

Klf7 Cas9-CKO Strategy

Project Overview

Project Name

Klf7

Project type

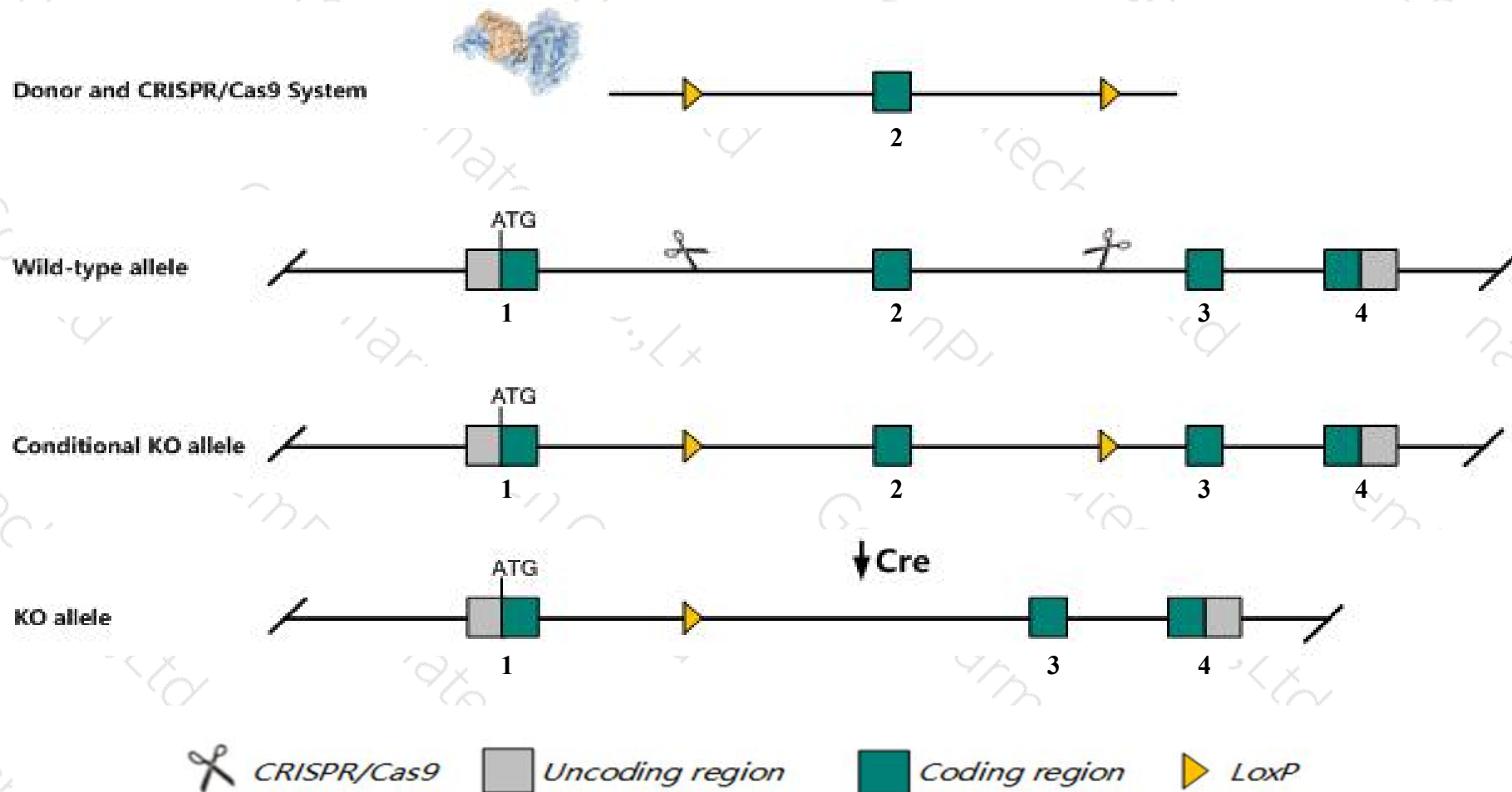
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Klf7* gene. The schematic diagram is as follows:



- The *Klf7* gene has 3 transcripts. According to the structure of *Klf7* gene, exon2 of *Klf7*-202 (ENSMUST00000114086.7) transcript is recommended as the knockout region. The region contains 628bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Klf7* 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, Homozygous null mice die within 3 days of life, showing lack of gastric milk, hypopnea, cyanosis, olfactory bulb hypoplasia, no response to tail clamping, impaired axon projection in the olfactory and visual systems, cerebral cortex and hippocampus, and reduced dendritic branching in the hippocampus.
- The *Klf7* gene is located on the Chr1. 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)

