

Glra4 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Gla4

Project type

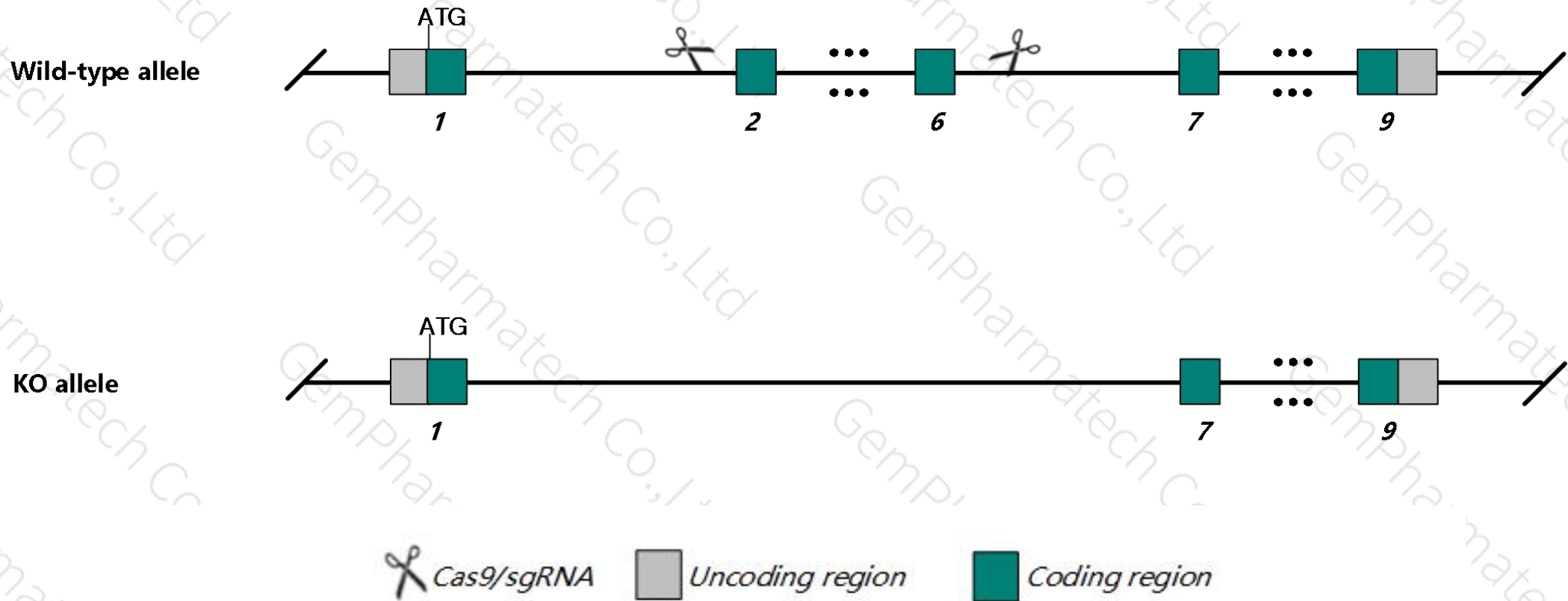
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gbra4* gene. The schematic diagram is as follows:



- The *Gtra4* gene has 2 transcripts. According to the structure of *Gtra4* gene, exon2-exon6 of *Gtra4-201* (ENSMUST00000018739.4) transcript is recommended as the knockout region. The region contains 647bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gtra4* gene. The brief process is as follows: CRISPR/Cas9 system

- The flox region is in the intron of the BC065397 gene, which may affect the regulation of this gene.
- The *Glra4* gene is located on the ChrX. 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)

Gla4 glycine receptor, alpha 4 subunit [*Mus musculus* (house mouse)]

Gene ID: 14657, updated on 13-Mar-2020

Summary

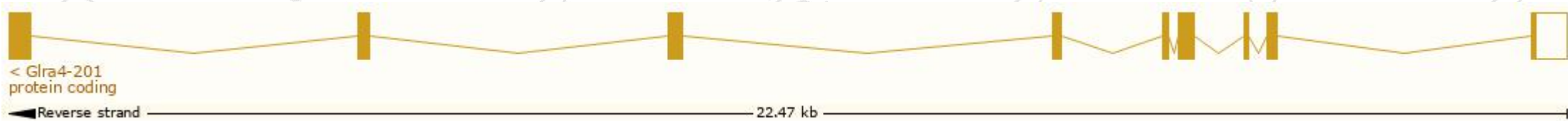
Official Symbol	Gla4 provided by MGI
Official Full Name	glycine receptor, alpha 4 subunit provided by MGI
Primary source	MGI:MGI:95750
See related	Ensembl:ENSMUSG00000018595
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<i>Mus musculus</i>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

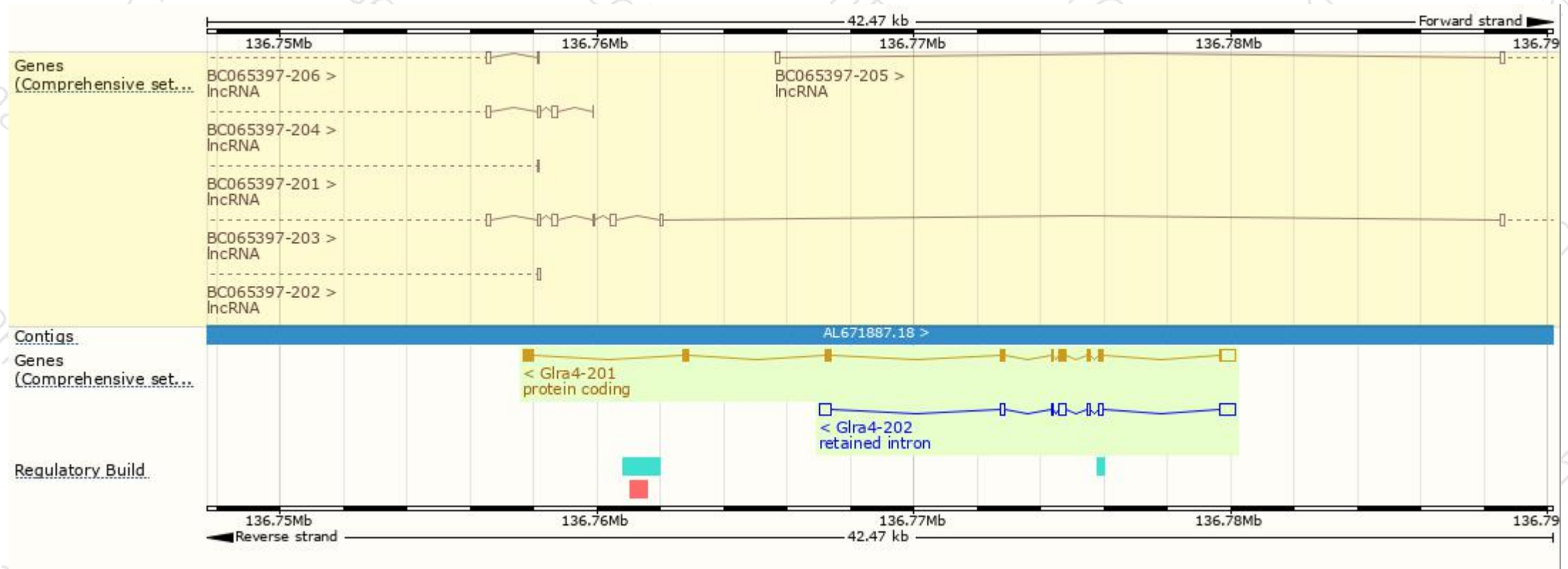
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gla4-201	ENSMUST00000018739.4	1831	456aa	Protein coding	CCDS53195	Q61603	TSL:1 GENCODE basic APPRIS P1
Gla4-202	ENSMUST00000154833.1	1547	No protein	Retained intron	-	-	TSL:2

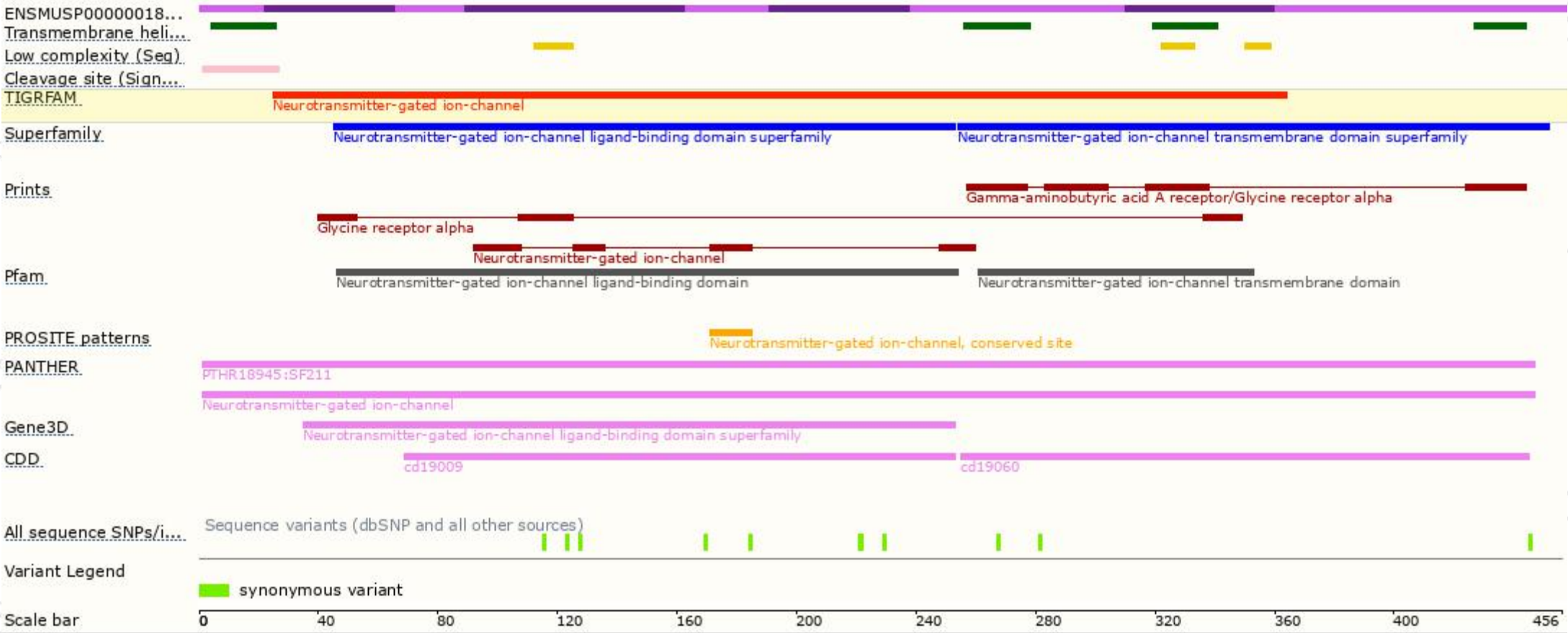
The strategy is based on the design of *Gla4-201* transcript,The transcription is shown below



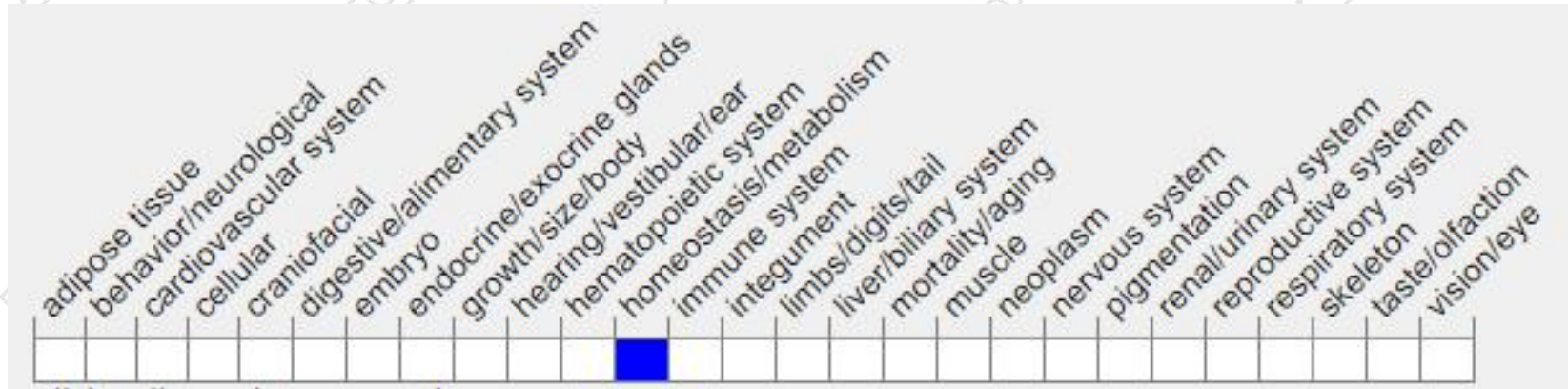
Genomic location distribution



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, Homozygous inactivation of this gene abolishes inactivation of BK currents in mouse adrenal chromaffin cells and results in slow-wave burst activity.

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

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