

Atg10 Cas9-CKO Strategy

Designer: Xueting Zhang

Design Date: 2019-8-1

Project Overview

Project Name

Atg10

Project type

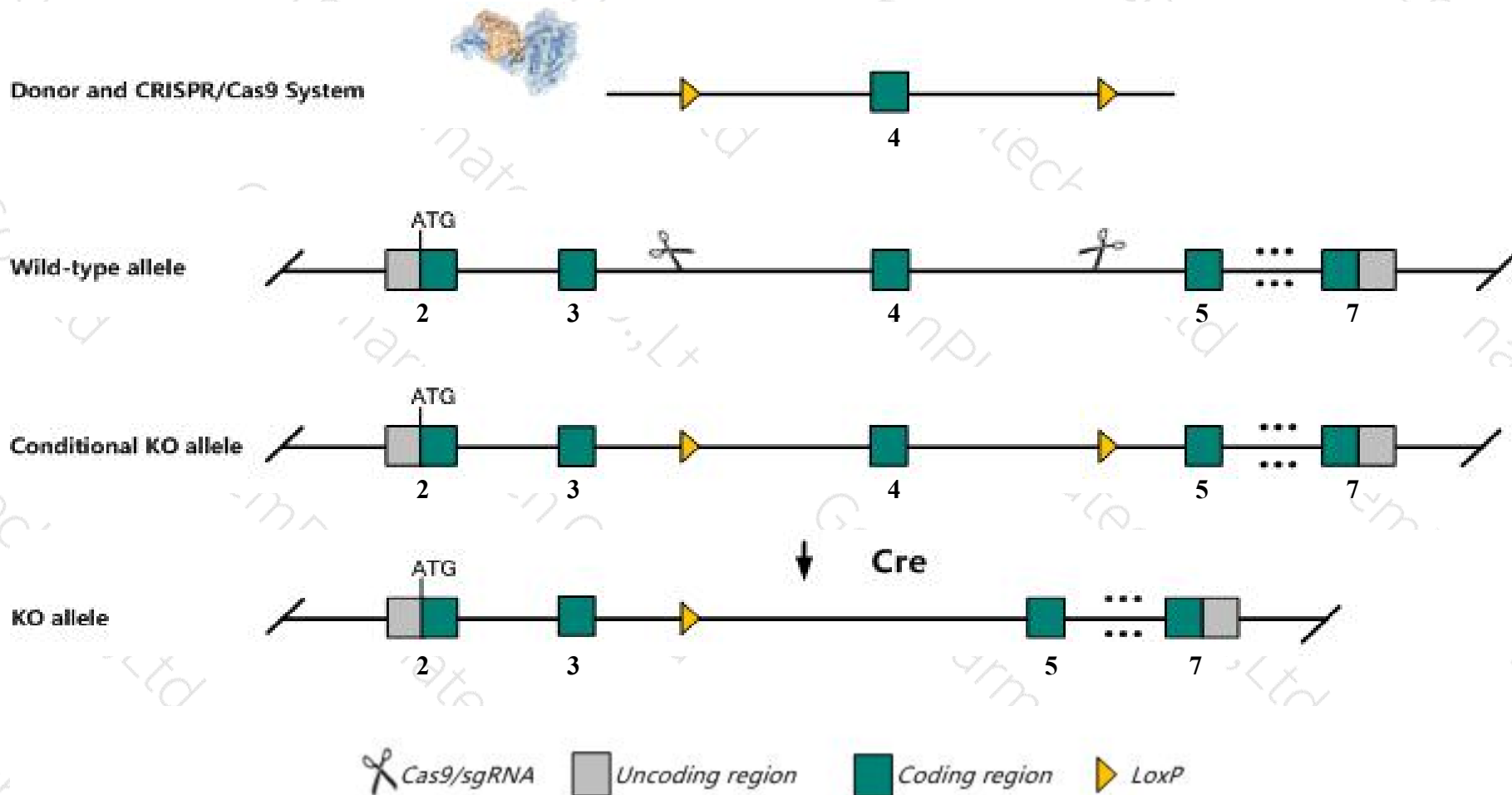
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Atg10* gene. The schematic diagram is as follows:



- The *Atg10* gene has 3 transcripts. According to the structure of *Atg10* gene, exon4 of *Atg10-201* (ENSMUST00000022119.5) transcript is recommended as the knockout region. The region contains 139bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Atg10* 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

- Transcript *Atg10*-203 may not be affected .
- The *Atg10* gene is located on the Chr13. 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)

Atg10 autophagy related 10 [Mus musculus (house mouse)]

