

***Mettl21a* Cas9-CKO Strategy**

Designer: Zihe Cui

Reviewer: Jia Yu

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Project Overview

Project Name

Mettl21a

Project type

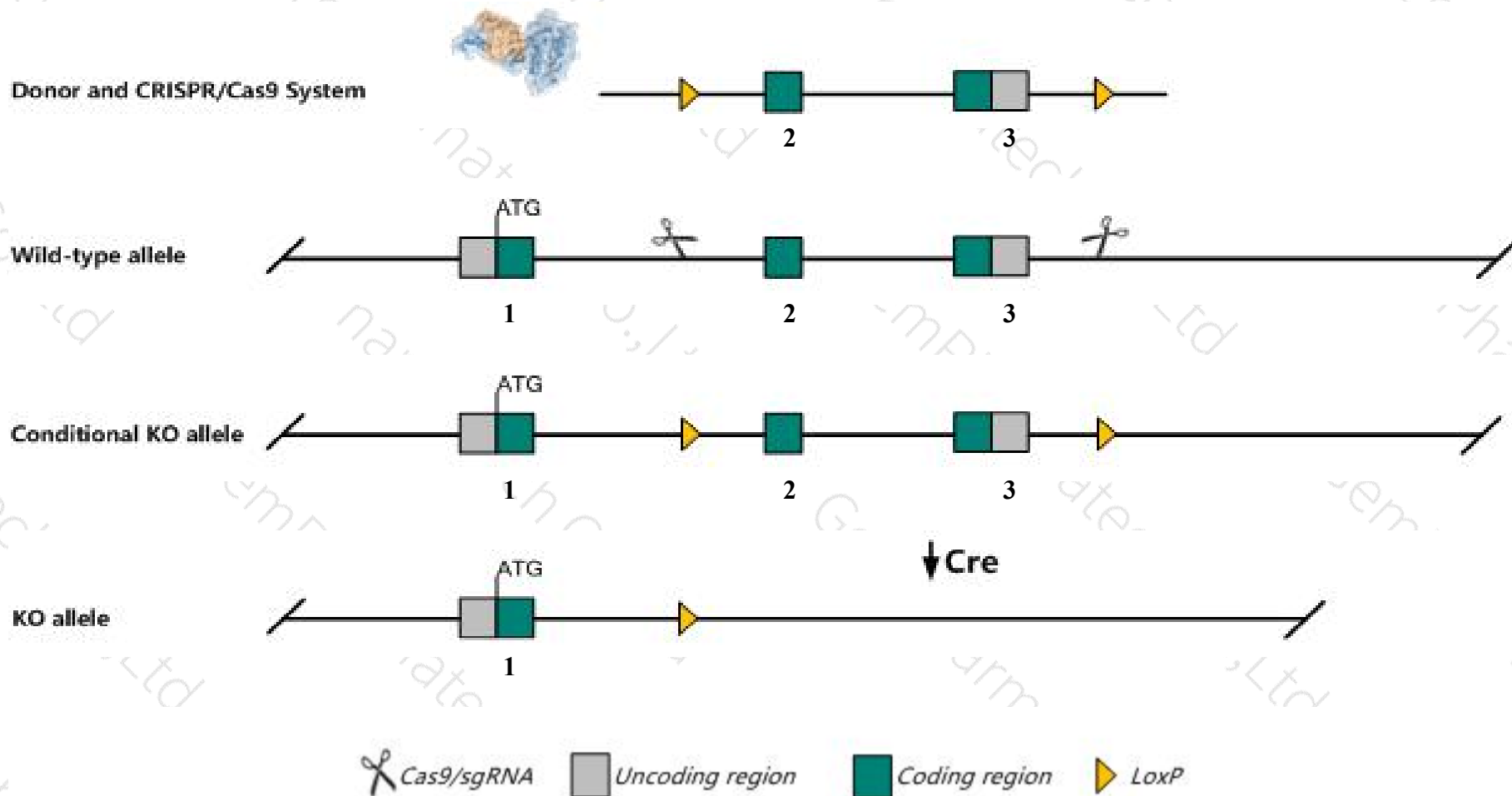
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mettl21a* gene. The schematic diagram is as follows:



Technical routes

- The *Mettl21a* gene has 4 transcripts. According to the structure of *Mettl21a* gene, exon2-exon3 of *Mettl21a-201*(ENSMUST00000053469.1) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mettl21a* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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.

