Atg4b Cas9-KO Strategy

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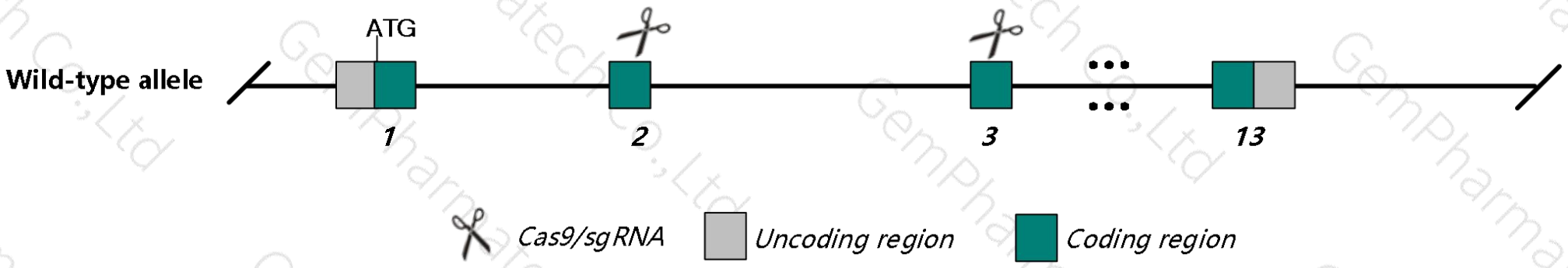
Project Overview

Project Name	***Atg4b***
Project type	**Cas9-KO**
Strain background	**C57BL/6N**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Atg4b* gene. The schematic diagram is as follows:



Technical routes

- In this project we use CRISPR/Cas9 technology to modify *Atg4b* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6N 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/6N mice.

Notice

➢ According to the existing MGI data, Mice homozygous for a gene trap allele exhibit decreased autophagy, impaired swimming, circling, head tilting, and abnormal utricle, saccular, and otolith morphology. Mice homozygous for another gene trap allele exhibit partial preweaning lethality and impaired motor coordination and learning.

➢ The *Atg4b* gene is located on the Chr1. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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Atg4b autophagy related 4B, cysteine peptidase [*Mus musculus* (house mouse)]

Gene ID: 66615, updated on 13-Aug-2019

Summary

Official Symbol	Atg4b provided by MGI
Official Full Name	autophagy related 4B, cysteine peptidase provided by MGI
Primary source	MGI:MGI:1913865
See related	Ensembl:ENSMUSG00000026280
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	Apg4b; Autl1; Atg4bl; AW048066; 2510009N07Rik
Expression	Ubiquitous expression in CNS E14 (RPKM 14.9), whole brain E14.5 (RPKM 14.0) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

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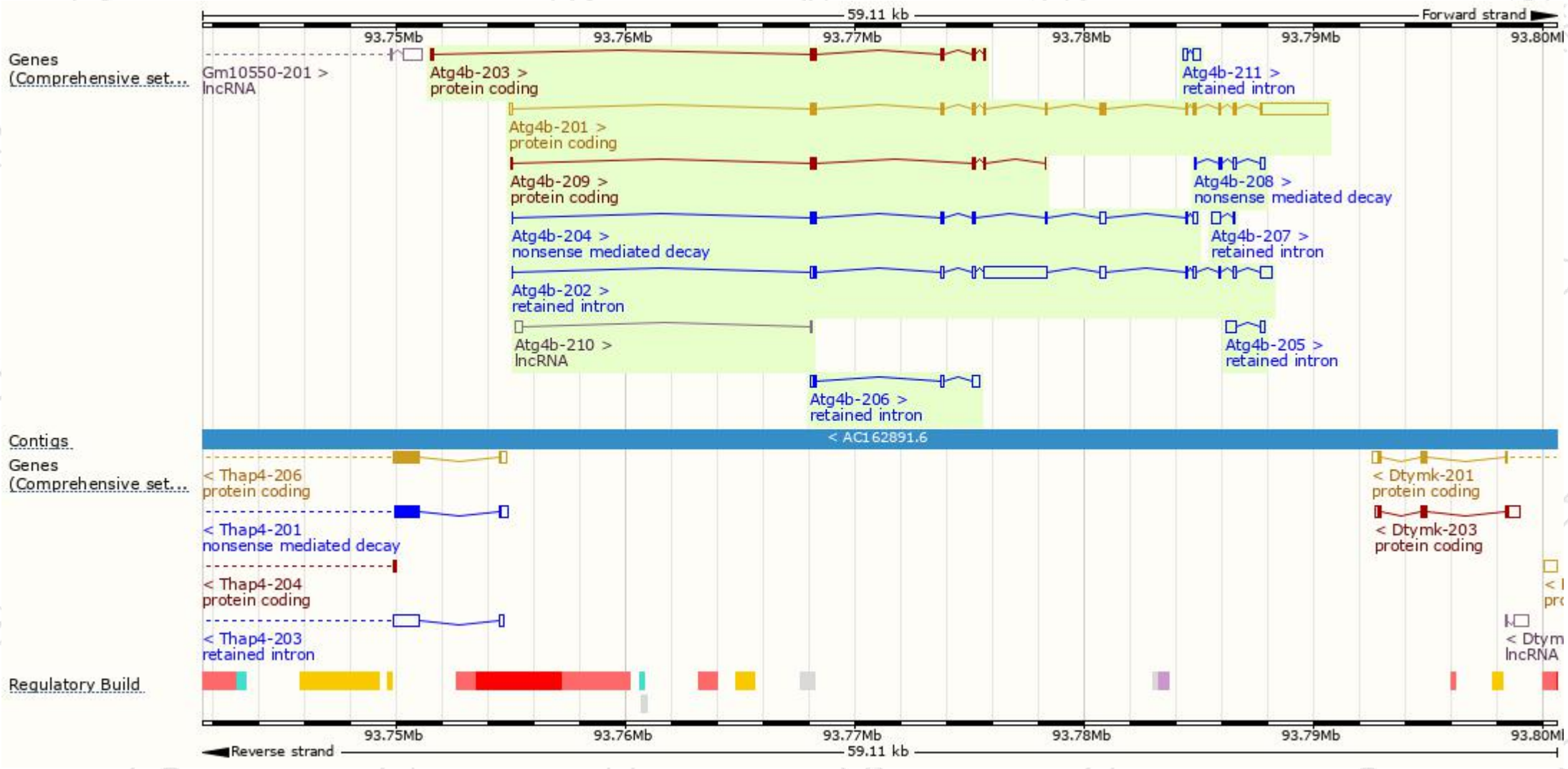
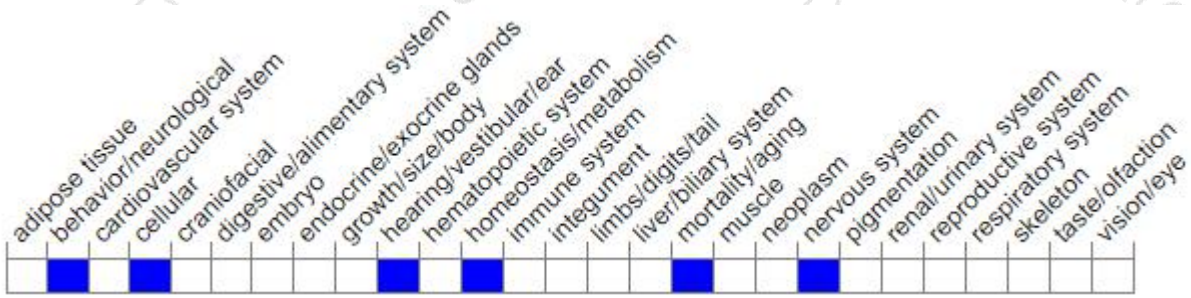
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Atg4b-201	ENSMUST00000027502.15	4173	393aa	Protein coding	CCDS15195	A0A0R4J065	TSL:1 GENCODE basic APPRIS P1
Atg4b-203	ENSMUST00000149436.7	513	150aa	Protein coding	-	D3YZP6	CDS 3' incomplete TSL:3
Atg4b-209	ENSMUST00000187824.6	420	121aa	Protein coding	-	A0A087WNY2	CDS 3' incomplete TSL:5
Atg4b-204	ENSMUST00000185482.6	919	143aa	Nonsense mediated decay	-	A0A087WRT0	TSL:5
Atg4b-208	ENSMUST00000186811.1	503	63aa	Nonsense mediated decay	-	A0A087WNR6	CDS 5' incomplete TSL:5
Atg4b-202	ENSMUST00000135762.7	4186	No protein	Retained intron	-	-	TSL:5
Atg4b-205	ENSMUST00000185754.1	601	No protein	Retained intron	-	-	TSL:2
Atg4b-206	ENSMUST00000186001.1	565	No protein	Retained intron	-	-	TSL:2
Atg4b-211	ENSMUST00000189872.1	477	No protein	Retained intron	-	-	TSL:3
Atg4b-207	ENSMUST00000186124.1	454	No protein	Retained intron	-	-	TSL:3
Atg4b-210	ENSMUST00000189152.1	343	No protein	lncRNA	-	-	TSL:2

Genomic location distribution



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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