

Ptgfr Cas9-CKO Strategy

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Project Overview

Project Name

Ptgfr

Project type

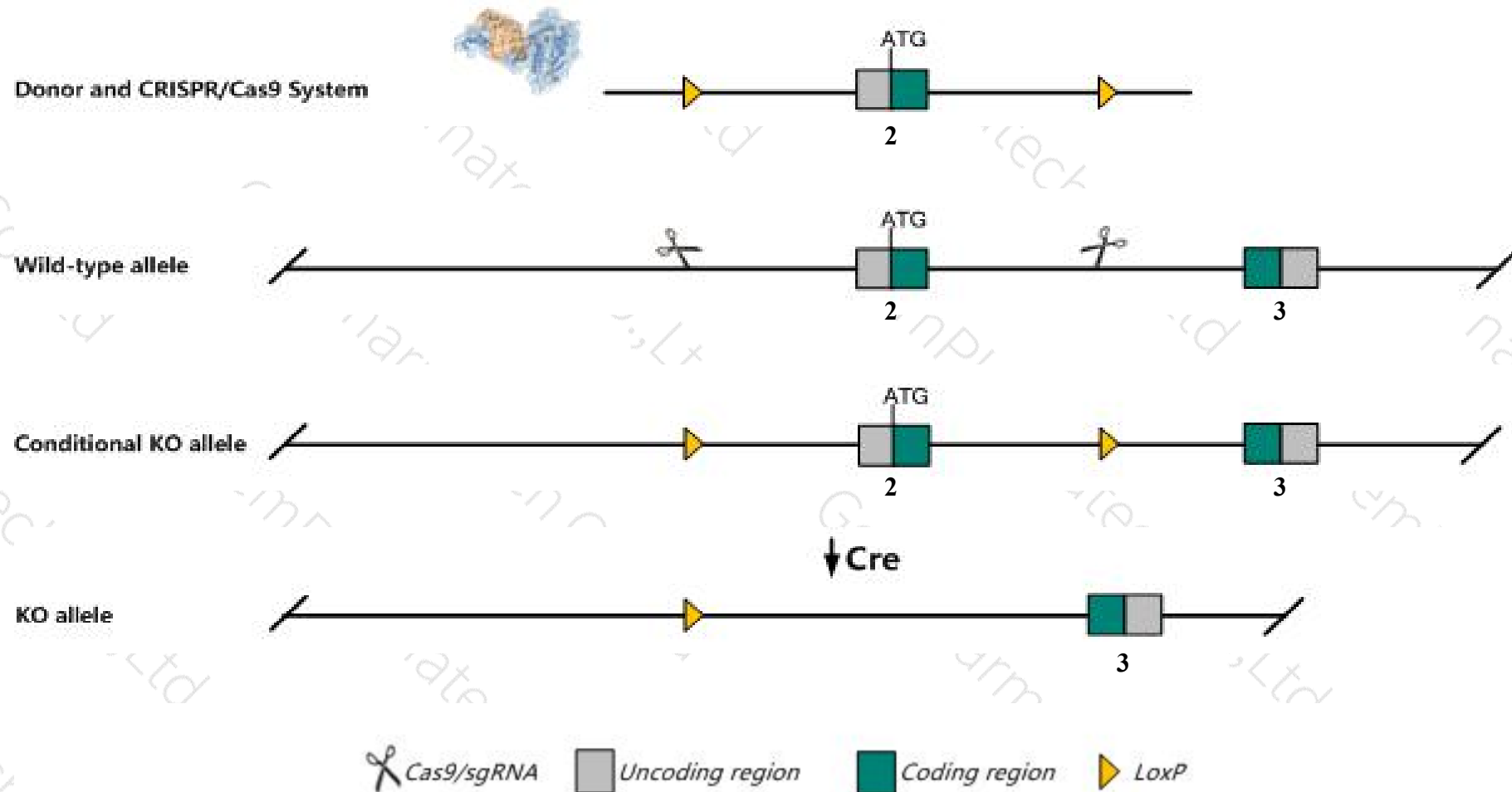
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Ptgfr* gene has 3 transcripts. According to the structure of *Ptgfr* gene, exon2 of *Ptgfr-201* (ENSMUST00000029670.6) 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 *Ptgfr* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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, Pregnant females homozygous for a targeted null mutation are unable to deliver their offspring due to lack of induction of the oxytocin receptor and fail to show the normal decline of serum progesterone levels preceding parturition.
- The floxed region is near to the N-terminal of *Gm43618* gene, this strategy may influence the regulatory function of the N-terminal of *Gm43618* gene.
- The *Ptgfr* 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)

Ptgfr prostaglandin F receptor [Mus musculus (house mouse)]

Gene ID: 19220, updated on 12-Feb-2019

Summary



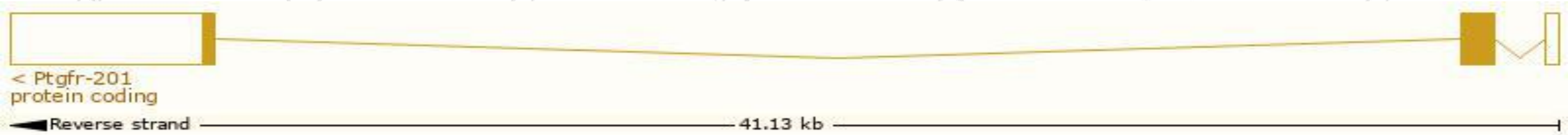
Official Symbol	Ptgfr provided by MGI
Official Full Name	prostaglandin F receptor provided by MGI
Primary source	MGI:MGI:97796
See related	Ensembl:ENSMUSG00000028036
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI957154, PGF, fp
Expression	Biased expression in ovary adult (RPKM 14.0), heart adult (RPKM 2.7) and 5 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

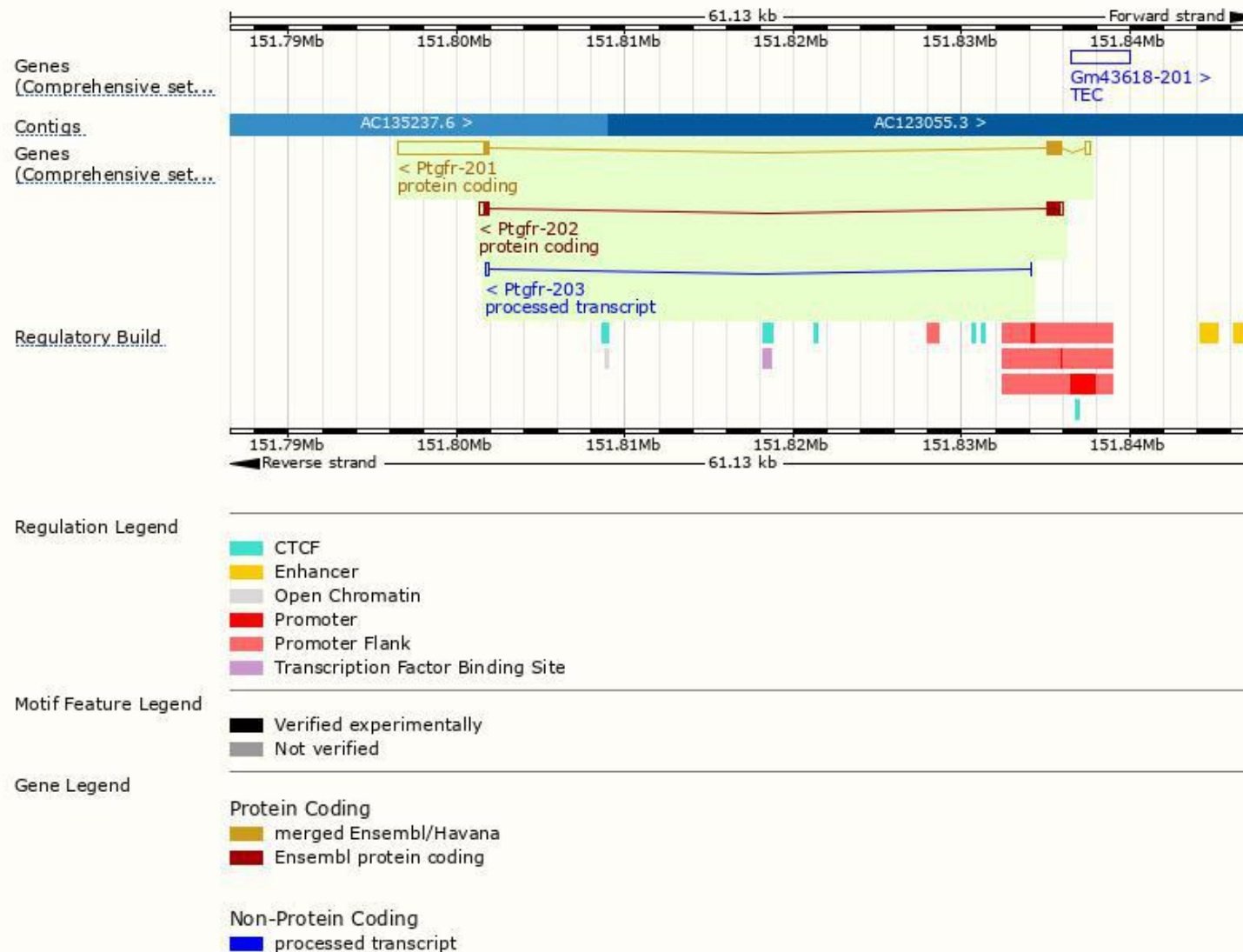
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptgfr-201	ENSMUST00000029670.6	6624	366aa	Protein coding	CCDS17913	P43117 Q60I90	TSL:1 GENCODE basic APPRIS P1
Ptgfr-202	ENSMUST00000106126.1	1535	366aa	Protein coding	CCDS17913	P43117 Q60I90	TSL:1 GENCODE basic APPRIS P1
Ptgfr-203	ENSMUST00000128349.1	279	No protein	Processed transcript	-	-	TSL:3

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



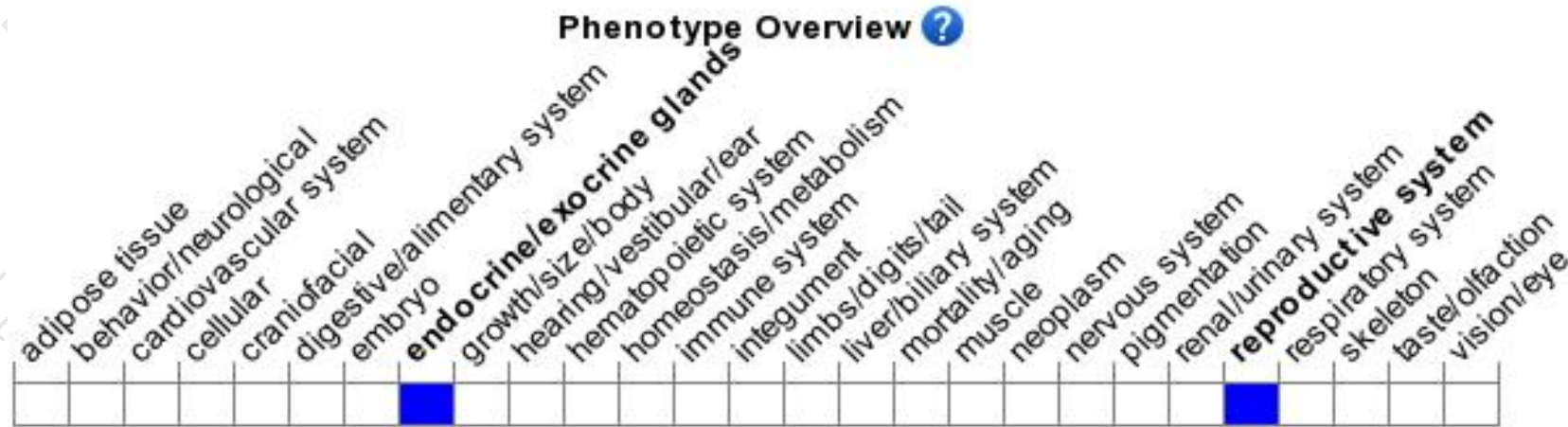
Genomic location distribution



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, Pregnant females homozygous for a targeted null mutation are unable to deliver their offspring due to lack of induction of the oxytocin receptor and fail to show the normal decline of serum progesterone levels preceding parturition.

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

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