

Dgke Cas9-KO Strategy

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Project Overview

Project Name

Dgke

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Dgke* gene has 3 transcripts. According to the structure of *Dgke* gene, exon3-exon8 of *Dgke-202* (ENSMUST00000107894.7) transcript is recommended as the knockout region. The region contains 748bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dgke* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygotes for a targeted null allele exhibit reductions in susceptibility to electroconvulsive shock and arachidonoyldiacylglycerol accumulation in cerebral cortex, and attenuated long-term potentiation in dentate granular cell synapses.
- The *Dgke* gene is located on the Chr11. 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)

Dgke diacylglycerol kinase, epsilon [Mus musculus (house mouse)]

Gene ID: 56077, updated on 7-Apr-2019

Summary



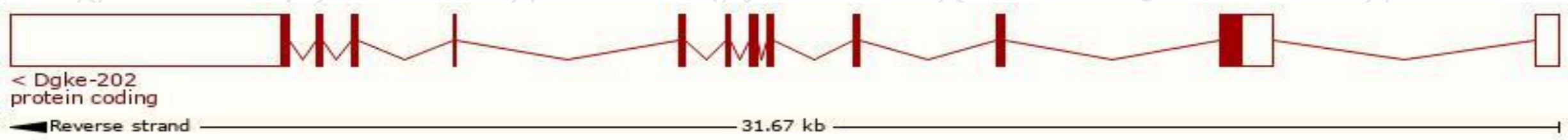
Official Symbol	Dgke provided by MGI
Official Full Name	diacylglycerol kinase, epsilon provided by MGI
Primary source	MGI:MGI:1889276
See related	Ensembl:ENSMUSG00000000276
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C87606, DAGK6, DGK, DGK-epsilon
Expression	Broad expression in thymus adult (RPKM 19.4), cerebellum adult (RPKM 8.7) and 19 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

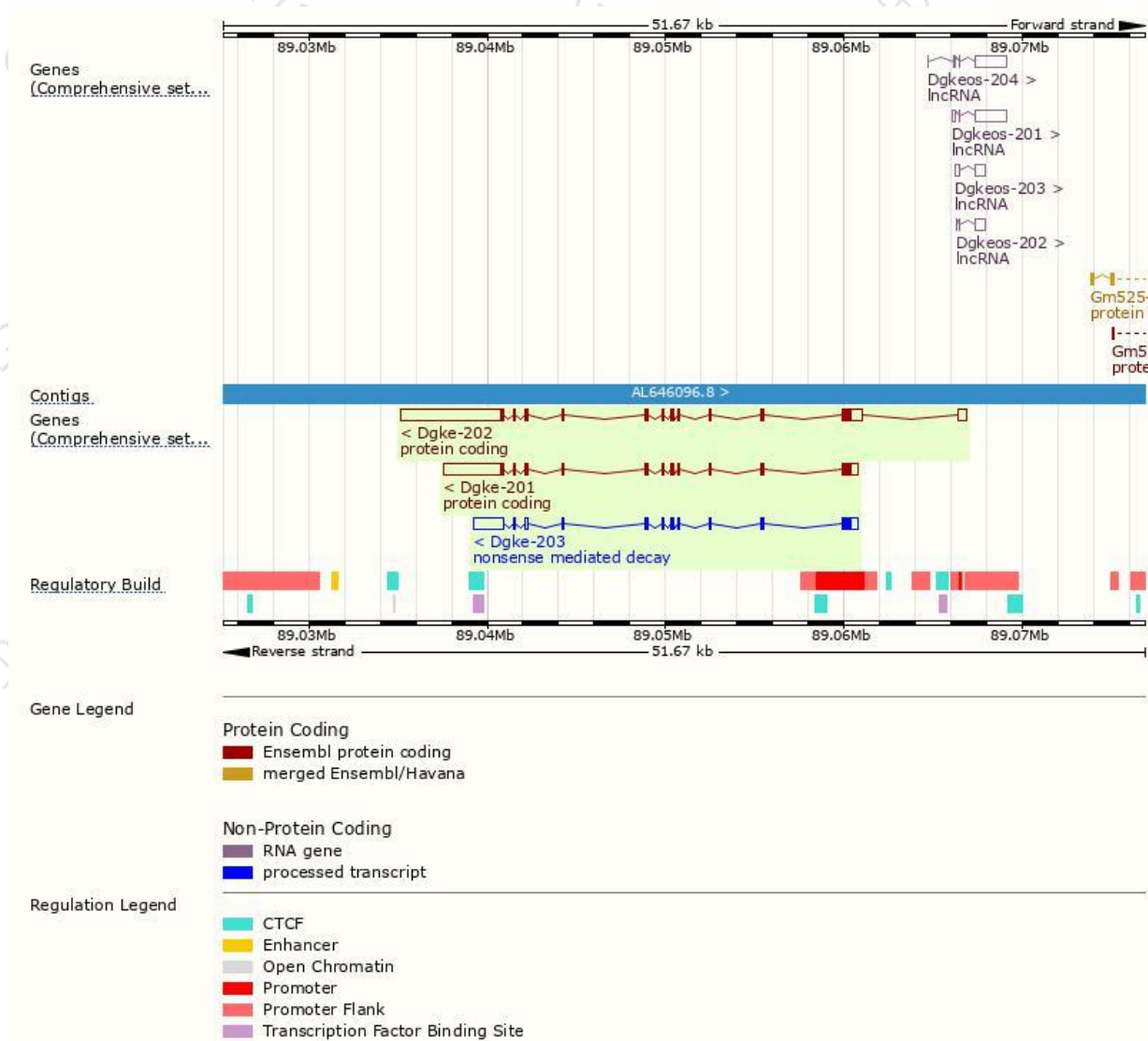
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dgke-202	ENSMUST00000107894.7	8347	564aa	Protein coding	CCDS25234	Q9R1C6	TSL:5 GENCODE basic APPRIS P1
Dgke-201	ENSMUST00000000285.8	5208	564aa	Protein coding	CCDS25234	Q9R1C6	TSL:1 GENCODE basic APPRIS P1
Dgke-203	ENSMUST00000152772.1	3562	406aa	Nonsense mediated decay	-	F2Z490	TSL:5

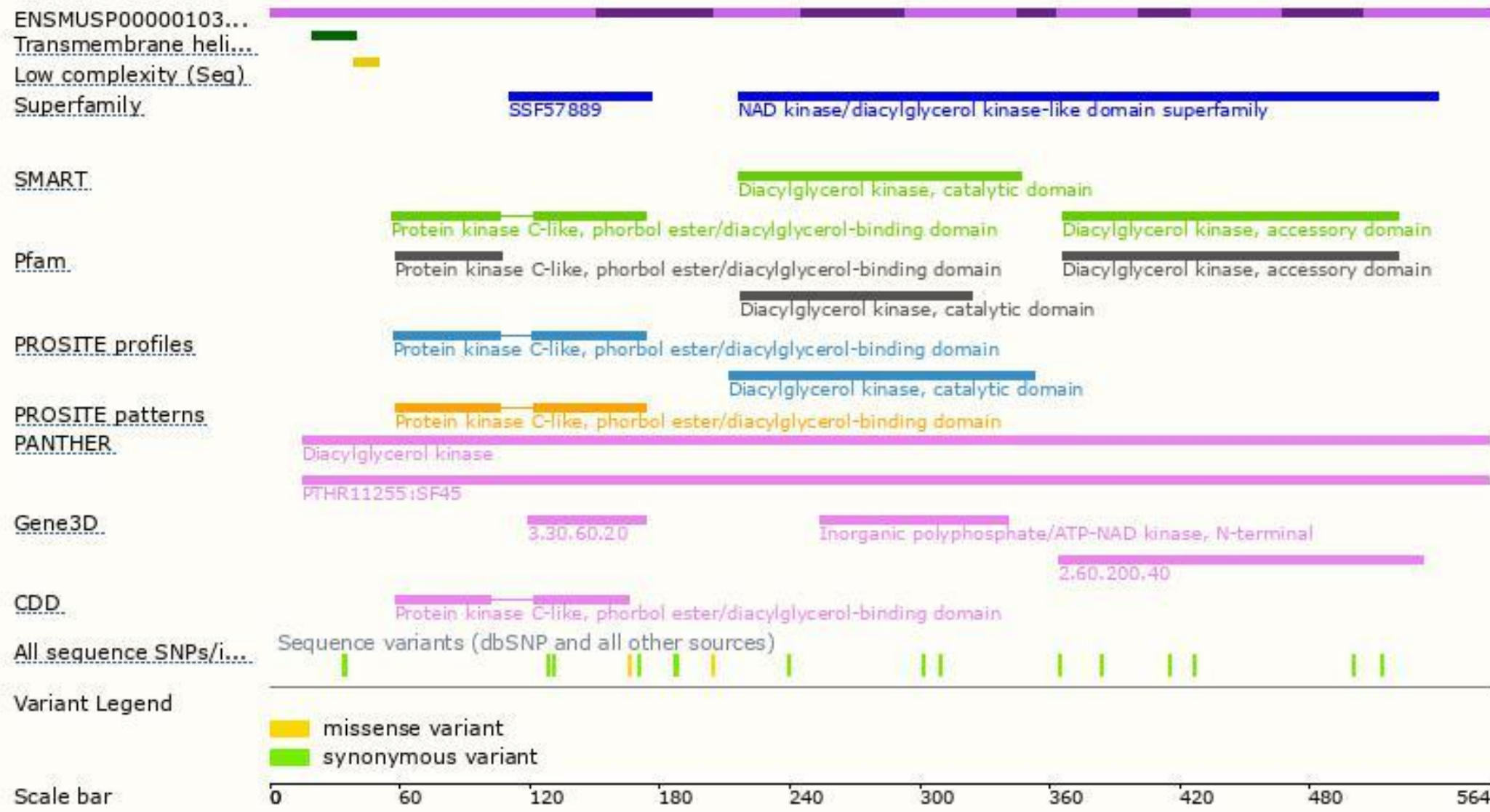
The strategy is based on the design of *Dgke-202* transcript,The transcription is shown below



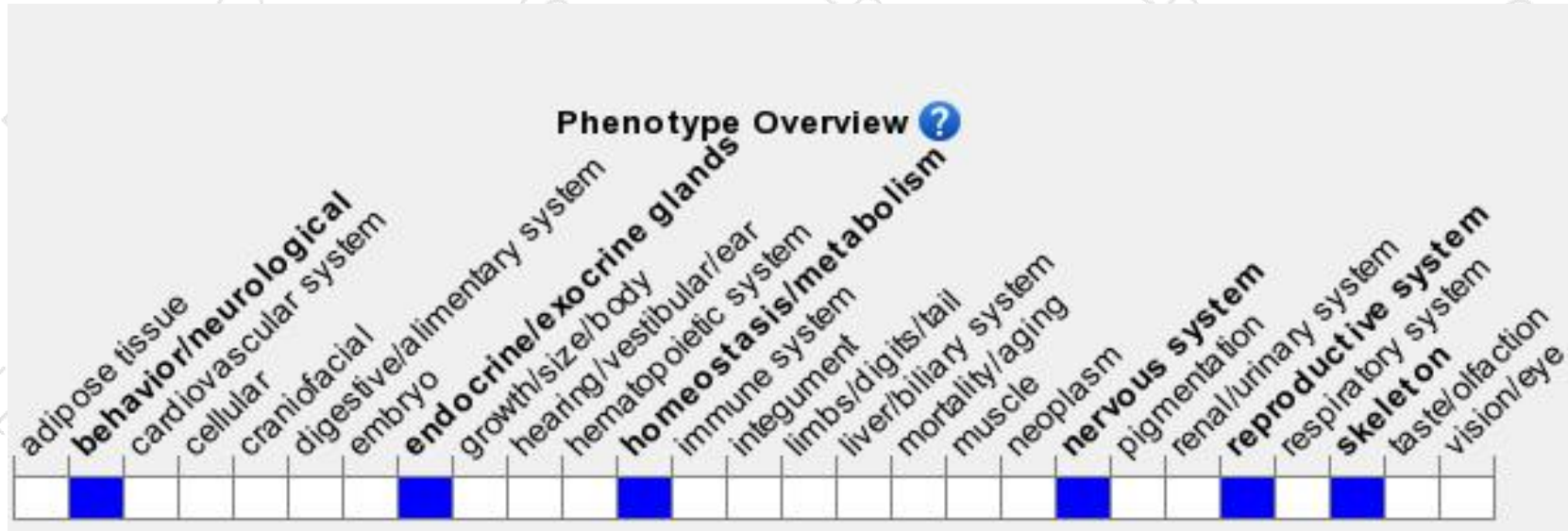
Genomic location distribution



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, Homozygotes for a targeted null allele exhibit reductions in susceptibility to electroconvulsive shock and arachidonoyldiacylglycerol accumulation in cerebral cortex, and attenuated long-term potentiation in dentate granular cell synapses.

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

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