

# *Klf7* Cas9-KO Strategy

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# Project Overview

**Project Name**

*Klf7*

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# 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 w

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

# Gene information (NCBI)

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

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

### Summary



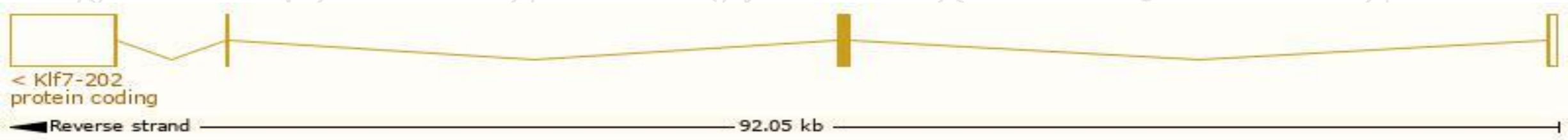
|                           |                                                                                                                                                                           |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------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

# Transcript information (Ensembl)

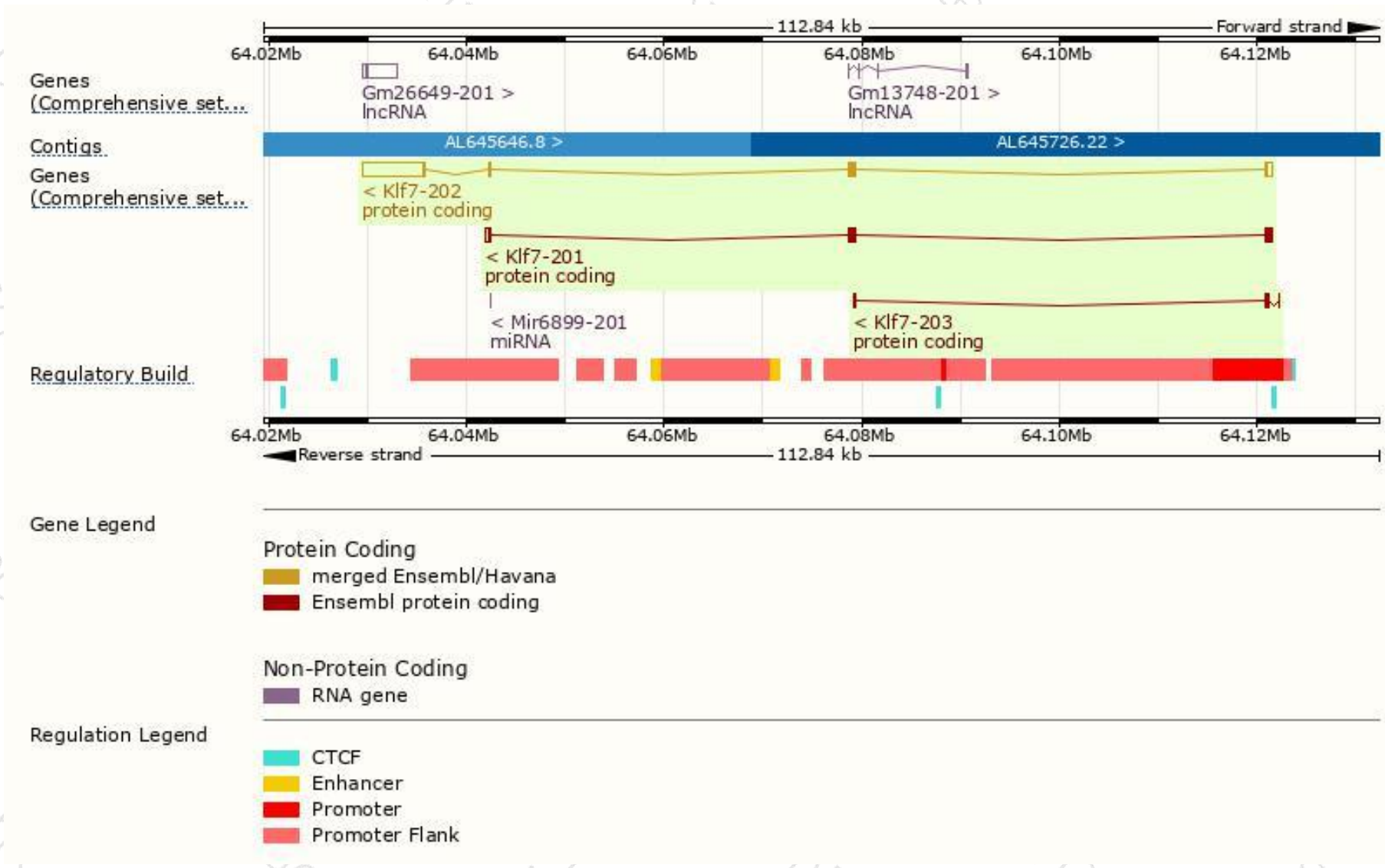
The gene has 3 transcripts,all transcripts are shown below:

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

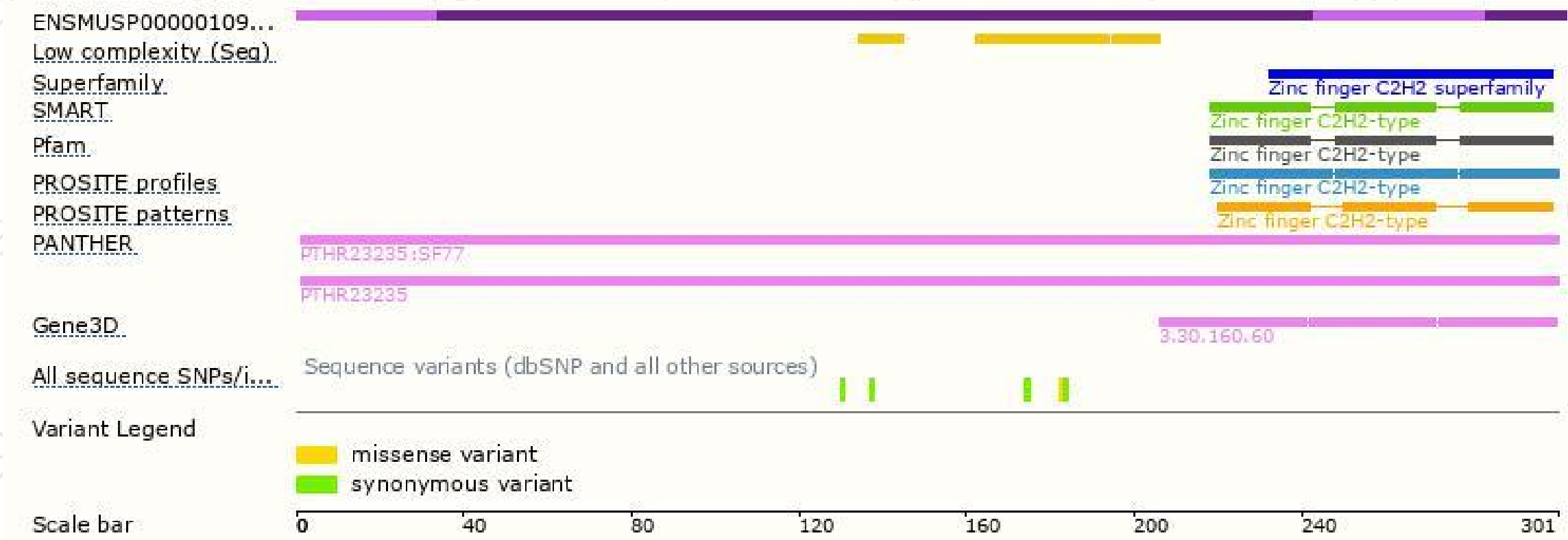
The strategy is based on the design of *Klf7-202* transcript,The transcription is shown below



# 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.

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