

Cspg4 Cas9-KO Strategy

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Project Overview

Project Name

Cspg4

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cspg4* gene. The schematic diagram is as follows:



- The *Cspg4* gene has 4 transcripts. According to the structure of *Cspg4* gene, exon2-exon3 of *Cspg4-201* (ENSMUST00000035661.6) transcript is recommended as the knockout region. The region contains 3716bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cspg4* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a null mutation display abnormal dentate gyrus morphology and abnormal smooth muscle cell physiology.
- The *Cspg4* gene is located on the Chr9. 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)

Cspg4 chondroitin sulfate proteoglycan 4 [Mus musculus (house mouse)]

Gene ID: 121021, updated on 26-Mar-2019

Summary



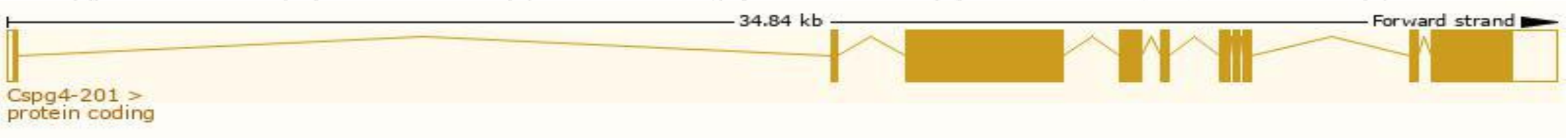
Official Symbol	Cspg4 provided by MGI
Official Full Name	chondroitin sulfate proteoglycan 4 provided by MGI
Primary source	MGI:MGI:2153093
See related	Ensembl:ENSMUSG00000032911
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4732461B14Rik, AN2, NG2
Expression	Broad expression in limb E14.5 (RPKM 17.6), mammary gland adult (RPKM 12.2) and 20 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

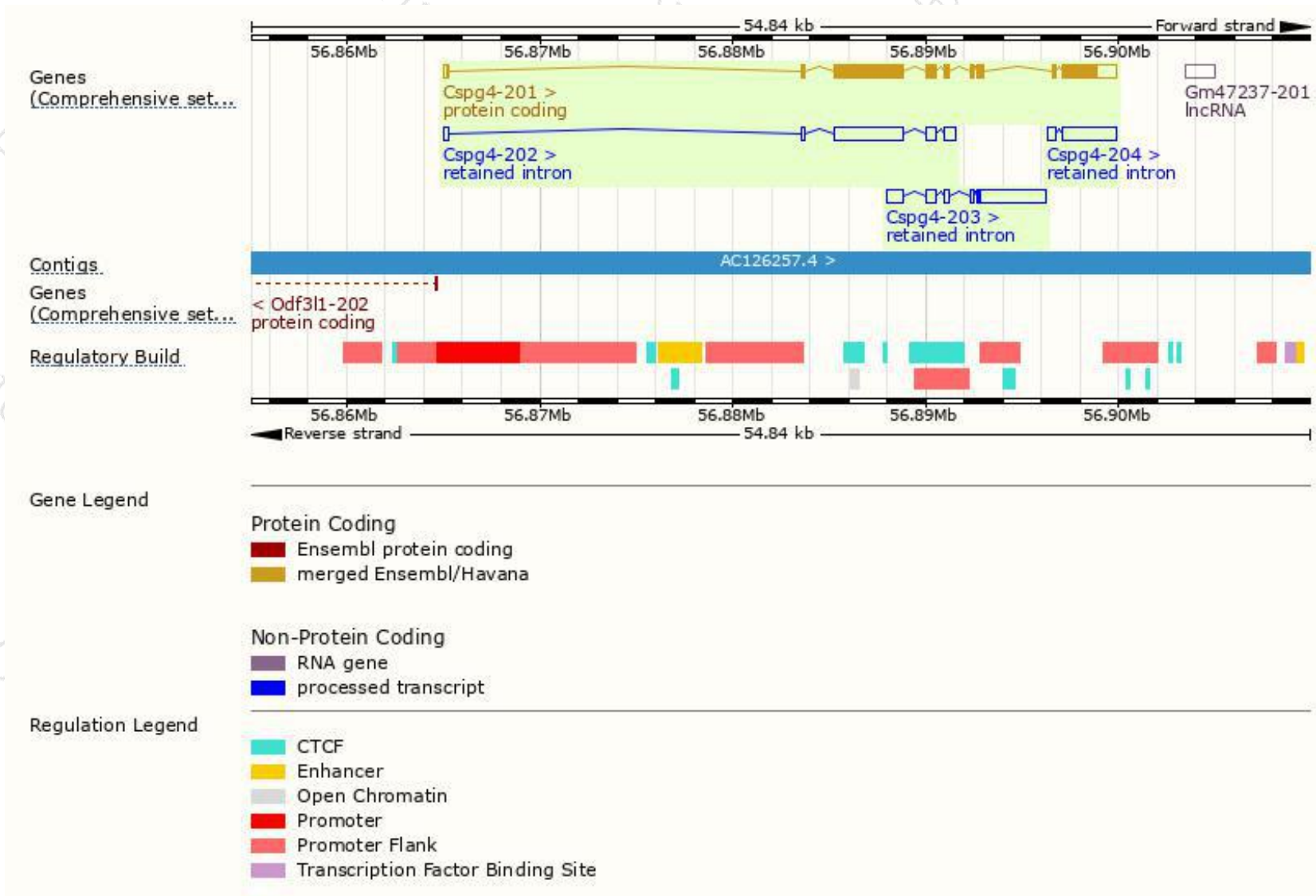
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cspg4-201	ENSMUST00000035661.6	8121	2327aa	Protein coding	CCDS23211	Q8VHY0	TSL:1 GENCODE basic APPRIS P1
Cspg4-203	ENSMUST00000215666.1	5158	No protein	Retained intron	-	-	TSL:2
Cspg4-202	ENSMUST00000214057.1	4976	No protein	Retained intron	-	-	TSL:1
Cspg4-204	ENSMUST00000217052.1	3267	No protein	Retained intron	-	-	TSL:1

