Pacrg Cas9-CKO Strategy

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Project Overview

Project Name	***Pacrg***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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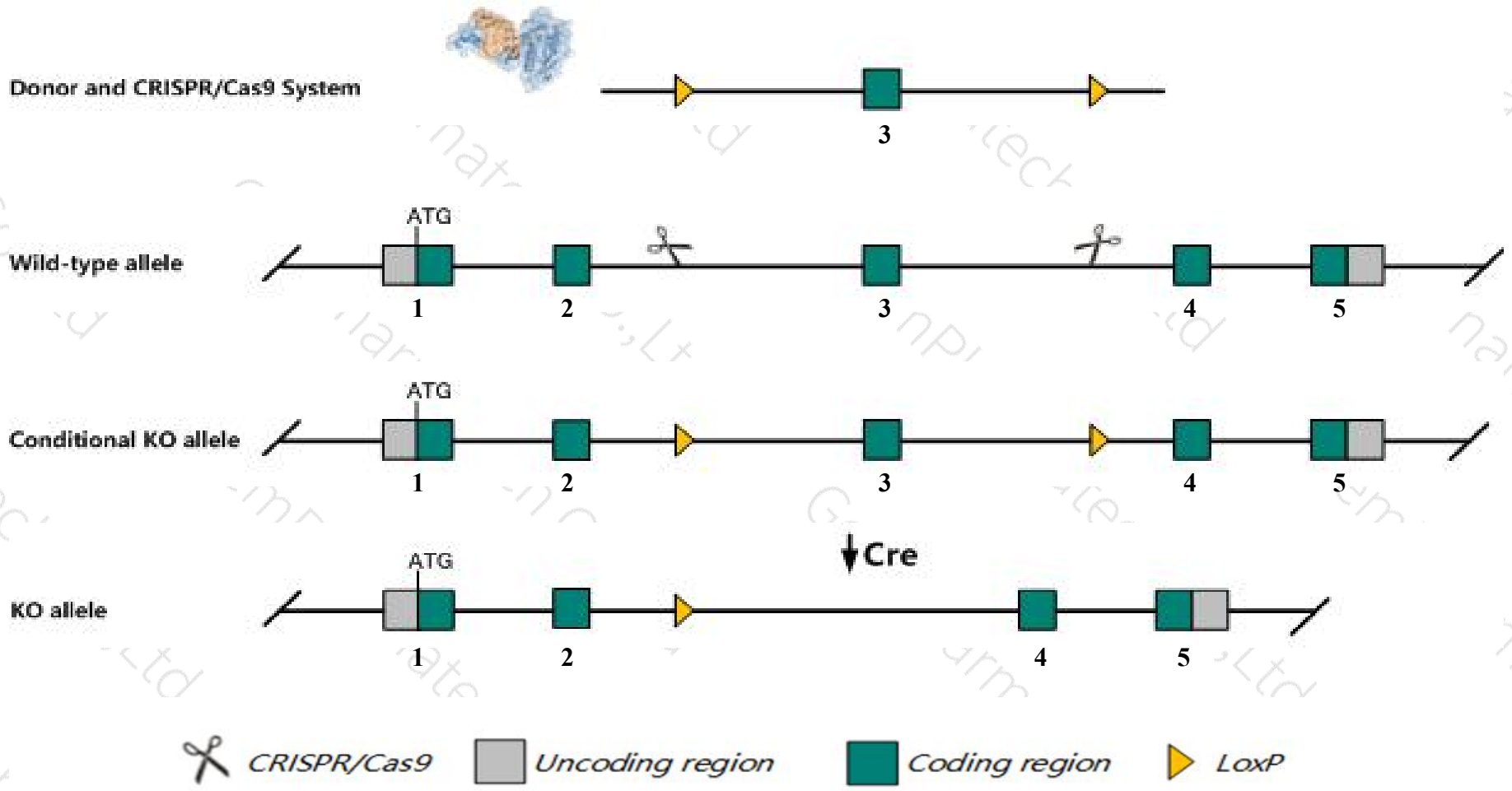
This model will use CRISPR/Cas9 technology to edit the *Pacrg* gene. The schematic diagram is as follows:



Technical routes

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- The *Pacrg* gene has 2 transcripts. According to the structure of *Pacrg* gene, exon3 of *Pacrg-201* (ENSMUST00000041463.6) transcript is recommended as the knockout region.The region contains 172bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Pacrg* 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.

Notice

- According to the existing MGI data,Along with altered levele of the Qki transcript, both Pacrg and Park2 are inactivated as a result of a 1.85 Mb deletion in the in the quaking mouse. The quaking mouse is a spontaneous dysmyelinating mutant that demonstrates abnormal locomotion, tremor, and tonic-clonic seizures.

- Some amino acids will remain at the N-terminus and some functions may be retained.

- The *Pacrg* gene is located on the Chr17. 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）

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Pacrg PARK2 co-regulated [Mus musculus (house mouse)]

Gene ID: 69310, updated on 31-Jan-2019

Summary

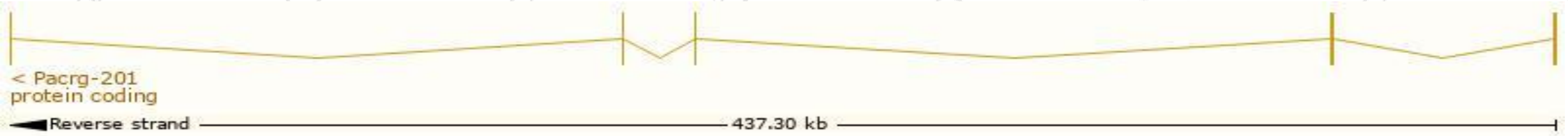
Official Symbol	Pacrg provided by MGI
Official Full Name	PARK2 co-regulated provided byMGI
Primary source	MGI:MGI:1916560
See related	Ensembl:ENSMUSG00000037196
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700008H23Rik
Expression	Biased expression in testis adult (RPKM 92.0) and frontal lobe adult (RPKM 3.8)See more
Orthologs	human all

Transcript information（Ensembl）

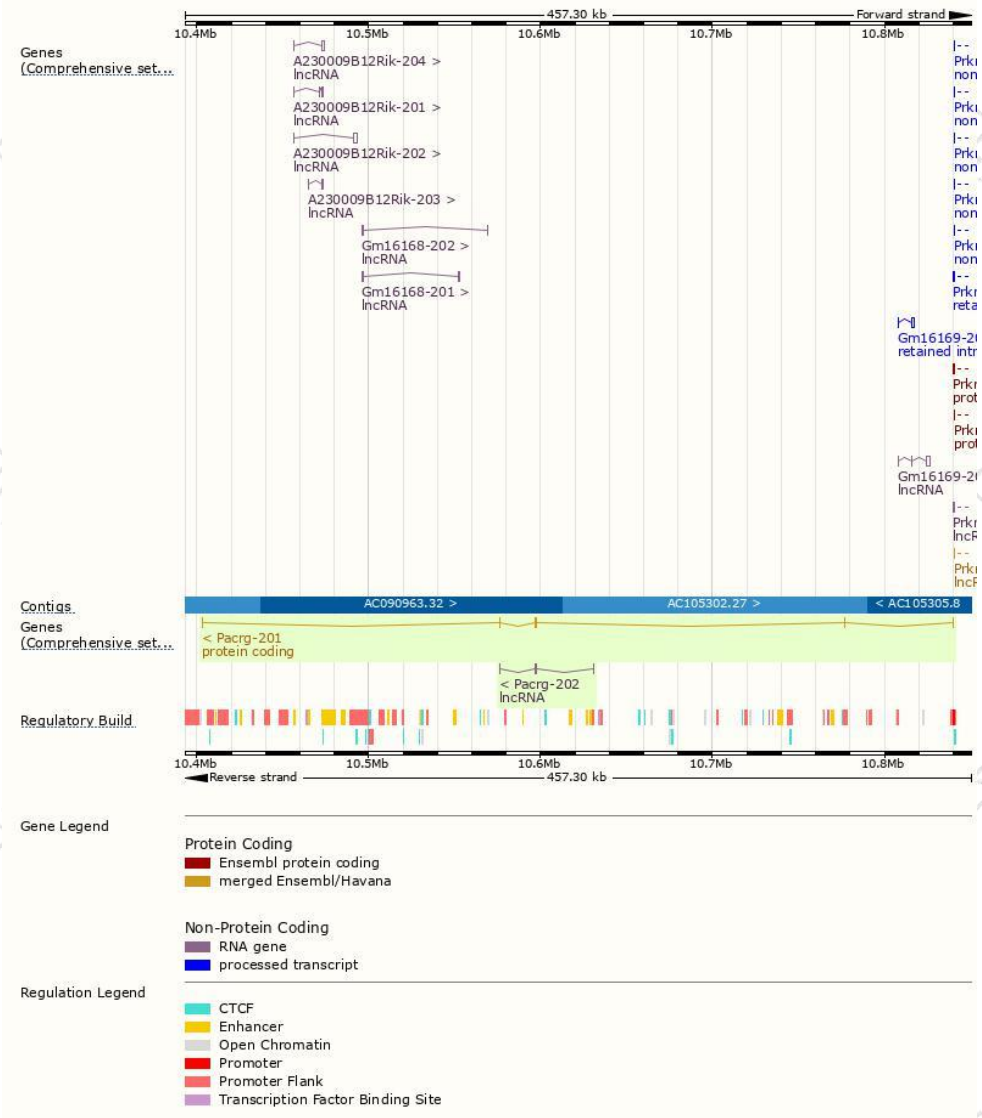
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pacrg-201	ENSMUST00000041463.6	1475	241aa	Protein coding	CCDS28388	Q0VB91 Q9DAK2	TSL:1 GENCODE basic APPRIS P1
Pacrg-202	ENSMUST00000160599.1	406	No protein	Processed transcript	-	-	TSL:2

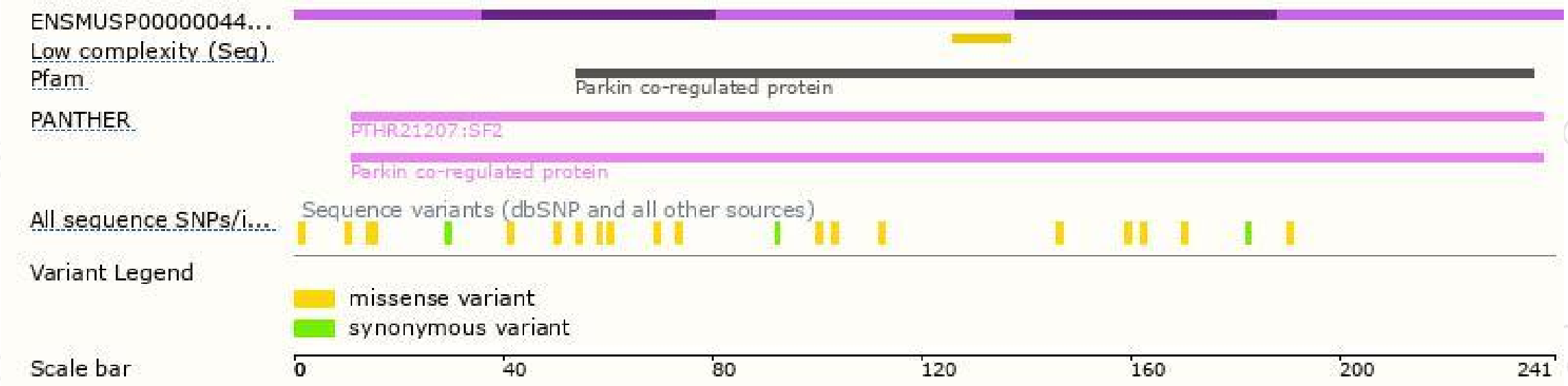
The strategy is based on the design of *Pacrg-201* transcript,The transcription is shown below



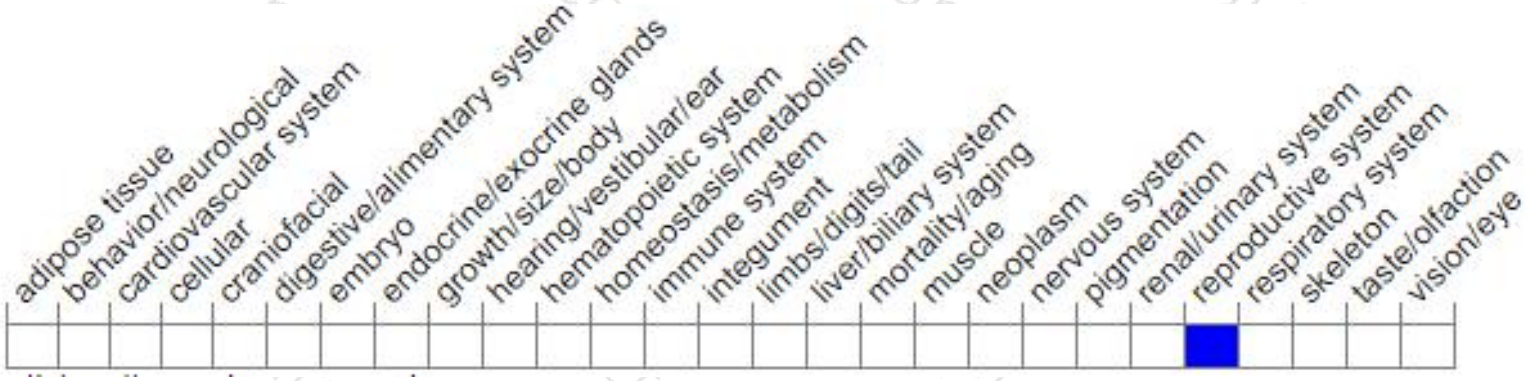
Genomic location distribution



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/).

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