

Atp5j Cas9-KO Strategy

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Overview

Target Gene Name

- Atp5j

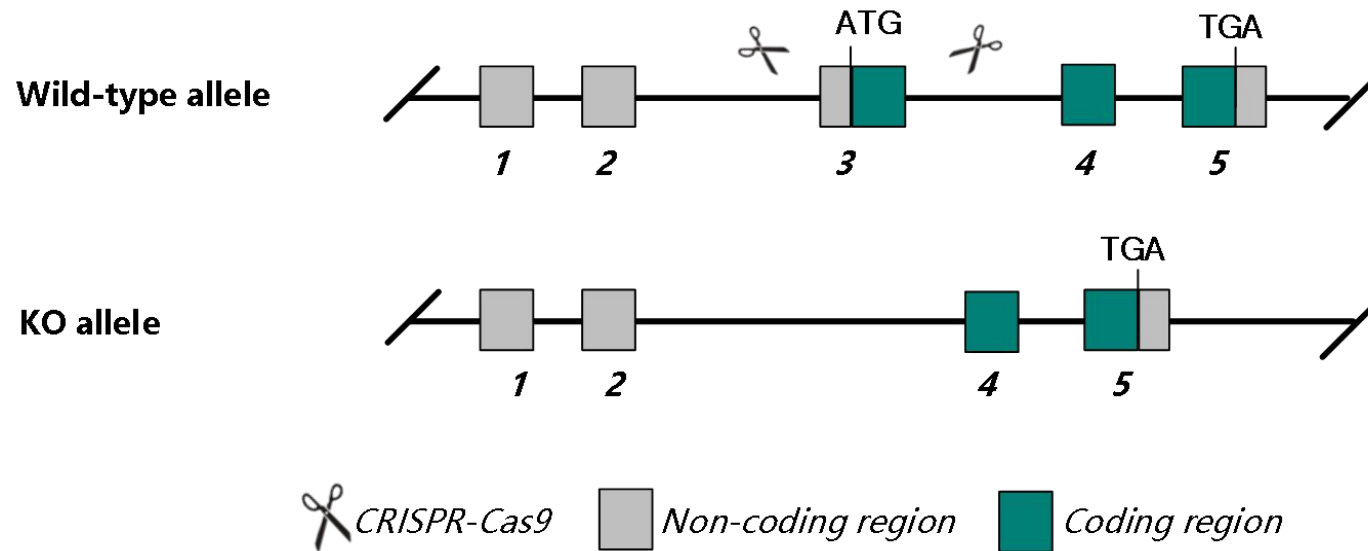
Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Atp5j* gene.

Technical Information

- The *Atp5j* gene has 12 transcripts. According to the structure of *Atp5j* gene, exon 3 of *Atp5j*-201(ENSMUST00000023608.14) transcript is recommended as the knockout region. The region contains contains start codon ATG. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Atp5j* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

Gene Information

Atp5j ATP synthase, H⁺ transporting, mitochondrial F0 complex, subunit F [*Mus musculus* (house mouse)]

[Download Datasets](#)

Gene ID: 11957, updated on 10-Mar-2023

Summary

Official Symbol	Atp5j provided by MGI
Official Full Name	ATP synthase, H ⁺ transporting, mitochondrial F0 complex, subunit F provided by MGI
Primary source	MGI:MGI:107777
See related	Ensembl:ENSMUSG00000022890 AllianceGenome:MGI:107777
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	CF6; Atp5pf
Summary	The protein encoded by this gene is a component of mitochondrial adenosine triphosphate synthase, which catalyzes the conversion of ATP from ADP. Mitochondrial adenosine triphosphate synthase consists of extrinsic and intrinsic membrane domains that are joined by a stalk. The protein encoded by this gene is a subunit of the stalk domain. A bi-directional promoter that drives expression of this gene has been identified. Pseudogenes of this gene are found on chromosomes 14 and 17. Alternative splicing results in multiple transcript variants. [provided by RefSeq, Oct 2014]
Expression	Ubiquitous expression in heart adult (RPKM 199.5), kidney adult (RPKM 107.4) and 28 other tissues See more
Orthologs	human all
NEW	Try the new Gene table Try the new Transcript table