- The KO region is close to *Gm28982* gene. Knockout the region may affect the function of *Gm28982* gene.
- The *Mettl21a* gene is located on the Chr1. 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)

Mettl21a methyltransferase like 21A [*Mus musculus* (house mouse)]

Gene ID: 67099, updated on 3-Oct-2020

Summary

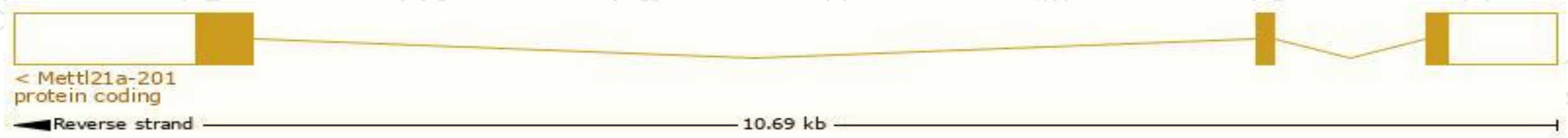
Official Symbol	Mettl21a provided by MGI
Official Full Name	methyltransferase like 21A provided by MGI
Primary source	MGI:MGI:1914349
See related	Ensembl:ENSMUSG00000025956
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Fam11; Fam119a; AI464204; 2310038H17Rik
Expression	Ubiquitous expression in bladder adult (RPKM 3.7), limb E14.5 (RPKM 3.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

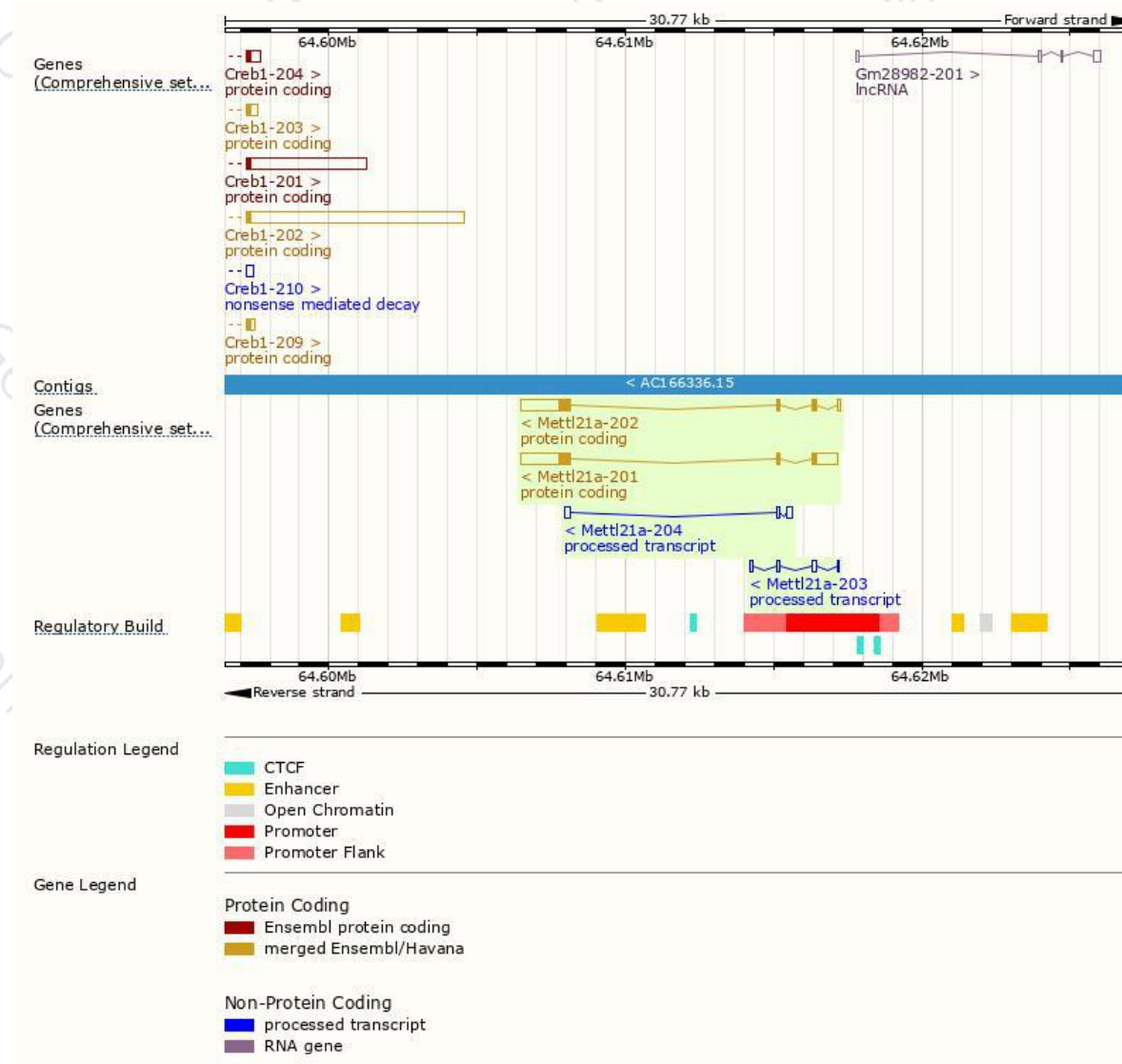
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mettl21a-201	ENSMUST00000053469.1	2666	218aa	Protein coding	CCDS15006	Q9CQL0	TSL:1 GENCODE basic APPRIS P1
Mettl21a-202	ENSMUST00000114079.8	2030	218aa	Protein coding	CCDS15006	Q9CQL0	TSL:1 GENCODE basic APPRIS P1
Mettl21a-204	ENSMUST00000162806.7	487	No protein	Processed transcript	-	-	TSL:3
Mettl21a-203	ENSMUST00000161264.1	372	No protein	Processed transcript	-	-	TSL:5