Klf7 Kruppel-like factor 7 (ubiquitous) [Mus musculus (house mouse)]

Gene ID: 93691, updated on 31-Jan-2019

Summary



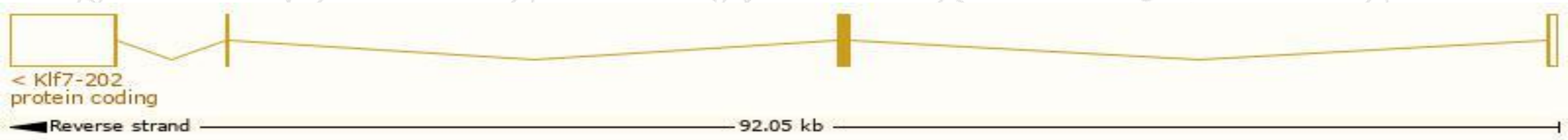
Official Symbol	Klf7 provided by MGI
Official Full Name	Kruppel-like factor 7 (ubiquitous) provided by MGI
Primary source	MGI:MGI:1935151
See related	Ensembl:ENSMUSG00000025959
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9830124P08Rik
Expression	Broad expression in CNS E18 (RPKM 10.9), whole brain E14.5 (RPKM 9.3) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

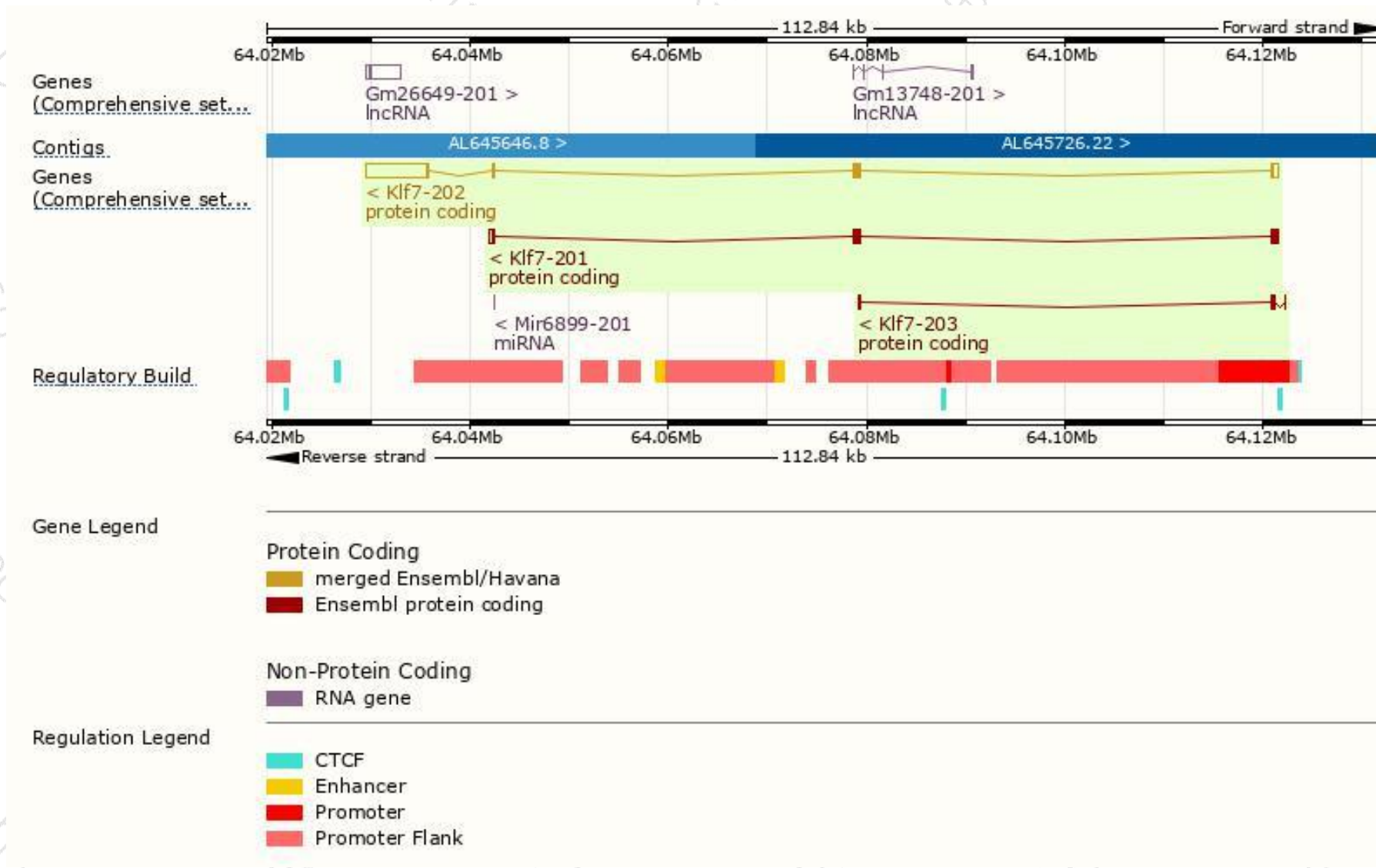
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Klf7-202	ENSMUST00000114086.7	7662	301aa	Protein coding	CCDS15003	Q99JB0	TSL:1 GENCODE basic APPRIS P1
Klf7-201	ENSMUST00000055001.9	1477	285aa	Protein coding	-	Q3UES6	TSL:1 GENCODE basic
Klf7-203	ENSMUST00000135075.1	553	111aa	Protein coding	-	A2AAB6	CDS 3' incomplete TSL:2

