

Adgrg2 Cas9-KO Strategy

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Project Overview

Project Name

Adgrg2

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adgrg2* gene. The schematic diagram is as follows:



- The *Adgrg2* gene has 9 transcripts. According to the structure of *Adgrg2* gene, exon4-exon10 of *Adgrg2-202* (ENSMUST00000112400.7) transcript is recommended as the knockout region. The region contains 328bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Adgrg2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Hemizygous null male mice display reduced fertility, oligozoospermia, teratozoospermia, asthenozoospermia, abnormal epididymis morphology, and abnormal fluid accumulation resulting in enlarged testes and dilated seminiferous tubules.
- The *Adgrg2* 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)

Adgrg2 adhesion G protein-coupled receptor G2 [Mus musculus (house mouse)]

Gene ID: 237175, updated on 31-Jan-2019

Summary



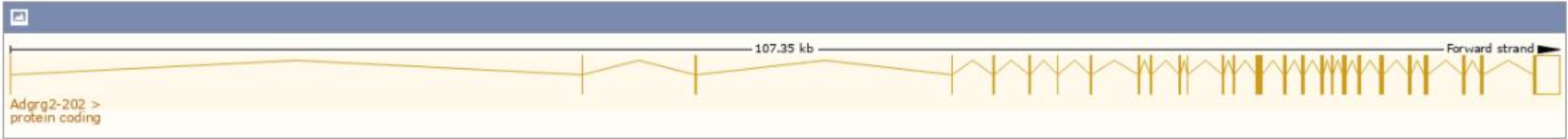
Official Symbol	Adgrg2 provided by MGI
Official Full Name	adhesion G protein-coupled receptor G2 provided by MGI
Primary source	MGI:MGI:2446854
See related	Ensembl:ENSMUSG000000031298
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW212196, B830041D06Rik, Gpr64, Me6
Expression	Biased expression in genital fat pad adult (RPKM 104.9) and limb E14.5 (RPKM 8.2) See more
Orthologs	human all

Transcript information (Ensembl)

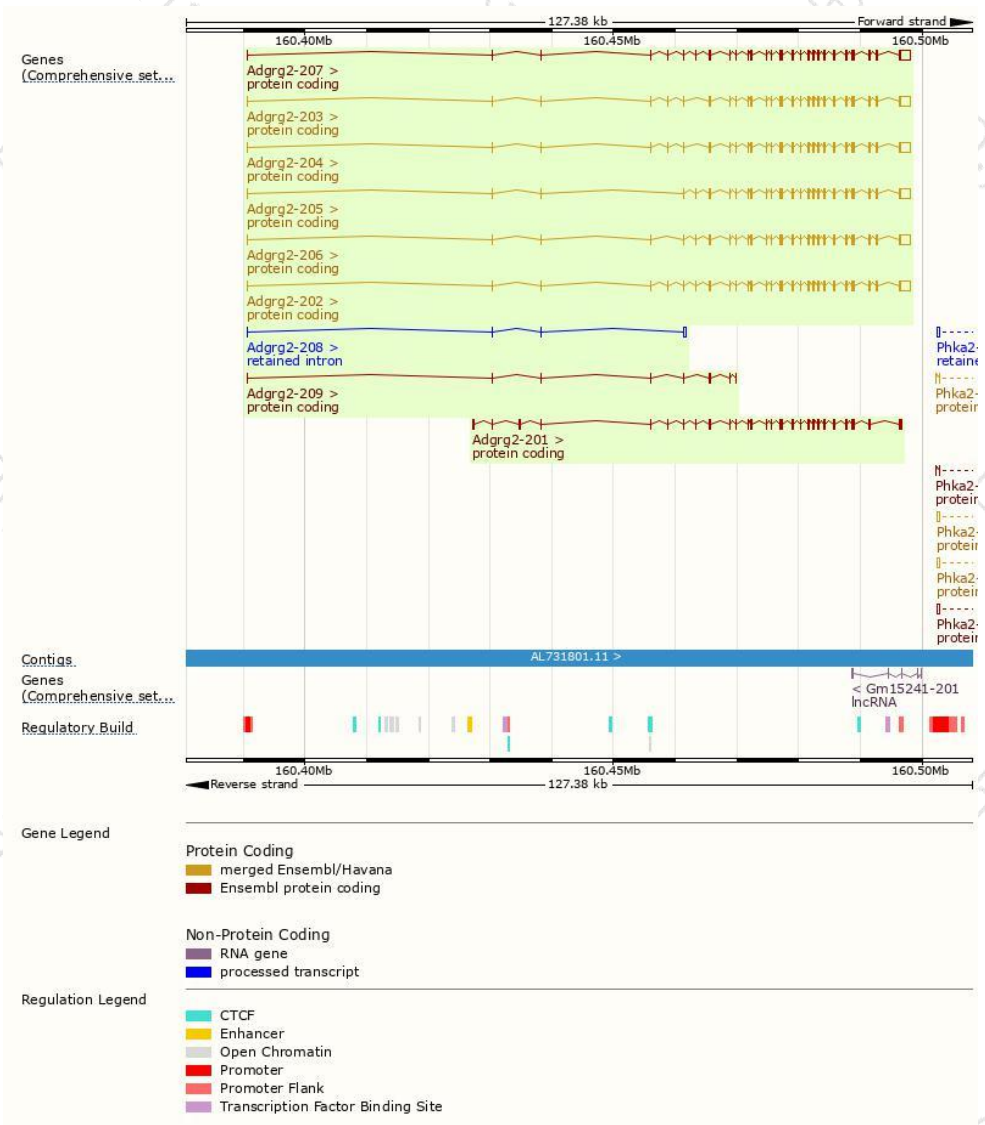
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adgrg2-207	ENSMUST00000112408.8	4708	1006aa	Protein coding	CCDS72459	Q8CJ12	TSL:1 GENCODE basic APPRIS ALT2
Adgrg2-202	ENSMUST00000112400.7	4682	1009aa	Protein coding	CCDS41196	Q14AX7 Q8CJ12	TSL:1 GENCODE basic APPRIS P4
Adgrg2-204	ENSMUST00000112402.7	4641	995aa	Protein coding	CCDS41197	Q8CJ12	TSL:1 GENCODE basic APPRIS ALT2
Adgrg2-206	ENSMUST00000112405.8	4634	993aa	Protein coding	CCDS81192	Q8CJ12	TSL:1 GENCODE basic APPRIS ALT2
Adgrg2-203	ENSMUST00000112401.7	4632	992aa	Protein coding	CCDS41198	Q14BH6	TSL:5 GENCODE basic APPRIS ALT2
Adgrg2-205	ENSMUST00000112404.8	4601	982aa	Protein coding	CCDS41199	Q8CJ12	TSL:1 GENCODE basic APPRIS ALT2
Adgrg2-201	ENSMUST00000112398.2	3418	955aa	Protein coding	-	A2AHQ2	TSL:1 GENCODE basic APPRIS ALT2
Adgrg2-209	ENSMUST00000146805.7	384	105aa	Protein coding	-	A2AHP7	CDS 3' incomplete TSL:5
Adgrg2-208	ENSMUST00000123450.7	531	No protein	Retained intron	-	-	TSL:5

The strategy is based on the design of *Adgrg2-202* transcript,The transcription is shown below



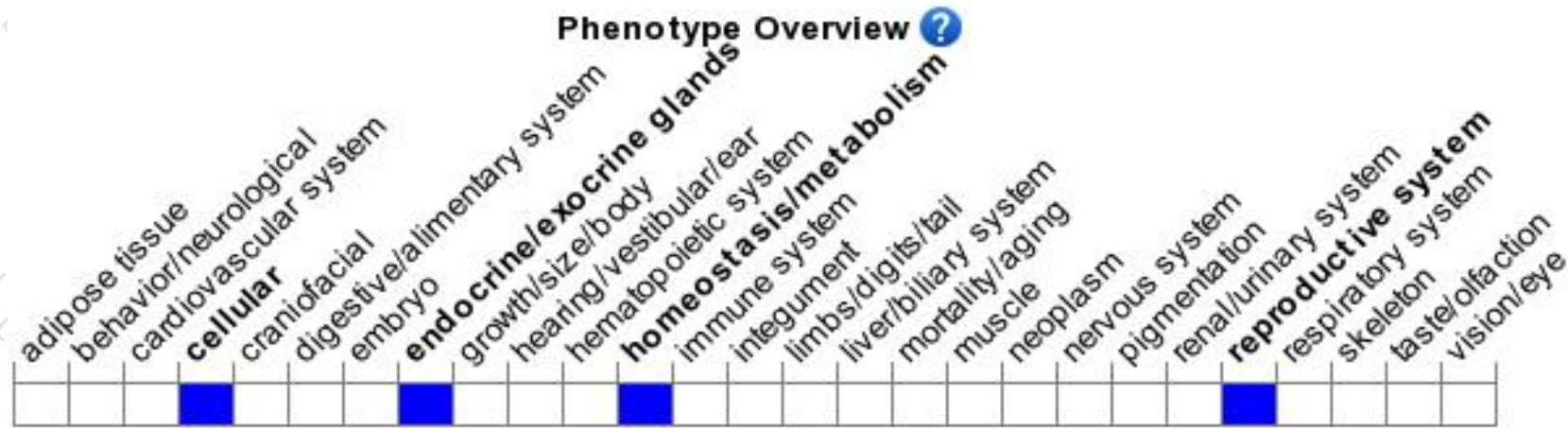
Genomic location distribution



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, Hemizygous null male mice display reduced fertility, oligozoospermia, teratozoospermia, asthenozoospermia, abnormal epididymis morphology, and abnormal fluid accumulation resulting in enlarged dilated seminiferous tubules.

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

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