Fcgr1 Cas9-CKO Strategy

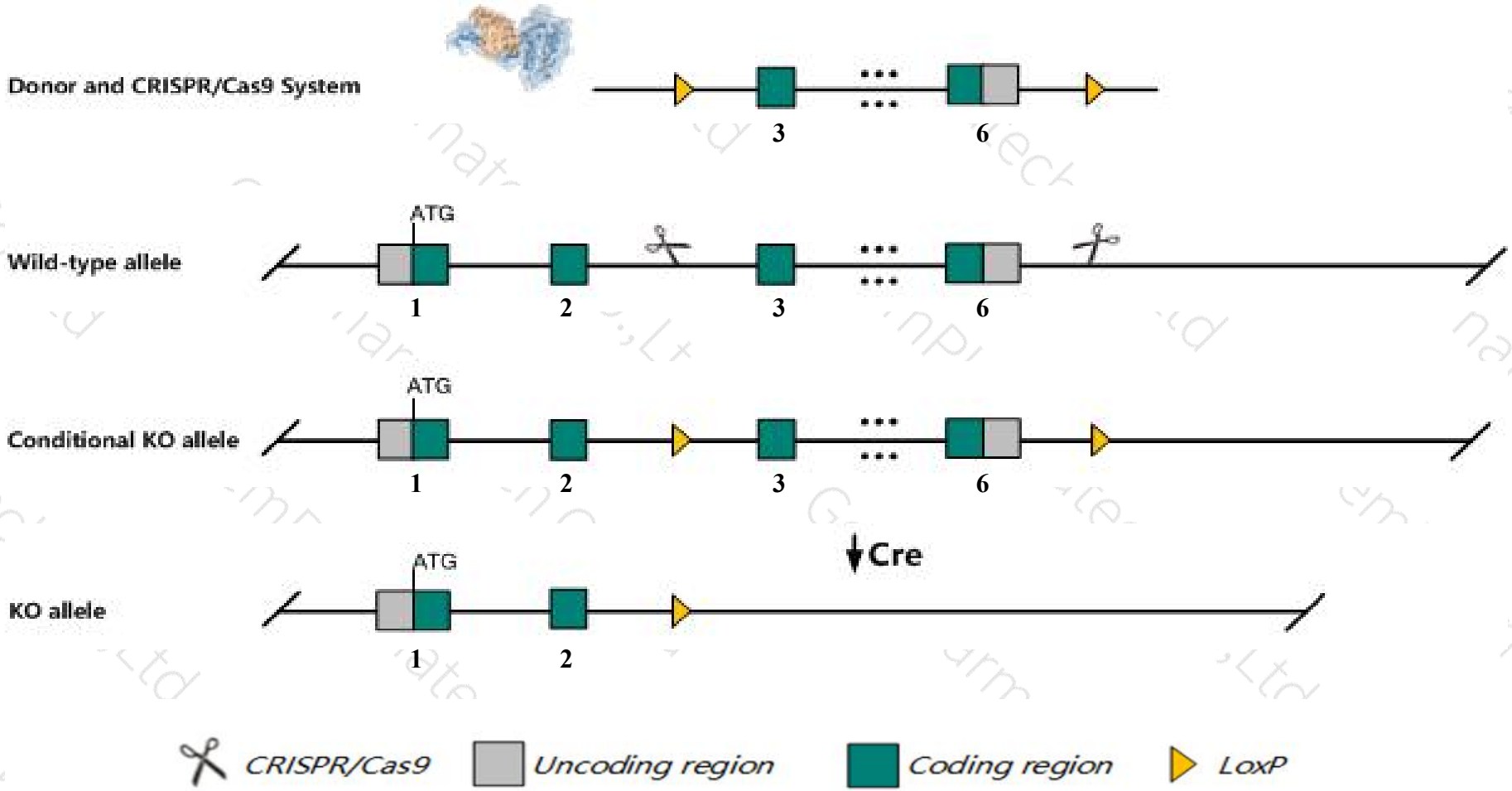
Designer:Xueting Zhang

Project Overview

Project Name	***Fcgr1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fcgr1* gene. The schematic diagram is as follows:



Technical routes

- The *Fcgr1* gene has 2 transcripts. According to the structure of *Fcgr1* gene, exon3-exon6 of *Fcgr1-201* (ENSMUST00000029748.7) transcript is recommended as the knockout region.The region contains 1136bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Fcgr1* 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 mutation of this gene results immune response defects including a decreased inflammatory response.

