

Gk5 Cas9-KO Strategy

Designer:Xiaojing Li

Reviewer:JiaYu

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Project Overview

Project Name

Gk5

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gk5* gene. The schematic diagram is as follows:



- The *Gk5* gene has 5 transcripts. According to the structure of *Gk5* gene, exon2-exon3 of *Gk5-202* (ENSMUST00000122383.2) transcript is recommended as the knockout region. The region contains 170bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gk5* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Mice homozygous for ENU-induced alleles exhibit skin phenotype and alopecia.
- The *Gk5* 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)

Gk5 glycerol kinase 5 (putative) [*Mus musculus* (house mouse)]

Gene ID: 235533, updated on 24-Oct-2019

Summary

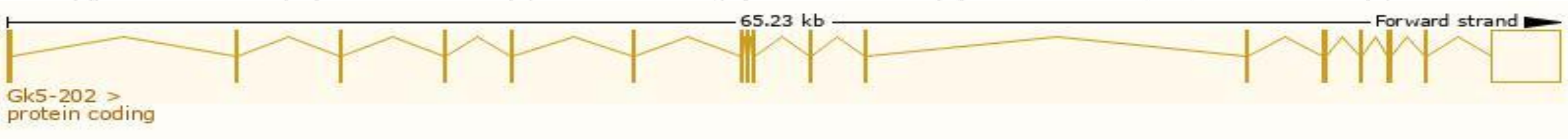
Official Symbol	Gk5 provided by MGI
Official Full Name	glycerol kinase 5 (putative) provided by MGI
Primary source	MGI:MGI:2443336
See related	Ensembl:ENSMUSG000000041440
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AV095337; C330018K18Rik; G630067D24Rik
Expression	Ubiquitous expression in genital fat pad adult (RPKM 2.4), limb E14.5 (RPKM 1.9) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

