Lgi2 Cas9-KO Strategy

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Reviewer: Xiaojing Li

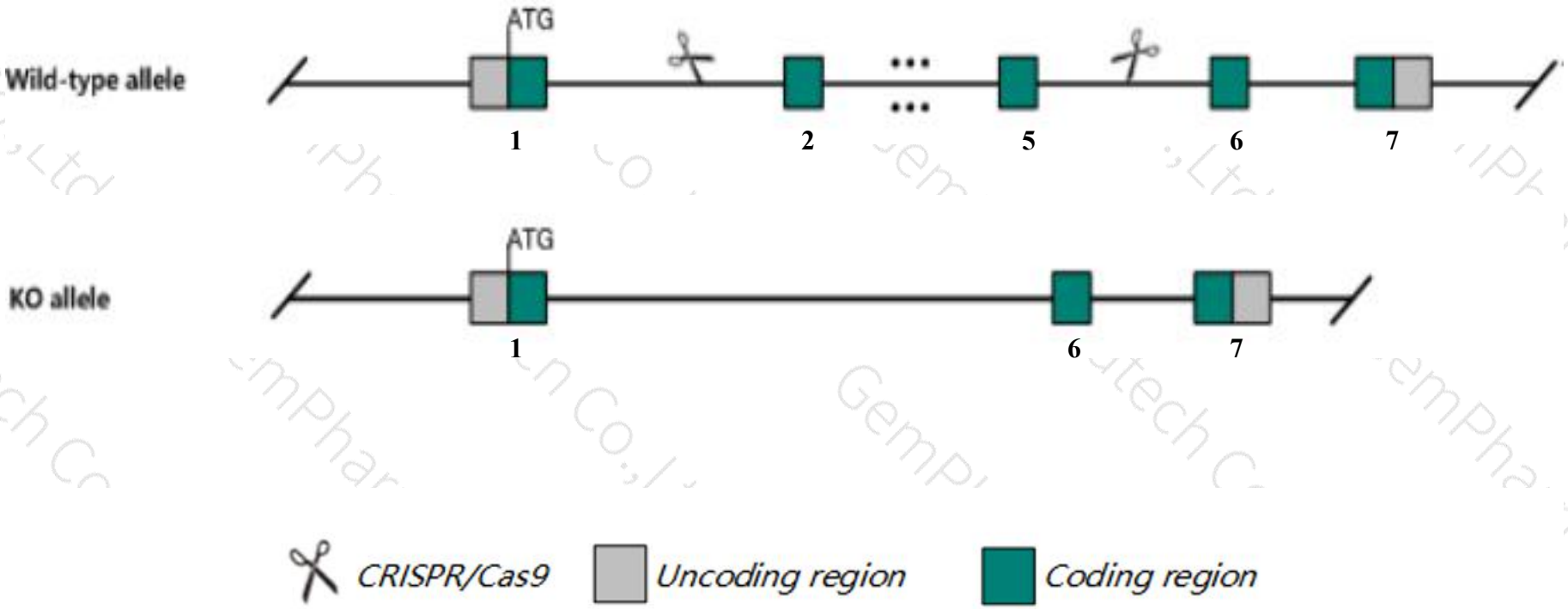
Design Date: 2020-8-27

Project Overview

Project Name	***Lgi2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lgi2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Lgi2* gene has 2 transcripts. According to the structure of *Lgi2* gene, exon2-exon5 of *Lgi2-201*(ENSMUST00000039750.6) transcript is recommended as the knockout region.The region contains 386bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Lgi2* 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

➢ The *Lgi2* 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 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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Lgi2 leucine-rich repeat LGI family, member 2 [Mus musculus (house mouse)]

