

Azgp1 Cas9-CKO Strategy

Designer:

Huan Fan

Design Date:

2019-7-25

Project Overview

Project Name

Azgp1

Project type

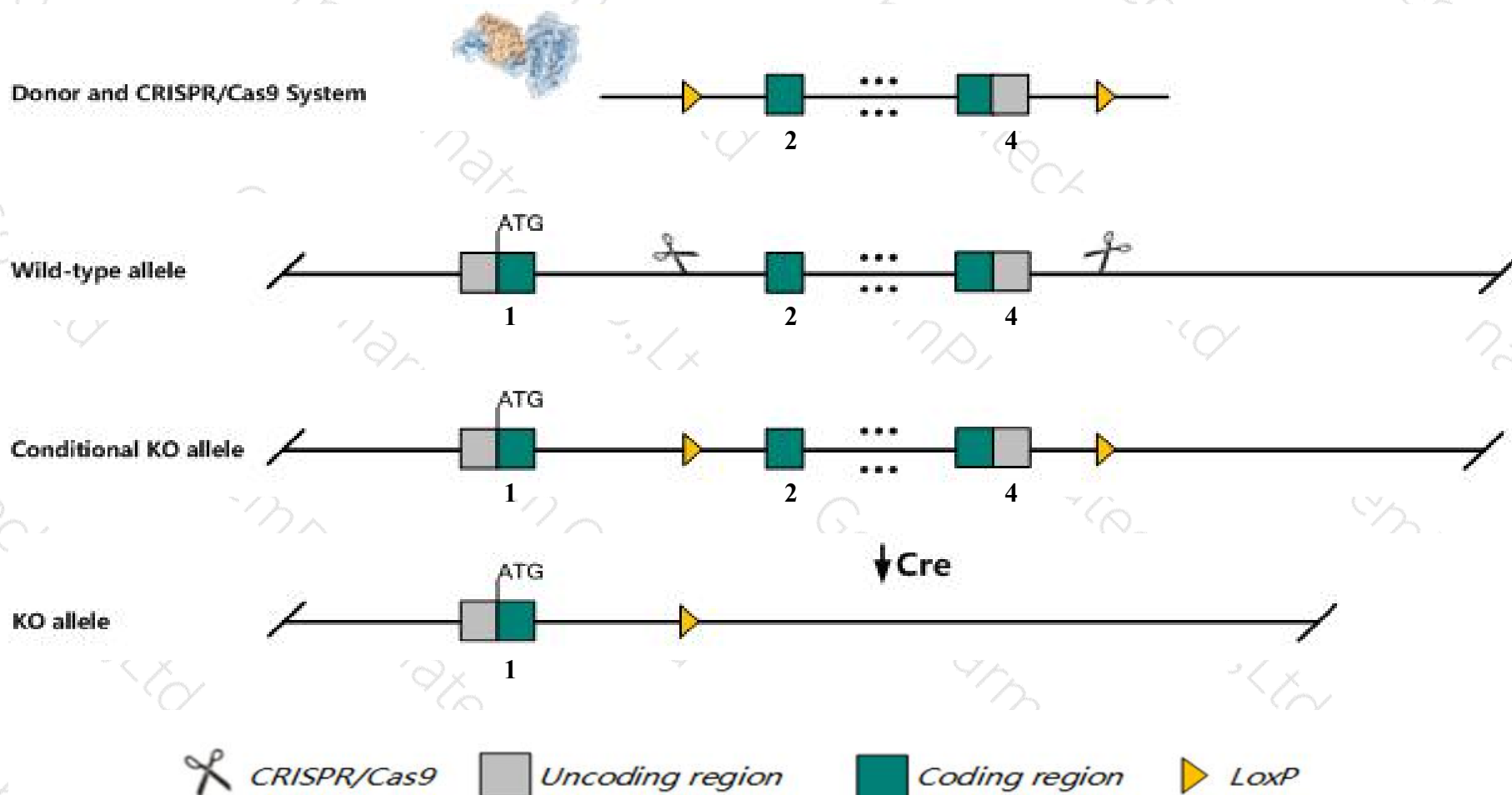
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Azgp1* gene. The schematic diagram is as follows:



- The *Azgp1* gene has 3 transcripts. According to the structure of *Azgp1* gene, exon2-exon4 of *Azgp1*-201 (ENSMUST00000035390.6) transcript is recommended as the knockout region. The region contains 863bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Azgp1* gene. The brief process is as follows: CRISPR/Cas9 system 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 will be 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit impaired lipolysis and increased body weight when fed standard food or a high fat diet.
- The *Azgp1* gene is located on the Chr5. 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)

Azgp1 alpha-2-glycoprotein 1, zinc [Mus musculus (house mouse)]

Gene ID: 12007, updated on 12-Mar-2019

Summary



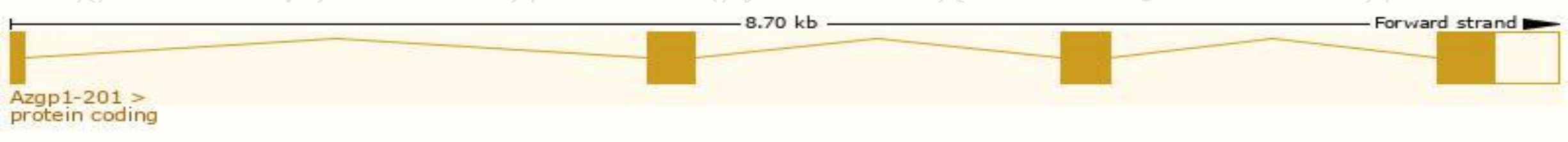
Official Symbol	Azgp1 provided by MGI
Official Full Name	alpha-2-glycoprotein 1, zinc provided by MGI
Primary source	MGI:MGI:103163
See related	Ensembl:ENSMUSG000000037053
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Zag
Expression	Biased expression in liver adult (RPKM 435.9) and liver E18 (RPKM 299.4) See more
Orthologs	human all

Transcript information (Ensembl)

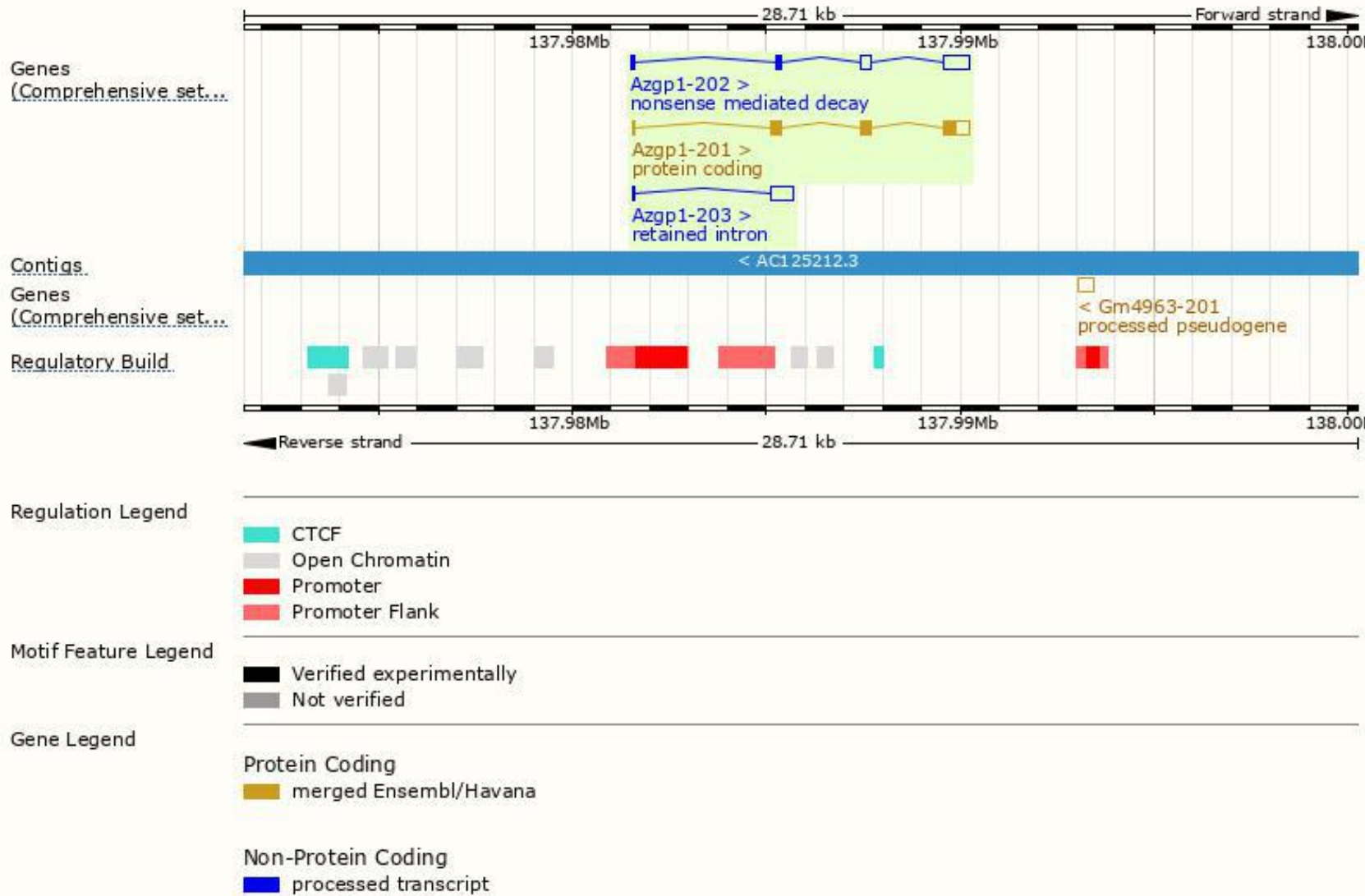
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Azgp1-201	ENSMUST00000035390.6	1297	307aa	Protein coding	CCDS19783	Q64726	TSL:1 GENCODE basic APPRIS P1
Azgp1-202	ENSMUST00000197571.1	1204	56aa	Nonsense mediated decay	-	A0A0G2JDI8	TSL:2
Azgp1-203	ENSMUST00000199145.1	608	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Azgp1-201* transcript,The transcription is shown below



