

***Atf7ip* Cas9-CKO Strategy**

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Project Overview

Project Name

Atf7ip

Project type

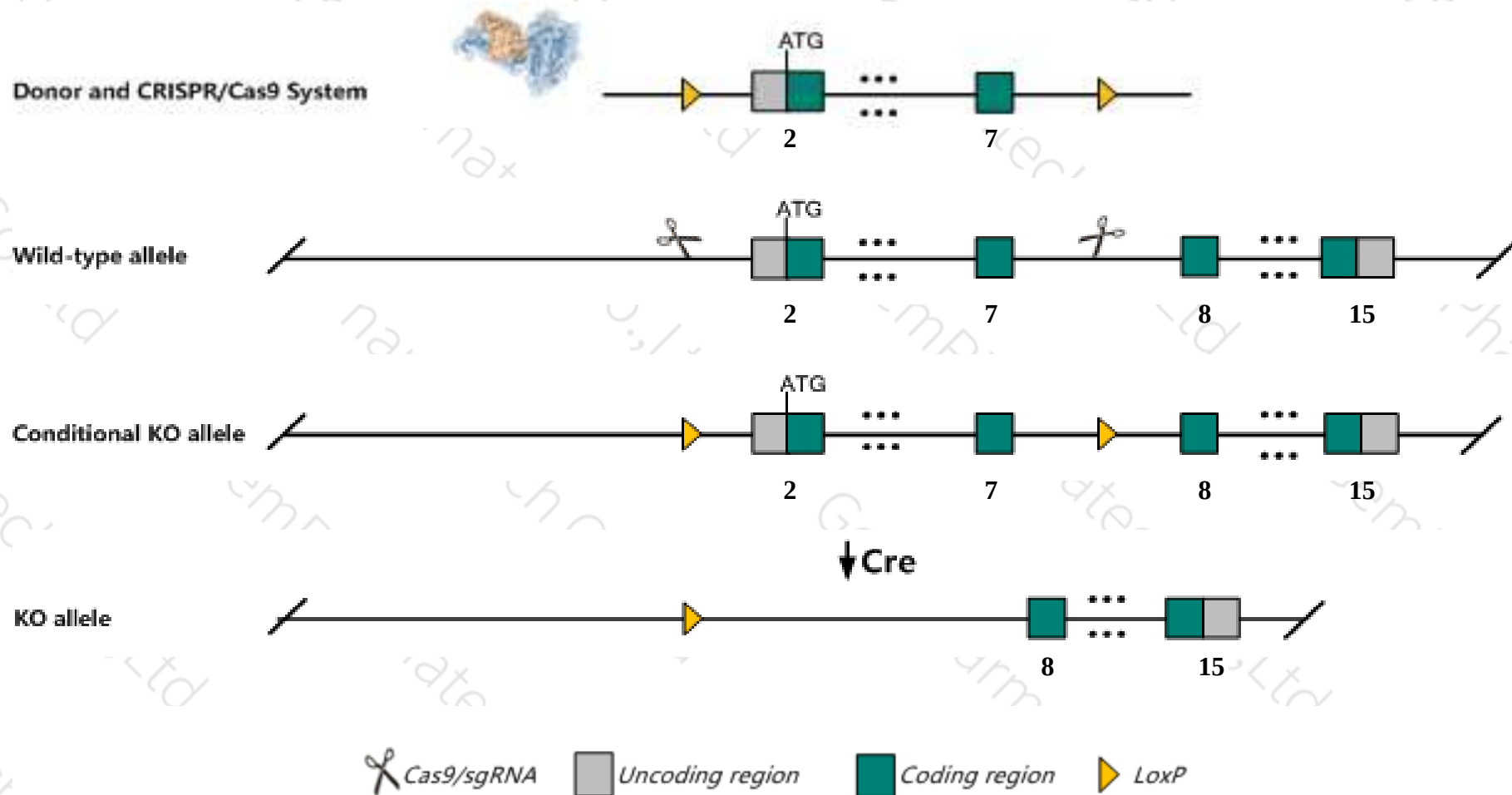
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Atf7ip* gene. The schematic diagram is as follows:



- The *Atf7ip* gene has 12 transcripts. According to the structure of *Atf7ip* gene, exon2-exon7 of *Atf7ip*-201(ENSMUST00000032335.12) 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 *Atf7ip* 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.

Notice

- The *Atf7ip* gene is located on the Chr6. 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)

Atf7ip activating transcription factor 7 interacting protein [Mus musculus (house mouse)]

Gene ID: 54343, updated on 13-Mar-2020

Summary



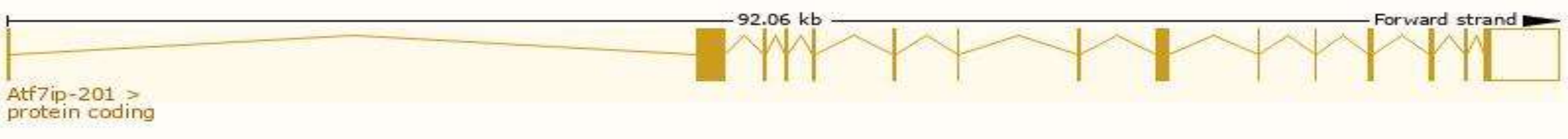
Official Symbol	Atf7ip provided by MGI
Official Full Name	activating transcription factor 7 interacting protein provided by MGI
Primary source	MGI:MGI:1858965
See related	Ensembl:ENSMUSG00000030213
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610204M12Rik, AM, Mcaf1
Expression	Ubiquitous expression in thymus adult (RPKM 11.1), whole brain E14.5 (RPKM 7.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