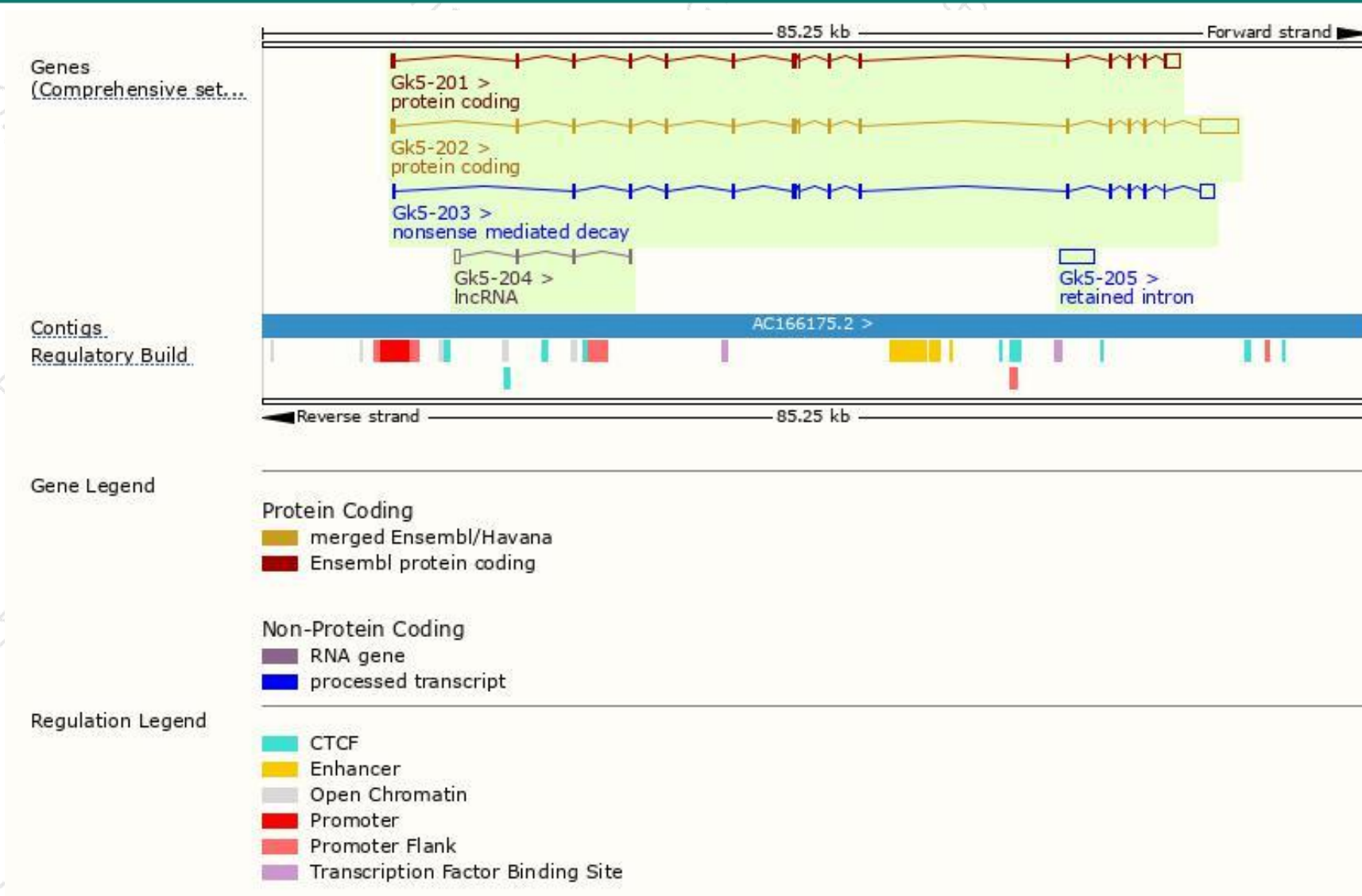
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gk5-202	ENSMUST00000122383.2	4455	516aa	Protein coding	CCDS52891	Q8BX05	TSL:1 GENCODE basic APPRIS P2
Gk5-201	ENSMUST00000085217.11	2815	534aa	Protein coding	-	Q8BX05	TSL:1 GENCODE basic APPRIS ALT2
Gk5-203	ENSMUST00000129774.1	2506	59aa	Nonsense mediated decay	-	D6RCU4	TSL:1
Gk5-205	ENSMUST00000189249.1	2550	No protein	Retained intron	-	-	TSL:NA
Gk5-204	ENSMUST00000136496.1	632	No protein	lncRNA	-	-	TSL:3

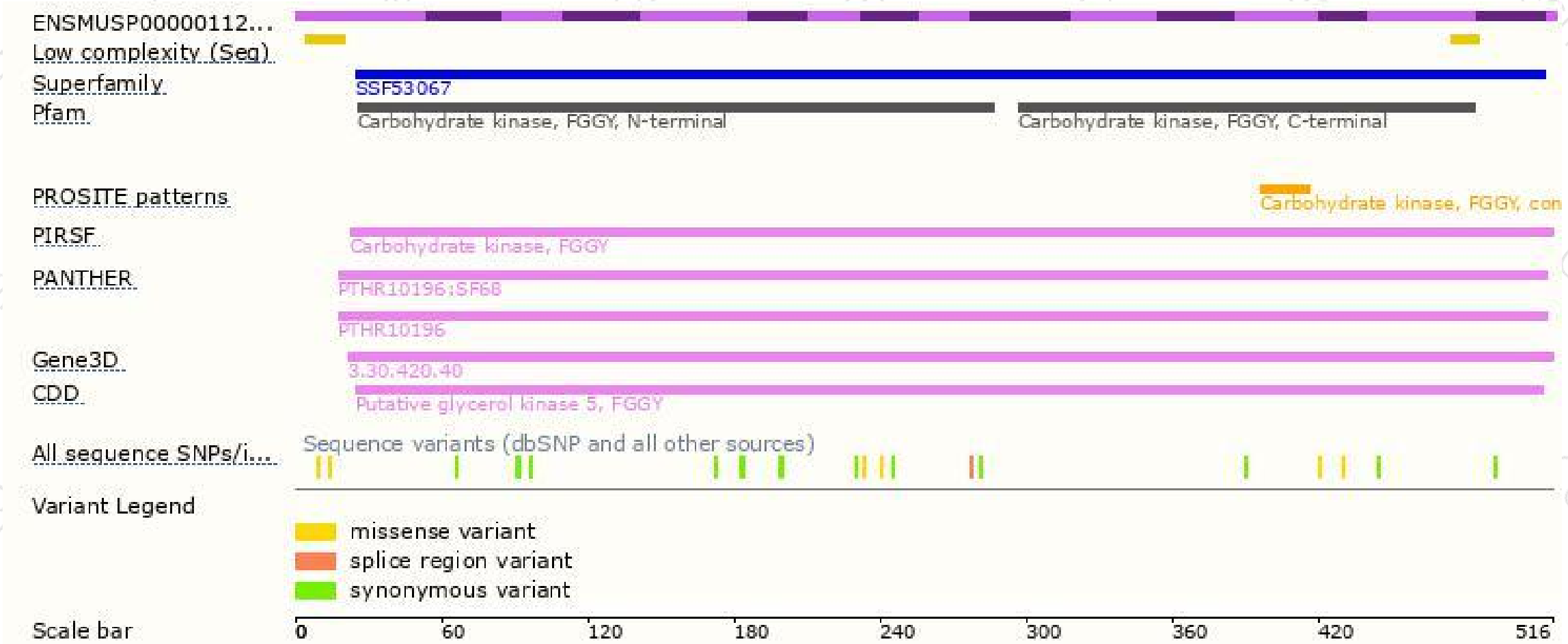
The strategy is based on the design of *Gk5-202* transcript,The transcription is shown below



