

Daglb Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Daglb

Project type

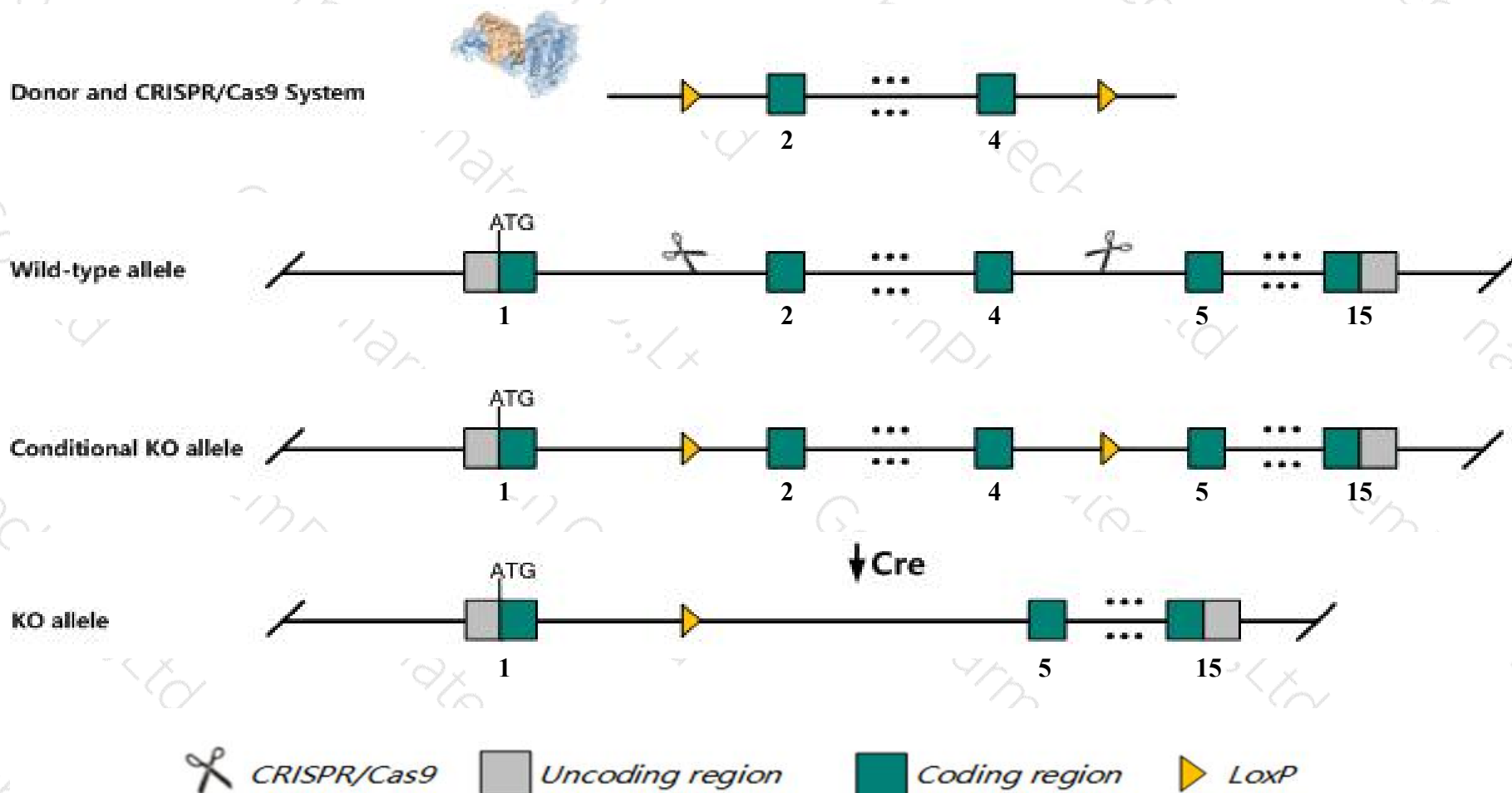
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Daglb* gene has 4 transcripts. According to the structure of *Daglb* gene, exon2-exon4 of *Daglb*-201 (ENSMUST00000045593.11) transcript is recommended as the knockout region. The region contains 583bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Daglb* gene. The brief process is as follows: CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, Mice homozygous for null mutations have a reduction in endocannabinoids in the brain and a decrease in adult neuronal proliferation in the hippocampus.
- The *Daglb* gene is located on the Chr5. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Daglb diacylglycerol lipase, beta [Mus musculus (house mouse)]

