Kdm4c Cas9-KO Strategy

Designer: Huan Wang
Reviewer: Huan Fan

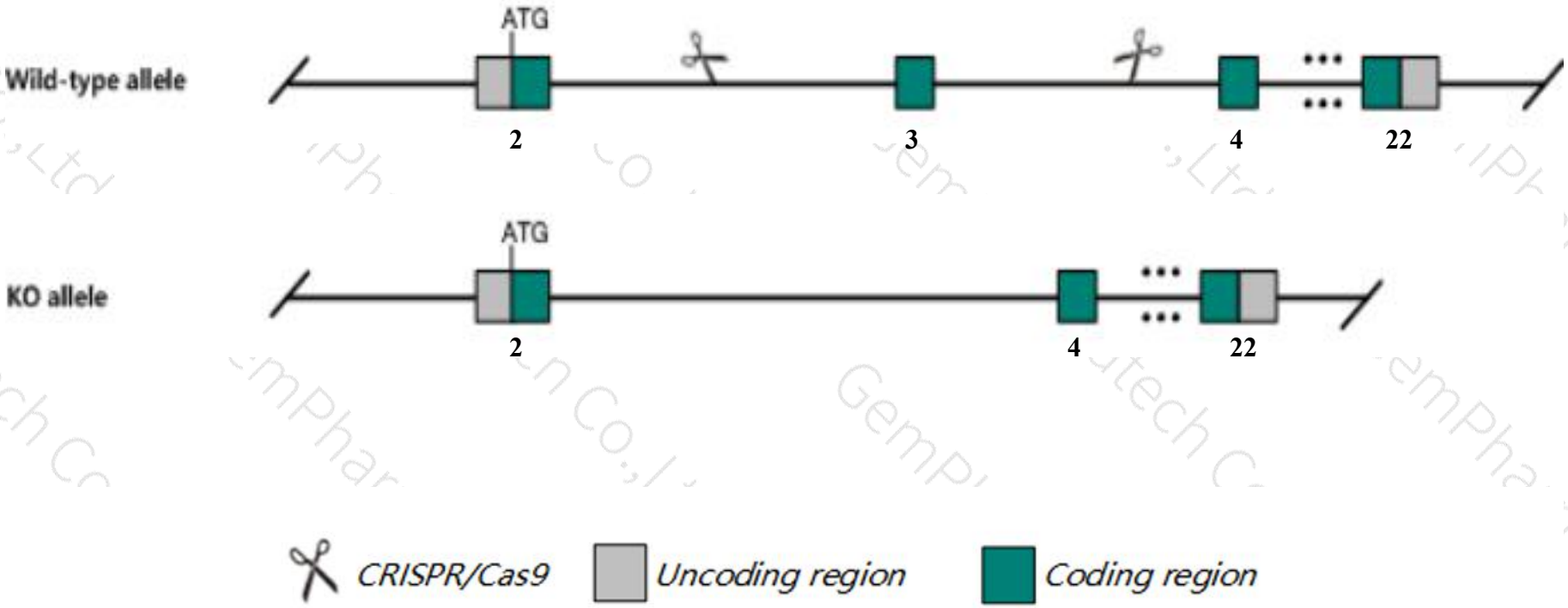
Design Date: 2020-3-6

Project Overview

Project Name	***Kdm4c***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kdm4c* gene. The schematic diagram is as follows:



Technical routes

➢ The *Kdm4c* gene has 6 transcripts. According to the structure of *Kdm4c* gene, exon3 of *Kdm4c-201* (ENSMUST00000030102.11) transcript is recommended as the knockout region.The region contains 176bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Kdm4c* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,Mice homozygous for a null gene trap allele cannot be produced likely due to embryonic lethality. Mice heterozygous for a null gene trap allele exhibit reduced body weight and lower incidence and multiplicity of both benign and malignant tumors in mice treated with DMBA and TPA.