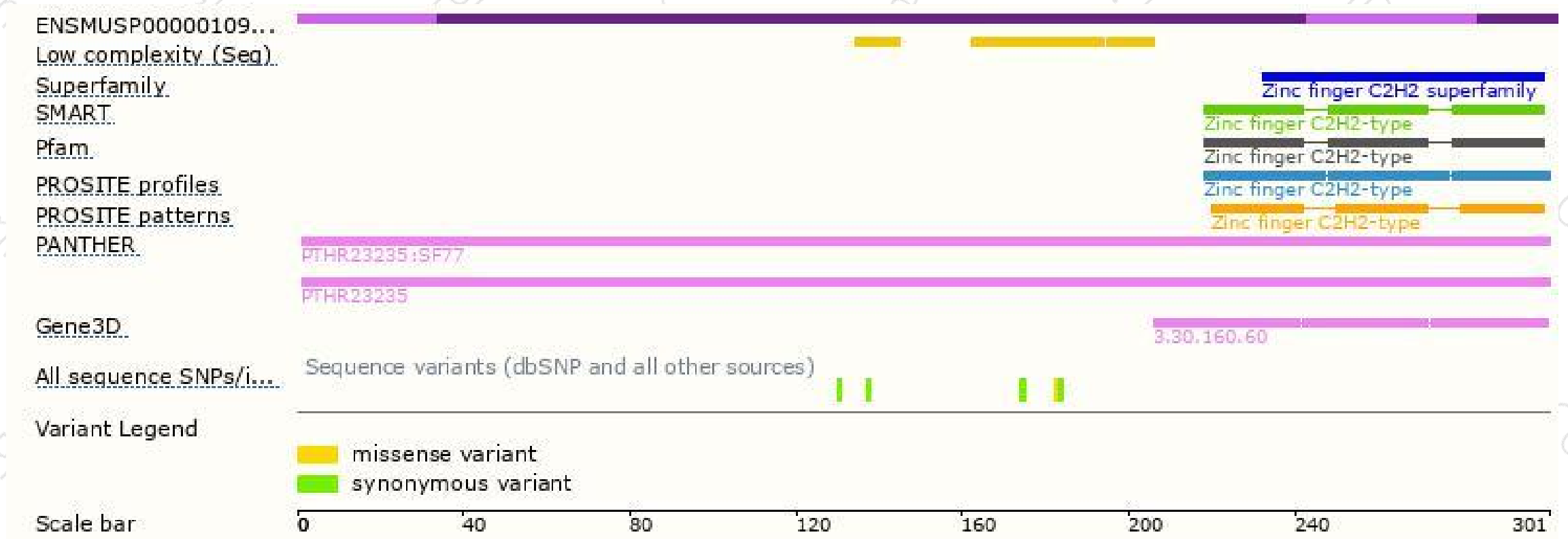
The strategy is based on the design of *Klf7-202* transcript,The transcription is shown below



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, Homozygous null mice die within 3 days of life, showing lack of gastric milk, hypopnea, cyanosis, olfactory bulb hypoplasia, no response to tail clamping, impaired axon projection in the olfactory and visual systems, cerebral cortex and hippocampus, and reduced dendritic branching in the hippocampus.

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

Tel: 400-9660890