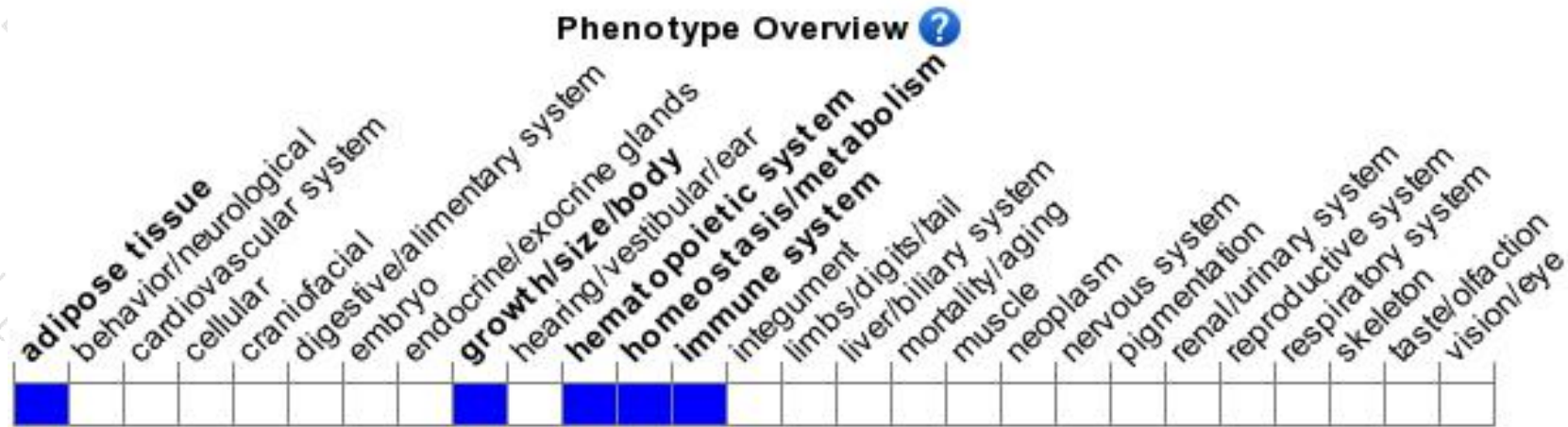
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Mice homozygous for a knock-out allele exhibit impaired lipolysis and increased body weight when fed standard food or a high fat diet.

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

Tel: 400-9660890

