Trmt10a Cas9-KO Strategy

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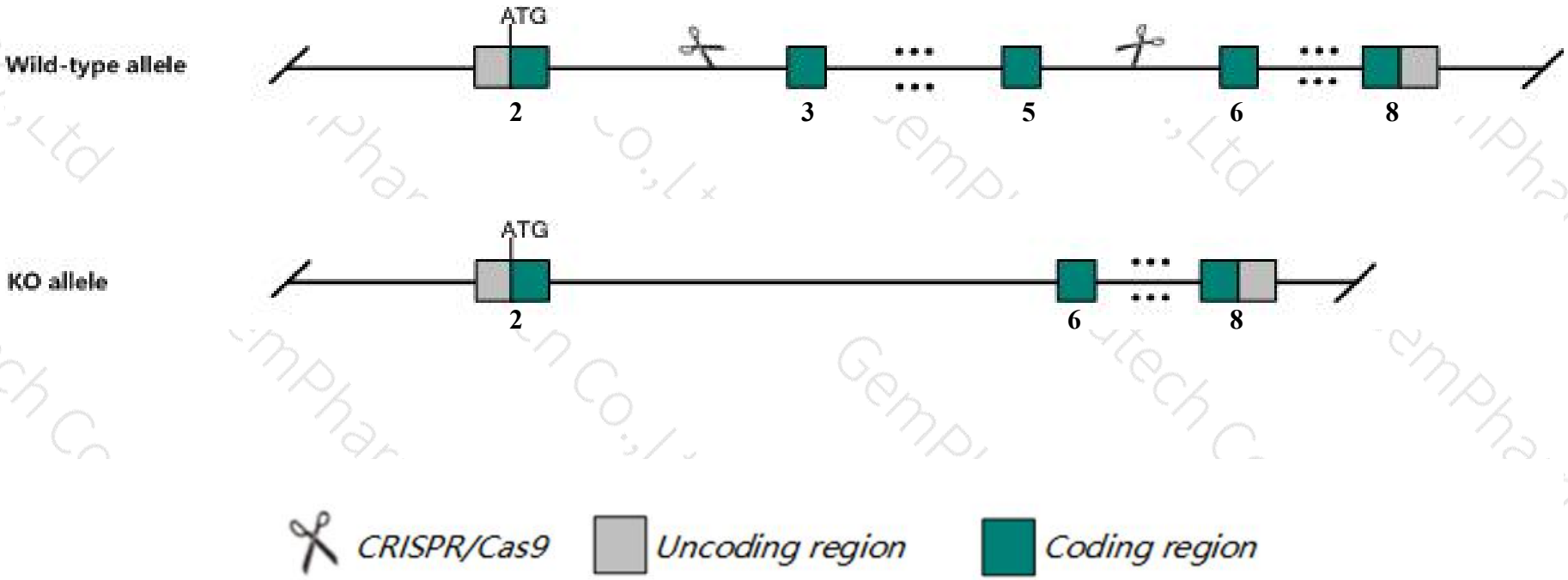
Project Overview

Project Name	***Trmt10a***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trmt10a* gene. The schematic diagram is as follows:



Technical routes

➢ The *Trmt10a* gene has 6 transcripts. According to the structure of *Trmt10a* gene, exon3-exon5 of *Trmt10a-206* (ENSMUST00000162864.7) transcript is recommended as the knockout region.The region contains 307bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Trmt10a* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit increased circulating magnesium level.

- The *Trmt10a* gene is located on the Chr3. 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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Trmt10a tRNA methyltransferase 10A [Mus musculus (house mouse)]

