Klf3 Cas9-KO Strategy

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Project Overview

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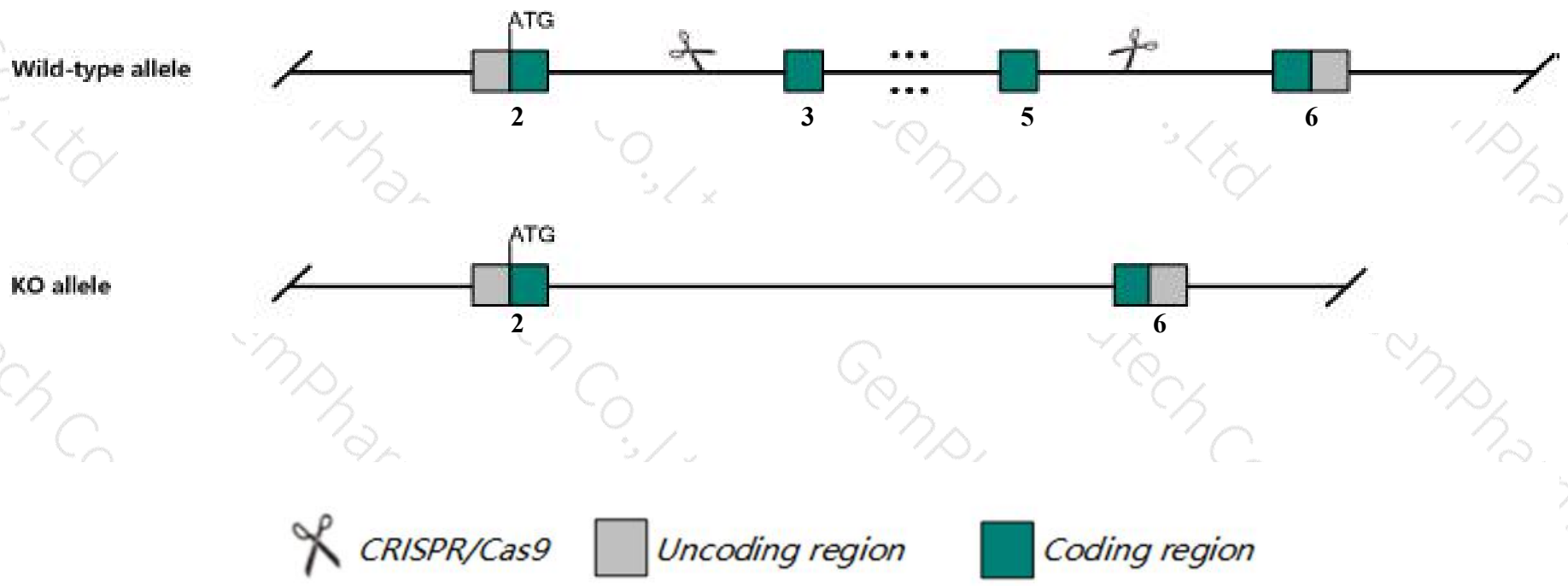
Project Name	***Klf3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Klf3* gene. The schematic diagram is as follows:



Technical routes

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- The *Klf3* gene has 9 transcripts. According to the structure of *Klf3* gene, exon3-exon5 of *Klf3-201* (ENSMUST00000165536.7) transcript is recommended as the knockout region.The region contains 796bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Klf3* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

- According to the existing MGI data,Homozygous null mice display reduced viability, body size and white adipose tissue. Mice homozygous for a gene trap allele exhibit cardiac defects, reduced body size and abnormal red blood cells. Mice heterozygous for an ENU-induced allele exhibit lethality with heart defects.

- The *Klf3* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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Klf3 Kruppel-like factor 3 (basic) [Mus musculus (house mouse)]

Gene ID: 16599, updated on 31-Jan-2019

Summary

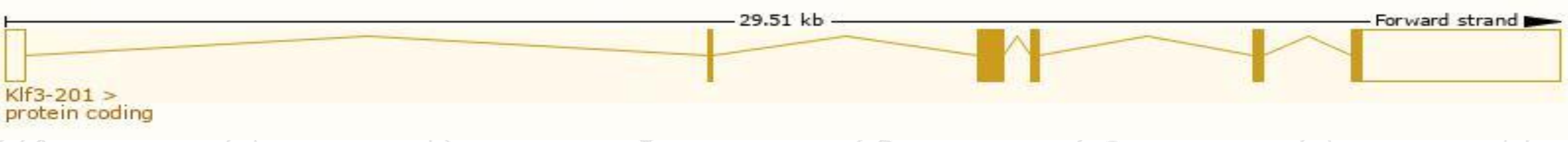
Official Symbol	Klf3 provided by MGI
Official Full Name	Kruppel-like factor 3 (basic) provided byMGI
Primary source	MGI:MGI:1342773
See related	Ensembl:ENSMUSG00000029178
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9930027G08Rik, AL024007, Bklf, Tef-2
Expression	Ubiquitous expression in colon adult (RPKM 33.8), thymus adult (RPKM 20.9) and 27 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

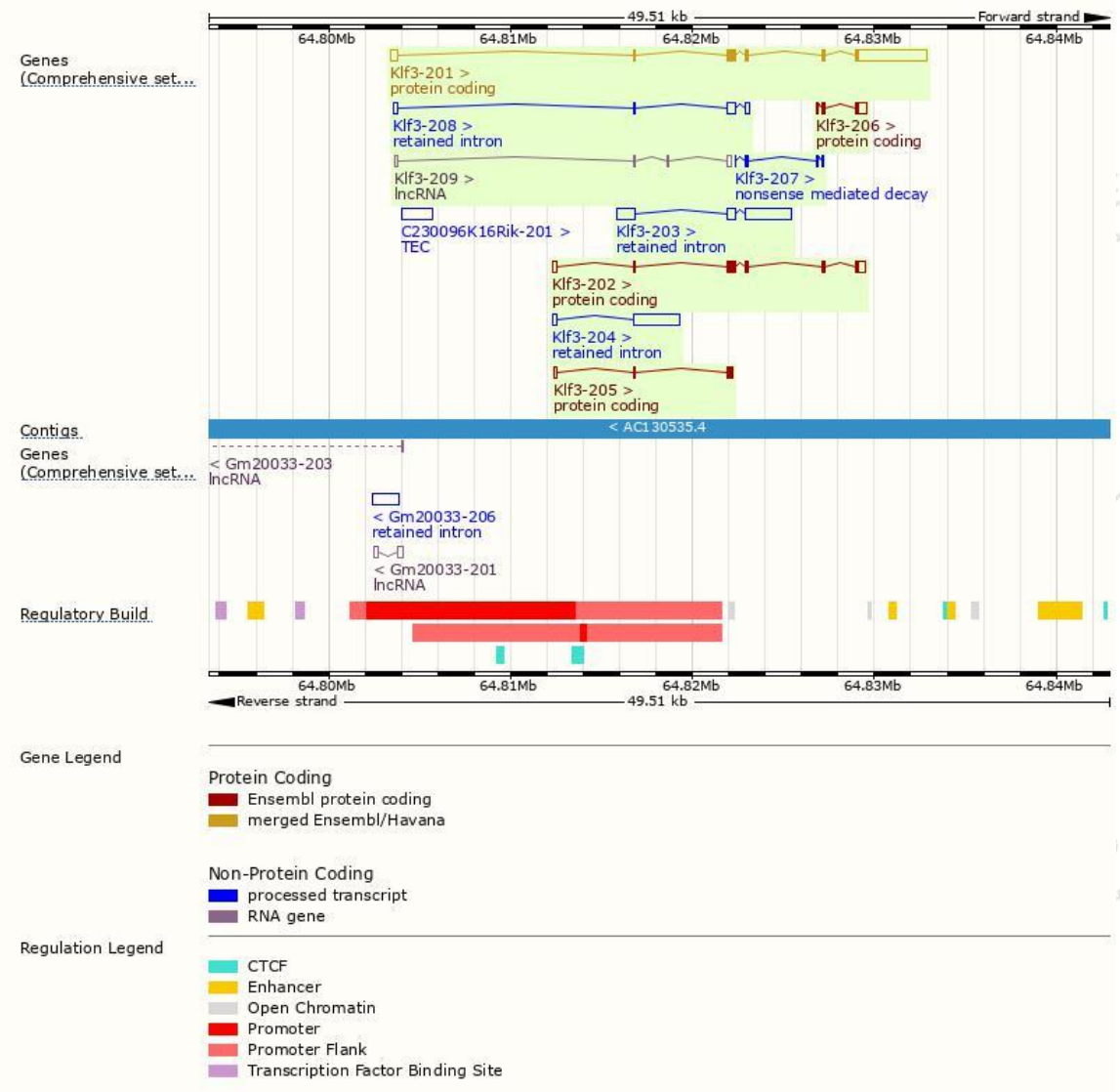
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Klf3-201	ENSMUST00000165536.7	5221	344aa	Protein coding	CCDS19301	Q545J5 Q60980	TSL:1 GENCODE basic APPRIS P1
Klf3-202	ENSMUST00000166409.5	1562	344aa	Protein coding	CCDS19301	Q545J5 Q60980	TSL:1 GENCODE basic APPRIS P1
Klf3-206	ENSMUST00000198946.1	809	138aa	Protein coding	-	A0A0G2JE66	CDS 5' incomplete TSL:3
Klf3-205	ENSMUST00000197879.1	590	142aa	Protein coding	-	A0A0G2JDH4	CDS 3' incomplete TSL:2
Klf3-207	ENSMUST00000200384.1	298	55aa	Nonsense mediated decay	-	A0A0G2JE81	CDS 5' incomplete TSL:1
Klf3-203	ENSMUST00000196764.1	4016	No protein	Retained intron	-	-	TSL:1
Klf3-204	ENSMUST00000197869.1	2749	No protein	Retained intron	-	-	TSL:1
Klf3-208	ENSMUST00000200587.4	1026	No protein	Retained intron	-	-	TSL:1
Klf3-209	ENSMUST00000200677.1	648	No protein	lncRNA	-	-	TSL:3