- The *Kdm4c* gene is located on the Chr4. 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）

集萃药康 GemPharmatech

Kdm4c lysine (K)-specific demethylase 4C [Mus musculus (house mouse)]

Gene ID: 76804, updated on 19-Mar-2019

Summary

Official Symbol	Kdm4c provided by MGI
Official Full Name	lysine (K)-specific demethylase 4C provided byMGI
Primary source	MGI:MGI:1924054
See related	Ensembl:ENSMUSG00000028397
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	2410141F18Rik, AA517467, Gasc1, Jmjd2c
Expression	Ubiquitous expression in bladder adult (RPKM 3.8), CNS E18 (RPKM 3.7) and 26 other tissuesSee more
Orthologs	human all

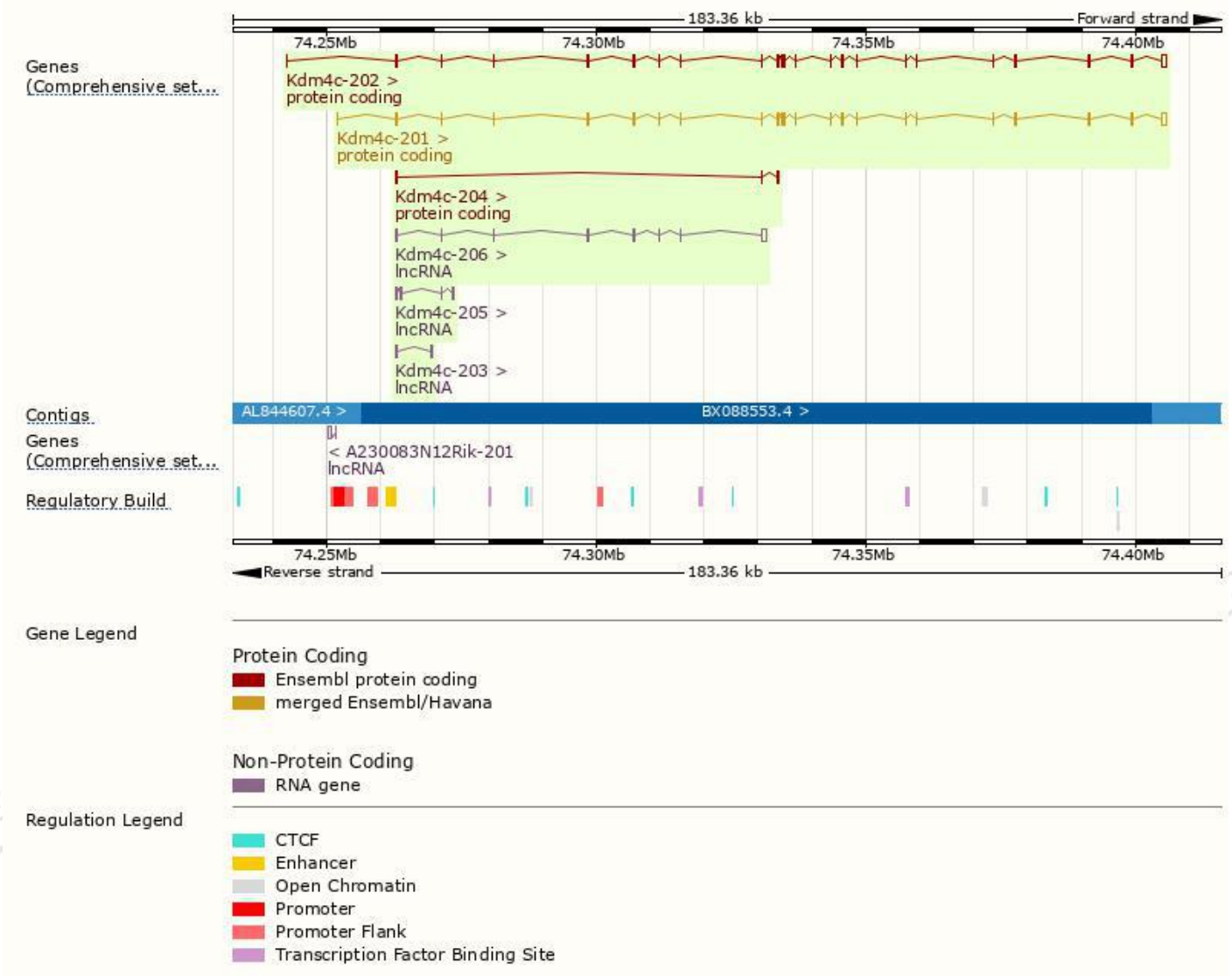
Transcript information（Ensembl）

The gene has 6 transcripts,all transcripts are shown below:

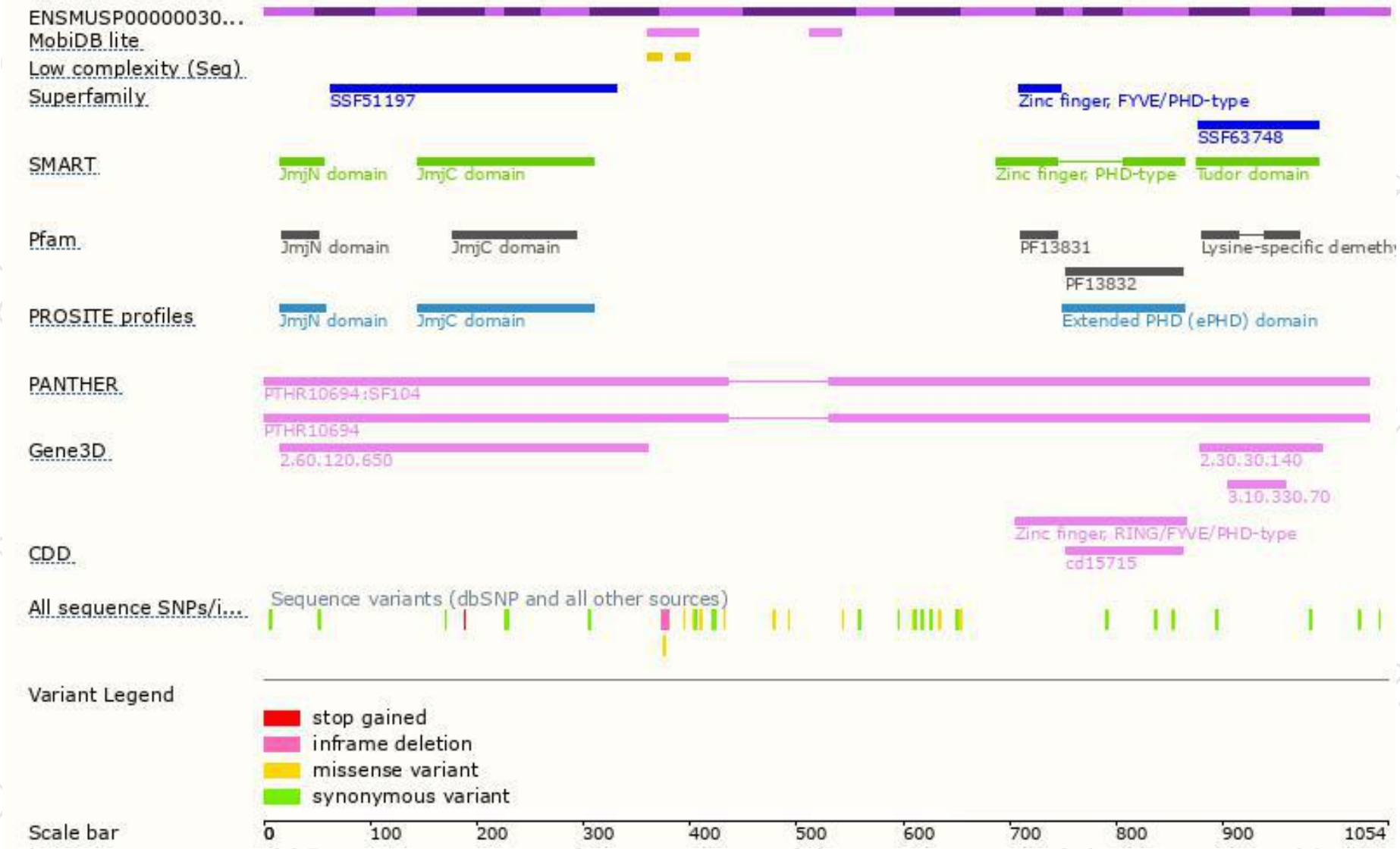
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kdm4c-201	ENSMUST00000030102.11	4196	1054aa	Protein coding	CCDS18287	A2BEG5 Q8VCD7	TSL:1 GENCODE basic APPRIS P1
Kdm4c-202	ENSMUST00000077851.9	4189	1054aa	Protein coding	CCDS18287	A2BEG5 Q8VCD7	TSL:1 GENCODE basic APPRIS P1
Kdm4c-204	ENSMUST00000149295.1	465	149aa	Protein coding	-	I7HLQ5	CDS 3' incomplete TSL:3
Kdm4c-206	ENSMUST00000156065.7	1844	No protein	lncRNA	-	-	TSL:5
Kdm4c-205	ENSMUST00000150439.1	661	No protein	lncRNA	-	-	TSL:5
Kdm4c-203	ENSMUST00000148753.7	606	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Kdm4c-201* transcript,The transcription is shown below