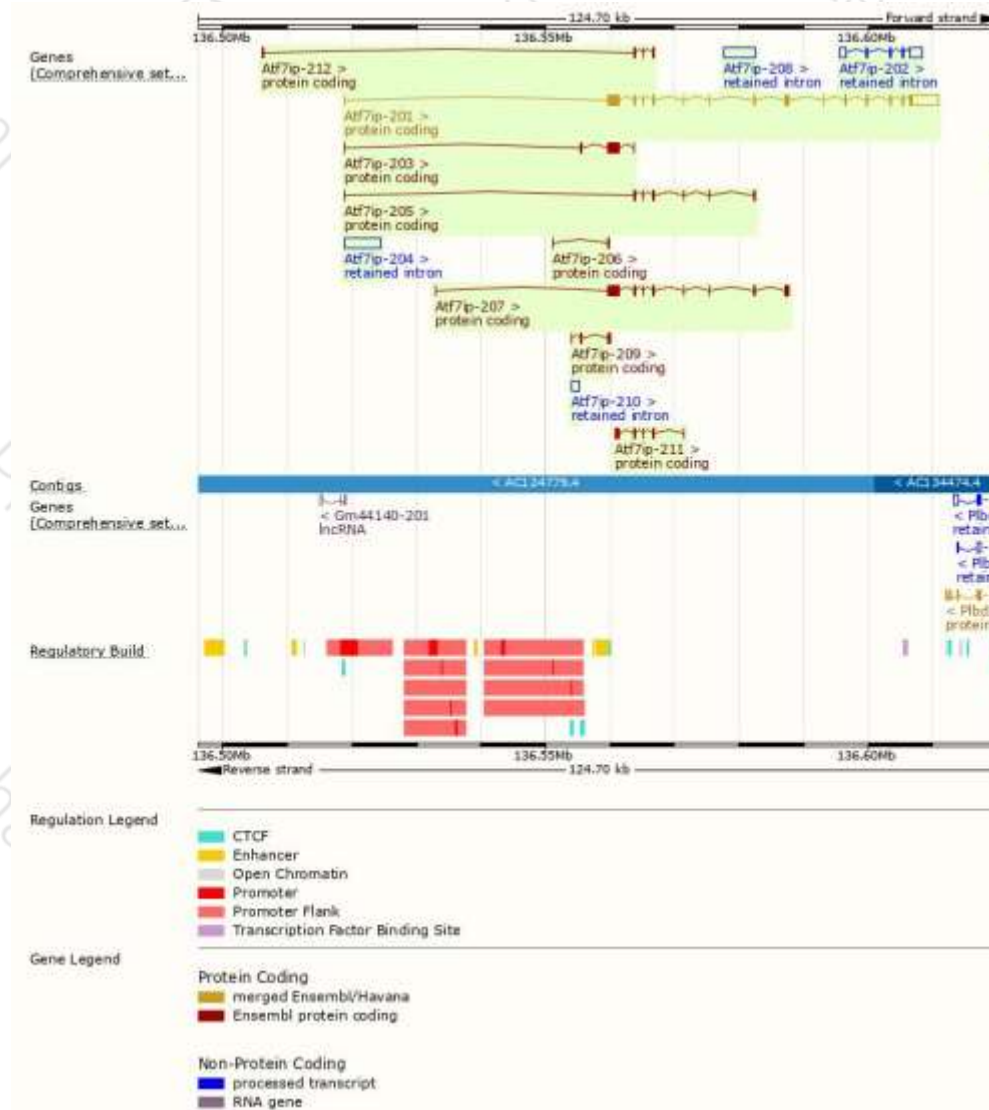
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Atf7ip-201	ENSMUST00000032335.12	8059	1306aa	Protein coding	CCDS20651	Q7TT18	TSL:1 GENCODE basic APPRIS P1
Atf7ip-207	ENSMUST00000187429.3	3018	969aa	Protein coding	-	A0A087WR75	CDS 3' incomplete TSL:5
Atf7ip-203	ENSMUST00000185724.6	1967	559aa	Protein coding	-	A0A087WR39	CDS 3' incomplete TSL:5
Atf7ip-211	ENSMUST00000203178.2	1034	345aa	Protein coding	-	A0A0N4SVP5	CDS 5' and 3' incomplete TSL:3
Atf7ip-205	ENSMUST00000186577.6	712	157aa	Protein coding	-	A0A087WQB3	CDS 3' incomplete TSL:3
Atf7ip-209	ENSMUST00000189535.1	528	107aa	Protein coding	-	A0A087WNQ2	CDS 3' incomplete TSL:3
Atf7ip-212	ENSMUST00000203988.2	453	73aa	Protein coding	-	A0A0N4SVA8	CDS 3' incomplete TSL:3
Atf7ip-206	ENSMUST00000186742.1	177	46aa	Protein coding	-	A0A087WPT6	CDS 3' incomplete TSL:3
Atf7ip-204	ENSMUST00000185936.1	5552	No protein	Retained intron	-	-	TSL:NA
Atf7ip-208	ENSMUST00000188805.1	4833	No protein	Retained intron	-	-	TSL:NA
Atf7ip-202	ENSMUST00000185332.1	3226	No protein	Retained intron	-	-	TSL:3
Atf7ip-210	ENSMUST00000195743.1	1169	No protein	Retained intron	-	-	TSL:NA

The strategy is based on the design of *Atf7ip-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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