

Mettl5 Cas9-CKO Strategy

Designer:

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Project Overview



Project Name

Mettl5

Project type

Cas9-CKO

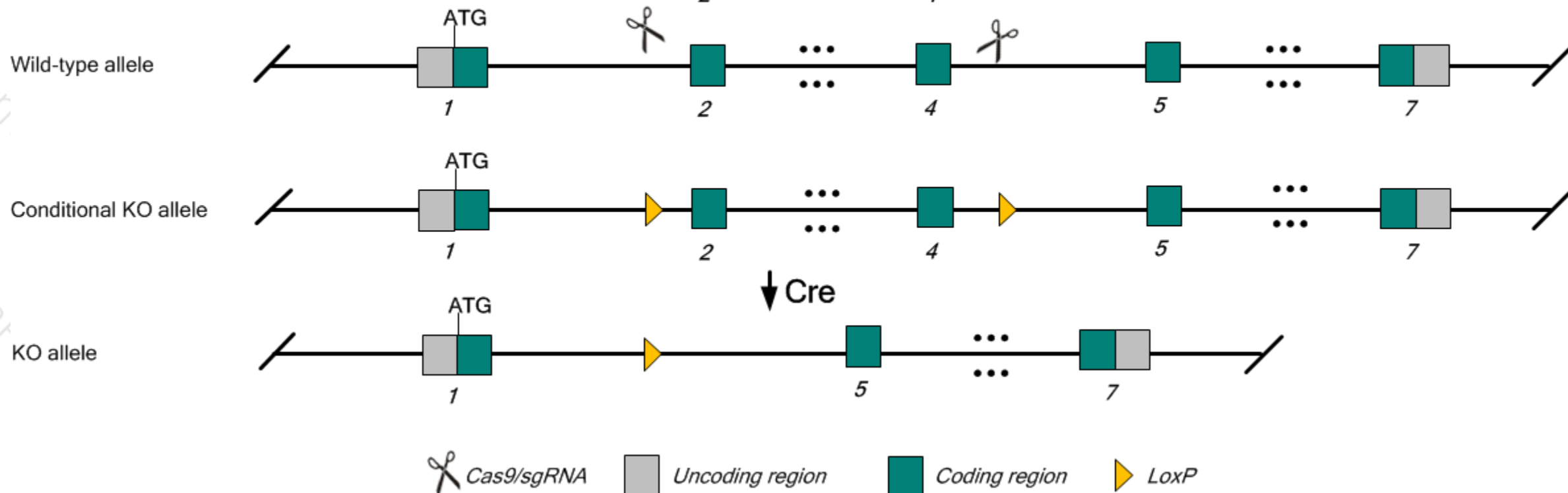
Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mettl5* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System



- The *Mettl5* gene has 4 transcripts, According to the structure of *Mettl5* gene, exon2-4 of *Mettl5*-201 transcript is recommended as the knockout region. The region contains the 380bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mettl5* 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 or cell types.

- Transcript Mettl5-202 may not be affected.
- The position of Mettl5os gene and Mettl5 gene is adjacent. Knockout the region may affect the function of the Mettl5os gene.
- The *Mettl5* gene is located in the Chr2. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Mettl5 methyltransferase like 5 [*Mus musculus* (house mouse)]

Gene ID: 75422, updated on 31-Jan-2019

Summary

Official Symbol	Mettl5 provided by MGI
Official Full Name	methyltransferase like 5 provided by MGI
Primary source	MGI:MGI:1922672
See related	Ensembl:ENSMUSG000000051730
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	2810410A08Rik
Expression	Ubiquitous expression in liver E14 (RPKM 10.1), CNS E11.5 (RPKM 8.1) and 27 other tissues See more
Orthologs	human all

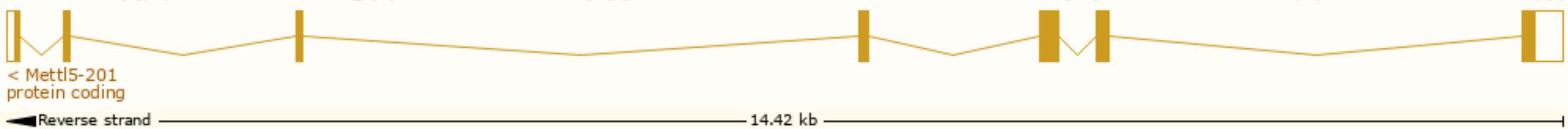
Transcript information (Ensembl)



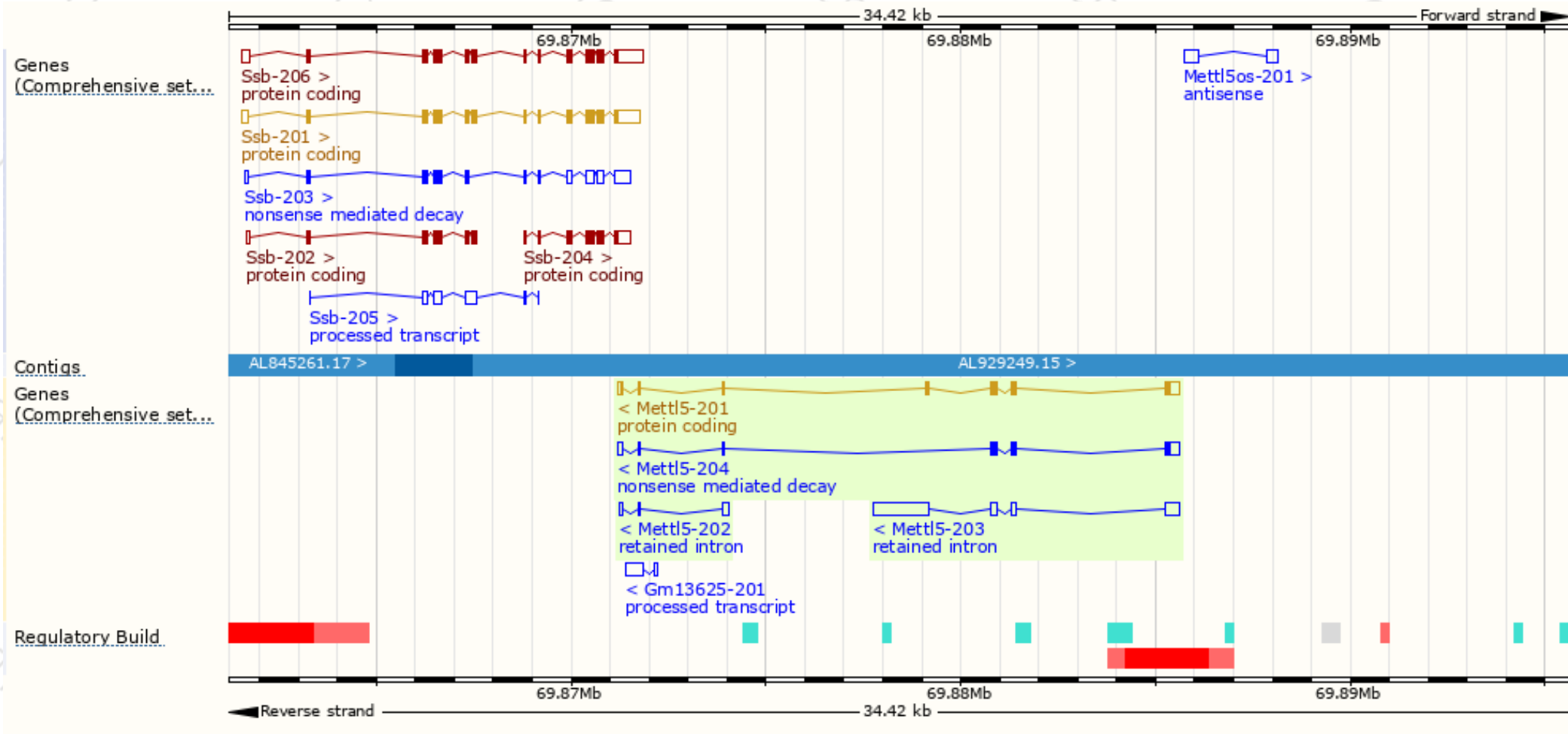
The gene has 4 transcripts, and all transcripts are shown below :

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Mettl5-201	ENSMUST00000060447.12	968	209aa	Protein coding	CCDS16103	Q8K1A0	NM_029280 NP_083556	TSL:2 Gencode basic APPRIS P1
Mettl5-204	ENSMUST00000142127.7	851	142aa	Nonsense mediated decay	-	D6RCI3	NR_110977	TSL:1
Mettl5-203	ENSMUST00000135487.1	2090	No protein	Retained intron	-	-	-	TSL:2
Mettl5-202	ENSMUST00000135459.1	316	No protein	Retained intron	-	-	-	TSL:2

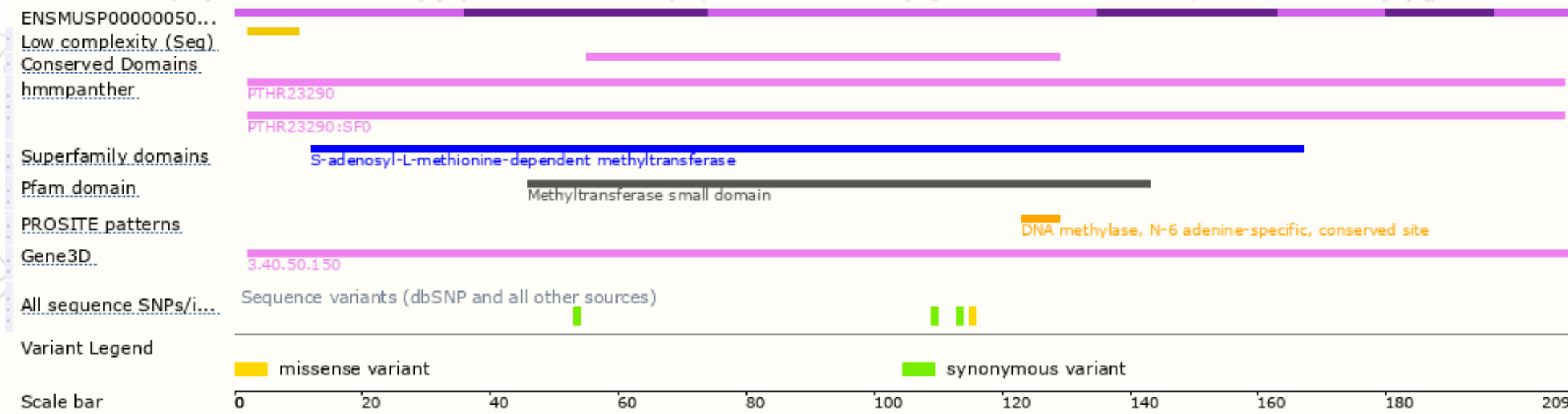
The strategy is based on the design of *Mettl5-201* transcript, The transcription is shown below :



Genomic location distribution



Protein domain



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