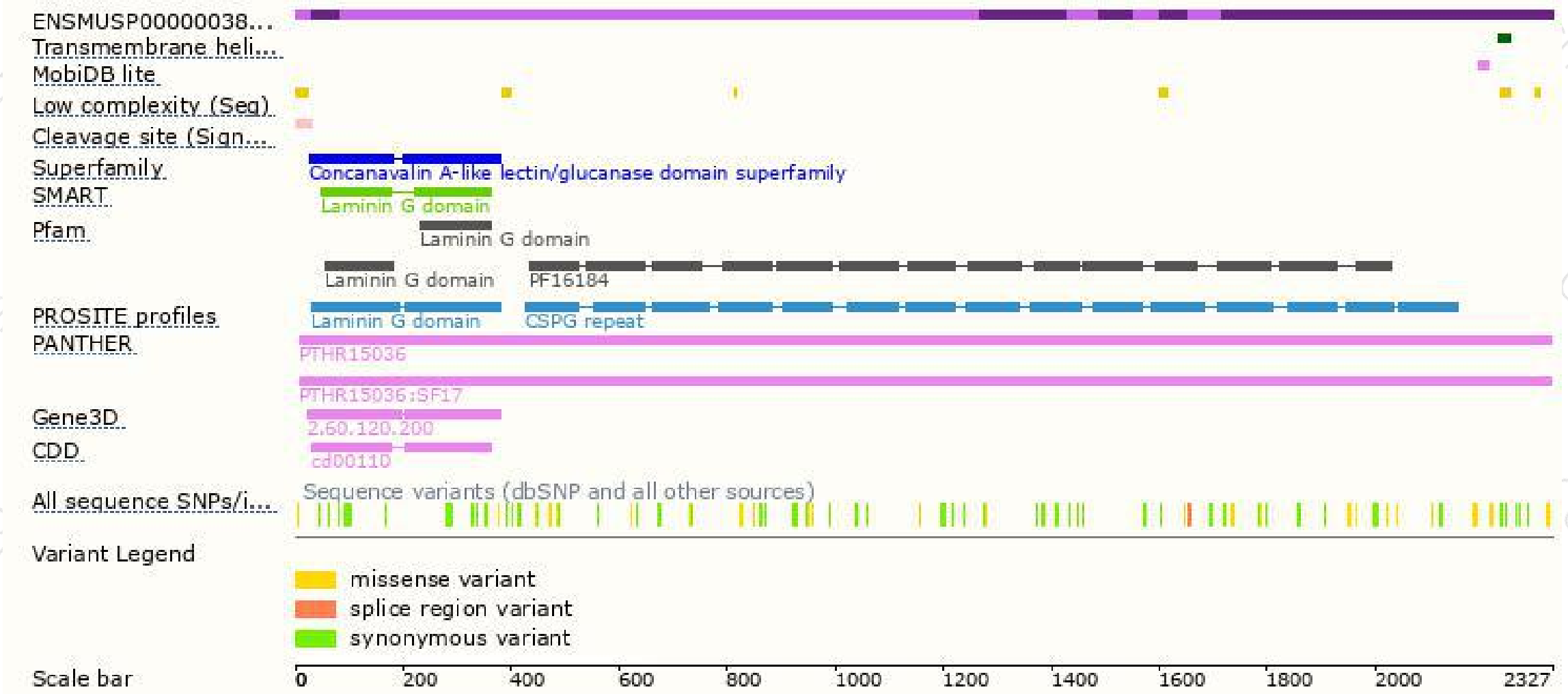
The strategy is based on the design of *Cspg4-201* transcript,The transcription is shown below



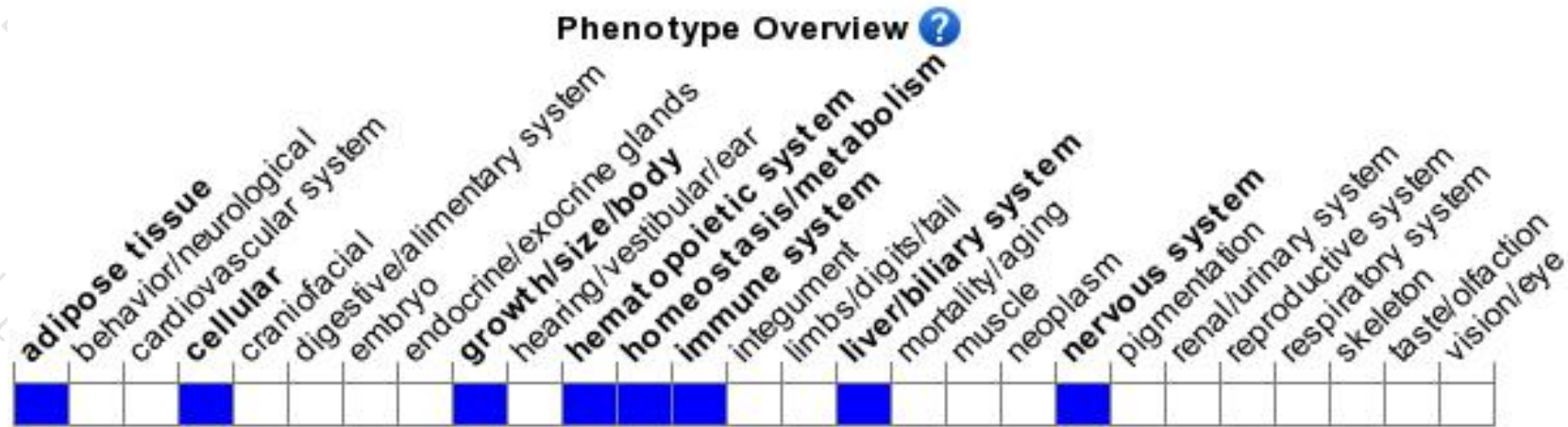
Genomic location distribution



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, Mice homozygous for a null mutation display abnormal dentate gyrus morphology and abnormal smooth muscle cell physiology.

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

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