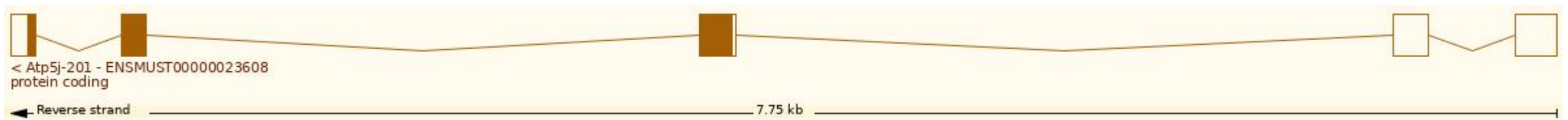
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

The gene has 8 transcripts, all transcripts are shown below:

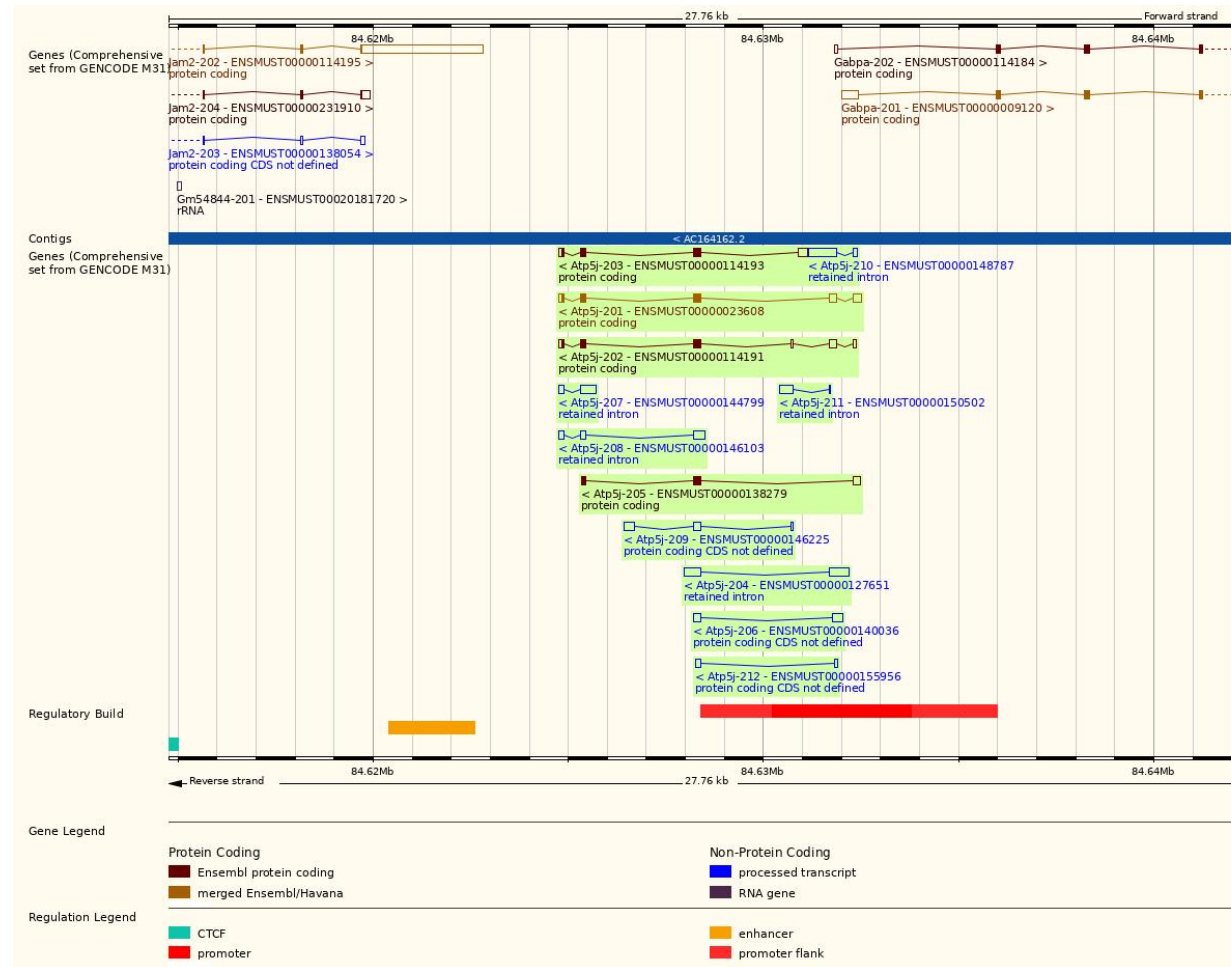
Show/hide columns (1 hidden)							Filter	
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags	
ENSMUST00000023608.14	Atp5j-201	809	108aa	Protein coding	CCDS28283	P97450	Ensembl Canonical	GENCODE basic APPRIS P1 TSL:1
ENSMUST00000114191.8	Atp5j-202	742	108aa	Protein coding	CCDS28283	P97450		GENCODE basic APPRIS P1 TSL:5
ENSMUST00000114193.8	Atp5j-203	680	108aa	Protein coding	CCDS28283	P97450		GENCODE basic APPRIS P1 TSL:2
ENSMUST00000127651.2	Atp5j-204	927	No protein	Retained intron		-		TSL:2
ENSMUST00000138279.2	Atp5j-205	472	91aa	Protein coding		E9QAD6	TSL:3	CDS 3' incomplete
ENSMUST00000140036.2	Atp5j-206	443	No protein	Protein coding CDS not defined		-		TSL:3
ENSMUST00000144799.2	Atp5j-207	514	No protein	Retained intron		-		TSL:2
ENSMUST00000146103.2	Atp5j-208	526	No protein	Retained intron		-		TSL:1
ENSMUST00000146225.8	Atp5j-209	482	No protein	Protein coding CDS not defined		-		TSL:3
ENSMUST00000148787.2	Atp5j-210	817	No protein	Retained intron		-		TSL:2
ENSMUST00000150502.2	Atp5j-211	376	No protein	Retained intron		-		TSL:5
ENSMUST00000155956.2	Atp5j-212	203	No protein	Protein coding CDS not defined		-		TSL:5

The strategy is based on the design of *Atp5j*-201 transcript, the transcription is shown below:

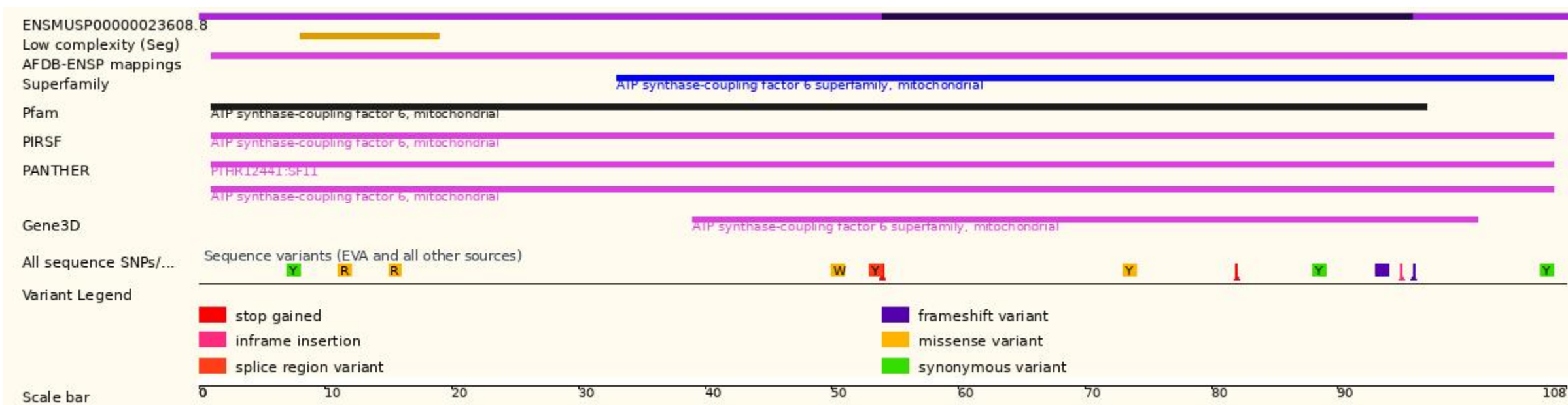


Source: <https://www.ensembl.org>

Genomic Information



Protein Information



Important Information

- The effect of *Gabpa* gene is unknown.
- The effect of this strategy on the *Atp5j*-207, *Atp5j*-210, *Atp5j*-2011 transcript is unknown.
- *Atp5j* is located on Chr 16. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.