Gene ID: 246316, updated on 13-Mar-2020

Summary

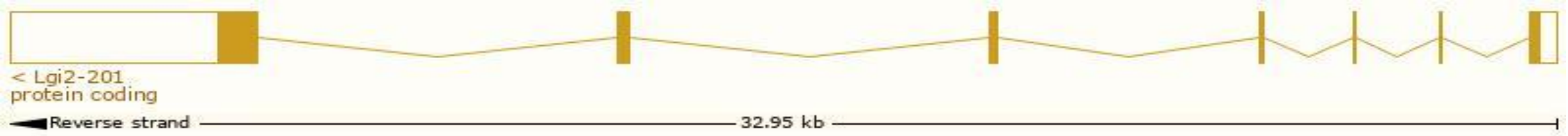
Official Symbol	Lgi2 provided by MGI
Official Full Name	leucine-rich repeat LGI family, member 2 provided byMGI
Primary source	MGI:MGI:2180196
See related	Ensembl:ENSMUSG00000039252
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	mKIAA1916
Expression	Biased expression in cerebellum adult (RPKM 13.1), cortex adult (RPKM 6.4) and 13 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

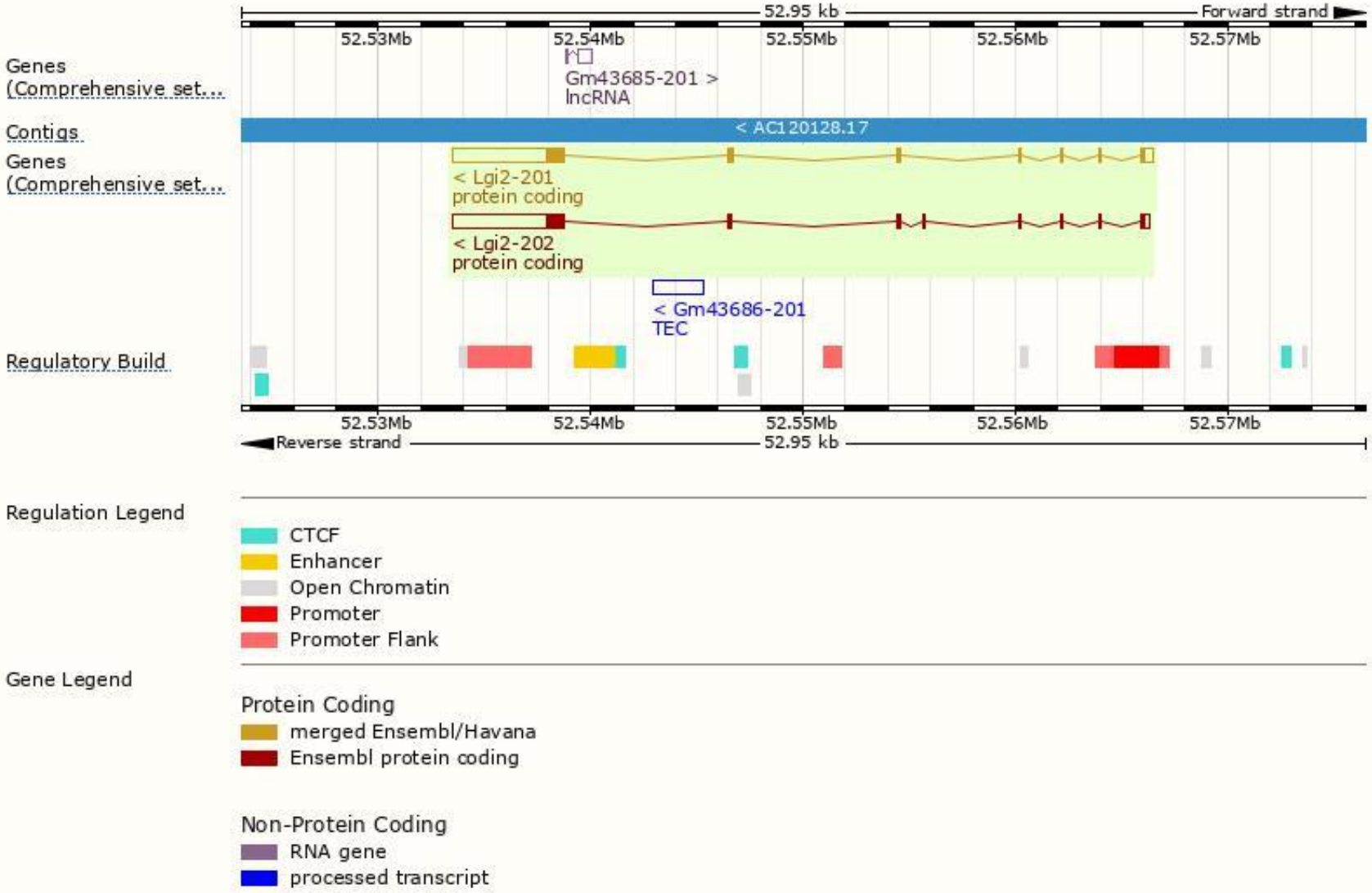
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lgi2-201	ENSMUST00000039750.6	6456	550aa	Protein coding	CCDS19285	Q8K4Z0	TSL:1 GENCODE basic APPRIS P3
Lgi2-202	ENSMUST00000199942.4	6273	542aa	Protein coding	CCDS80281	Q50DZ7 Q8K4Z0	TSL:1 GENCODE basic APPRIS ALT2

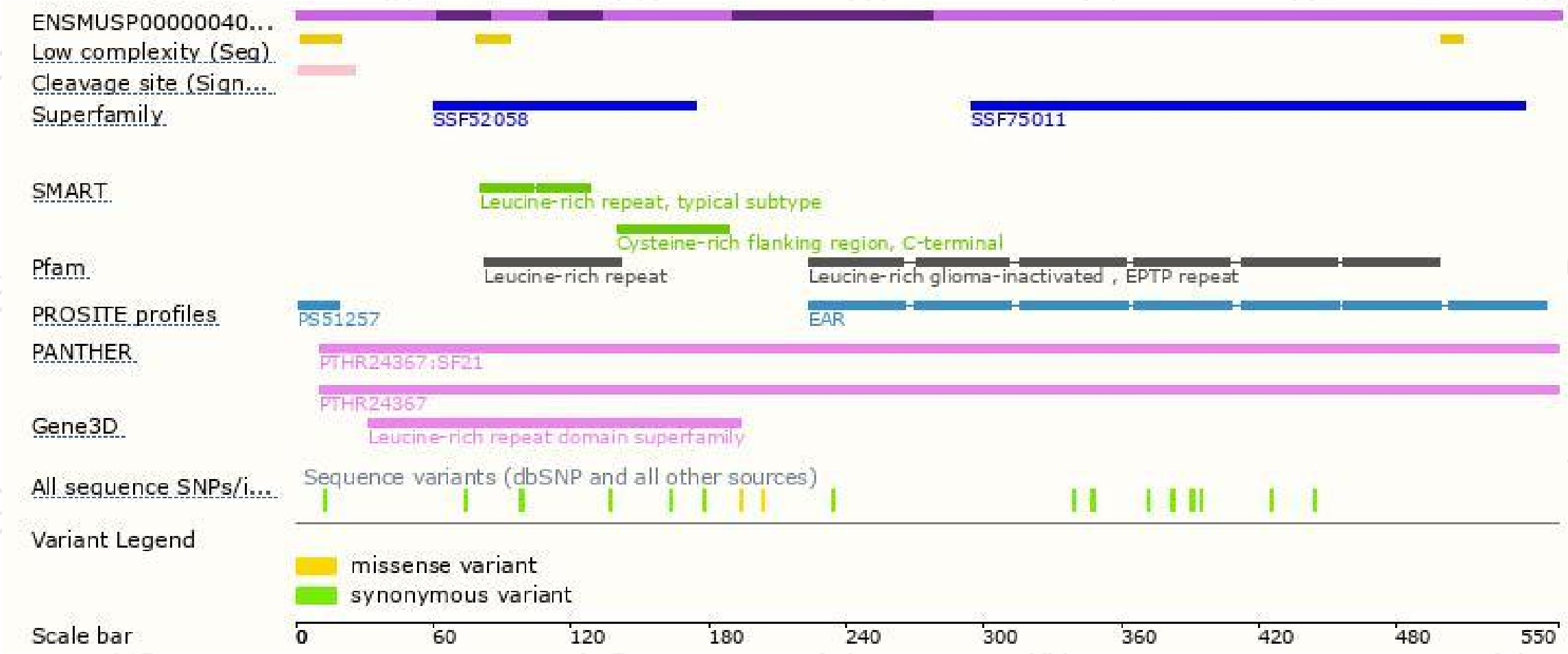
The strategy is based on the design of *Lgi2-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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