

Adgrl2 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Adgrl2

Project type

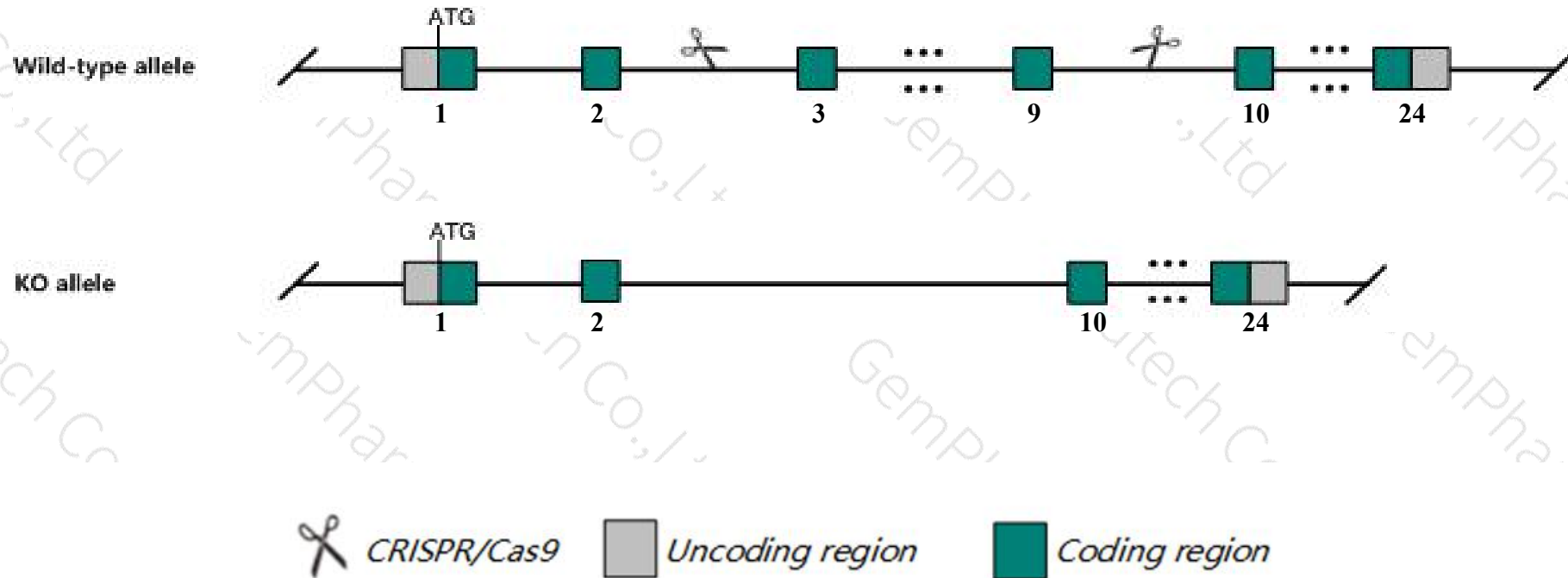
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adgrl2* gene. The schematic diagram is as follows:



- The *Adgrl2* gene has 20 transcripts. According to the structure of *Adgrl2* gene, exon3-exon9 of *Adgrl2-208* (ENSMUST00000197567.4) transcript is recommended as the knockout region. The region contains 1546bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Adgrl2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, homozygous null mice die prenatally at fetal stages. Heterozygous mice exhibit decreased locomotor activity in an open field test.
- Transcript *Adgrl2*-203,206,209,218,219 may not be affected.
- The *Adgrl2* gene is located on the Chr3. 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)

Adgrl2 adhesion G protein-coupled receptor L2 [*Mus musculus* (house mouse)]

Gene ID: 99633, updated on 12-Aug-2019

Summary

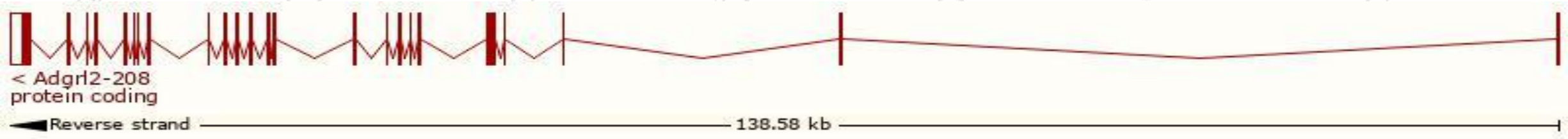
Official Symbol	Adgrl2 provided by MGI
Official Full Name	adhesion G protein-coupled receptor L2 provided by MGI
Primary source	MGI:MGI:2139714
See related	Ensembl:ENSMUSG00000028184
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Lec1; Gm619; Lphh1; Lphn2; C1RL-2; AI450192; mKIAA0786
Expression	Broad expression in CNS E18 (RPKM 41.1), CNS E14 (RPKM 39.9) and 20 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