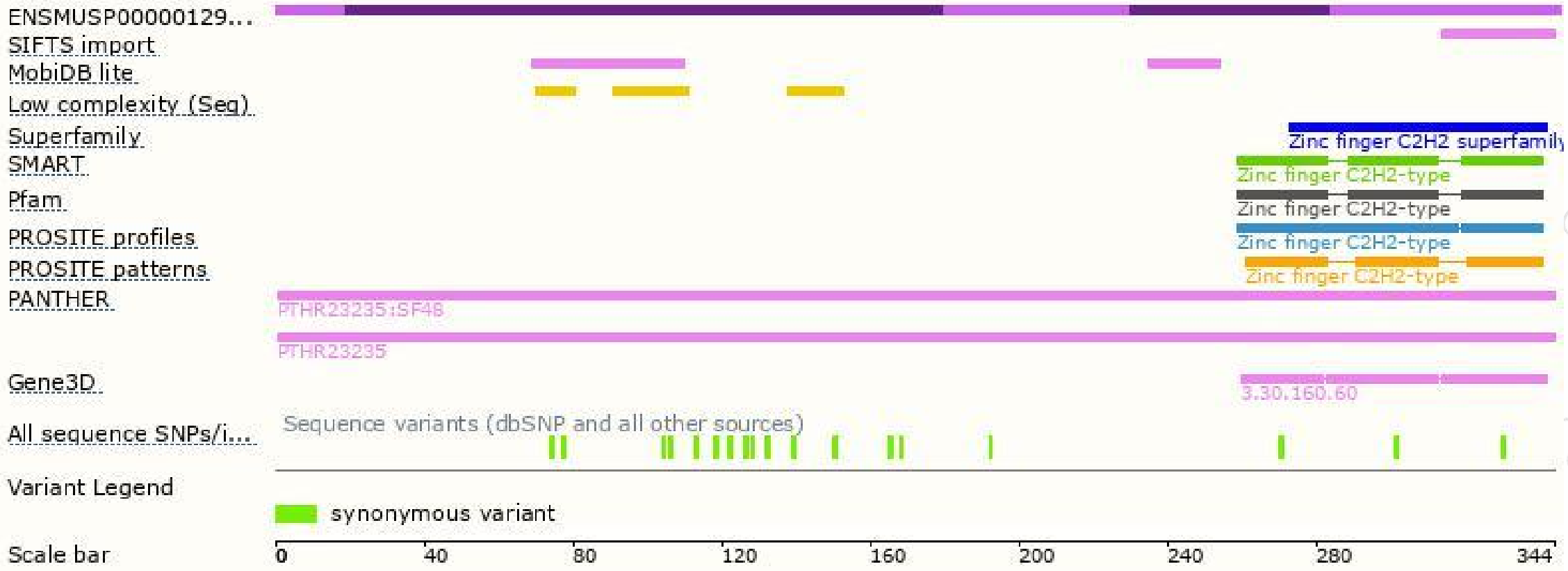
The strategy is based on the design of *Klf3-201* transcript,The transcription is shown below