Gene ID: 231871, updated on 31-Jan-2019

Summary



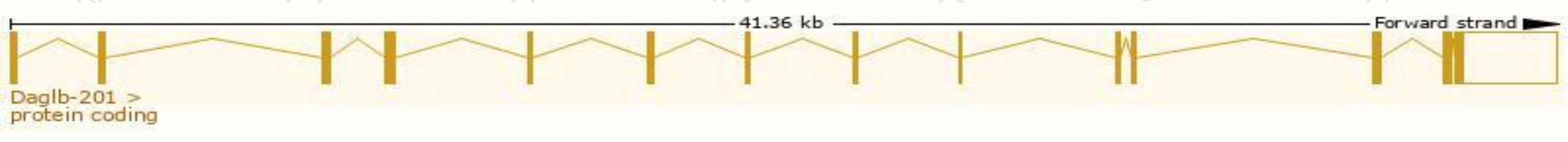
Official Symbol	Daglb provided by MGI
Official Full Name	diacylglycerol lipase, beta provided by MGI
Primary source	MGI:MGI:2442032
See related	Ensembl:ENSMUSG00000039206
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	E330036I19Rik
Expression	Ubiquitous expression in adrenal adult (RPKM 20.1), mammary gland adult (RPKM 16.6) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

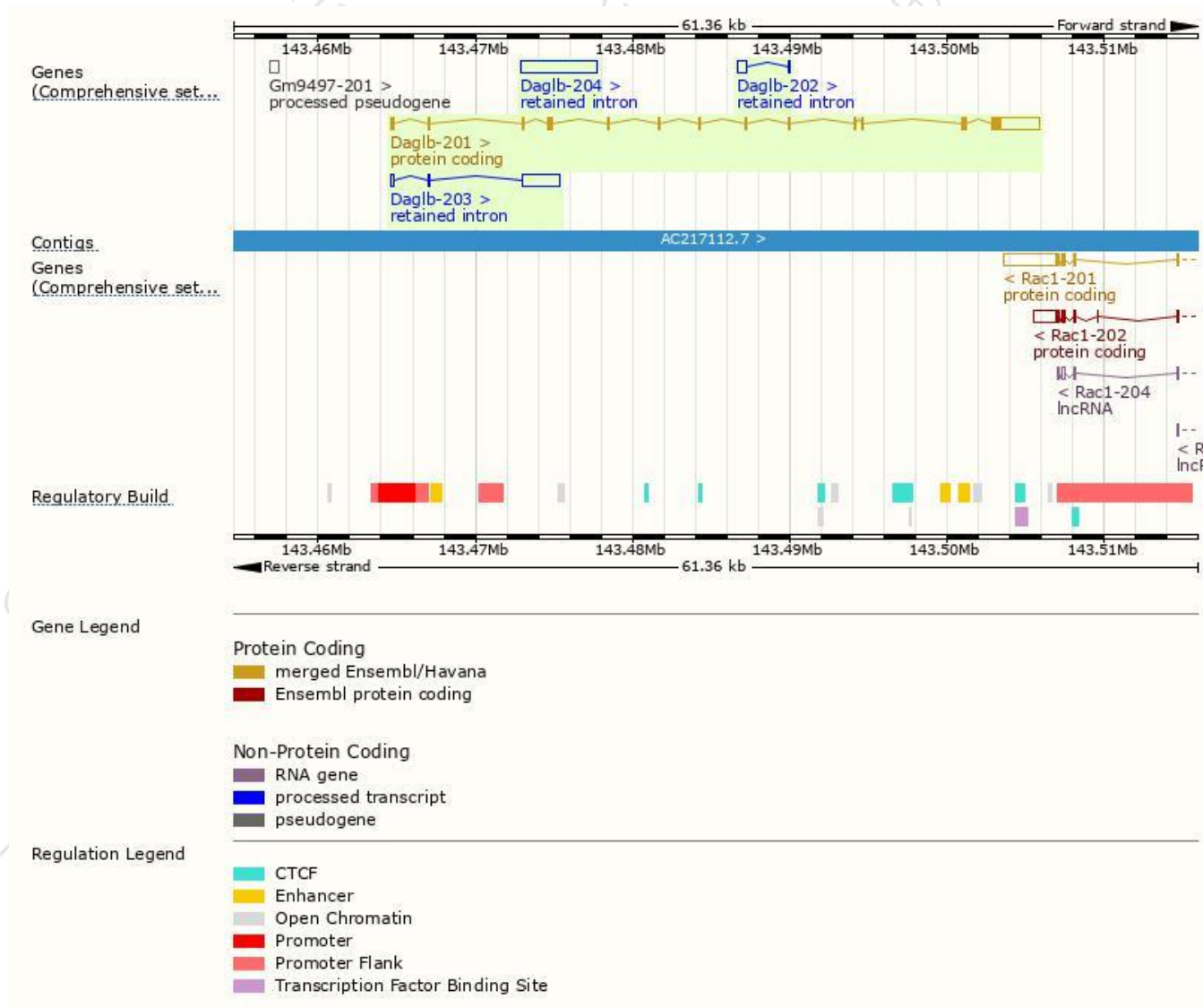
