Klf5 Cas9-KO Strategy

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Project Overview

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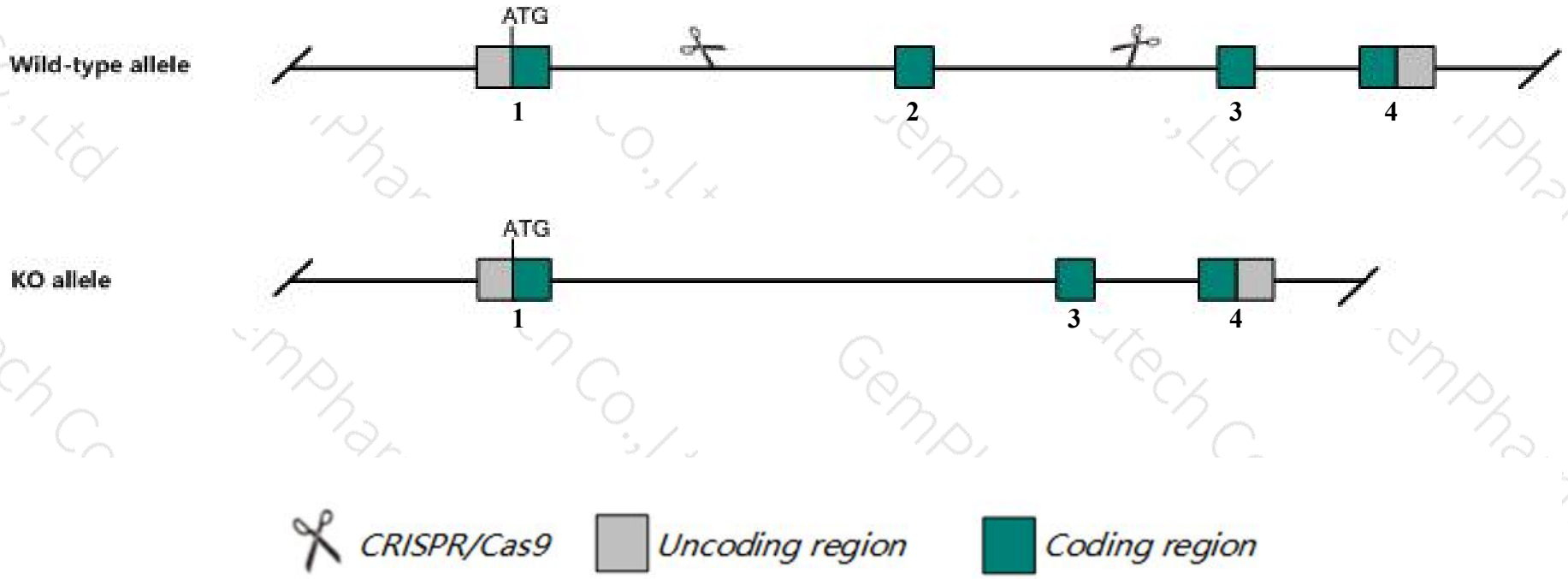
Project Name	***Klf5***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Klf5* gene. The schematic diagram is as follows:



Technical routes

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- The *Klf5* gene has 2 transcripts. According to the structure of *Klf5* gene, exon2 of *Klf5-201* (ENSMUST00000005279.7) transcript is recommended as the knockout region.The region contains 874bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Klf5* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

- According to the existing MGI data,Homozygous null mice die during gestation, while heterozygotes exhibit abnormal cardiovascular remodeling after external stress. Mice homozygous for a floxed allele activated in the prostate exhibit increased cell proliferation and hyperplasia in the prostate without neoplasia.

