

# ***Mettl4 Cas9-KO Strategy***

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**Reviewer :**

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**2019-8-28**

# Project Overview

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**Project Name**

***Mettl4***

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**Project type**

**Cas9-KO**

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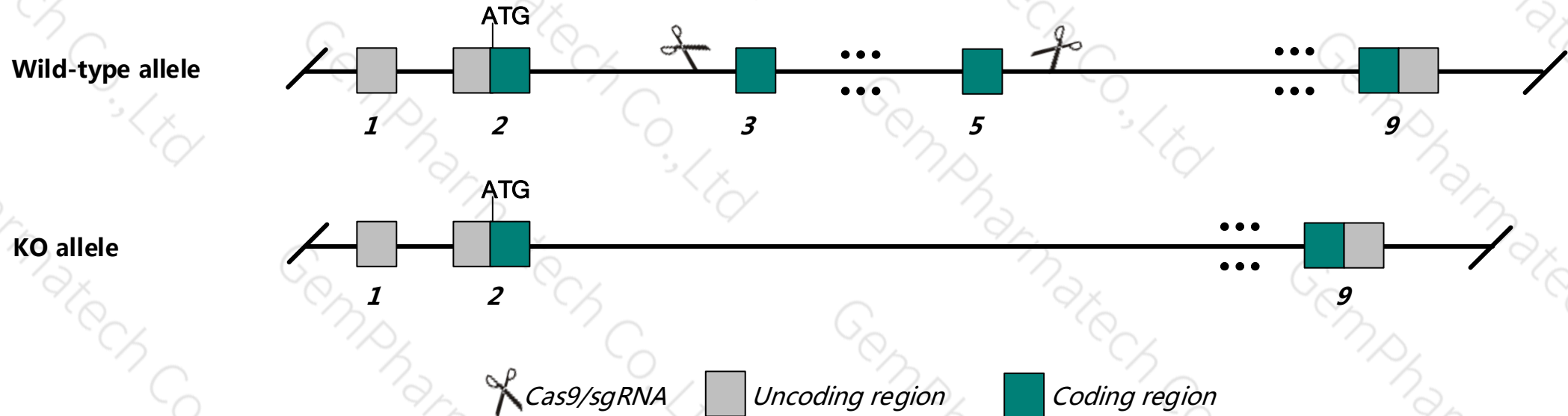
**Strain background**

**C57BL/6JGpt**

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# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mettl4* gene. The schematic diagram is as follows:



# Technical routes

- The *Mettl4* gene has 3 transcripts. According to the structure of *Mettl4* gene, exon3-exon5 of *Mettl4*-203 (ENSMUST00000234990.1) transcript is recommended as the knockout region. The region contains 503bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mettl4* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9, sgRNA 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 *Mettl4* gene is located on the Chr17. 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 )

## Mettl4 methyltransferase like 4 [ *Mus musculus* (house mouse) ]

Gene ID: 76781, updated on 12-Aug-2018

### Summary

Official Symbol	Mettl4 provided by <a href="#">MGI</a>
Official Full Name	methyltransferase like 4 provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:1924031</a>
See related	<a href="#">Ensembl:ENSMUSG00000055660</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	HsT661; AV296509; 2410198H06Rik; A730091E08Rik
Expression	Ubiquitous expression in CNS E14 (RPKM 3.7), CNS E11.5 (RPKM 3.4) and 25 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

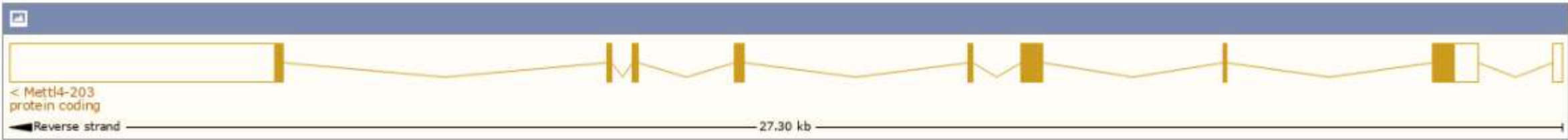


# Transcript information ( Ensembl )

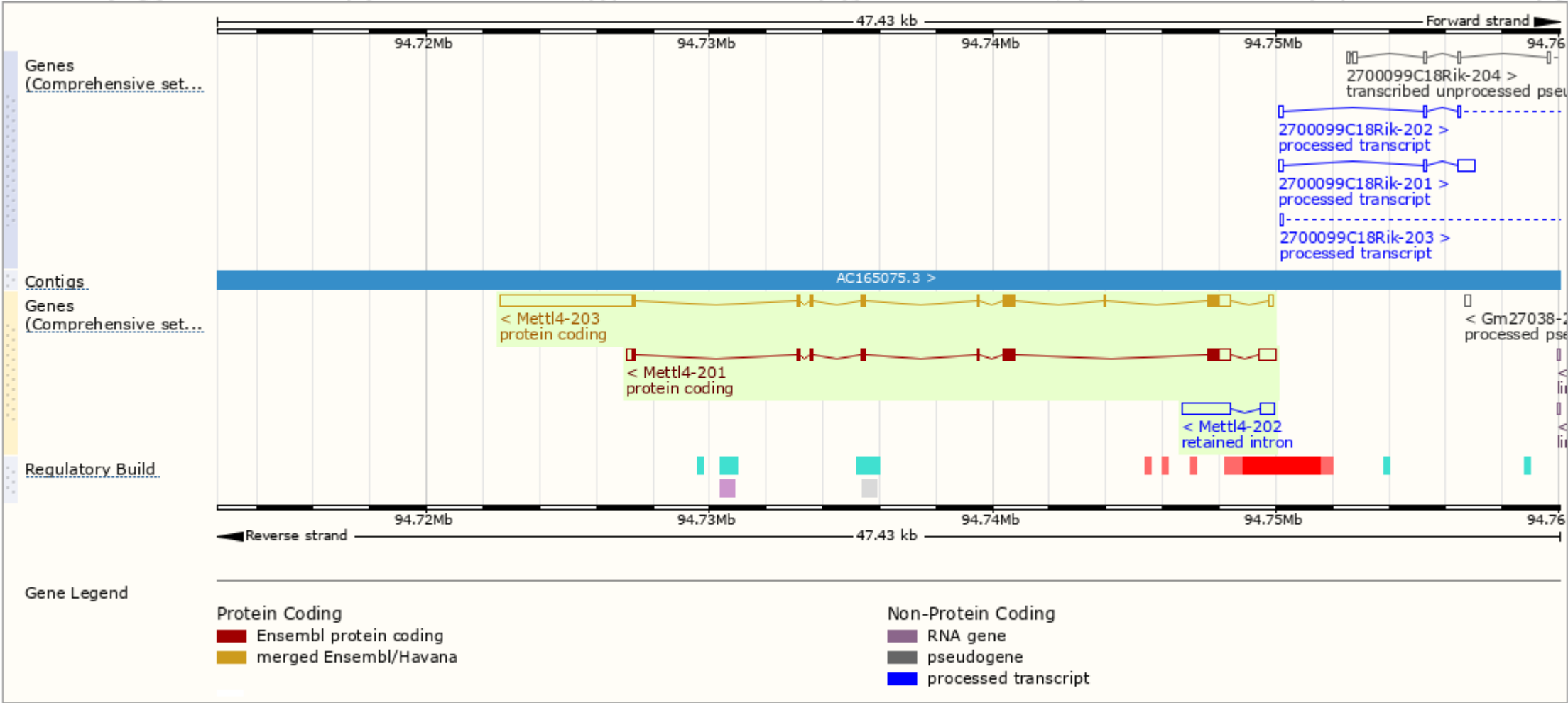
The gene has 3 transcripts, and all transcripts are shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Mettl4-203	<a href="#">ENSMUST00000234990.1</a>	6640	<a href="#">471aa</a>	Protein coding	-	-	<a href="#">NM_001357135</a> <a href="#">NM_001357136</a> <a href="#">NM_176917</a> <a href="#">NP_001344064</a> <a href="#">NP_001344065</a> <a href="#">NP_795891</a>	GENCODE basic APPRIS P2	
Mettl4-201	<a href="#">ENSMUST00000171284.2</a>	2560	<a href="#">450aa</a>	Protein coding	-	<a href="#">A4FTY8</a> <a href="#">Q3U034</a>	<a href="#">NP_001344066</a> <a href="#">NP_001344067</a>	TSL:1 GENCODE basic APPRIS ALT2	
Mettl4-202	<a href="#">ENSMUST00000234593.1</a>	2224	No protein	Retained intron	-	-	-		

The strategy is based on the design of *Mettl4*-203 transcript, The transcription is shown below

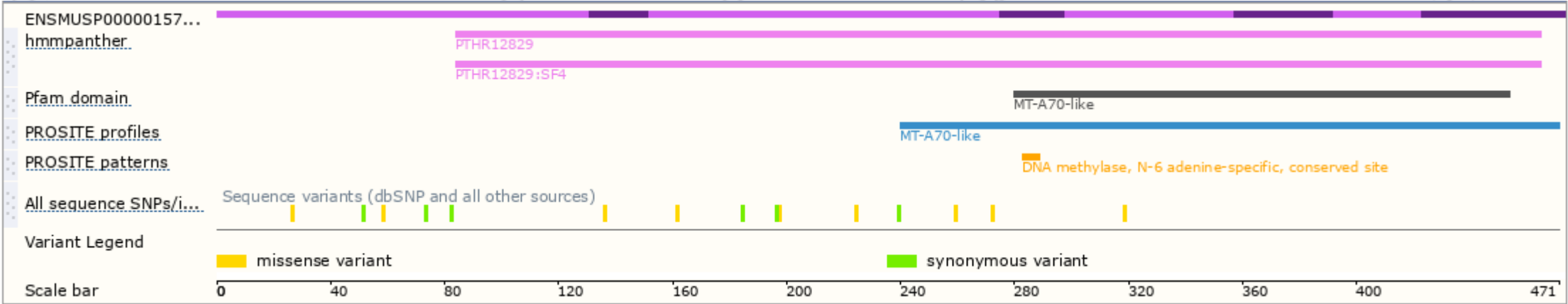


# Genomic location distribution





# Protein domain



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