Gene ID: 108943, updated on 31-Jan-2019

Summary

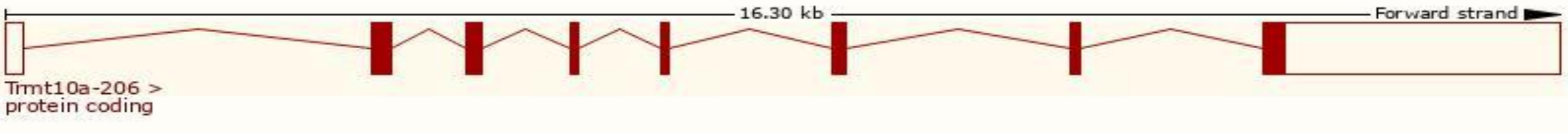
Official Symbol	Trmt10a provided by MGI
Official Full Name	tRNA methyltransferase 10A provided by MGI
Primary source	MGI:MGI:1920421
See related	Ensembl:ENSMUSG00000004127
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3110023L08Rik, AA794508, Rg9mtd2, Rnmtd2
Expression	Broad expression in testis adult (RPKM 8.1), CNS E11.5 (RPKM 2.9) and 18 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

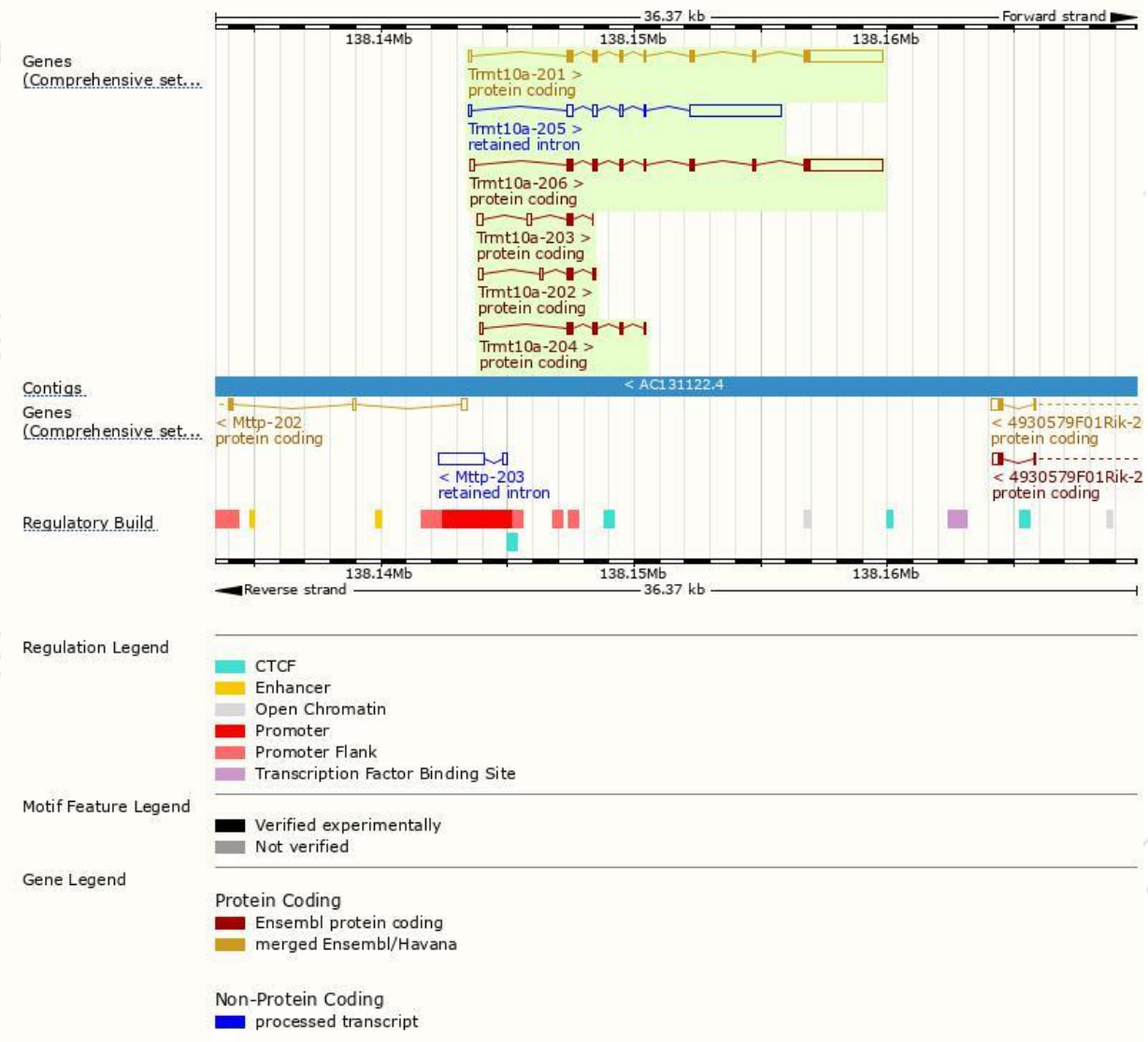
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trmt10a-206	ENSMUST00000162864.7	4064	330aa	Protein coding	CCDS17866	A0A0R4J205	TSL:1 GENCODE basic APPRIS P1
Trmt10a-201	ENSMUST00000040321.12	4025	330aa	Protein coding	CCDS17866	A0A0R4J205	TSL:1 GENCODE basic APPRIS P1
Trmt10a-204	ENSMUST00000161141.1	588	165aa	Protein coding	-	E0CZ56	CDS 3' incomplete TSL:3
Trmt10a-203	ENSMUST00000159622.7	567	66aa	Protein coding	-	E9Q663	CDS 3' incomplete TSL:5
Trmt10a-202	ENSMUST00000159481.7	549	100aa	Protein coding	-	E0CY61	CDS 3' incomplete TSL:3
Trmt10a-205	ENSMUST00000161791.1	4258	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Trmt10a-206* transcript,The transcription is shown below

