Klf11 Cas9-KO Strategy

Designer: Huan Fan

Reviewer: Miaomiao Cui

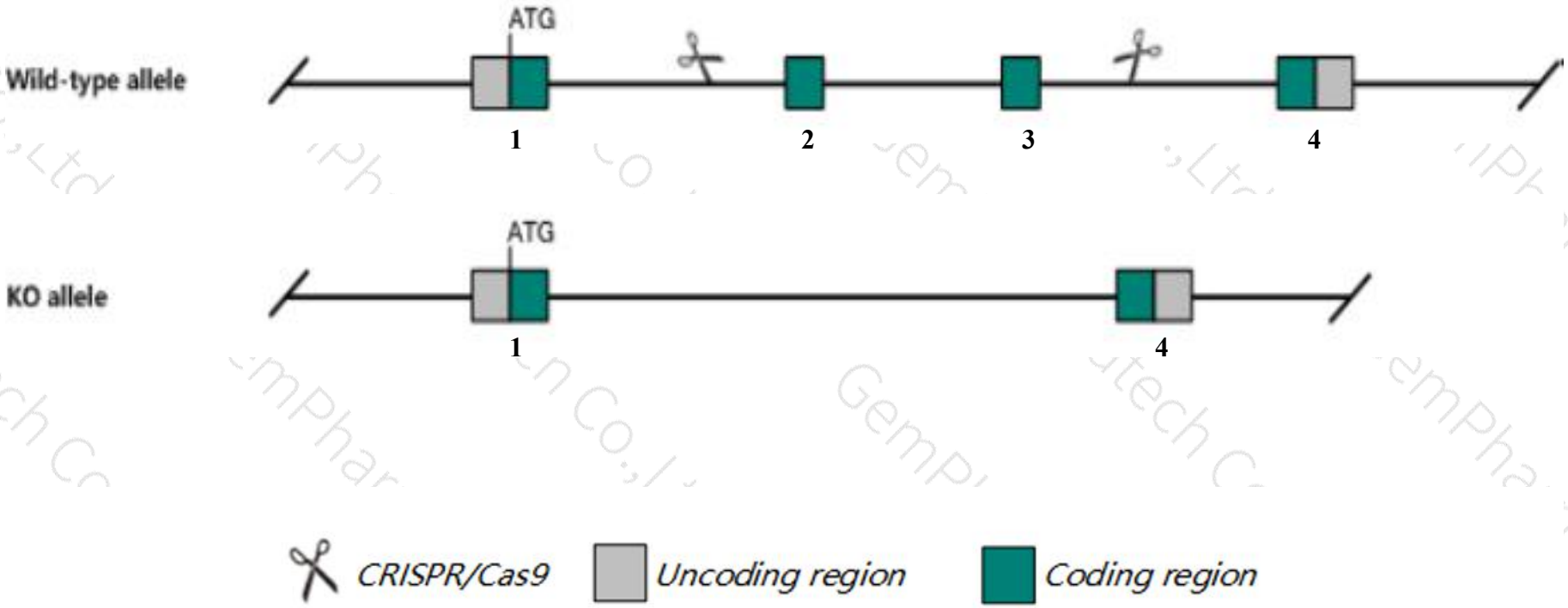
Design Date: 2018-12-27

Project Overview

Project Name	***Klf11***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Klf11* gene. The schematic diagram is as follows:



Technical routes

➢ The *Klf11* gene has 4 transcripts. According to the structure of *Klf11* gene, exon2-exon3 of *Klf11-201*(ENSMUST00000020982.6) transcript is recommended as the knockout region.The region contains 1186bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Klf11* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ According to the existing MGI data,mice homozygous for a knock-out allele are viable and fertile, show normal hematopoiesis, growth and development, and display no evidence of increased tumor formation following gamma-irradiation.

