Mapk4 Cas9-KO Strategy

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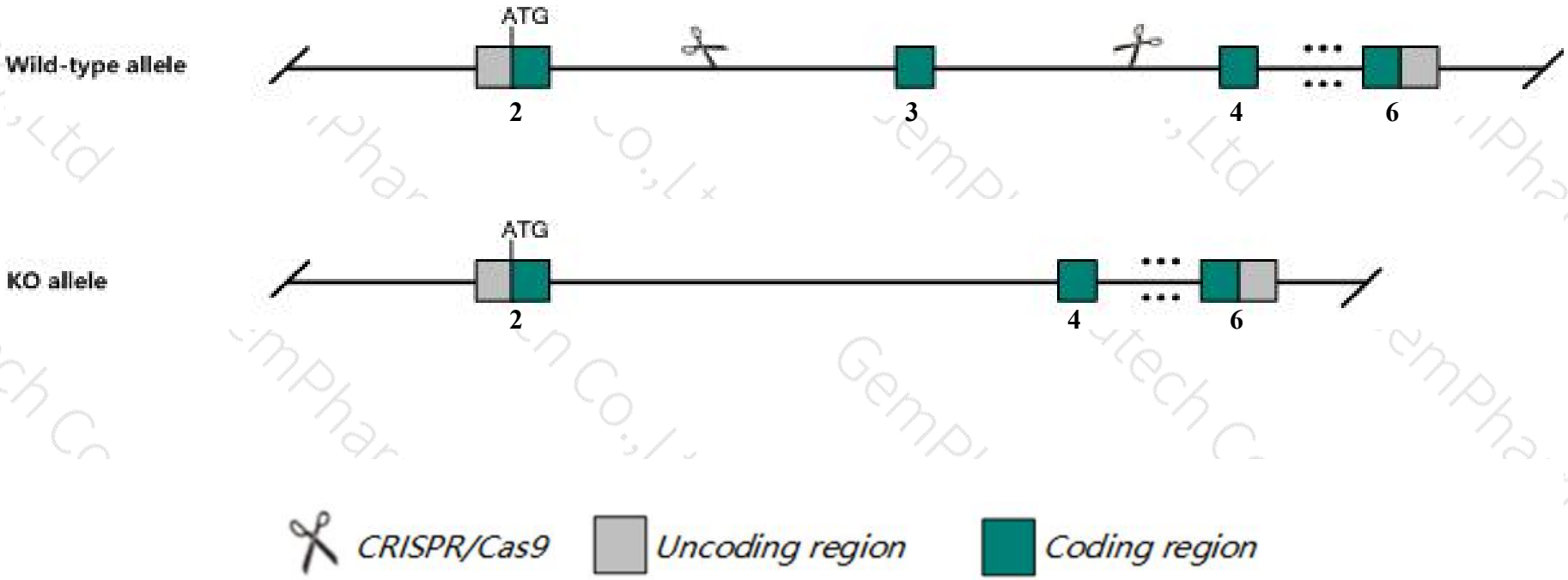
Design Date: 2018-6-26

Project Overview

Project Name	***Mapk4***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mapk4* gene. The schematic diagram is as follows:



Technical routes

➢ The *Mapk4* gene has 4 transcripts. According to the structure of *Mapk4* gene, exon3 of *Mapk4-201* (ENSMUST00000091851.9) transcript is recommended as the knockout region.The region contains 145bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Mapk4* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

➢ According to the existing MGI data, Mice homozygous for a knock-out allele are viabel and fertile.

➢ Transcript *Mapk4-203/204* may not be affected.

➢ The *Mapk4* gene is located on the Chr18. 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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Mapk4 mitogen-activated protein kinase 4 [*Mus musculus* (house mouse)]

Gene ID: 225724, updated on 12-Aug-2019

Summary

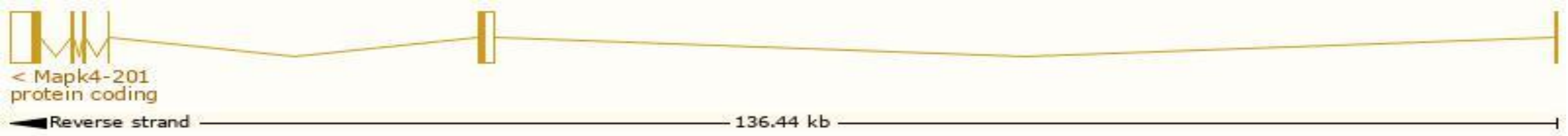
Official Symbol	Mapk4 provided by MGI
Official Full Name	mitogen-activated protein kinase 4 provided by MGI
Primary source	MGI:MGI:2444559
See related	Ensembl:ENSMUSG00000024558
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Erk3; Prkm4; p63Mapk; A330097D03Rik
Expression	Broad expression in frontal lobe adult (RPKM 8.4), cortex adult (RPKM 7.3) and 18 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

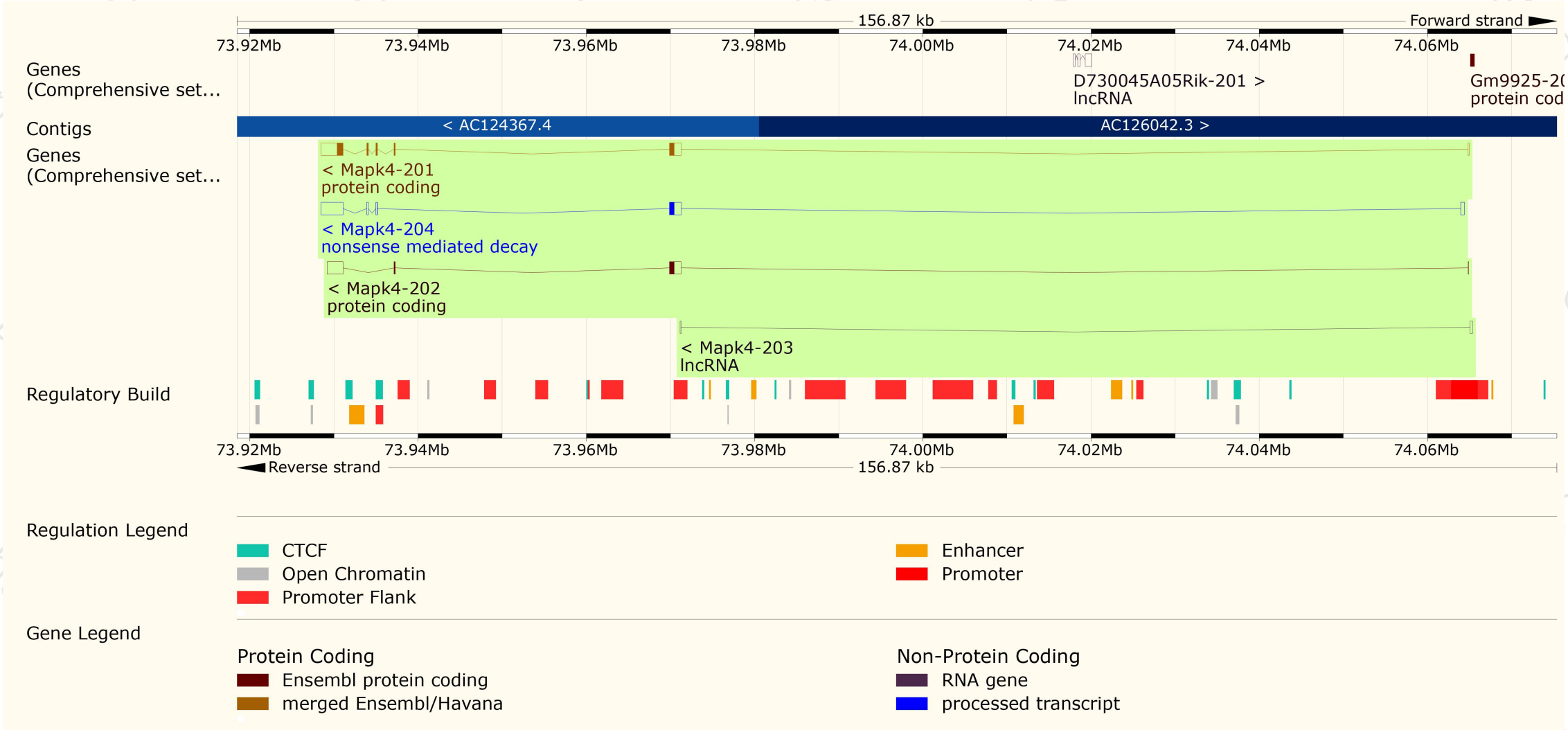
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mapk4-201	ENSMUST00000091851.9	4594	583aa	Protein coding	CCDS37856	Q6P5G0	TSL:1 GENCODE basic APPRIS P1
Mapk4-202	ENSMUST00000159162.1	3514	233aa	Protein coding	-	E9Q3I6	TSL:5 GENCODE basic
Mapk4-204	ENSMUST00000162863.7	4828	193aa	Nonsense mediated decay	-	E9PXX5	TSL:1
Mapk4-203	ENSMUST00000160601.1	426	No protein	Processed transcript	-	-	TSL:3

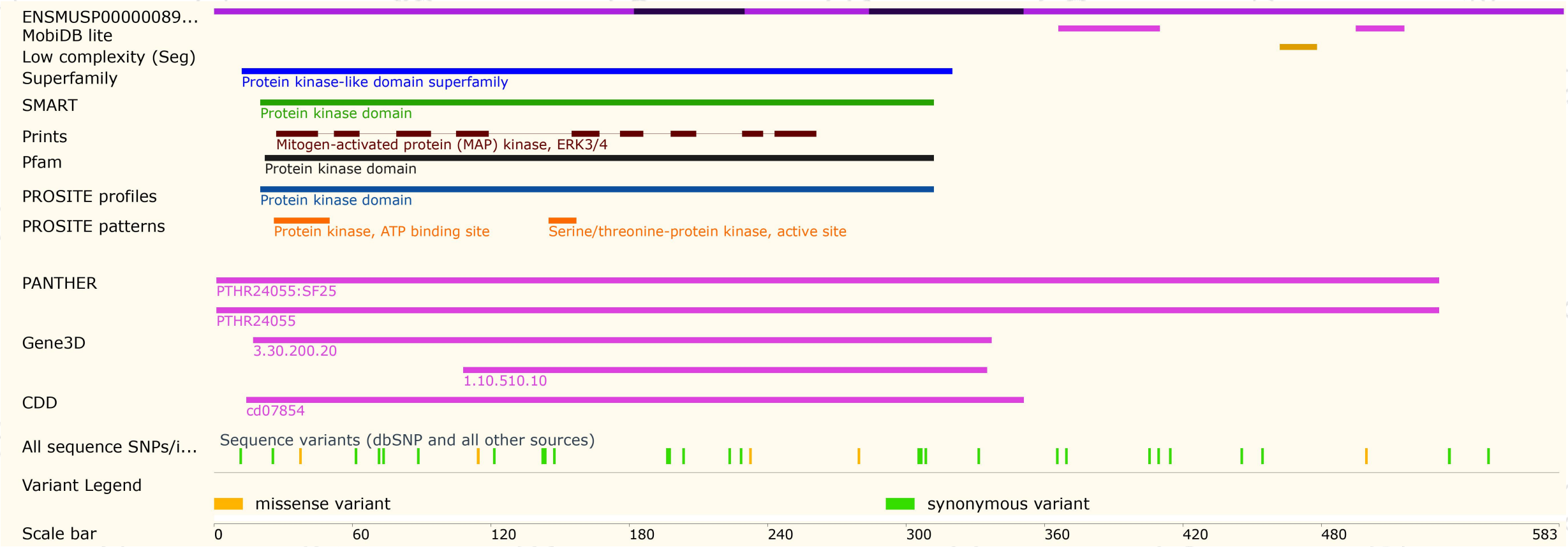
The strategy is based on the design of *Mapk4-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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