

***Mki67* Cas9-KO Strategy**

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Project Overview

Project Name

Mki67

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mki67* gene. The schematic diagram is as follows:



- The *Mki67* gene has 2 transcripts. According to the structure of *Mki67* gene, exon2-exon13 of *Mki67-201* (ENSMUST00000033310.8) transcript is recommended as the knockout region. The region contains 9397bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mki67* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice carrying a reporter allele show expression in actively dividing cells.
- *Gm45240* gene is located inside of *Mki67* gene, *Gm45240* gene will be deleted together in this strategy.
- The effect on transcript *Mki67*-202 is unknown.
- The *Mki67* gene is located on the Chr7. 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)

Mki67 antigen identified by monoclonal antibody Ki 67 [*Mus musculus* (house mouse)]

Gene ID: 17345, updated on 15-Oct-2019

Summary

- Official Symbol** Mki67 provided by [MGI](#)
- Official Full Name** antigen identified by monoclonal antibody Ki 67 provided by [MGI](#)
- Primary source** [MGI:MGI:106035](#)
- See related** [Ensembl:ENSMUSG00000031004](#)
- 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** Ki67; Ki-67; D630048A14Rik
- Expression** Biased expression in liver E14 (RPKM 21.8), liver E14.5 (RPKM 14.9) and 8 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 7; 7 F3

See Mki67 in [Genome Data Viewer](#)

Exon count: 14

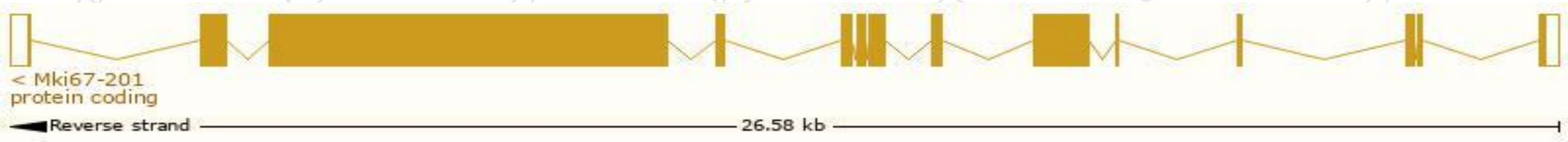
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	7	NC_000073.6 (135689784..135716450, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	7	NC_000073.5 (142881471..142908062, complement)

Transcript information (Ensembl)

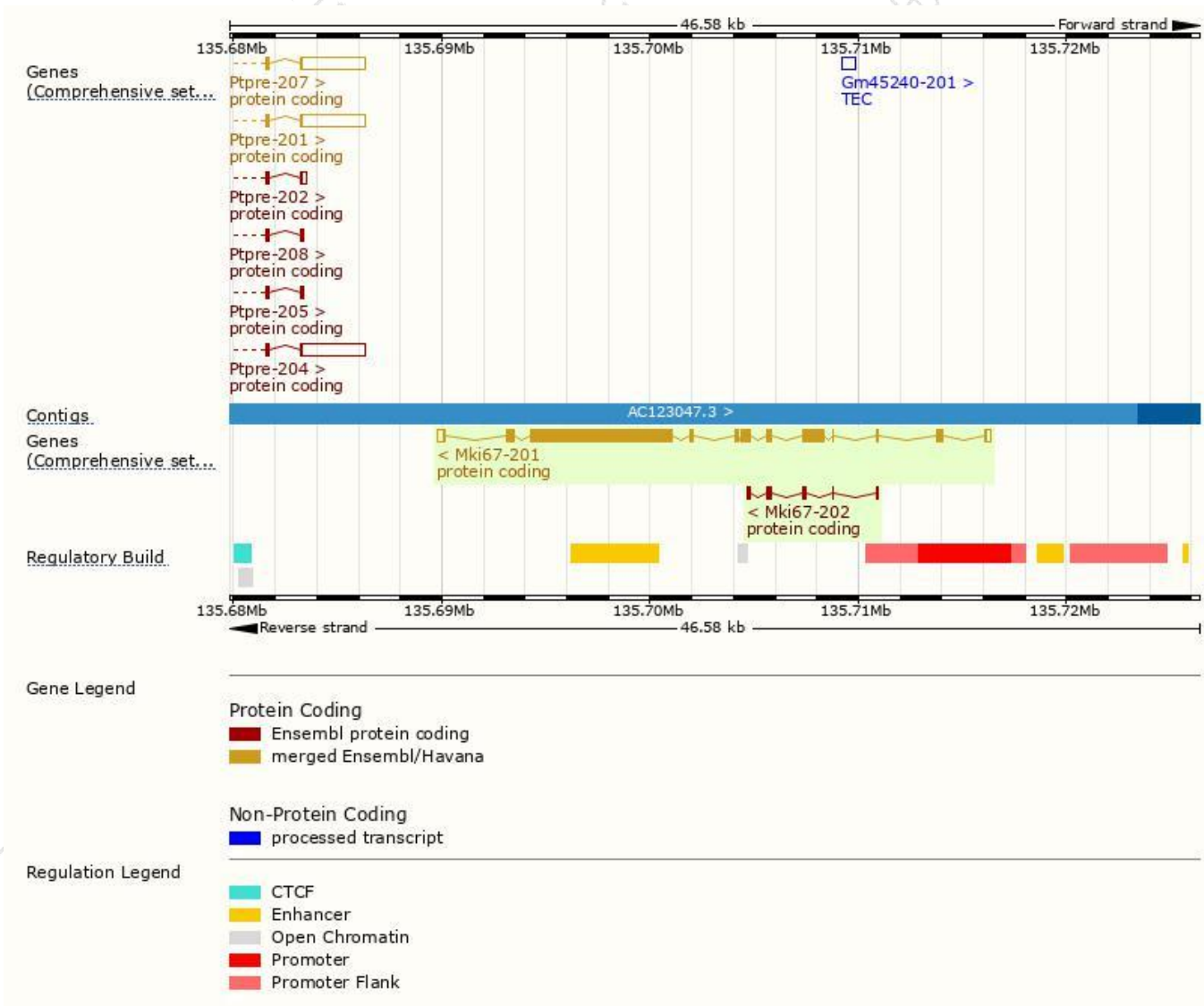
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mki67-201	ENSMUST00000033310.8	10061	3177aa	Protein coding	CCDS52421	E9PVX6	TSL:5 GENCODE basic APPRIS P1
Mki67-202	ENSMUST00000211238.1	575	192aa	Protein coding	-	A0A1B0GQV9	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3

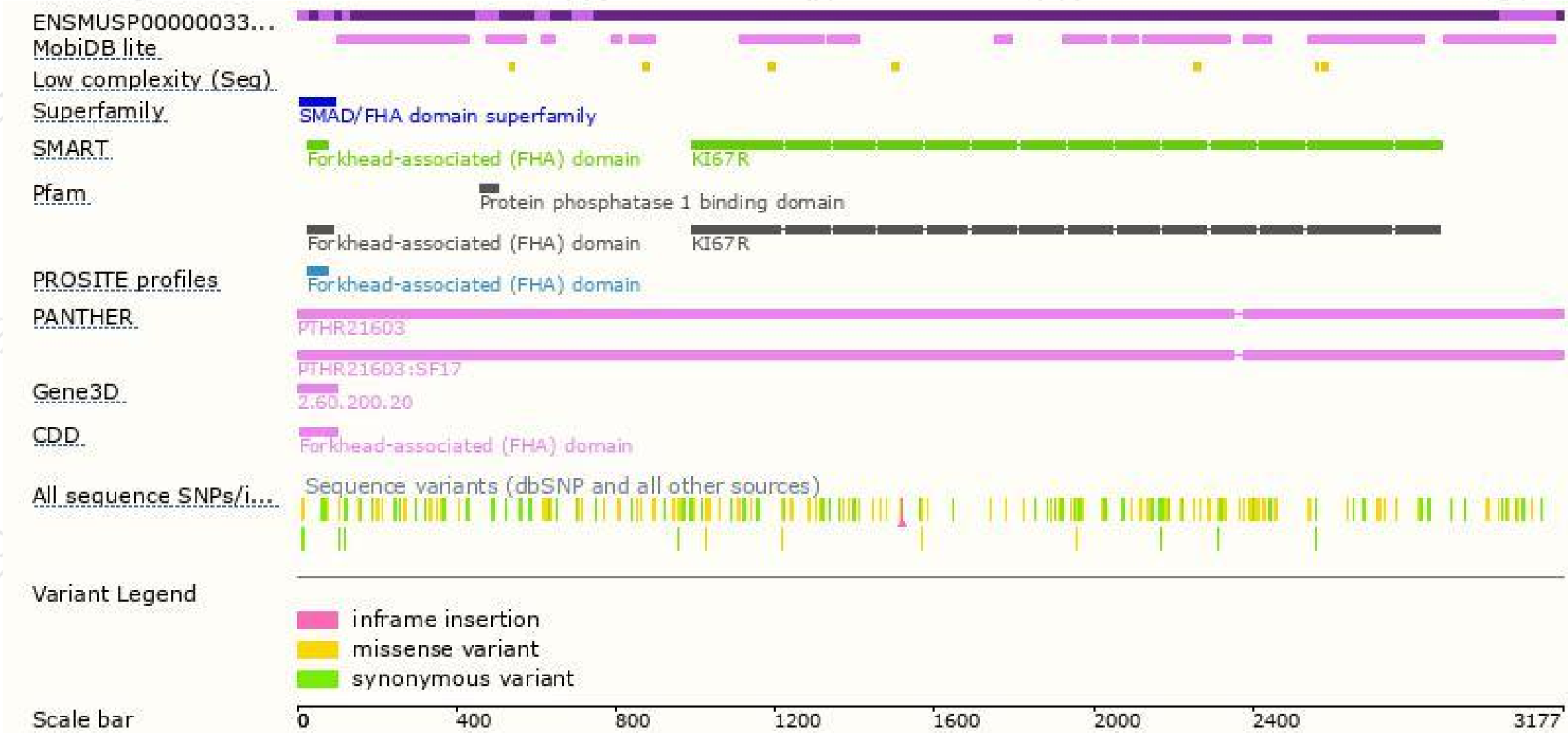
The strategy is based on the design of *Mki67-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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