

Grin2d Cas9-KO Strategy

Designer:

Bingxuan Li

Reviewer:

Ruirui Zhang

Design Date:

2019-10-31

Project Overview

Project Name

Grin2d

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Grin2d* gene. The schematic diagram is as follows:



- The *Grin2d* gene has 3 transcripts. According to the structure of *Grin2d* gene, exon2-exon9 of *Grin2d-201* (ENSMUST00000002848.9) transcript is recommended as the knockout region. The region contains 1787bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Grin2d* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygotes for a targeted null mutation exhibit reduced spontaneous activity and an elevated auditory brainstem response threshold.
- The *Grin2d* gene is located on the Chr7. 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.
- The *Grin2d-202* transcript has not been affected.
- 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)

Grin2d glutamate receptor, ionotropic, NMDA2D (epsilon 4) [Mus musculus (house mouse)]

Gene ID: 14814, updated on 19-Mar-2019

Summary



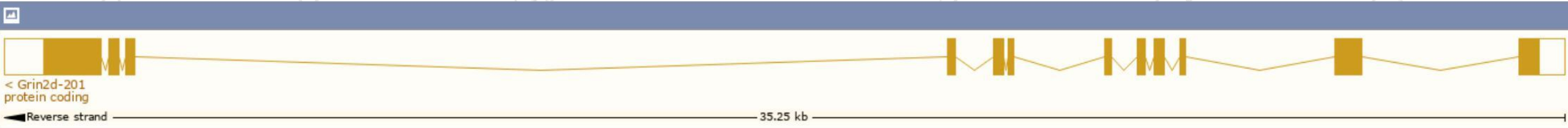
Official Symbol	Grin2d provided by MGI
Official Full Name	glutamate receptor, ionotropic, NMDA2D (epsilon 4) provided by MGI
Primary source	MGI:MGI:95823
See related	Ensembl:ENSMUSG00000002771
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	GluN2D, NMDAR2D, NR2D
Expression	Broad expression in testis adult (RPKM 12.8), CNS E18 (RPKM 5.9) and 19 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

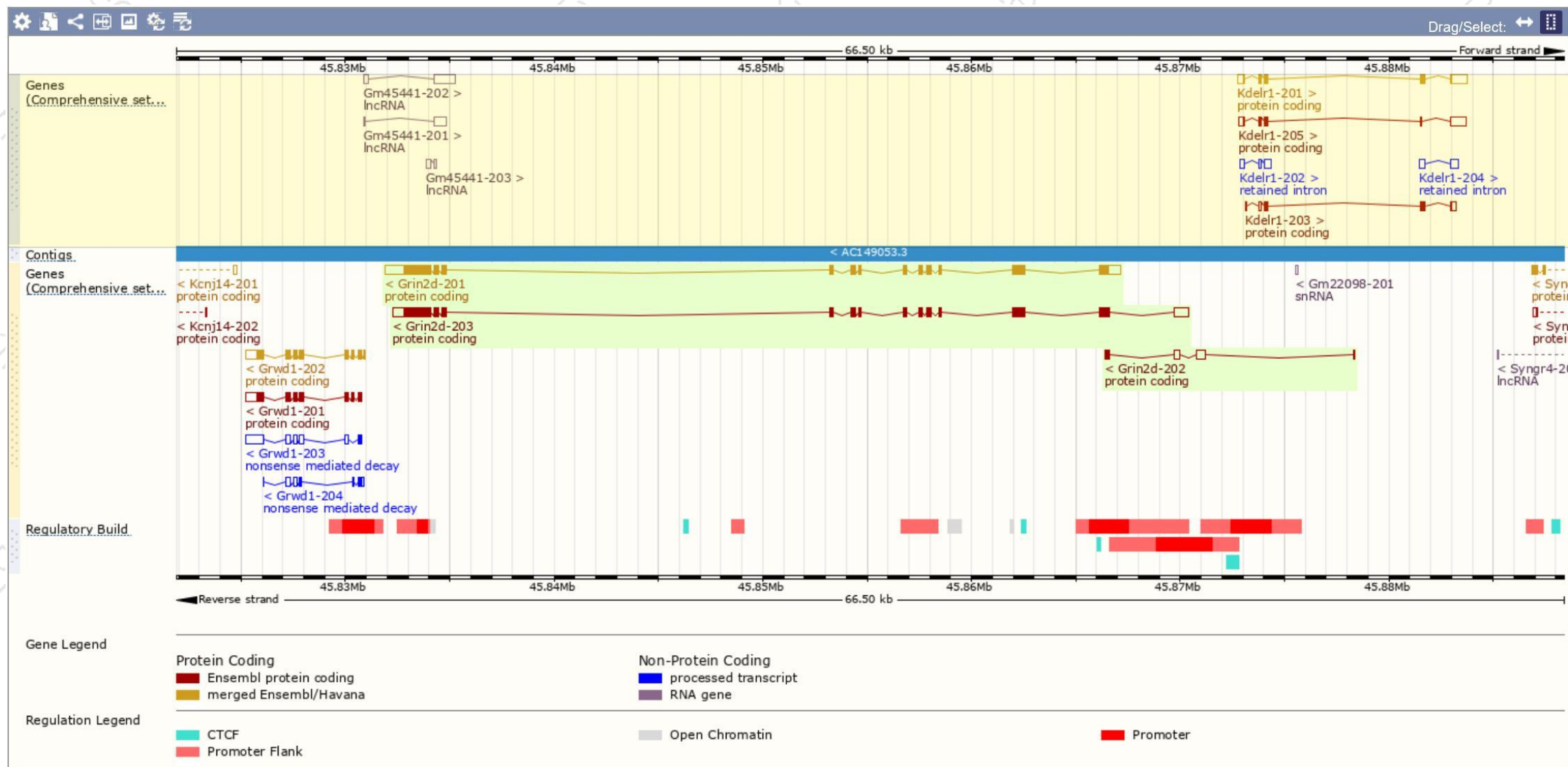
The gene has 3 transcripts,all transcripts are shown below:

Show/hide columns (1 hidden)							Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Grin2d-203	ENSMUST00000211713.1	5244	1323aa	Protein coding	CCDS21267	Q03391	TSL:5	GENCODE basic APPRIS P1
Grin2d-202	ENSMUST00000211250.1	1009	63aa	Protein coding	-	A0A1B0GRF9	CDS 3' incomplete	TSL:5
Grin2d-201	ENSMUST00000002848.9	5431	1323aa	Protein coding	CCDS21267	Q03391	TSL:1	GENCODE basic APPRIS P1

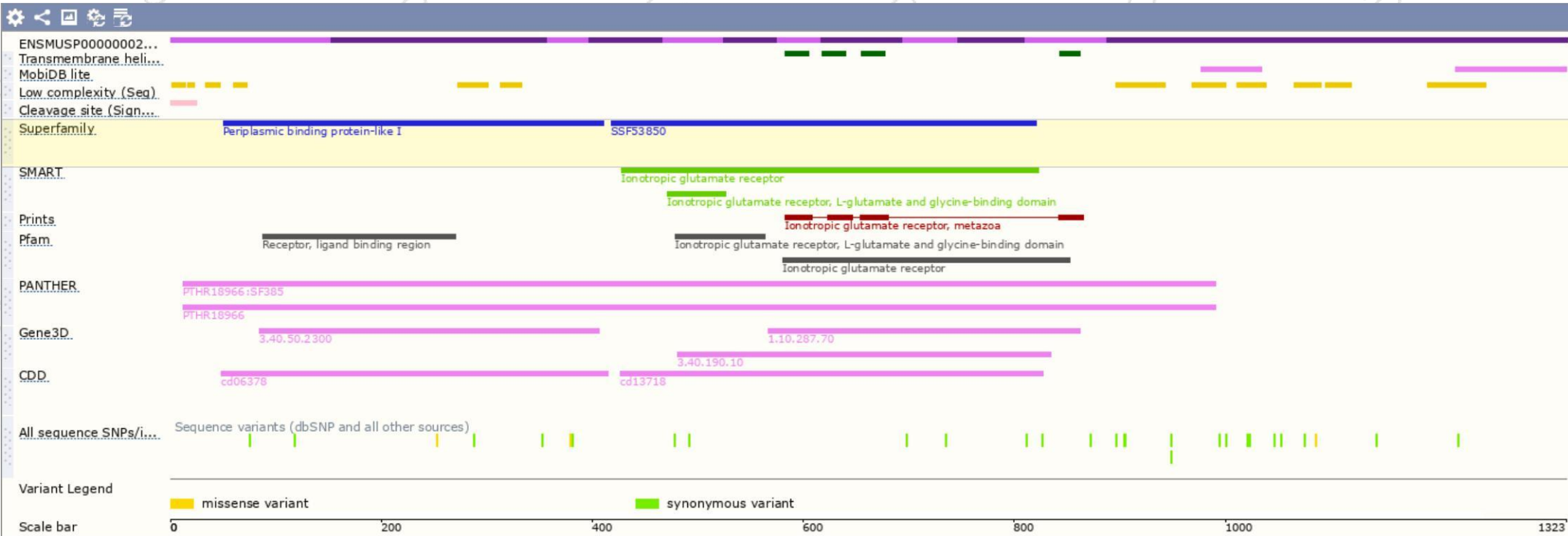
The strategy is based on the design of *Grin2d-201* transcript,The transcription is shown below



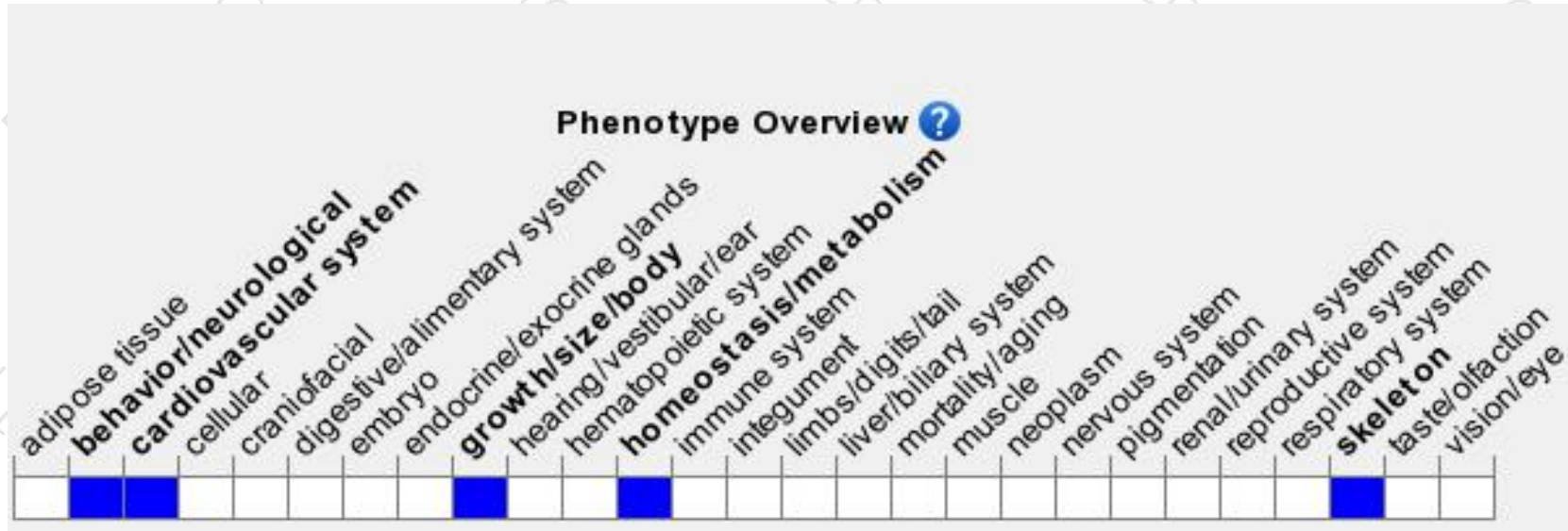
Genomic location distribution



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, Homozygotes for a targeted null mutation exhibit reduced spontaneous activity and an elevated auditory brainstem response threshold.

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

Tel: 400-9660890