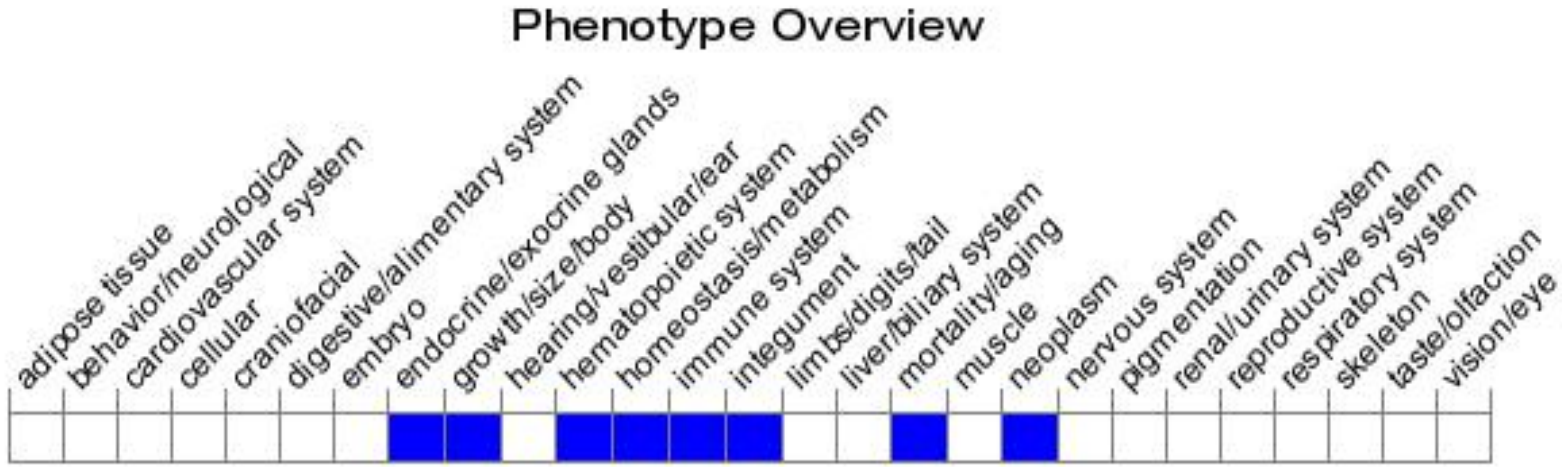
Genomic location distribution



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,Mice homozygous for a null gene trap allele cannot be produced likely due to embryonic lethality. Mice heterozygous for a null gene trap allele exhibit reduced body weight and lower incidence and multiplicity of both benign and malignant tumors in mice treated with DMBA and TPA.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd