Mboat4 Cas9-KO Strategy

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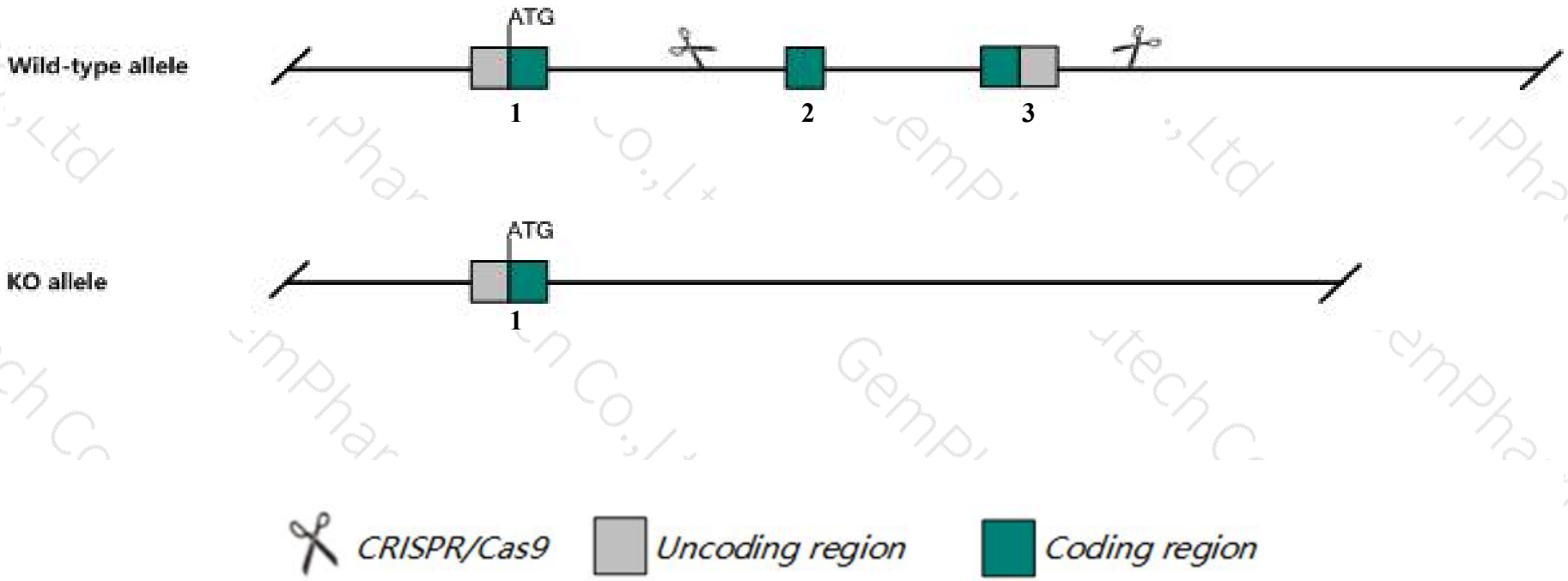
Project Overview

Project Name	***Mboat4***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mboat4* gene. The schematic diagram is as follows:



Technical routes

➢ The *Mboat4* gene has 1 transcript. According to the structure of *Mboat4* gene, exon2-exon3 of *Mboat4-201* (ENSMUST00000095345.4) transcript is recommended as the knockout region.The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Mboat4* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

- According to the existing MGI data,Mice homozygous for null mutations lack the mature form of ghrelin in the plasma and display abnormal responses to changes in diet.
- The knockout region is near to the N-terminal of *Gm10131* gene,this strategy may influence the regulatory function of the N-terminal of *Gm10131* gene.
- *Gm39158* gene will be deleted together in this strategy.
- The *Mboat4* gene is located on the Chr8. 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）

集萃药康 GemPharmatech

Mboat4 membrane bound O-acyltransferase domain containing 4 [*Mus musculus* (house mouse)]

Gene ID: 234155, updated on 12-Aug-2019

Summary

Official Symbol	Mboat4 provided by MGI
Official Full Name	membrane bound O-acyltransferase domain containing 4 provided by MGI
Primary source	MGI:MGI:2685017
See related	Ensembl:ENSMUSG00000071113
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	GOAT; Gm171
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Genomic context

Location: 8; 8 A4

See Mboat4 in Genome Data Viewer

Exon count: 4

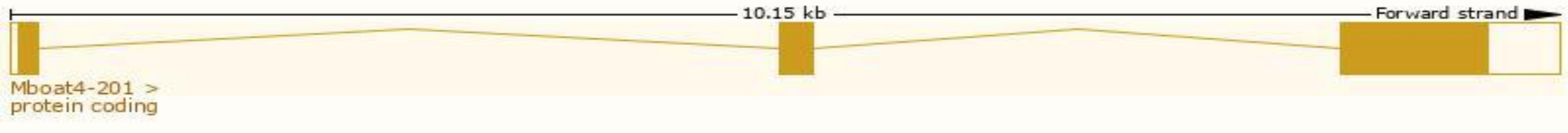
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	8	NC_000074.6 (34106712..34125185)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	8	NC_000074.5 (35178084..35188239)

Transcript information（Ensembl）

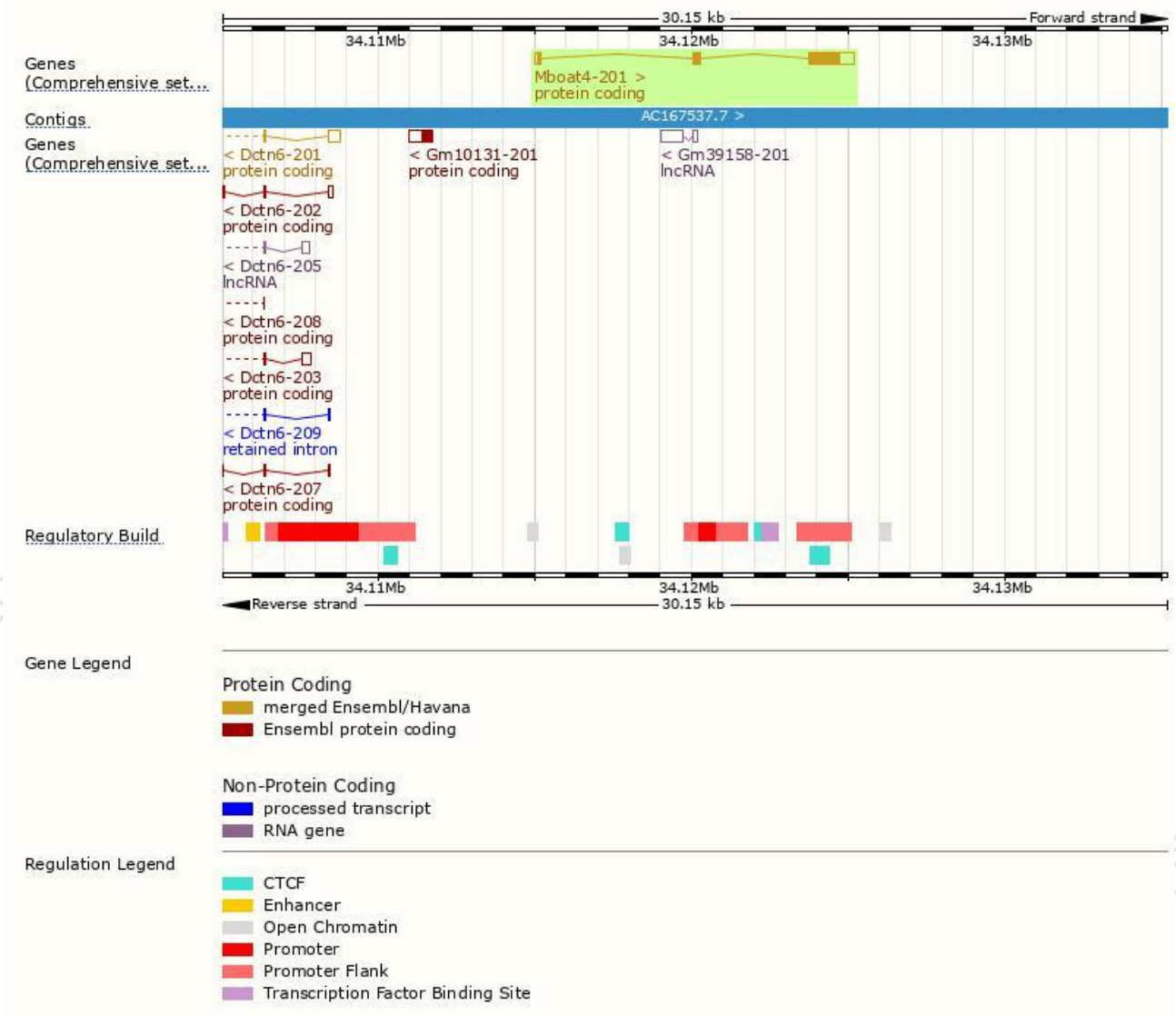
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mboat4-201	ENSMUST00000095345.4	1836	435aa	Protein coding	CCDS52540	P0C7A3	TSL:1 GENCODE basic APPRIS P1