- The *Fcgr1* 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）

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Fcgr1 Fc receptor, IgG, high affinity I [Mus musculus (house mouse)]

Gene ID: 14129, updated on 5-Mar-2019

Summary

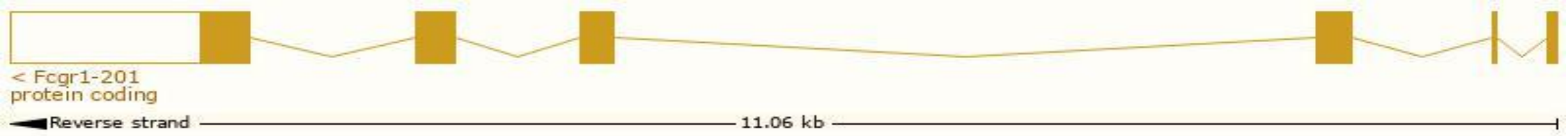
Official Symbol	Fcgr1 provided by MGI
Official Full Name	Fc receptor, IgG, high affinity I provided byMGI
Primary source	MGI:MGI:95498
See related	Ensembl:ENSMUSG00000015947
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI323638, AV092959, CD64, FcgammaRI, IGGHAFC
Expression	Ubiquitous expression in liver E18 (RPKM 4.7), liver E14 (RPKM 2.0) and 25 other tissuesSee more

Transcript information（Ensembl）

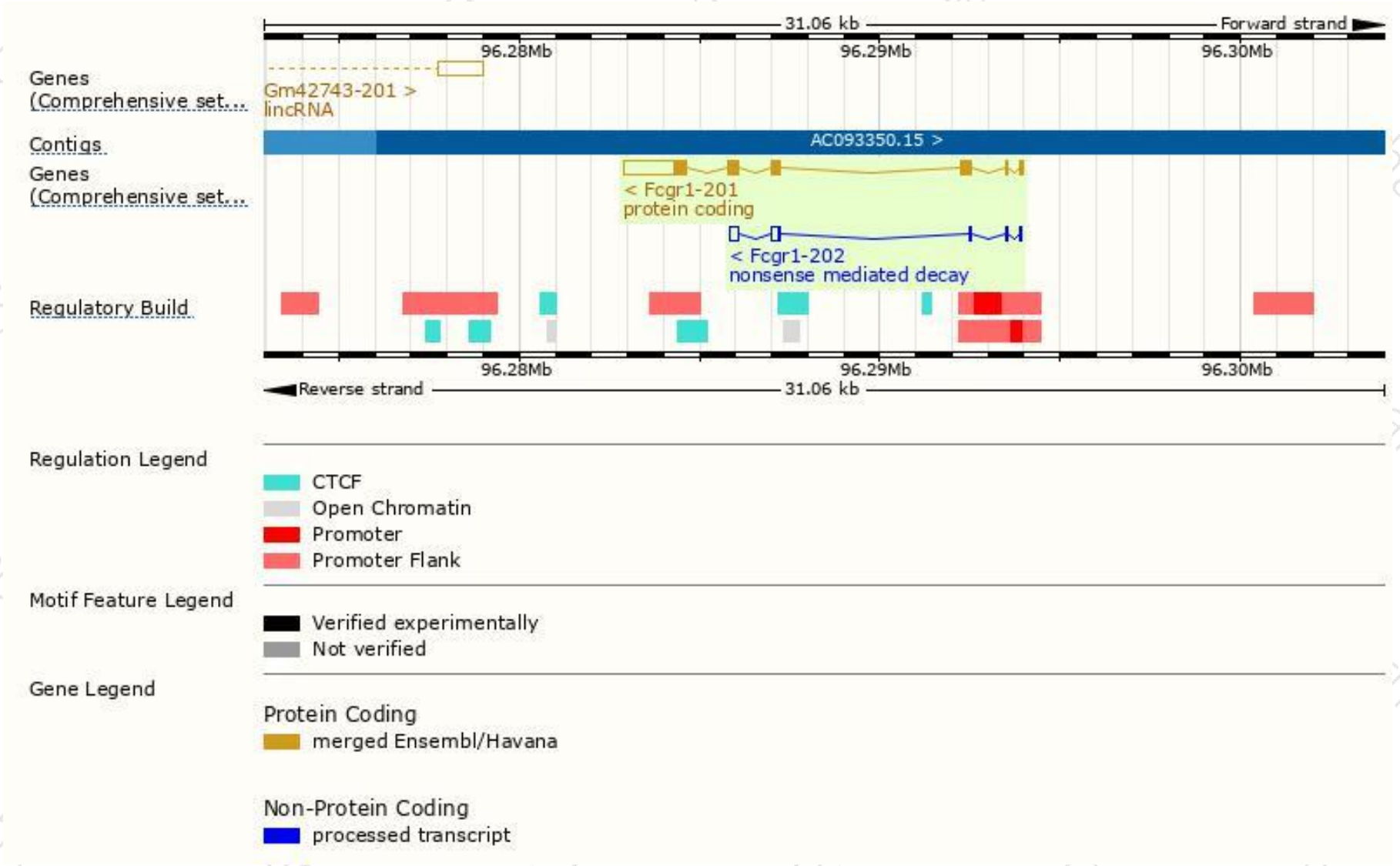
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fcgr1-201	ENSMUST00000029748.7	2589	404aa	Protein coding	CCDS17639	P26151	TSL:1 GENCODE basic APPRIS P1
Fcgr1-202	ENSMUST00000200420.1	600	50aa	Nonsense mediated decay	-	A0A0G2JE74	CDS 5' incomplete TSL:3

The strategy is based on the design of *Fcgr1-201* transcript,The transcription is shown below

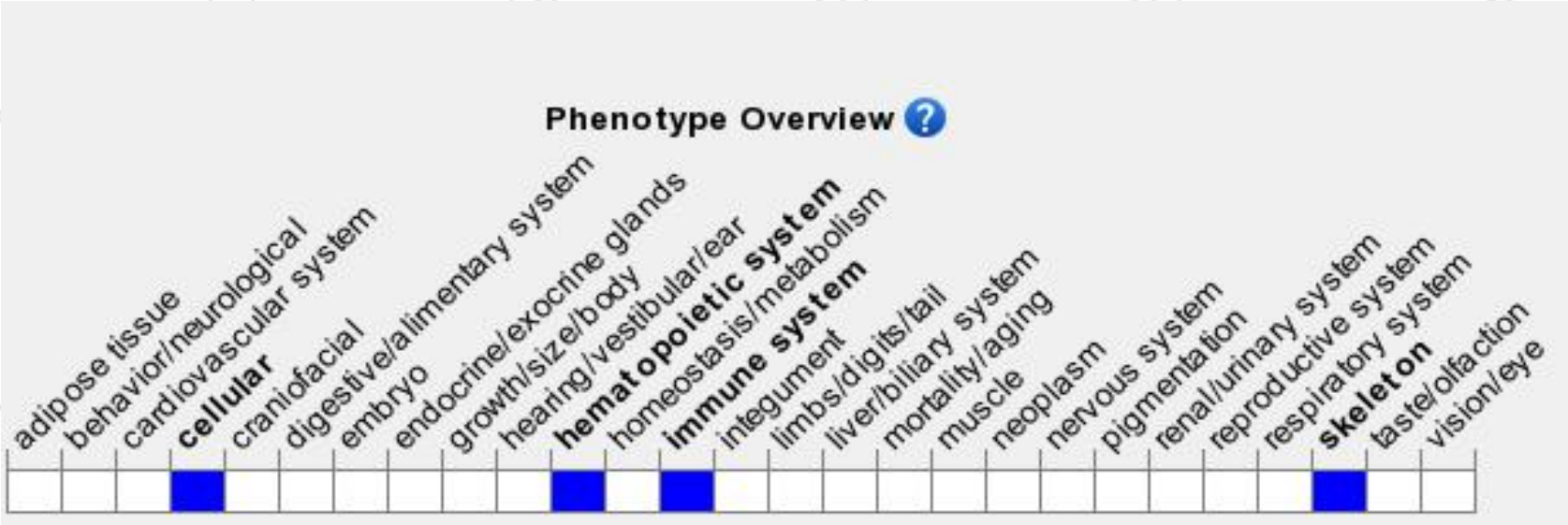


Genomic location distribution



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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GemPharmatech

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

Tel: 400-9660890

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GemPharmatech Co.,Ltd