➢ The *Klf11* gene is located on the Chr12. 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）

集萃药康 GemPharmatech

Klf11 Kruppel-like factor 11 [Mus musculus (house mouse)]

Gene ID: 194655, updated on 13-Mar-2020

Summary

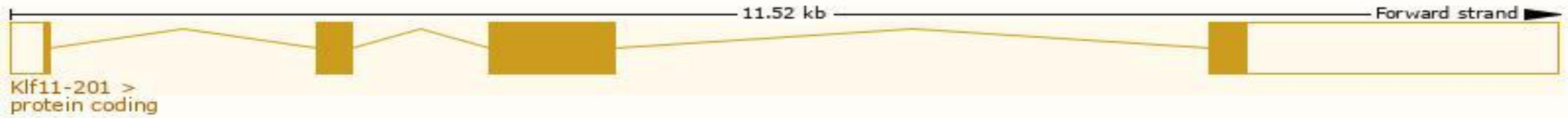
Official Symbol	Klf11 provided by MGI
Official Full Name	Kruppel-like factor 11 provided byMGI
Primary source	MGI:MGI:2653368
See related	Ensembl:ENSMUSG00000020653
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9830142A17, D12Ertd427e, Tieg2, Tieg2b, Tieg3
Expression	Ubiquitous expression in lung adult (RPKM 9.8), ovary adult (RPKM 9.6) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

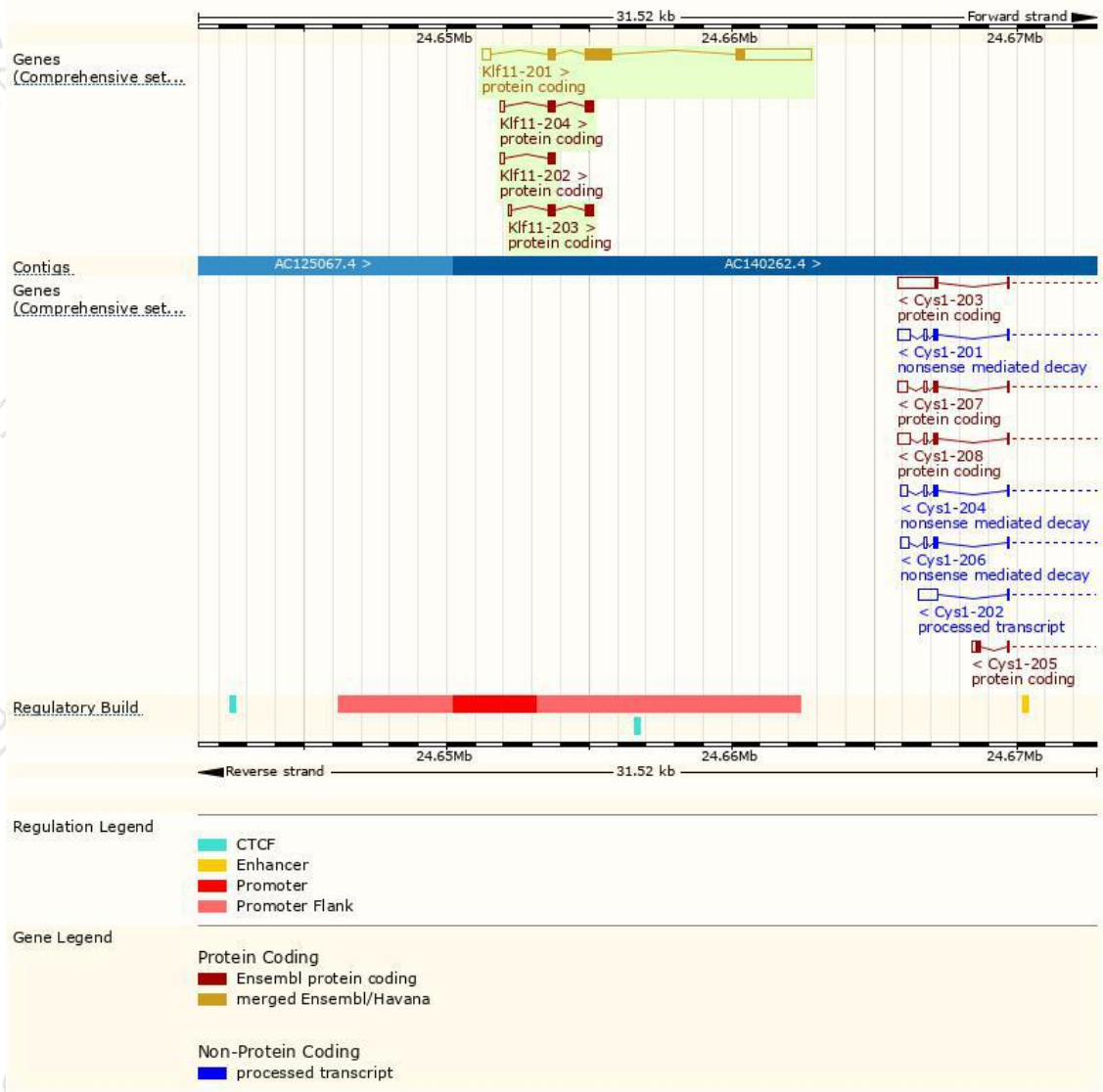
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Klf11-201	ENSMUST00000020982.6	4086	502aa	Protein coding	CCDS25842	Q8K1S5	TSL:1 GENCODE basic APPRIS P1
Klf11-203	ENSMUST00000144046.1	673	179aa	Protein coding	-	D3Z293	CDS 3' incomplete TSL:3
Klf11-204	ENSMUST00000146894.7	667	181aa	Protein coding	-	D3Z0S4	CDS 3' incomplete TSL:3
Klf11-202	ENSMUST00000139940.1	380	81aa	Protein coding	-	D3YZX6	CDS 3' incomplete TSL:2