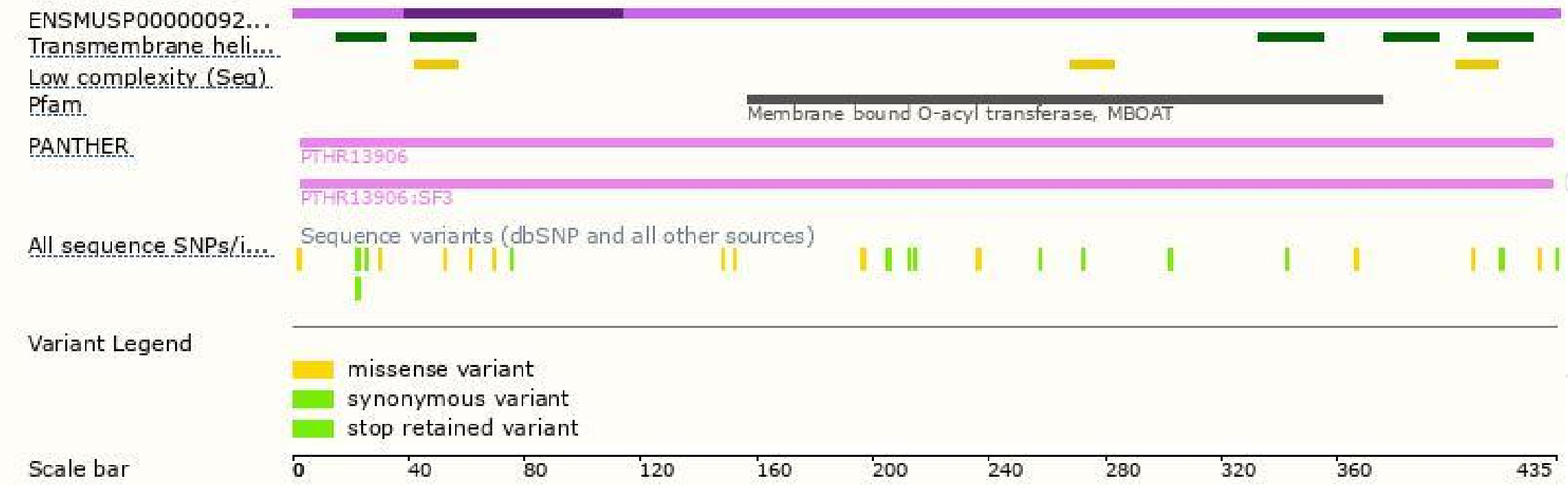
The strategy is based on the design of *Mboat4-201* transcript,The transcription is shown below



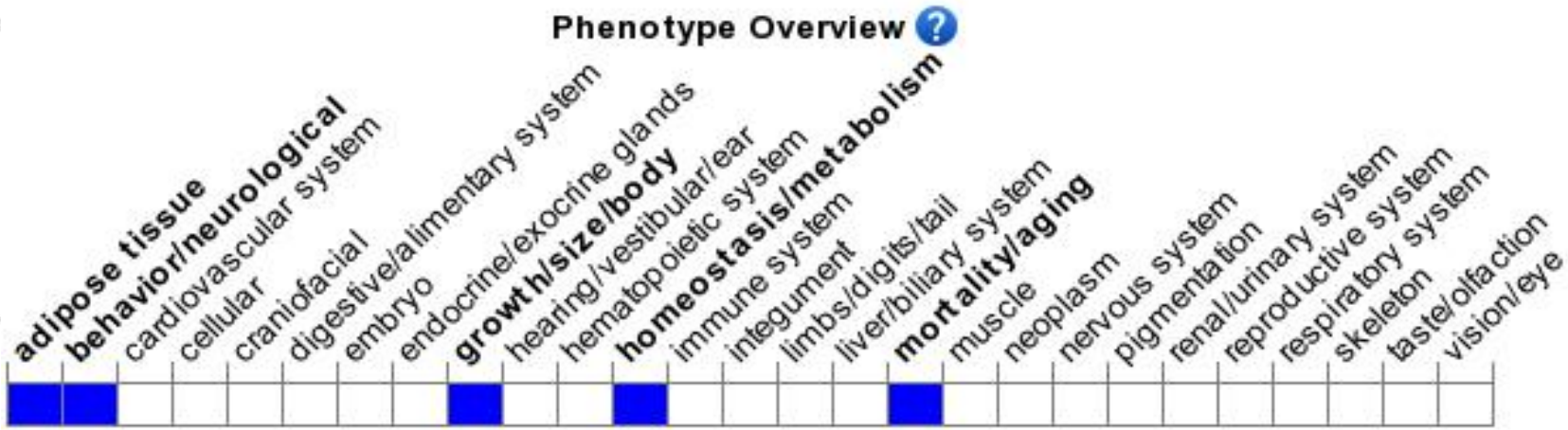
Genomic location distribution



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 null mutations lack the mature form of ghrelin in the plasma and display abnormal responses to changes in diet.

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

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