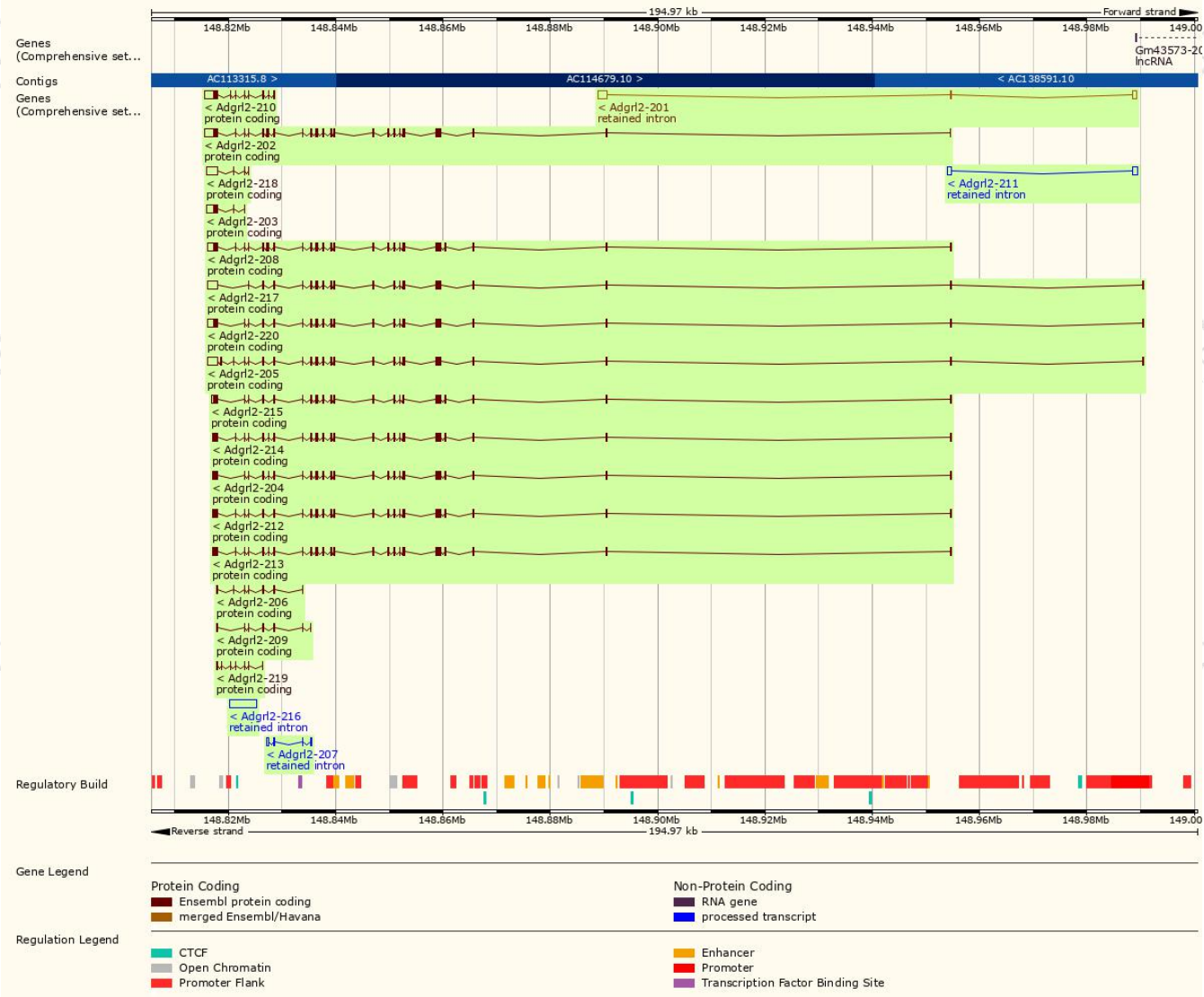
The gene has 20 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adgrl2-208	ENSMUST00000197567.4	5585	1487aa	Protein coding	CCDS80059	A0A0G2JGM8	TSL:2 GENCODE basic
Adgrl2-202	ENSMUST00000106128.6	6052	1487aa	Protein coding	-	Q8JZZ7	TSL:5 GENCODE basic
Adgrl2-205	ENSMUST00000196526.4	5615	1177aa	Protein coding	-	A0A0G2JH16	TSL:5 GENCODE basic
Adgrl2-220	ENSMUST00000200543.4	5509	1403aa	Protein coding	-	A0A0G2JDE3	TSL:5 GENCODE basic
Adgrl2-217	ENSMUST00000200154.4	5412	1123aa	Protein coding	-	A0A0G2JEC8	TSL:5 GENCODE basic
Adgrl2-214	ENSMUST00000199238.4	4670	1478aa	Protein coding	-	A0A0G2JDK6	TSL:5 GENCODE basic APPRIS P1
Adgrl2-213	ENSMUST00000199059.4	4637	1467aa	Protein coding	-	A0A0G2JFF5	TSL:5 GENCODE basic
Adgrl2-212	ENSMUST00000198779.4	4592	1452aa	Protein coding	-	A0A0G2JDF4	TSL:5 GENCODE basic
Adgrl2-204	ENSMUST00000195988.4	4541	1435aa	Protein coding	-	A0A0G2JG66	TSL:5 GENCODE basic
Adgrl2-215	ENSMUST00000199750.4	4399	1341aa	Protein coding	-	A0A0G2JFV3	TSL:5 GENCODE basic
Adgrl2-210	ENSMUST00000198139.4	3005	471aa	Protein coding	-	A0A0G2JGC2	CDS 5' incomplete TSL:1
Adgrl2-218	ENSMUST00000200216.4	2300	79aa	Protein coding	-	A0A0G2JDU4	CDS 5' incomplete TSL:3
Adgrl2-203	ENSMUST00000168352.1	2151	239aa	Protein coding	-	Q0P6A0	TSL:1 GENCODE basic
Adgrl2-206	ENSMUST00000197348.4	843	196aa	Protein coding	-	A0A0G2JE37	CDS 5' incomplete TSL:3
Adgrl2-209	ENSMUST00000197925.4	793	264aa	Protein coding	-	A0A0G2JGZ4	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3
Adgrl2-219	ENSMUST00000200456.1	610	138aa	Protein coding	-	A0A0G2JDH6	CDS 5' incomplete TSL:3
Adgrl2-216	ENSMUST00000200023.1	4855	No protein	Retained intron	-	-	TSL:NA
Adgrl2-201	ENSMUST00000098518.2	2585	No protein	Retained intron	-	-	TSL:1
Adgrl2-211	ENSMUST00000198563.1	1669	No protein	Retained intron	-	-	TSL:1
Adgrl2-207	ENSMUST00000197521.1	795	No protein	Retained intron	-	-	TSL:3

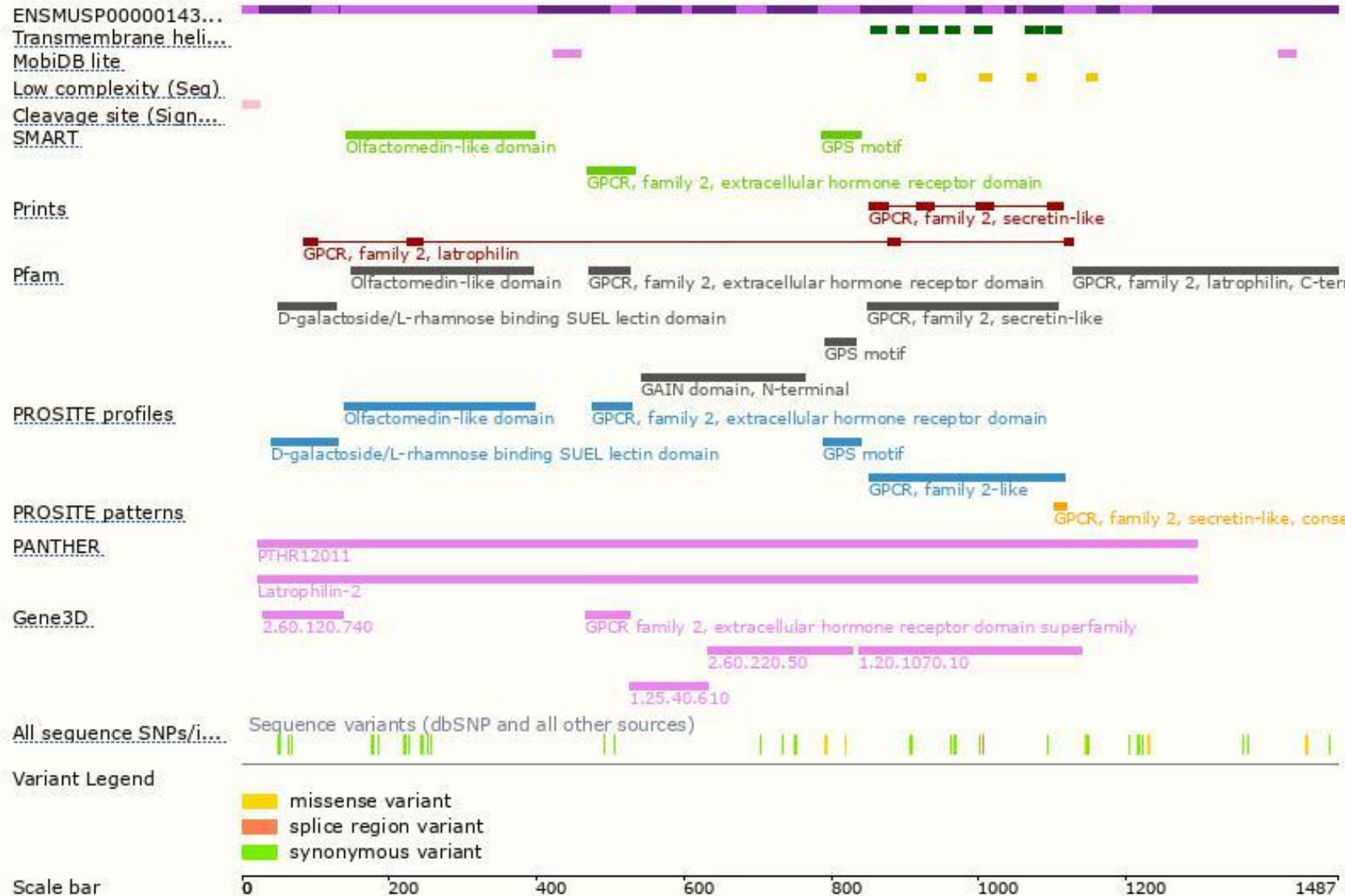
The strategy is based on the design of *Adgrl2-208* transcript,The transcription is shown below