Gene ID: 66795, updated on 31-Jan-2019

Summary



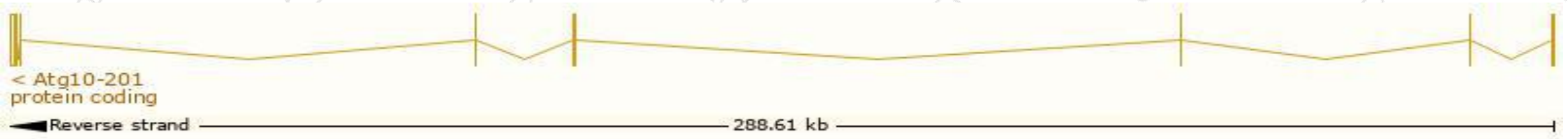
Official Symbol	Atg10 provided by MGI
Official Full Name	autophagy related 10 provided by MGI
Primary source	MGI:MGI:1914045
See related	Ensembl:ENSMUSG00000021619
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5330424L23Rik, 5430428K15Rik, AI852123, APG10, Agp10, Apg10l, Apg10p, Atg10l
Expression	Ubiquitous expression in bladder adult (RPKM 1.2), heart adult (RPKM 0.9) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

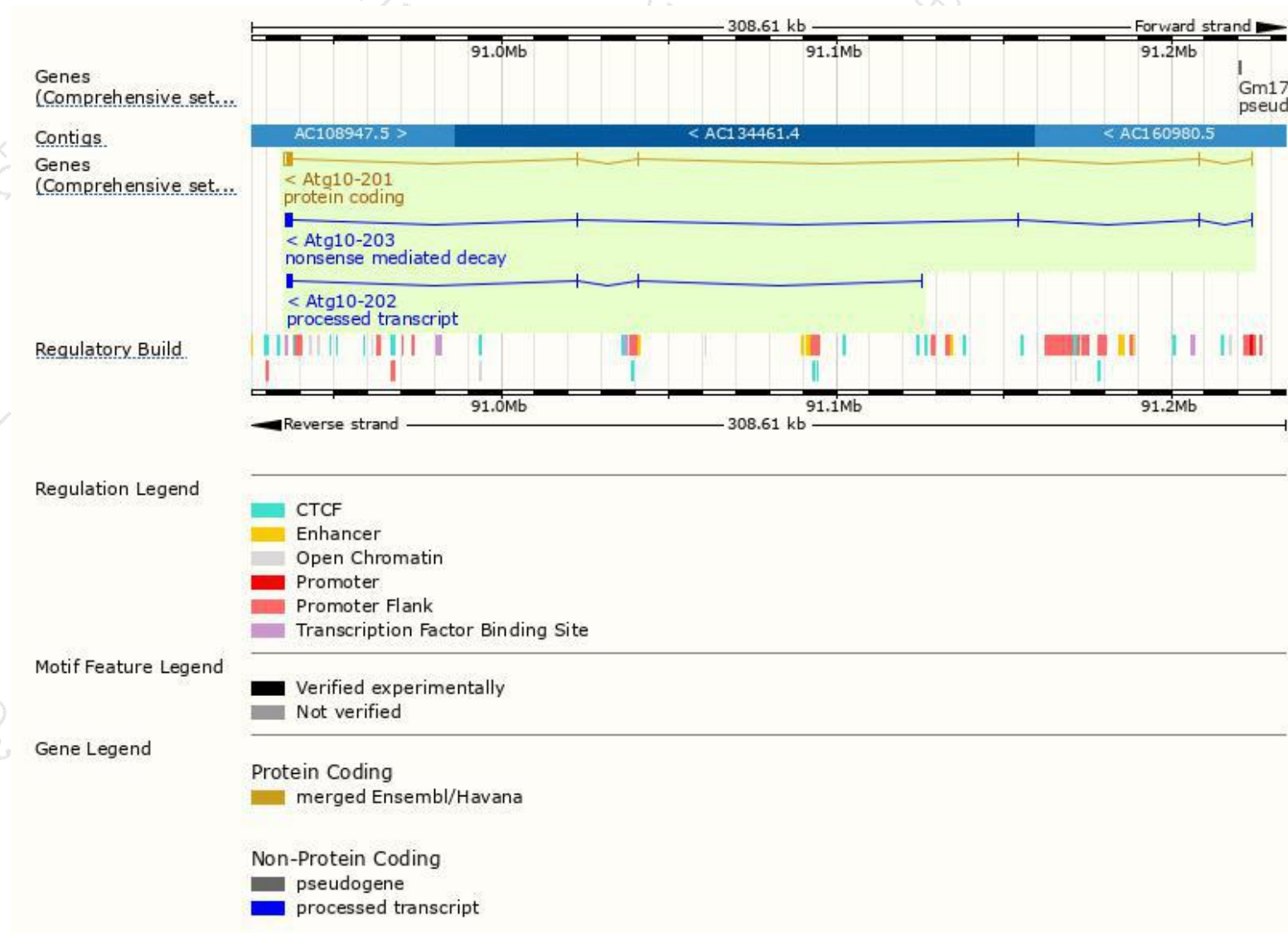
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Atg10-201	ENSMUST00000022119.5	1583	211aa	Protein coding	CCDS26675	A0A0R4J029	TSL:1 GENCODE basic APPRIS P1
Atg10-203	ENSMUST00000224449.1	922	71aa	Nonsense mediated decay	-	A0A286YD93	
Atg10-202	ENSMUST00000223729.1	826	No protein	Processed transcript	-	-	

The strategy is based on the design of *Atg10-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