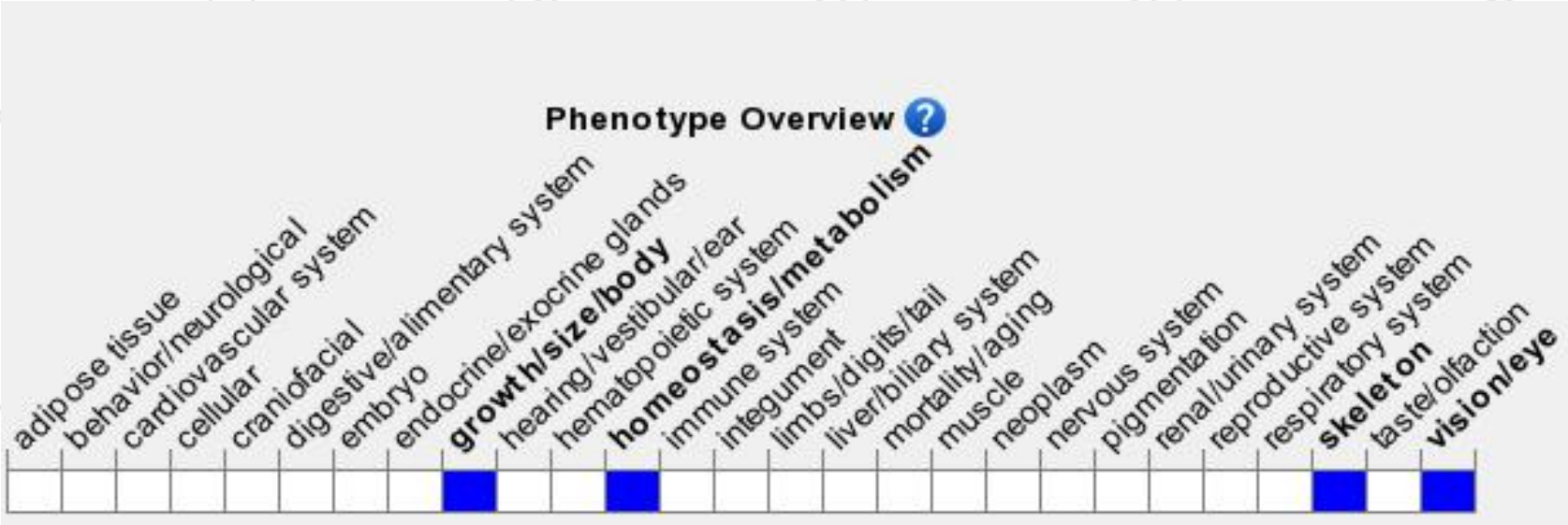


Genomic location distribution



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/).

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

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