- The *Klf5* gene is located on the Chr14. 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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Klf5 Kruppel-like factor 5 [Mus musculus (house mouse)]

Gene ID: 12224, updated on 9-Apr-2019

Summary

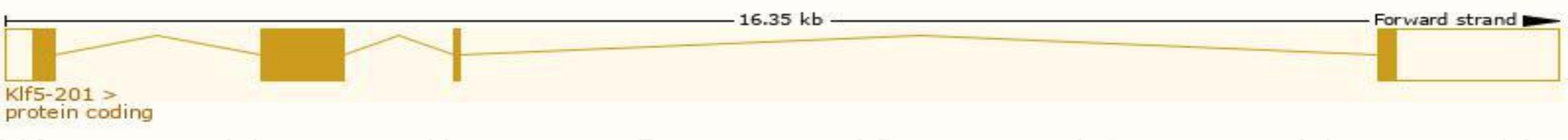
Official Symbol	Klf5 provided by MGI
Official Full Name	Kruppel-like factor 5 provided byMGI
Primary source	MGI:MGI:1338056
See related	Ensembl:ENSMUSG00000005148
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4930520J07Rik, Bteb2, CKLF, IKLF
Expression	Biased expression in colon adult (RPKM 291.0), duodenum adult (RPKM 159.8) and 5 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

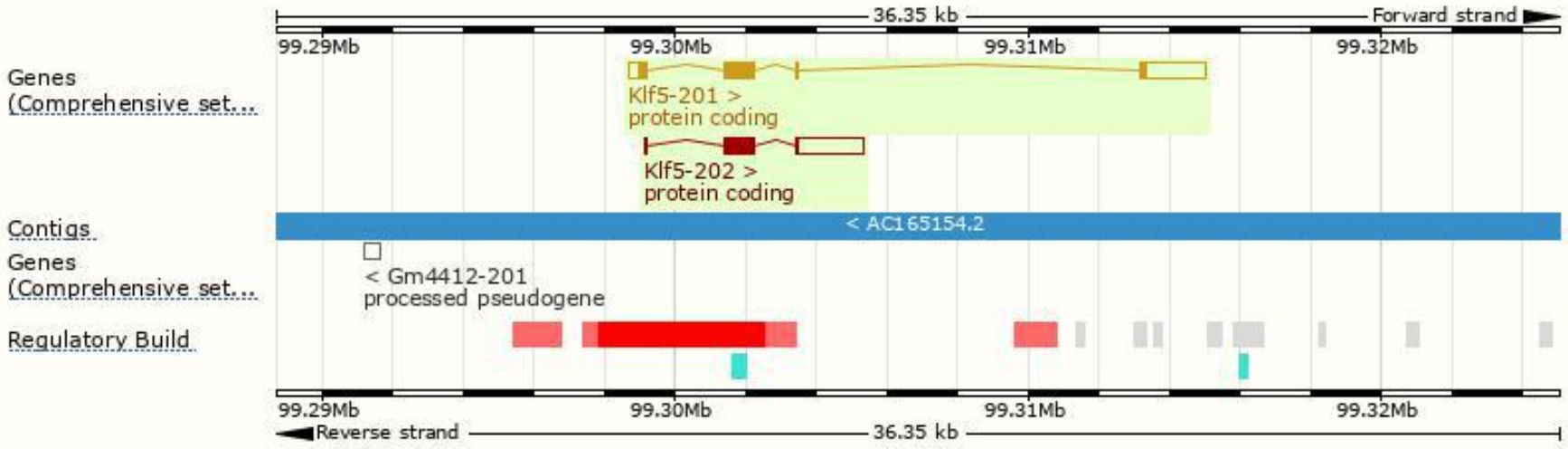
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Klf5-201	ENSMUST00000005279.7	3352	446aa	Protein coding	CCDS27311	Q9Z0Z7	TSL:1 GENCODE basic APPRIS P1
Klf5-202	ENSMUST00000226784.1	2852	309aa	Protein coding	-	Q923C0	GENCODE basic

The strategy is based on the design of *Klf5-201* transcript,The transcription is shown below



Genomic location distribution



Regulation Legend

- CTCF
- Open Chromatin
- Promoter
- Promoter Flank

Motif Feature Legend

- Verified experimentally
- Not verified

Gene Legend

Protein Coding

- merged Ensembl/Havana
- Ensembl protein coding

Non-Protein Coding

- pseudogene

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 during gestation, while heterozygotes exhibit abnormal cardiovascular remodeling after external stress. Mice homozygous for a floxed allele activated in the prostate exhibit increased cell proliferation and hyperplasia in the prostate without neoplasia.

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

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