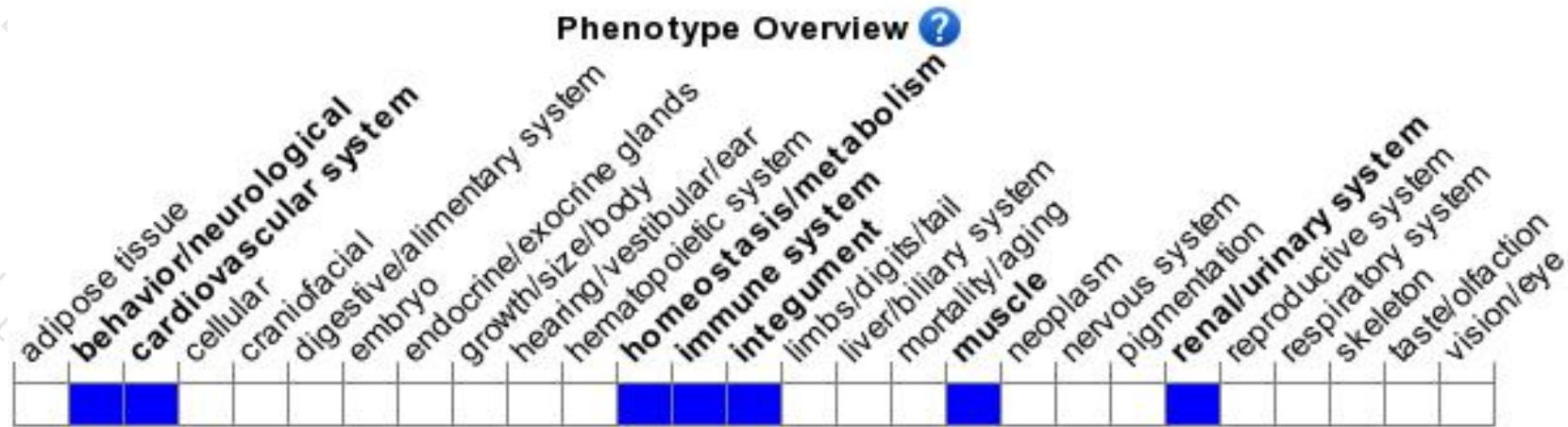
Genomic location distribution



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 targeted null mutations exhibit increased basal renal blood flow, decreased resting renal vascular resistance, impaired duodenal bicarbonate secretion and mucosal integrity, and impaired responses to endotoxin.

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

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