Tet3 Cas9-KO Strategy

Designer: Huan Wang
Reviewer: Huan Fan

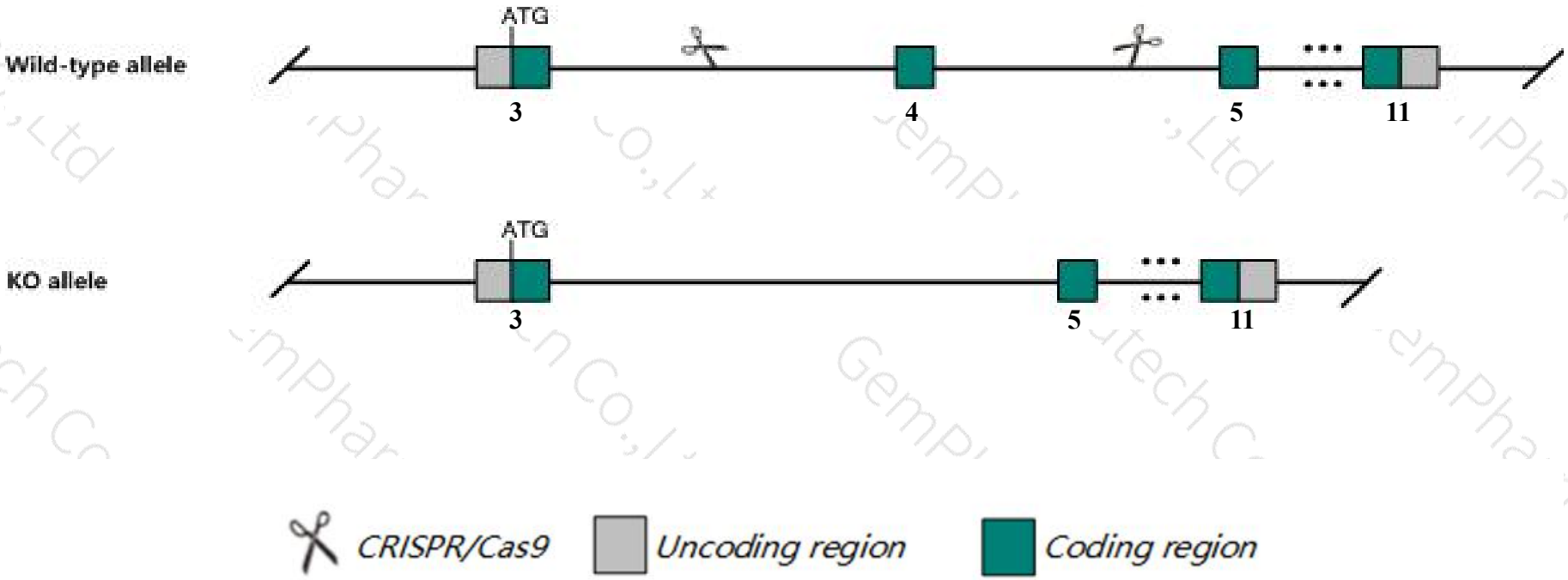
Design Date: 2019-12-11

Project Overview

Project Name	***Tet3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tet3* gene. The schematic diagram is as follows:



Technical routes

➢ The *Tet3* gene has 5 transcripts. According to the structure of *Tet3* gene, exon4 of *Tet3-202* (ENSMUST00000089622.10) transcript is recommended as the knockout region.The region contains 91bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Tet3* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

➢ According to the existing MGI data,Mice inheriting a null allele from a germ cell conditional null mother display impaired reprogramming of the paternal genome resulting in reduced embryo viability.

➢Transcript-204 may not be affected.

➢ The *Tet3* gene is located on the Chr6. 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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Tet3 tet methylcytosine dioxygenase 3 [Mus musculus (house mouse)]

Gene ID: 194388, updated on 19-Mar-2019

Summary

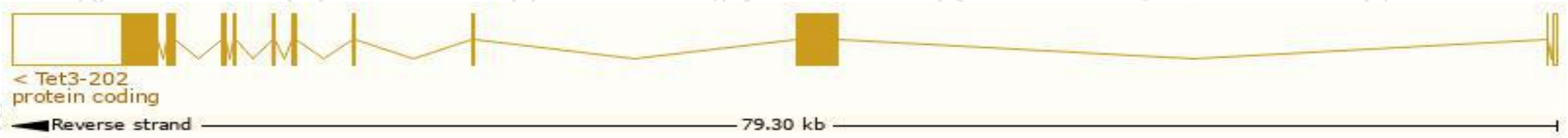
Official Symbol	Tet3 provided by MGI
Official Full Name	tet methylcytosine dioxygenase 3 provided by MGI
Primary source	MGI:MGI:2446229
See related	Ensembl:ENSMUSG00000034832
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B430006D22Rik, BC037432, D230004J03Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 8.4), thymus adult (RPKM 8.4) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

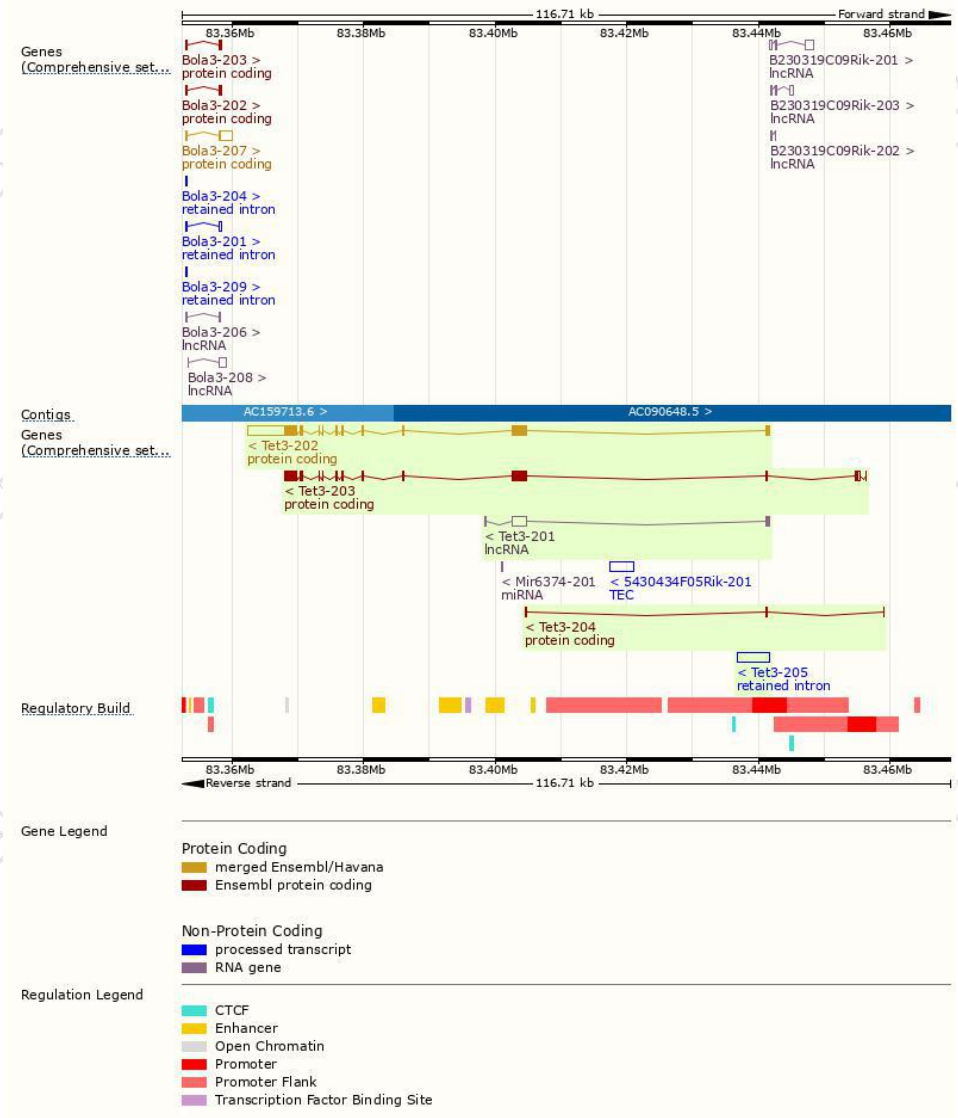
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tet3-202	ENSMUST00000089622.10	10904	1668aa	Protein coding	CCDS51820	Q8BG87	TSL:5 GENCODE basic
Tet3-203	ENSMUST00000186548.6	5944	1803aa	Protein coding	CCDS85071	Q8BG87	TSL:1 GENCODE basic APPRIS P1
Tet3-204	ENSMUST00000190295.1	469	141aa	Protein coding	-	A0A087WP90	CDS 3' incomplete TSL:3
Tet3-205	ENSMUST00000205921.1	4836	No protein	Retained intron	-	-	TSL:NA
Tet3-201	ENSMUST00000056191.1	2523	No protein	lncRNA	-	-	TSL:1

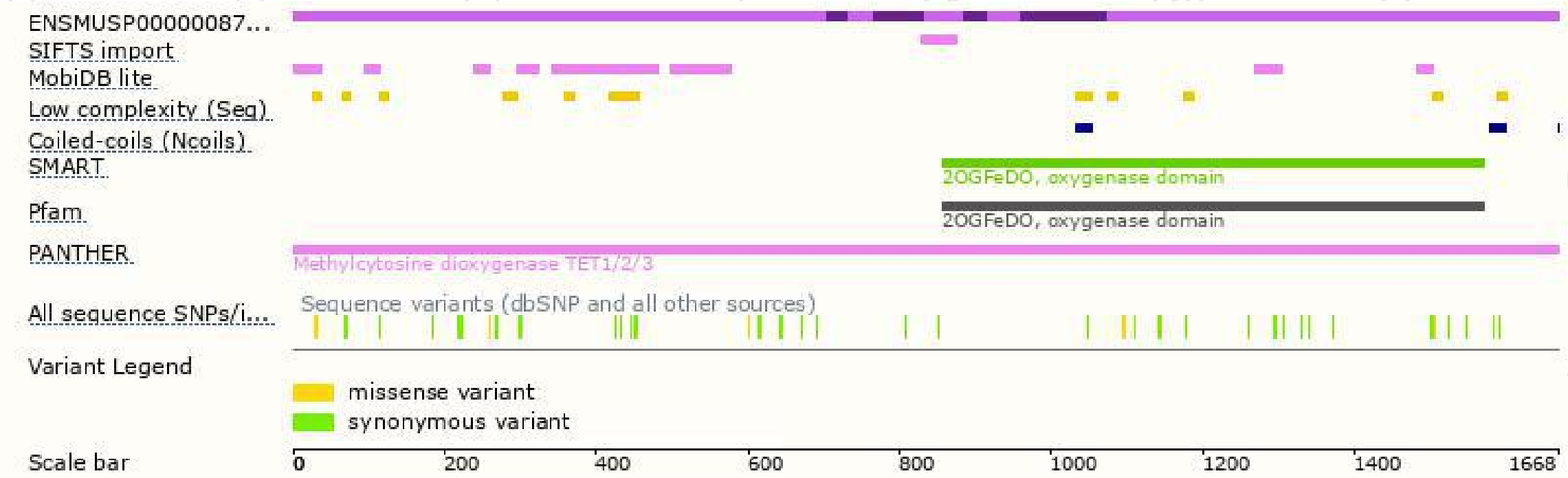
The strategy is based on the design of *Tet3-202* transcript,The transcription is shown below



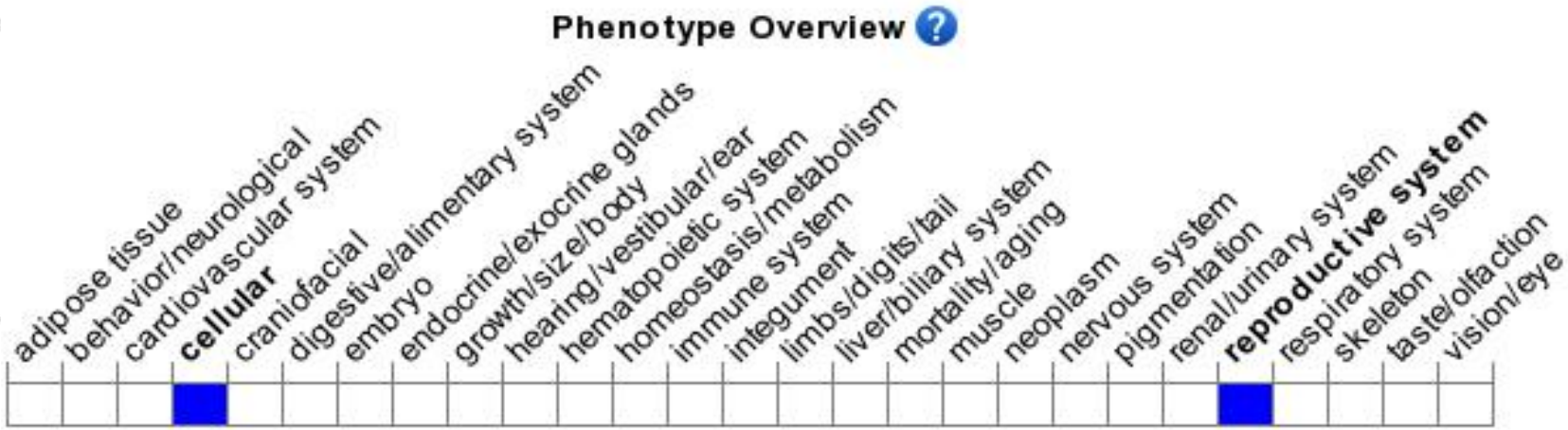
Genomic location distribution



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,Mice inheriting a null allele from a germ cell conditional null mother display impaired reprogramming of the paternal genome resulting in reduced embryo viability.

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