Adgrf2 Cas9-KO Strategy

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Reviewer: Lingyan Wu

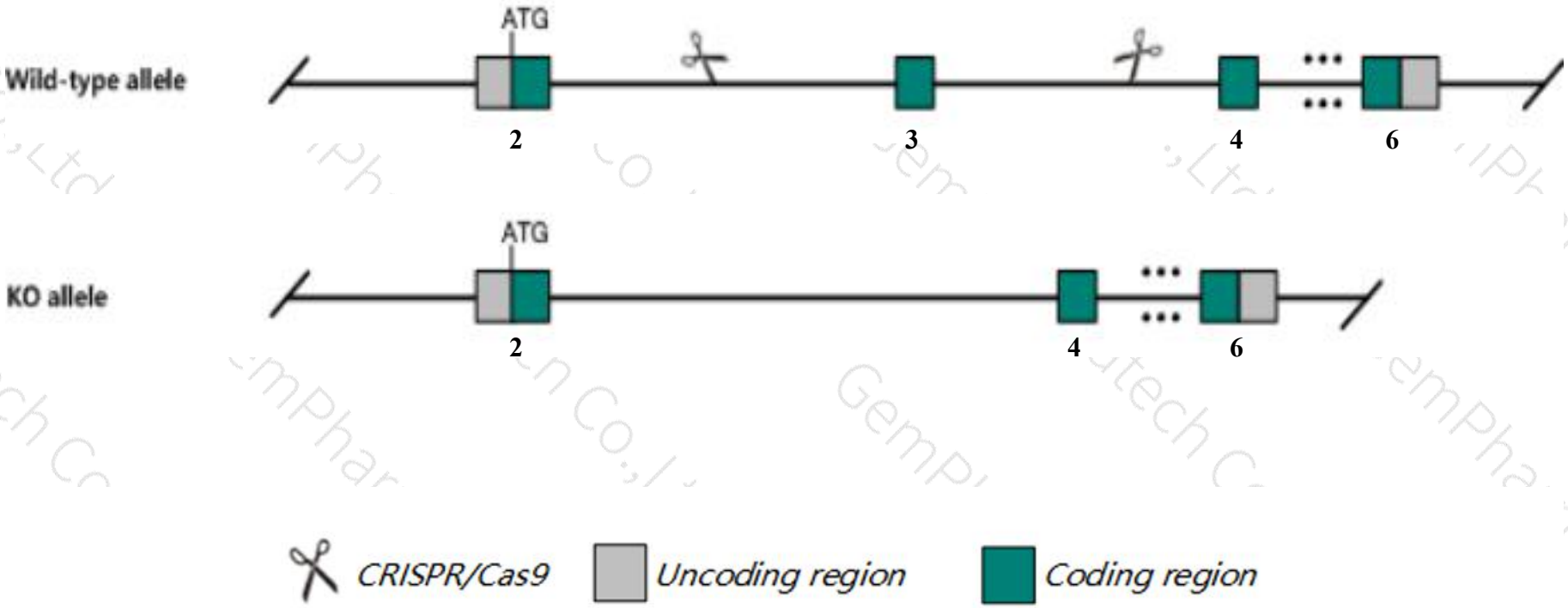
Design Date: 2018-7-19

Project Overview

Project Name	***Adgrf2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adgrf2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Adgrf2* gene has 2 transcripts. According to the structure of *Adgrf2* gene, exon3 of *Adgrf2-201*(ENSMUST00000113614.2) transcript is recommended as the knockout region.The region contains 43bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Adgrf2* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ According to the existing MGI data,mice homozygous for a reporter allele exhibit normal viability and fertility.

➢ The *Adgrf2* gene is located on the Chr17. 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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Adgrf2 adhesion G protein-coupled receptor F2 [Mus musculus (house mouse)]

Gene ID: 435529, updated on 31-Jan-2019

Summary

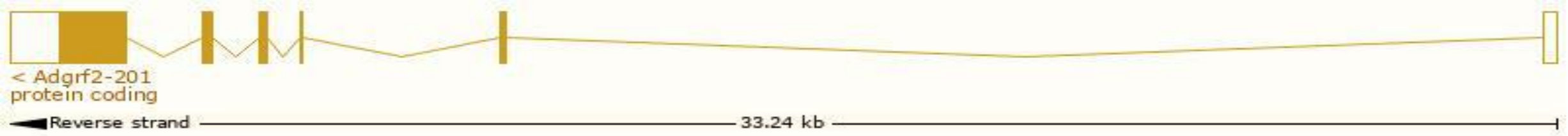
Official Symbol	Adgrf2 provided by MGI
Official Full Name	adhesion G protein-coupled receptor F2 provided by MGI
Primary source	MGI:MGI:2182728
See related	Ensembl:ENSMUSG00000057899
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gpr111, PGR20
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information（Ensembl）

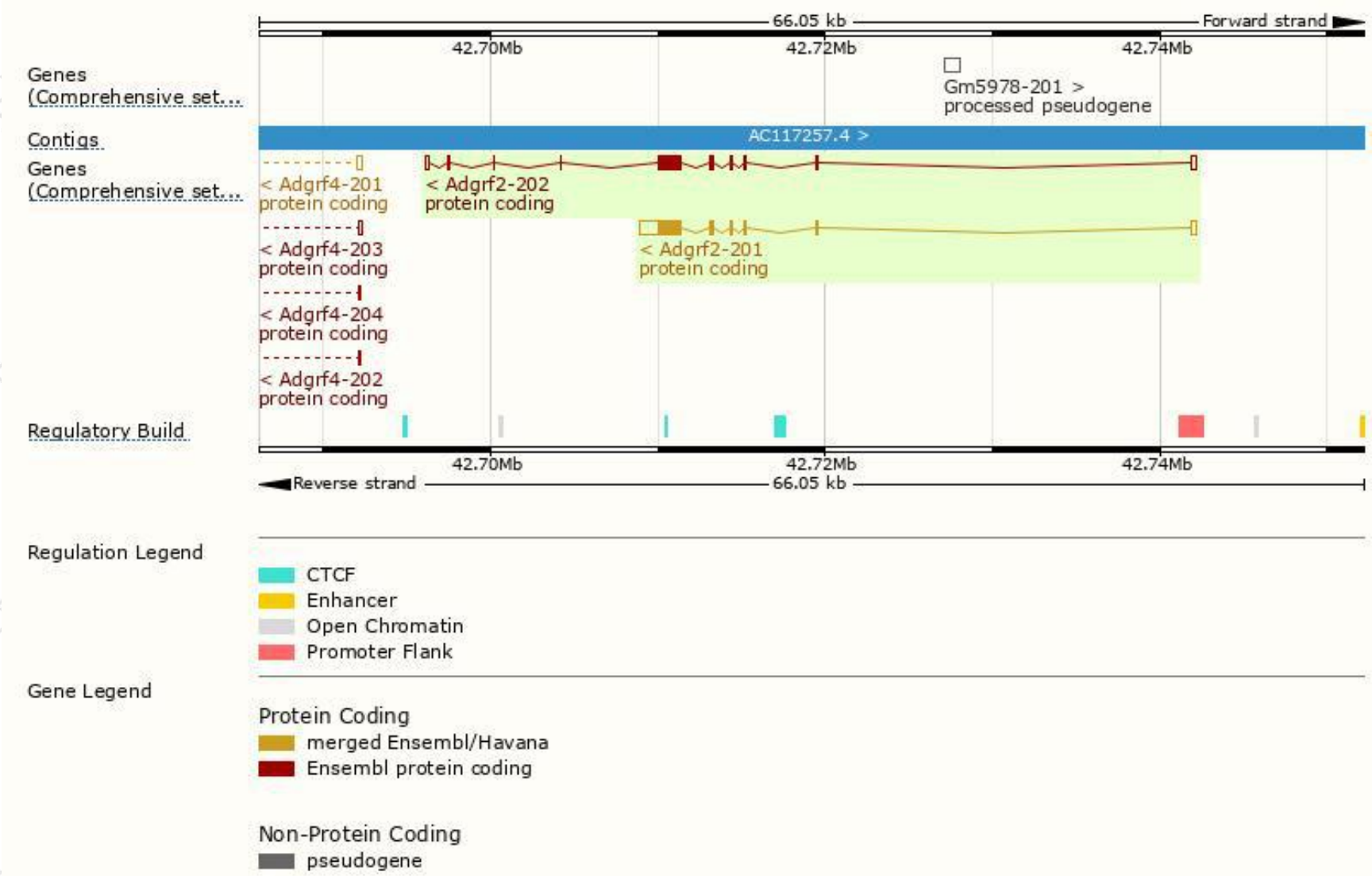
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adgrf2-201	ENSMUST00000113614.2	3284	644aa	Protein coding	CCDS28792	E9Q4J9	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Adgrf2-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain

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

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