

Iqgap3 Cas9-CKO Strategy

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Project Overview

Project Name

Iqgap3

Project type

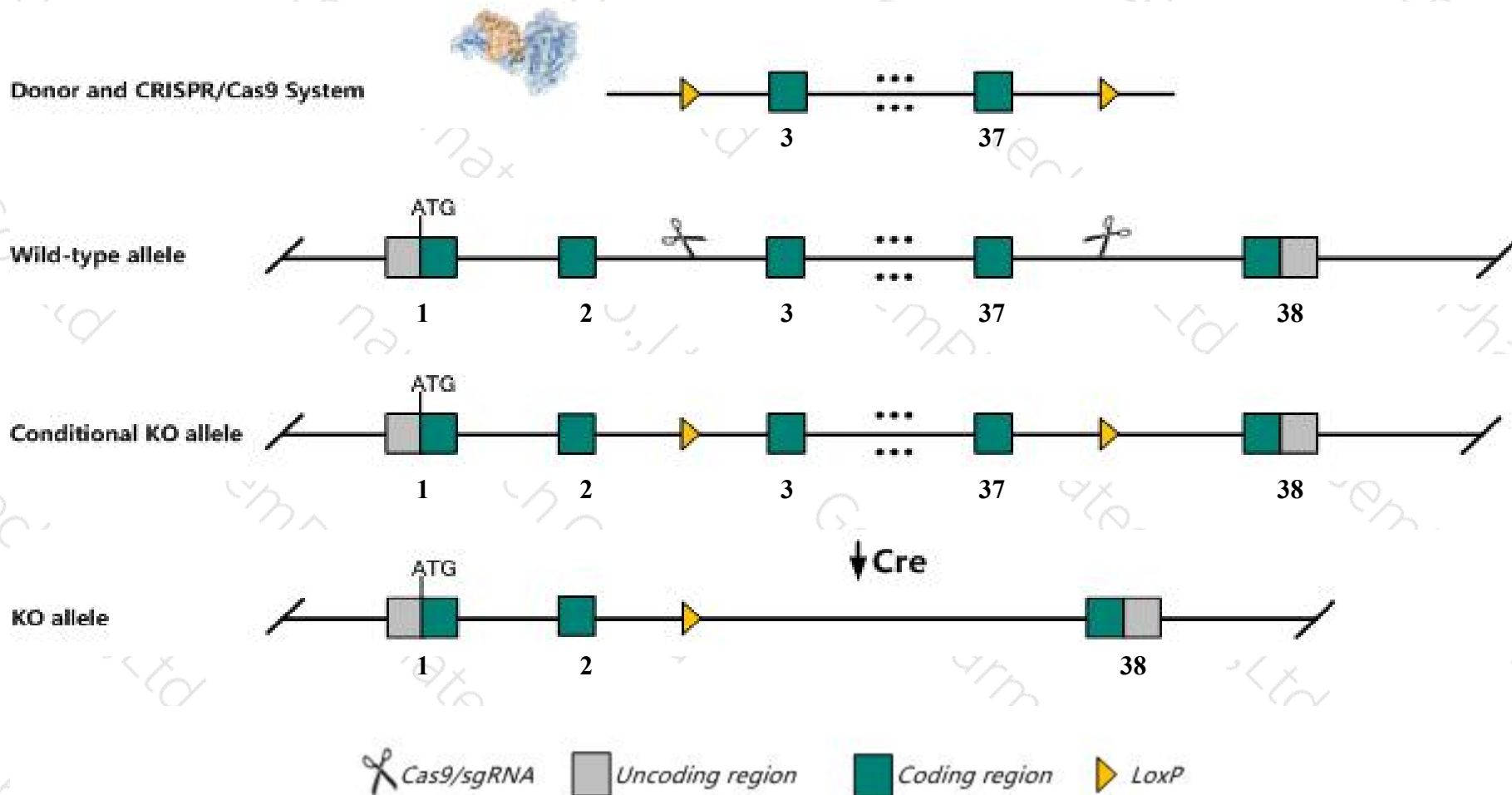
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Iqgap3* gene. The schematic diagram is as follows:



Technical routes

- The *Iqgap3* gene has 6 transcripts. According to the structure of *Iqgap3* gene, exon3-exon37 of *Iqgap3*-201(ENSMUST00000071812.10) transcript is recommended as the knockout region. The region contains 4660bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Iqgap3* 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.

- The *Iqgap3* 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)

Iqgap3 IQ motif containing GTPase activating protein 3 [Mus musculus (house mouse)]

Gene ID: 404710, updated on 13-Mar-2020

Summary



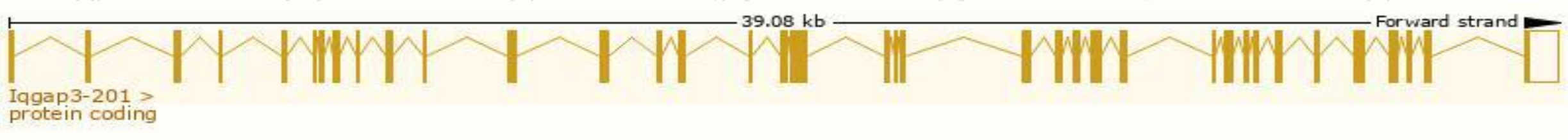
Official Symbol	Iqgap3 provided by MGI
Official Full Name	IQ motif containing GTPase activating protein 3 provided by MGI
Primary source	MGI:MGI:3028642
See related	Ensembl:ENSMUSG00000028068
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI593484, D030034H08
Expression	Broad expression in limb E14.5 (RPKM 10.4), CNS E11.5 (RPKM 6.6) and 22 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

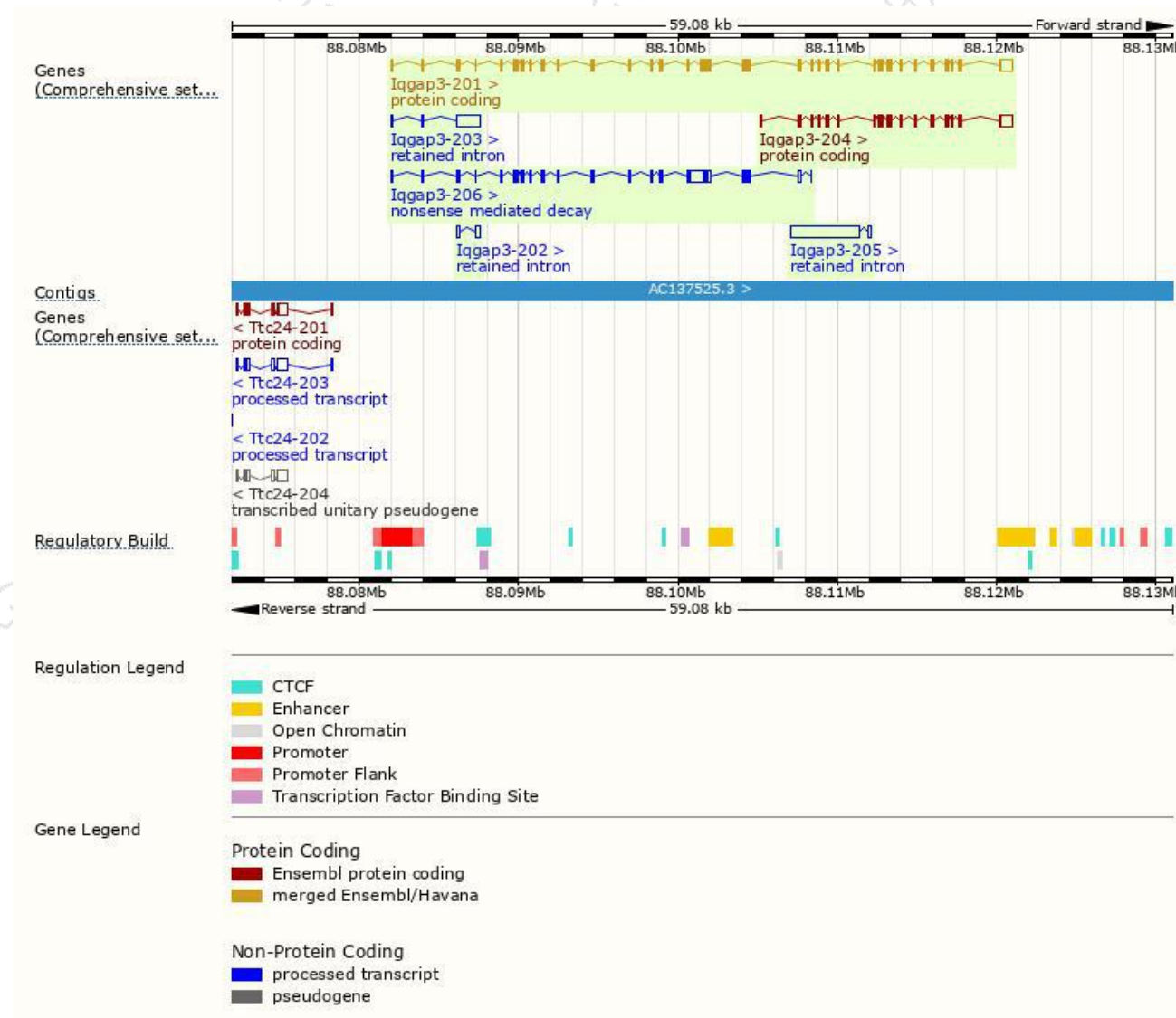
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Iqgap3-201	ENSMUST00000071812.10	5756	1632aa	Protein coding	CCDS38478	F8VQ29	TSL:1 GENCODE basic APPRIS P1
Iqgap3-204	ENSMUST00000194440.1	3263	734aa	Protein coding	-	Q3UQP1	TSL:1 GENCODE basic
Iqgap3-206	ENSMUST00000195465.1	3511	626aa	Nonsense mediated decay	-	A0A0A6YXJ2	TSL:1
Iqgap3-205	ENSMUST00000194772.1	4512	No protein	Retained intron	-	-	TSL:3
Iqgap3-203	ENSMUST00000193940.1	1564	No protein	Retained intron	-	-	TSL:1
Iqgap3-202	ENSMUST00000193861.1	425	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Iqgap3-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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