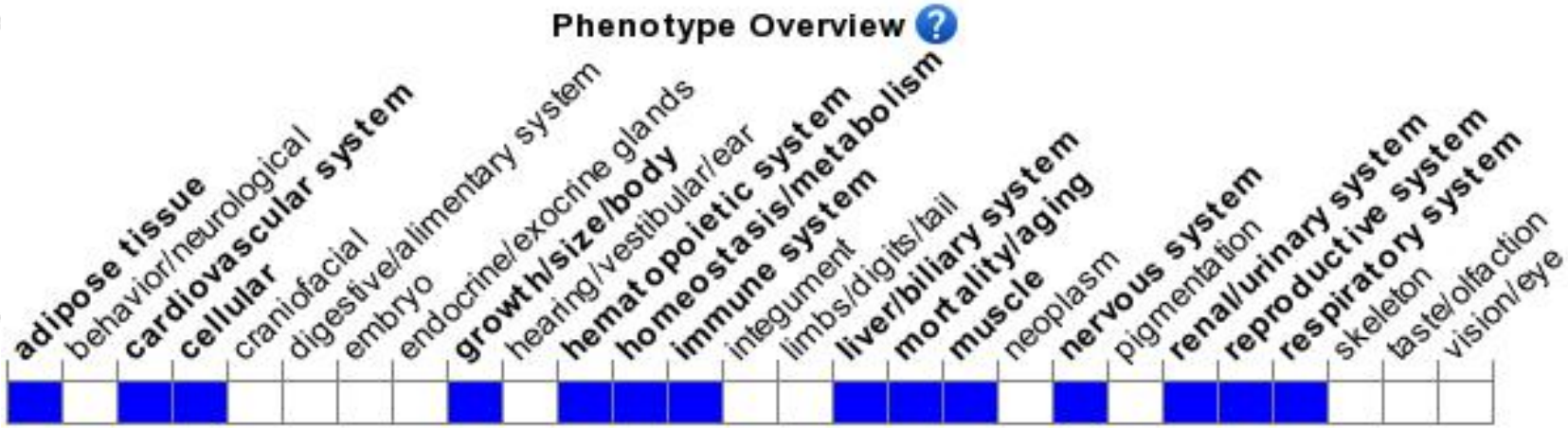
Genomic location distribution



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/).

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