Mettl22 Cas9-CKO Strategy

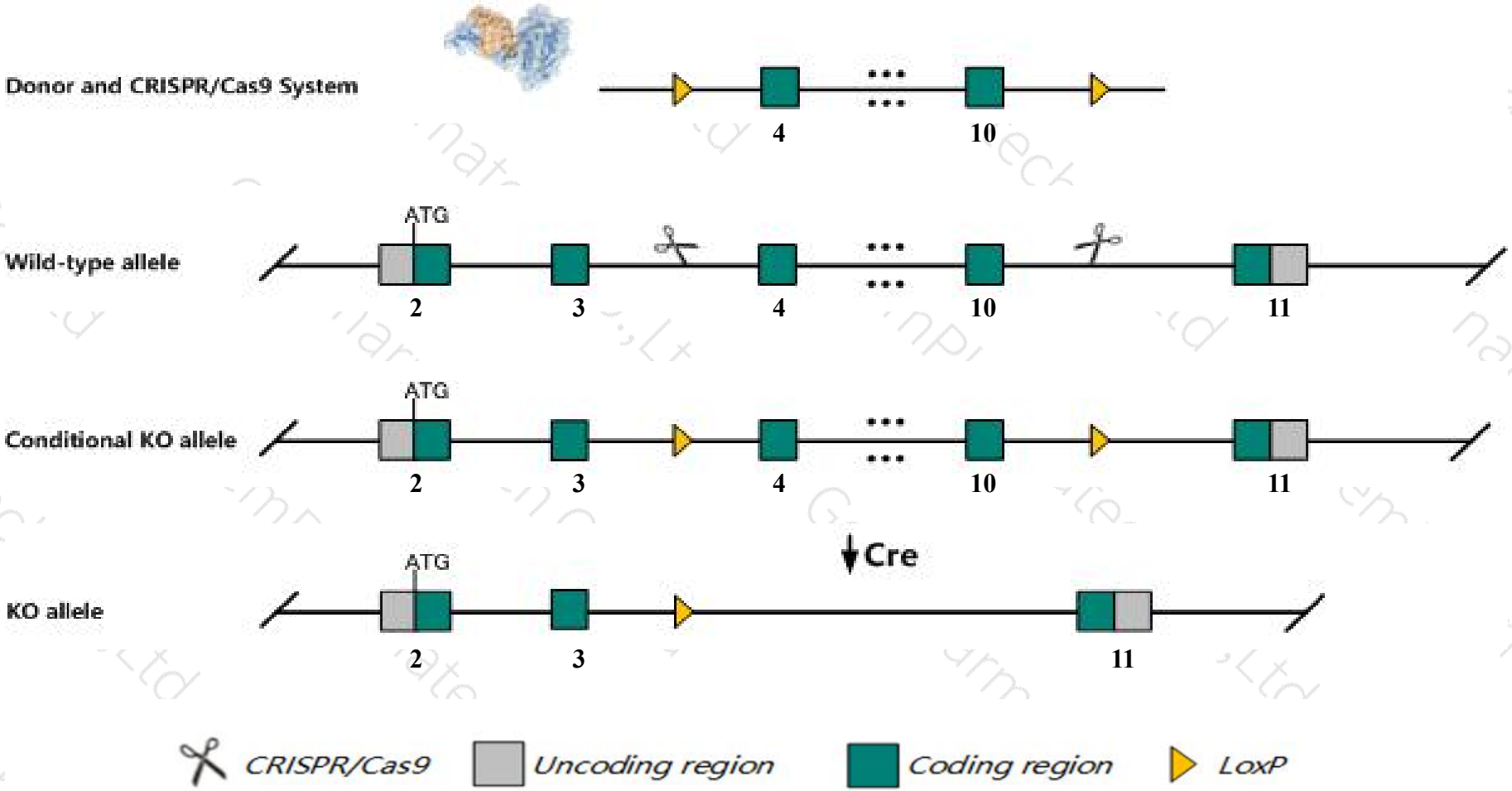
Designer: Xiaojing Li
Design Date: 2019-9-16
Reviewer: JiaYu

Project Overview

Project Name	***Mettl22***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mettl22* gene. The schematic diagram is as follows:



Technical routes

集萃药康 GemPharmatech

- The *Mettl22* gene has 6 transcripts. According to the structure of *Mettl22* gene, exon4-exon10 of *Mettl22-201* (ENSMUST00000046470.15) transcript is recommended as the knockout region.The region contains 665bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Mettl22* gene. The brief process is as follows:CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice.Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

➢ The *Mettl22* gene is located on the Chr16. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

集萃药康 GemPharmatech

Mettl22 methyltransferase like 22 [Mus musculus (house mouse)]

Gene ID: 239706, updated on 31-Jan-2019

Summary

Official Symbol	Mettl22 provided by MGI
Official Full Name	methyltransferase like 22 provided byMGI
Primary source	MGI:MGI:2384301
See related	Ensembl:ENSMUSG00000039345
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
Expression	Ubiquitous expression in testis adult (RPKM 31.3), CNS E18 (RPKM 14.2) and 28 other tissuesSee more
Orthologs	human all

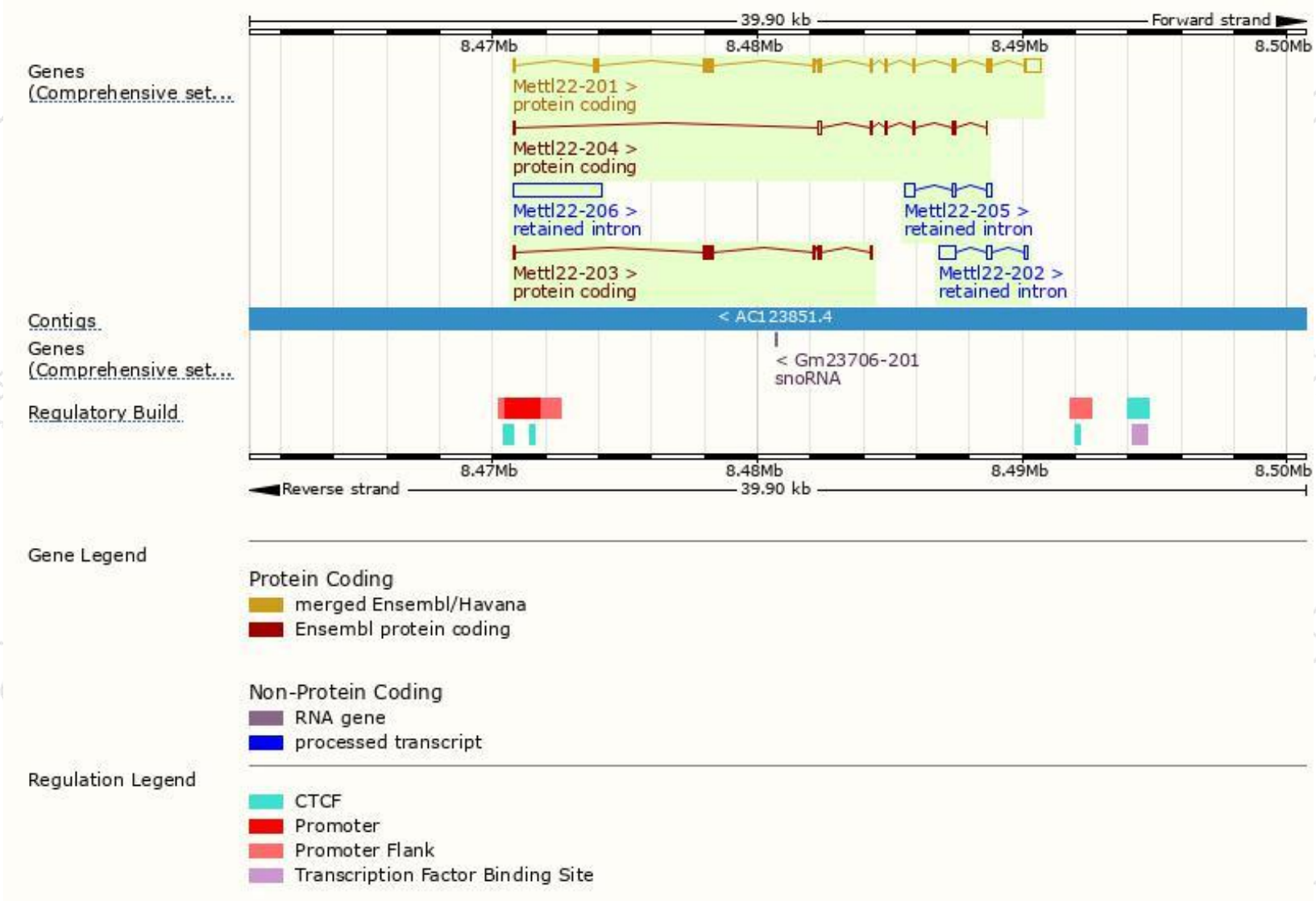
Transcript information（Ensembl）

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

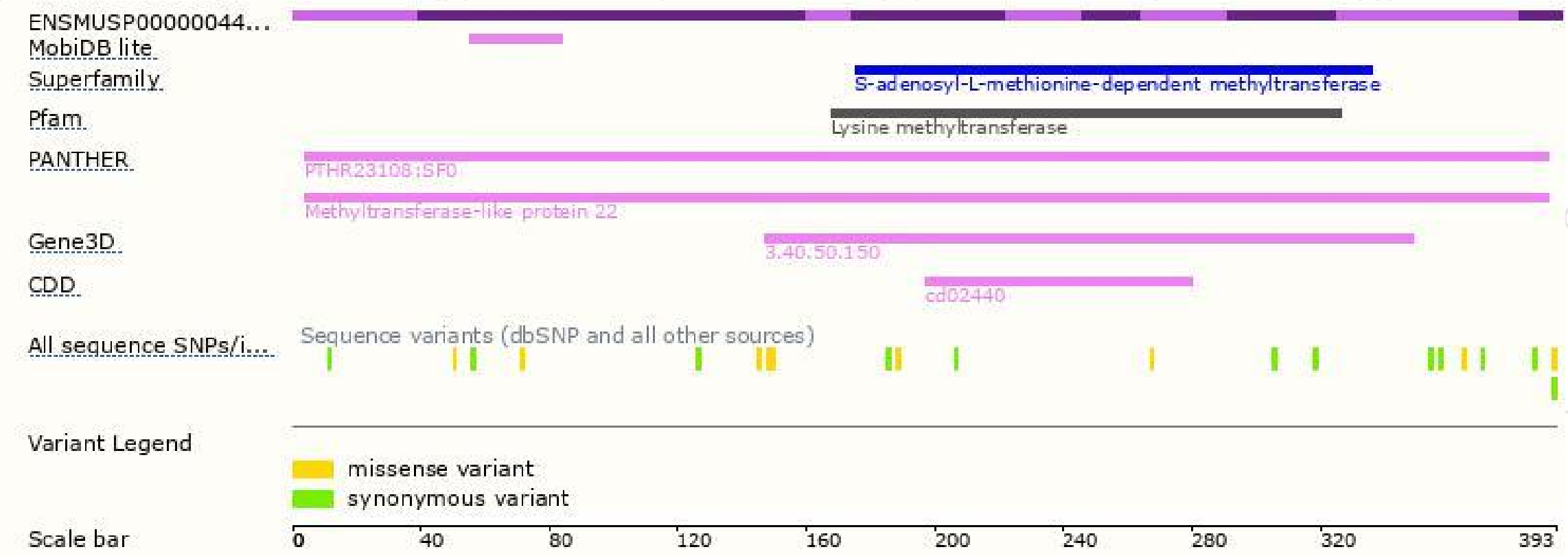
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mettl22-201	ENSMUST00000046470.15	1825	393aa	Protein coding	CCDS27938	Q8R1C6	TSL:1 GENCODE basic APPRIS P1
Mettl22-203	ENSMUST00000142899.1	681	208aa	Protein coding	-	D3Z0D7	CDS 3' incomplete TSL:3
Mettl22-204	ENSMUST00000150790.1	554	119aa	Protein coding	-	D3YVA4	CDS 3' incomplete TSL:5
Mettl22-206	ENSMUST00000229757.1	3310	No protein	Retained intron	-	-	
Mettl22-202	ENSMUST00000133208.1	892	No protein	Retained intron	-	-	TSL:2
Mettl22-205	ENSMUST00000151233.1	668	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Mettl22-201* transcript,The transcription is shown below

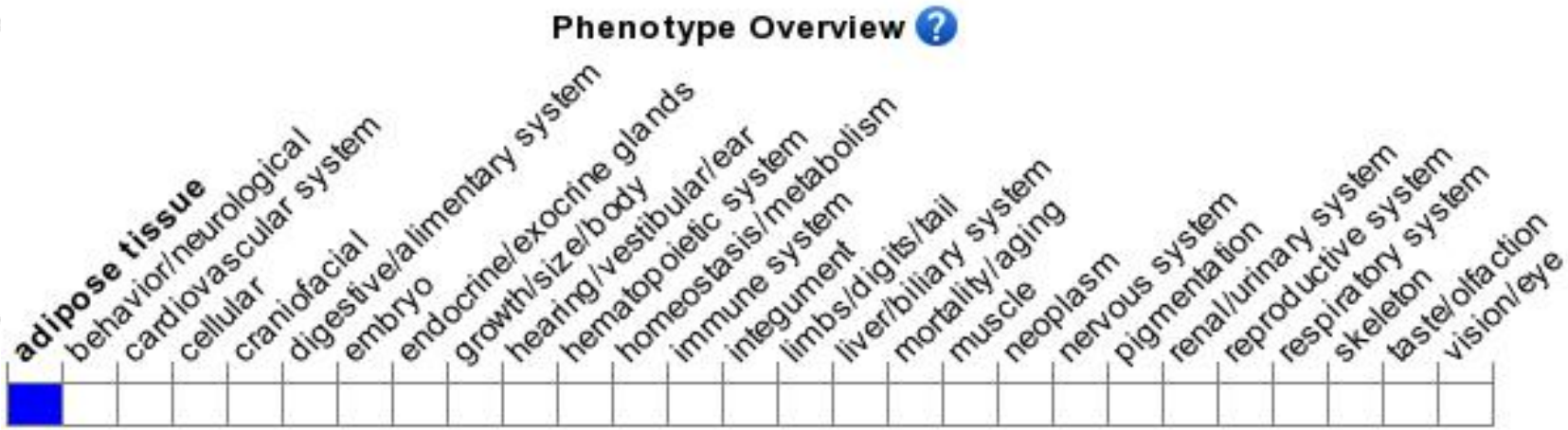
Genomic location distribution



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/).

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