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Daglb-201	ENSMUST00000045593.11	4651	669aa	Protein coding	CCDS39370	Q91WC9	TSL:1 GENCODE basic APPRIS P1
Daglb-204	ENSMUST00000199577.1	4877	No protein	Retained intron	-	-	TSL:NA
Daglb-203	ENSMUST00000174273.2	2712	No protein	Retained intron	-	-	TSL:1
Daglb-202	ENSMUST00000155383.1	622	No protein	Retained intron	-	-	TSL:2

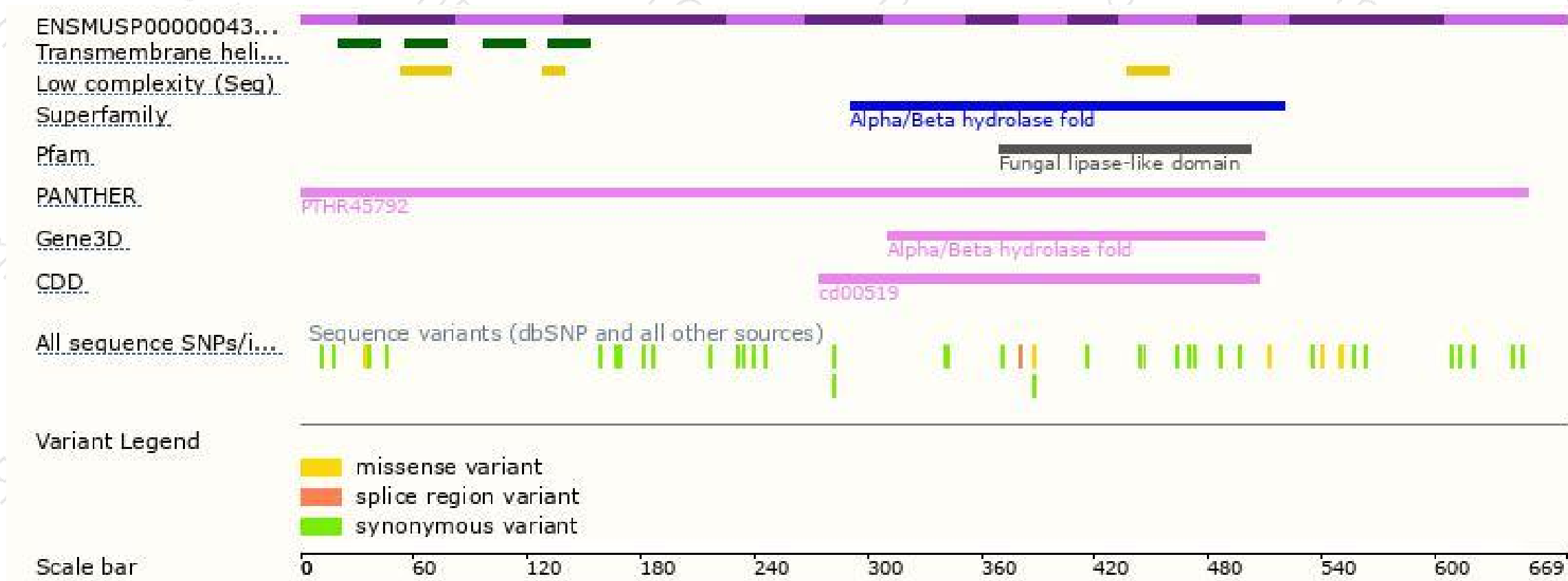
The strategy is based on the design of *Daglb-201* transcript,The transcription is shown below



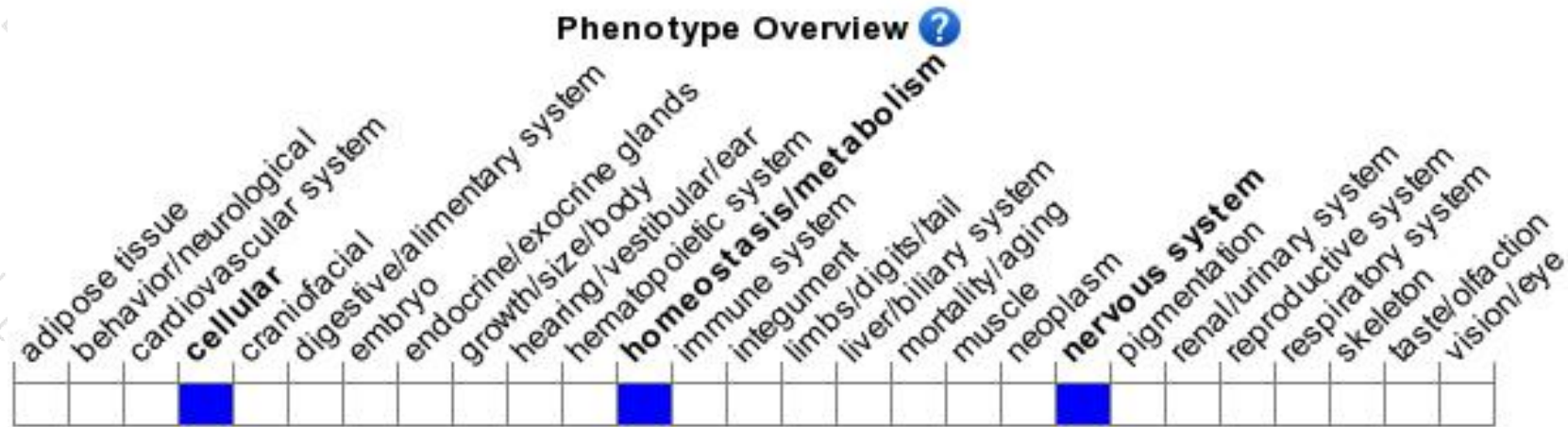
Genomic location distribution



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 null mutations have a reduction in endocannabinoids in the brain and a decrease in adult neuronal proliferation in the hippocampus.

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

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