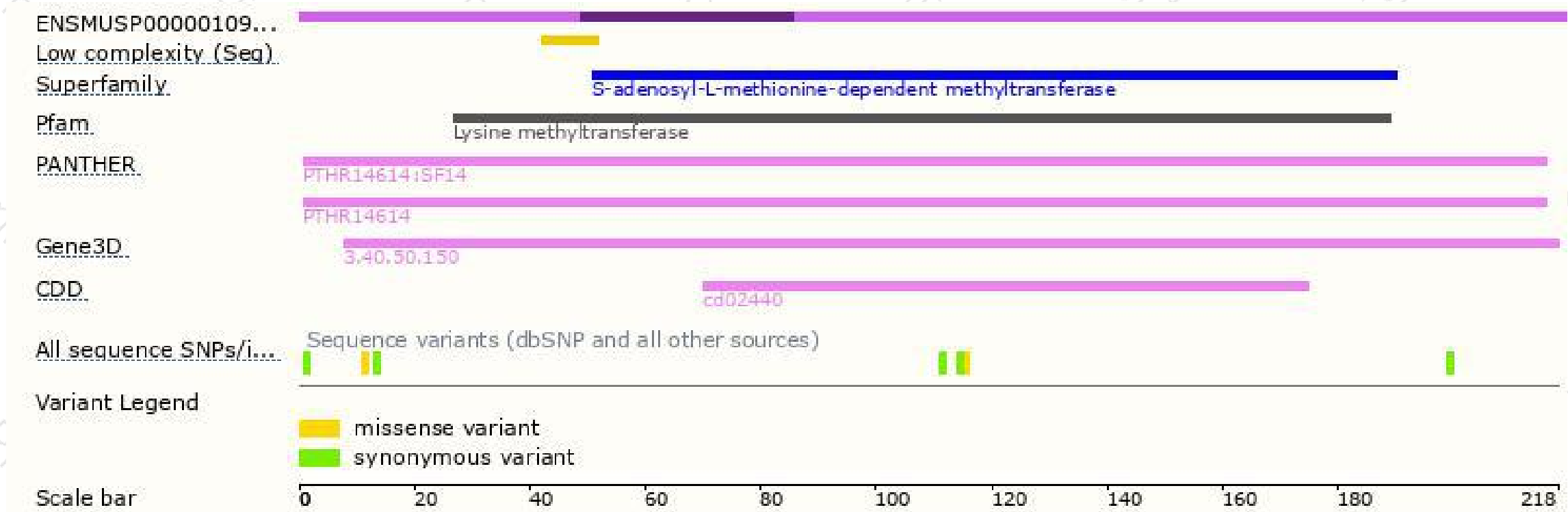
The strategy is based on the design of *Mettl21a-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