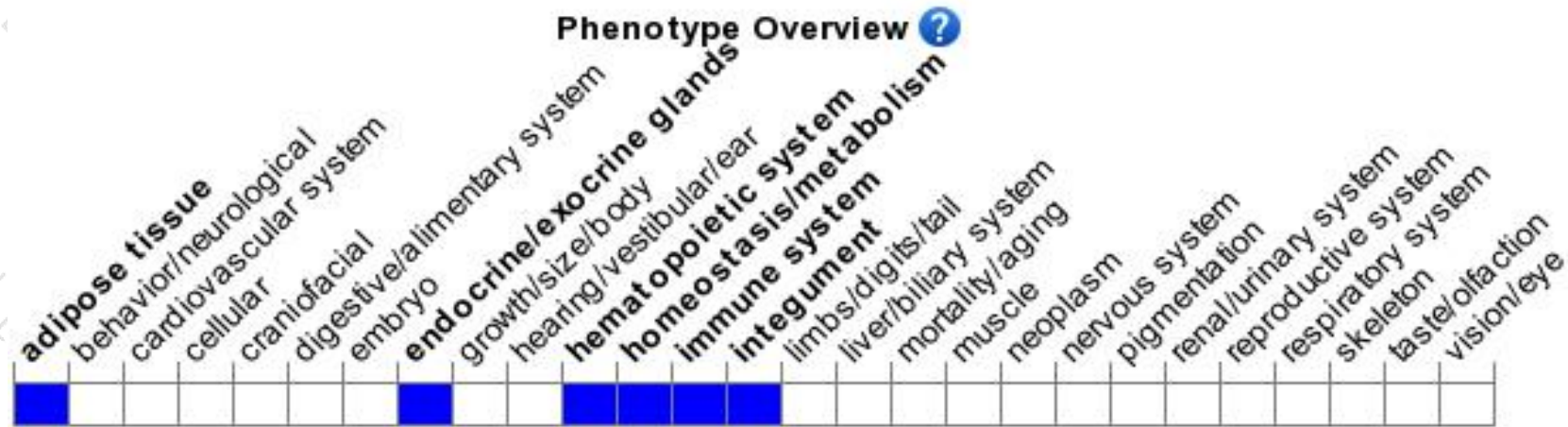
Genomic location distribution



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, Mice homozygous for ENU-induced alleles exhibit skin phenotype and alopecia.

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

Tel: 400-9660890

