P2rx5 Cas9-CKO Strategy

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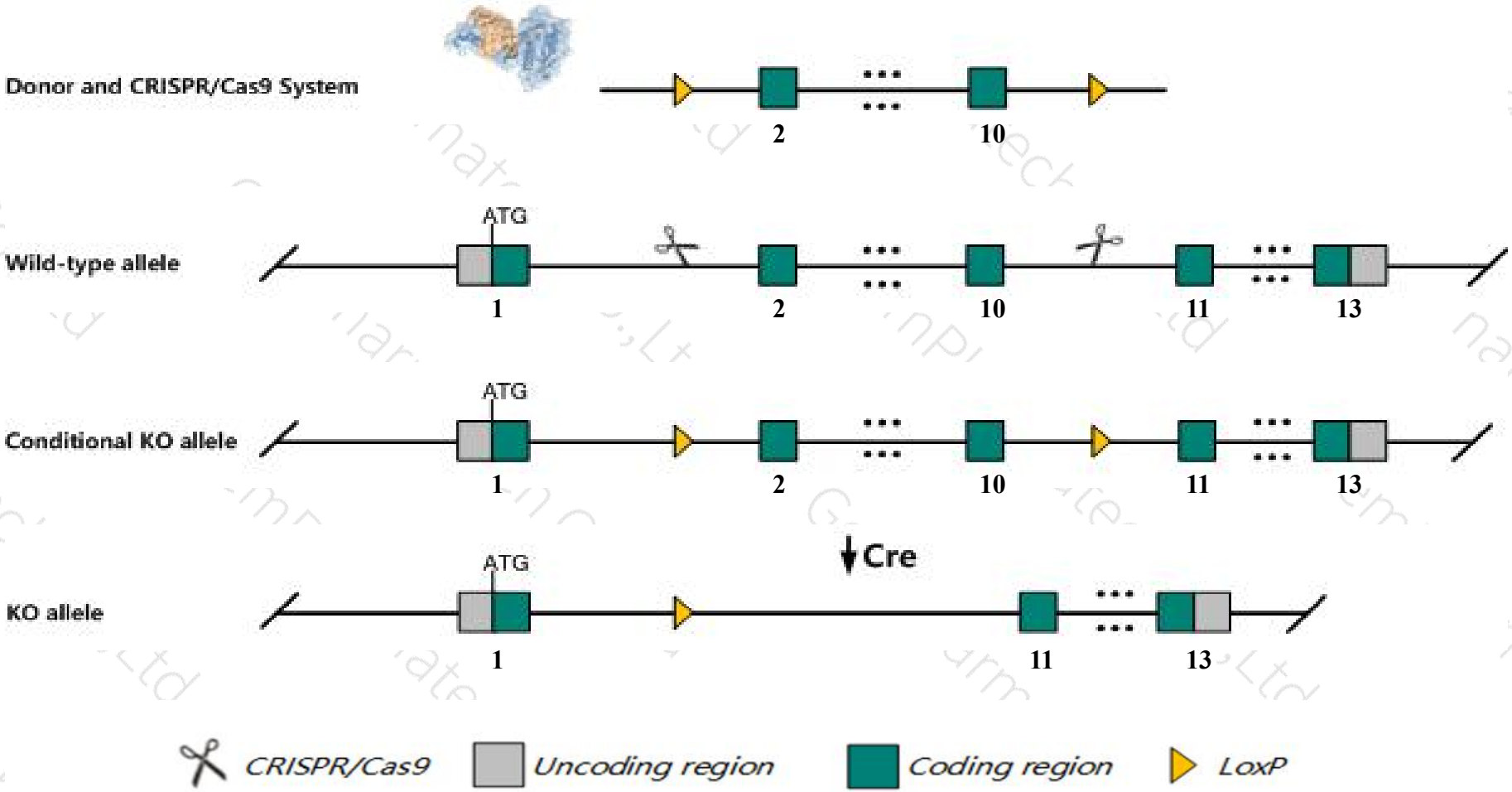
Project Overview

Project Name	***P2rx5***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *P2rx5* gene. The schematic diagram is as follows:



Technical routes

- The *P2rx5* gene has 3 transcripts. According to the structure of *P2rx5* gene, exon2-exon10 of *P2rx5-201* (ENSMUST00000006104.9) transcript is recommended as the knockout region.The region contains 910bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *P2rx5* 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,Homozygous mutant mice exhibit decreased peripheral blood CD8+ lymphocytes and elevated NK cells. Impaired learning/memory during trace aversive conditioning and increased exploratory behavior during open field testing is also seen.

- The *P2rx5* 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）

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P2rx5 purinergic receptor P2X, ligand-gated ion channel, 5 [Mus musculus (house mouse)]

Gene ID: 94045, updated on 31-Jan-2019

Summary

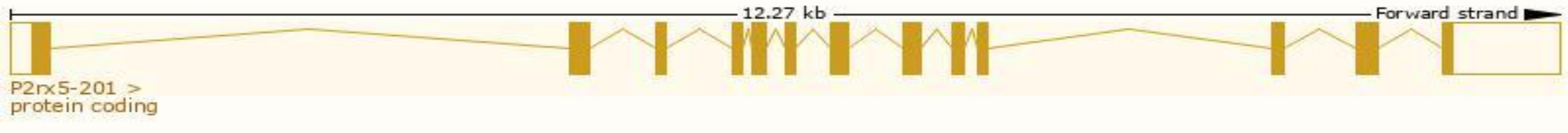
Official Symbol	P2rx5 provided by MGI
Official Full Name	purinergic receptor P2X, ligand-gated ion channel, 5 provided by MGI
Primary source	MGI:MGI:2137026
See related	Ensembl:ENSMUSG00000005950
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	P2X5
Expression	Broad expression in heart adult (RPKM 2.0), mammary gland adult (RPKM 2.0) and 21 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

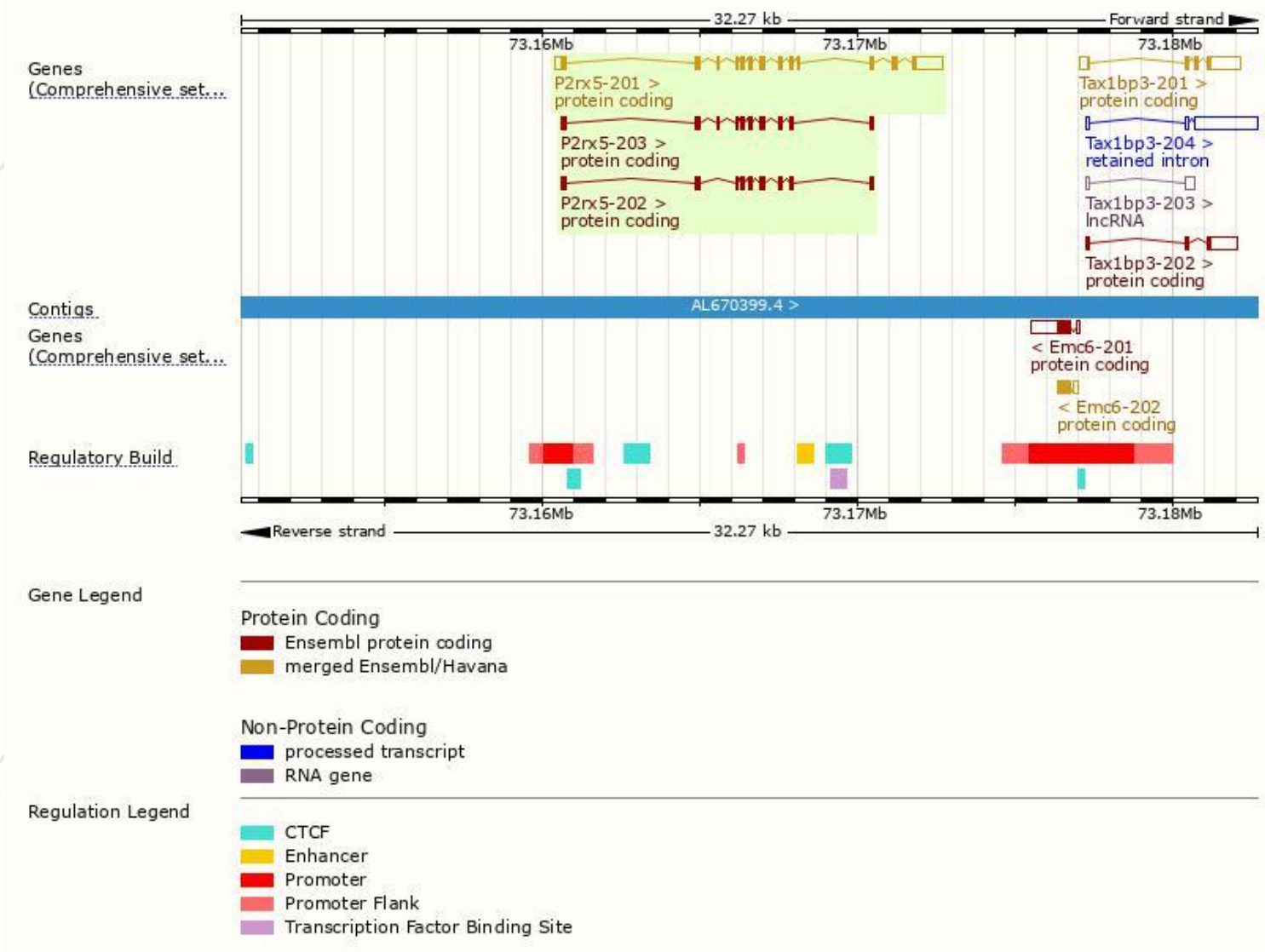
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
P2rx5-201	ENSMUST00000006104.9	2395	455aa	Protein coding	CCDS24998	Q3UYI1	TSL:1 GENCODE basic APPRIS P1
P2rx5-203	ENSMUST00000136894.2	1076	354aa	Protein coding	-	B1AUD7	CDS 3' incomplete TSL:5
P2rx5-202	ENSMUST00000135202.7	1004	330aa	Protein coding	-	B1AUD6	CDS 3' incomplete TSL:5

The strategy is based on the design of *P2rx5-201* transcript,The transcription is shown below

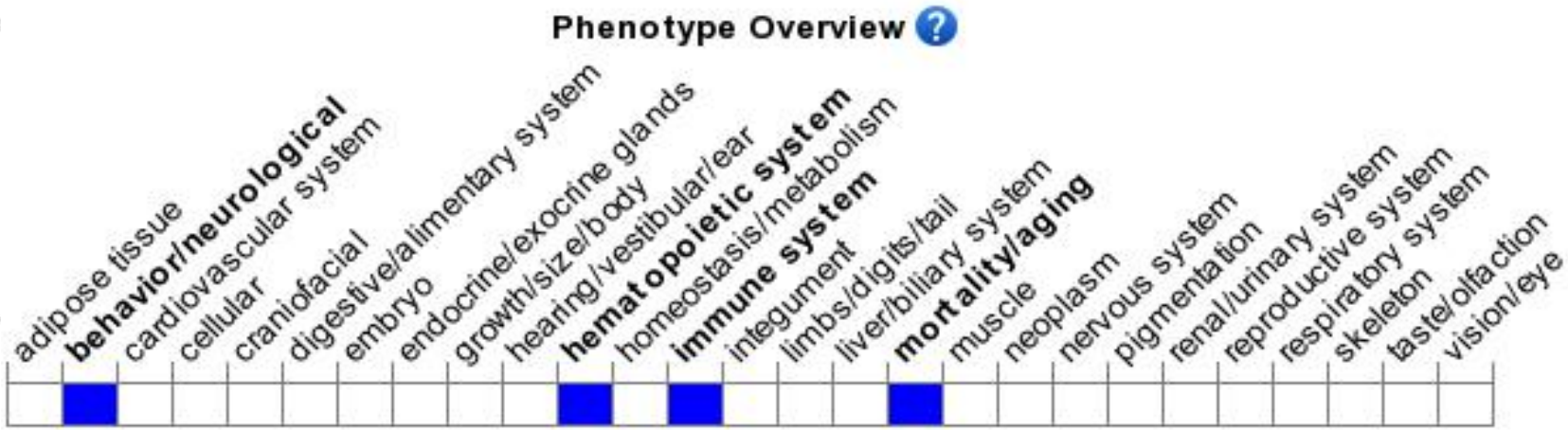


Genomic location distribution



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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