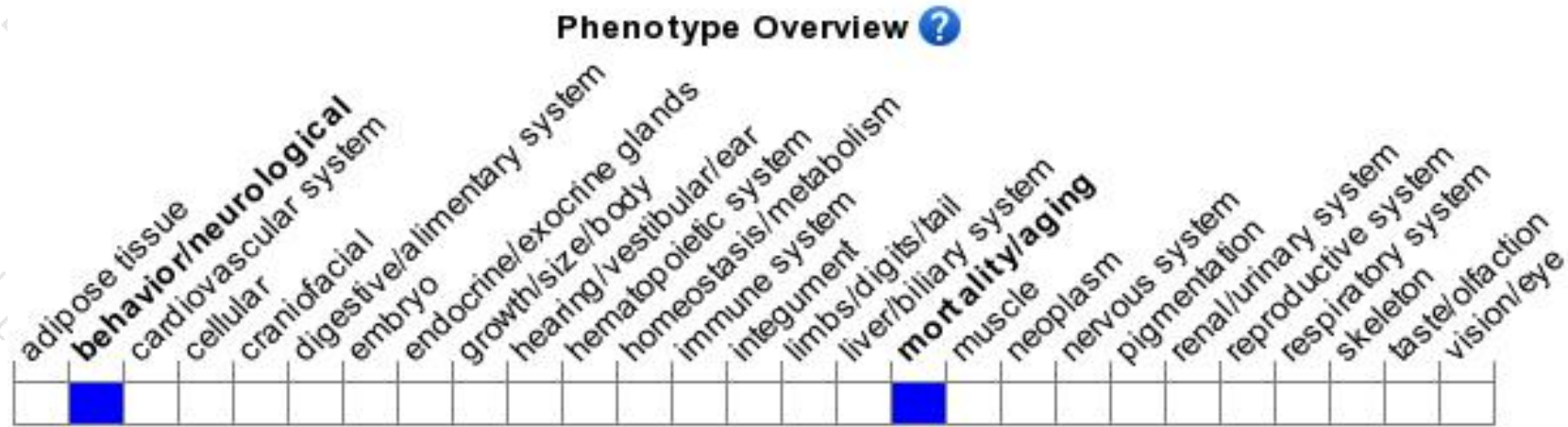
Genomic location distribution



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 null mice die prenatally at fetal stages. Heterozygous mice exhibit decreased locomotor activity in an open field test.

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

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