

Gcc2 Cas9-KO Strategy

Designer: Xueting Zhang

Reviewer: Daohua Xu

Design Date: 2020-9-11

Project Overview

Project Name

Gcc2

Project type

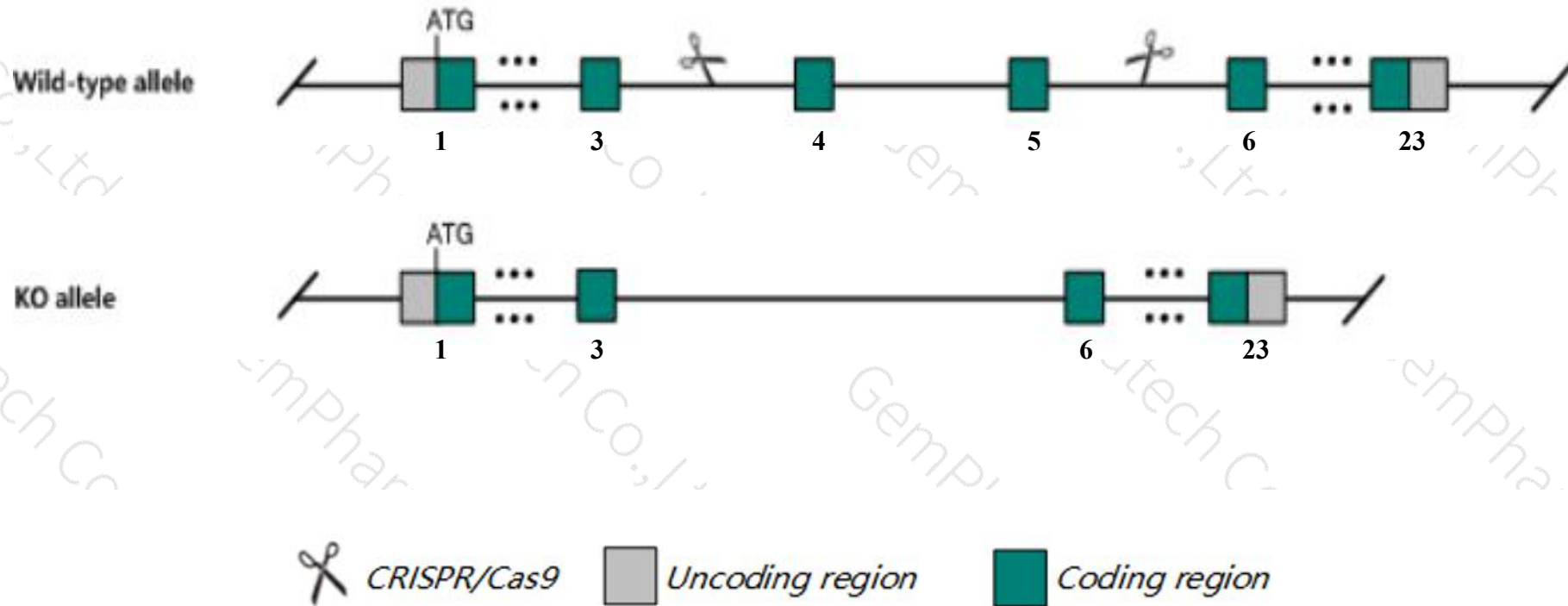
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gcc2* gene. The schematic diagram is as follows:



- The *Gcc2* gene has 10 transcripts. According to the structure of *Gcc2* gene, exon4-exon5 of *Gcc2-201*(ENSMUST00000057659.13) transcript is recommended as the knockout region. The region contains 173bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gcc2* 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.

- The *Gcc2* gene is located on the Chr10. 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.
- Transcript *Gcc2*-204&205&209 may not be affected.
- The effect on transcript *Gcc2*-202 is unknown.
- 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)

Gcc2 GRIP and coiled-coil domain containing 2 [Mus musculus (house mouse)]

Gene ID: 70297, updated on 13-Mar-2020

Summary



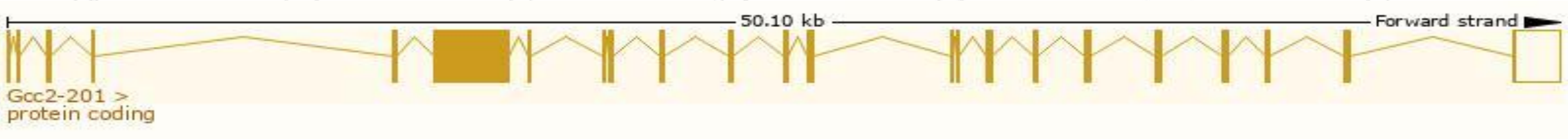
Official Symbol	Gcc2 provided by MGI
Official Full Name	GRIP and coiled-coil domain containing 2 provided by MGI
Primary source	MGI:MGI:1917547
See related	Ensembl:ENSMUSG00000038039
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	0610043A03Rik, 2210420P05Rik, 2600014C01Rik, AW112121, mKIAA0336
Expression	Ubiquitous expression in cerebellum adult (RPKM 5.2), frontal lobe adult (RPKM 5.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

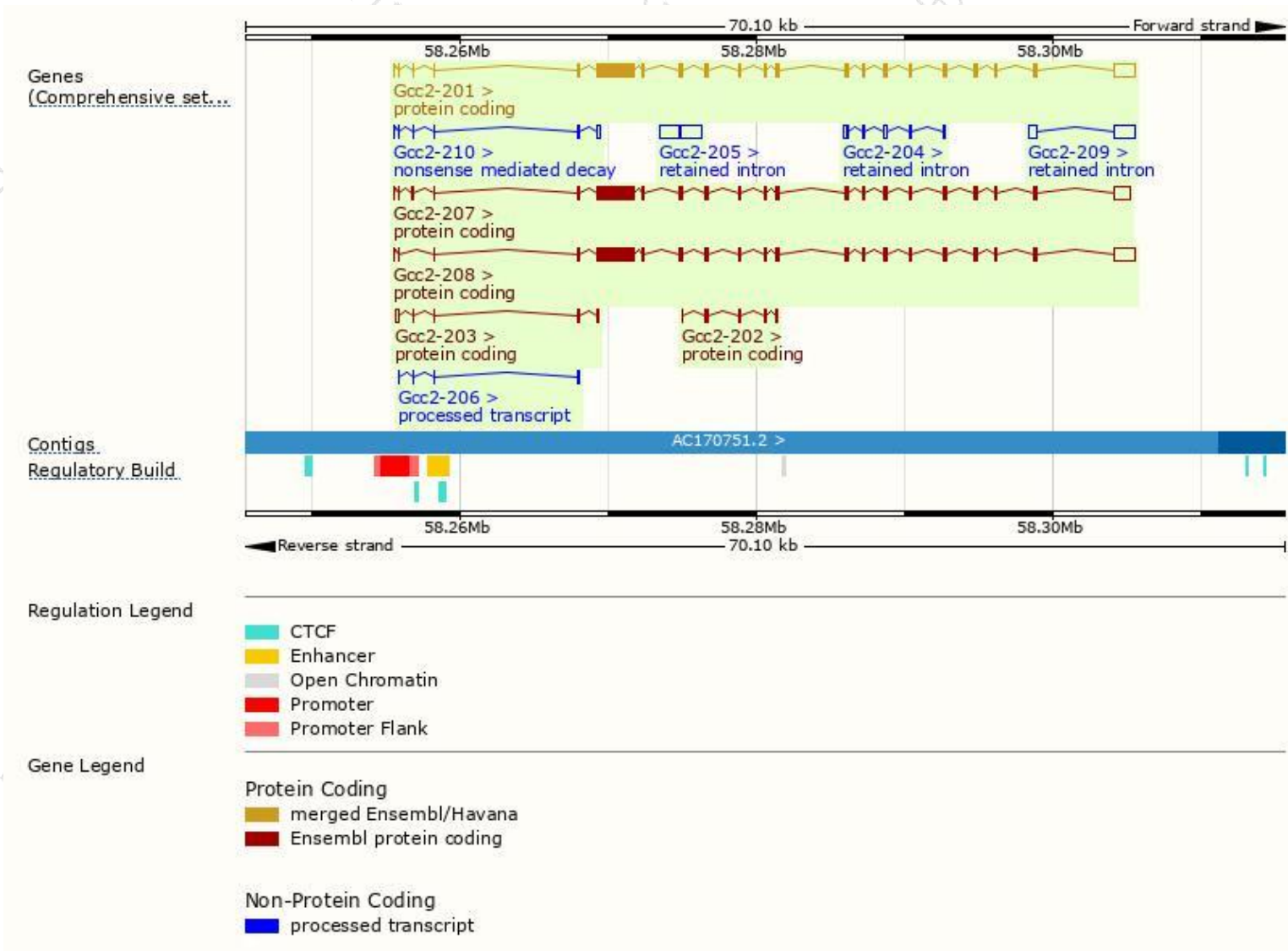
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gcc2-201	ENSMUST00000057659.13	6547	1680aa	Protein coding	CCDS23859	B2RSU7	TSL:1 GENCODE basic APPRIS P2
Gcc2-208	ENSMUST00000162860.7	6400	1576aa	Protein coding	-	E0CYI9	TSL:5 GENCODE basic APPRIS ALT2
Gcc2-207	ENSMUST00000162041.7	6230	1644aa	Protein coding	-	E9PWI6	TSL:1 GENCODE basic APPRIS ALT2
Gcc2-202	ENSMUST00000160416.1	545	181aa	Protein coding	-	F6UT01	CDS 5' and 3' incomplete TSL:3
Gcc2-203	ENSMUST00000160427.1	502	94aa	Protein coding	-	E0CY89	CDS 3' incomplete TSL:2
Gcc2-210	ENSMUST00000162984.1	570	51aa	Nonsense mediated decay	-	E0CX24	TSL:2
Gcc2-206	ENSMUST00000161570.1	268	No protein	Processed transcript	-	-	TSL:3
Gcc2-205	ENSMUST00000160677.1	2750	No protein	Retained intron	-	-	TSL:1
Gcc2-209	ENSMUST00000162965.1	1952	No protein	Retained intron	-	-	TSL:1
Gcc2-204	ENSMUST00000160636.1	836	No protein	Retained intron	-	-	TSL:2

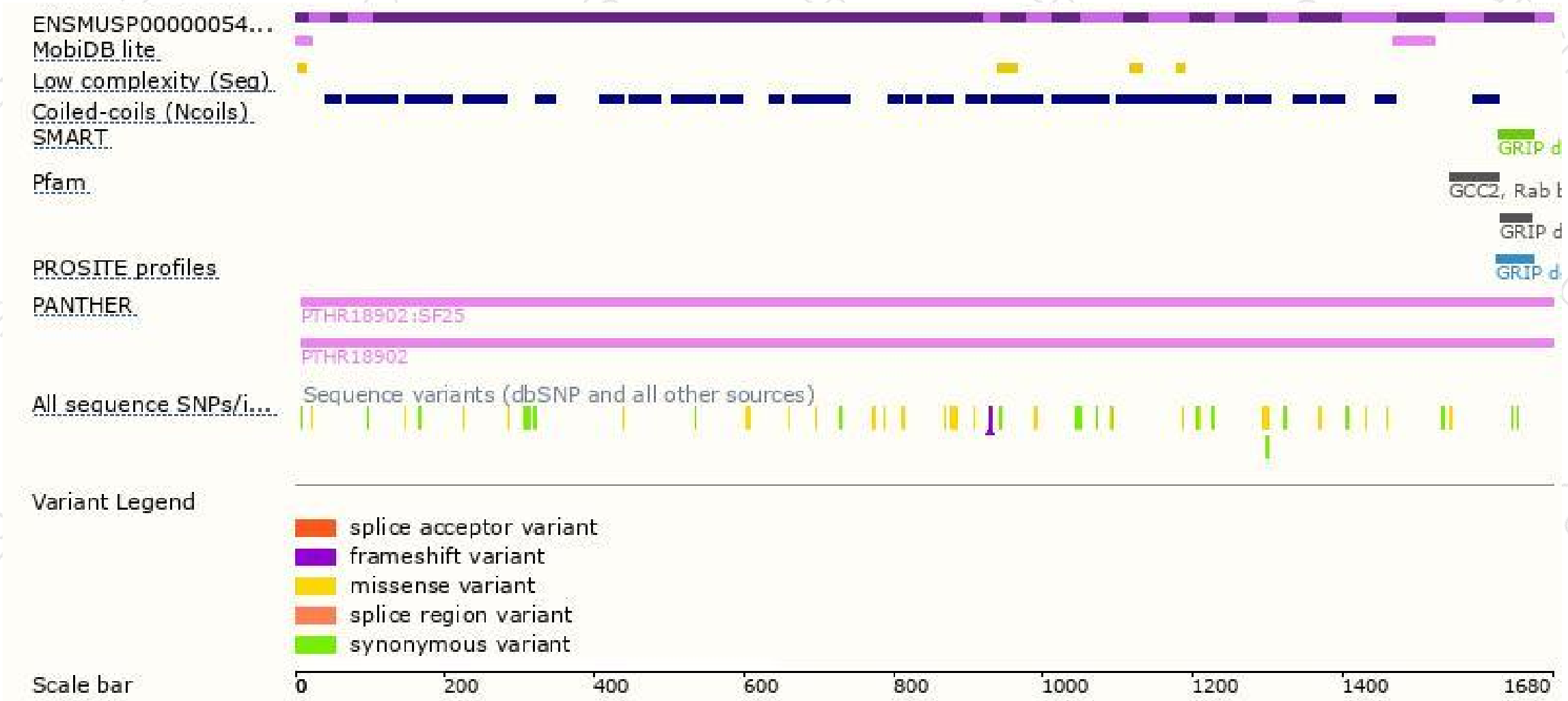
The strategy is based on the design of *Gcc2-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 400-9660890