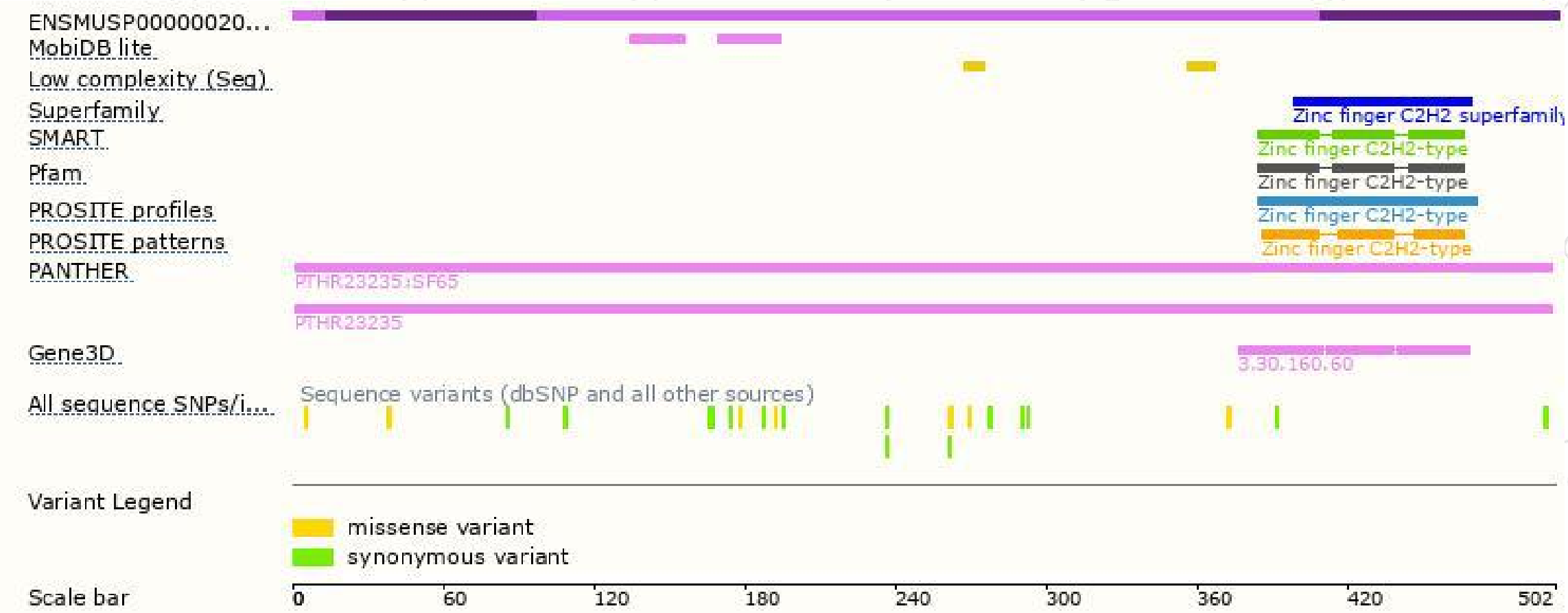
The strategy is based on the design of *Klf11-201* transcript,the transcription is shown below:



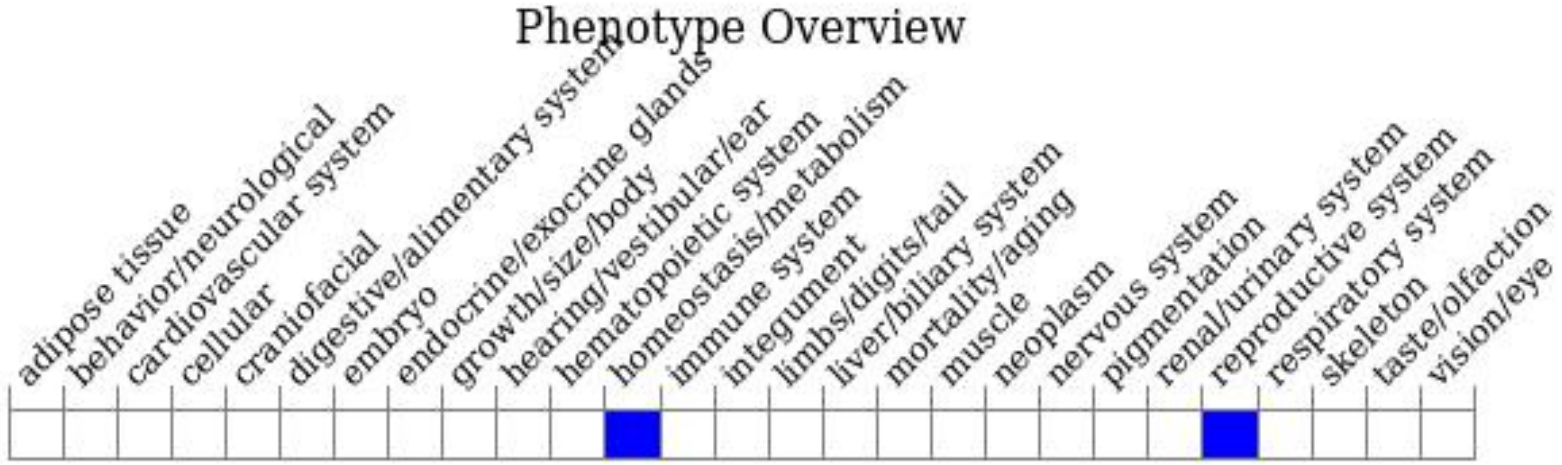
Genomic location distribution



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 a knock-out allele are viable and fertile, show normal hematopoiesis, growth and development, and display no evidence of increased tumor formation following gamma-irradiation.

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd