

Tctel1 Cas9-KO Strategy

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Design Date: 2020-6-2

Project Overview

Project Name

Tcte1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tcte1* gene. The schematic diagram is as follows:



- The *Tctel* gene has 2 transcripts. According to the structure of *Tctel* gene, exon3-exon4 of *Tctel*-201 (ENSMUST00000113547.1) transcript is recommended as the knockout region. The region contains 1019bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tctel* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit male sterility characterized by asthenozoospermia and decreased atp generation within sperm.
- The *Tctel* 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)

Tcte1 t-complex-associated testis expressed 1 [Mus musculus (house mouse)]

Gene ID: 21645, updated on 13-Mar-2020

Summary

Official Symbol Tcte1 provided by [MGI](#)

Official Full Name t-complex-associated testis expressed 1 provided by [MGI](#)

Primary source [MGI:MGI:98640](#)

See related [Ensembl:ENSMUSG00000023949](#)

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 D17Sil1, Tcte-1

Expression Biased expression in testis adult (RPKM 114.1), cerebellum adult (RPKM 9.0) and 4 other tissues [See more](#)

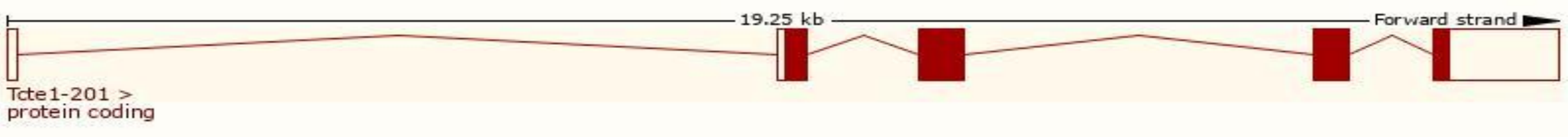
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

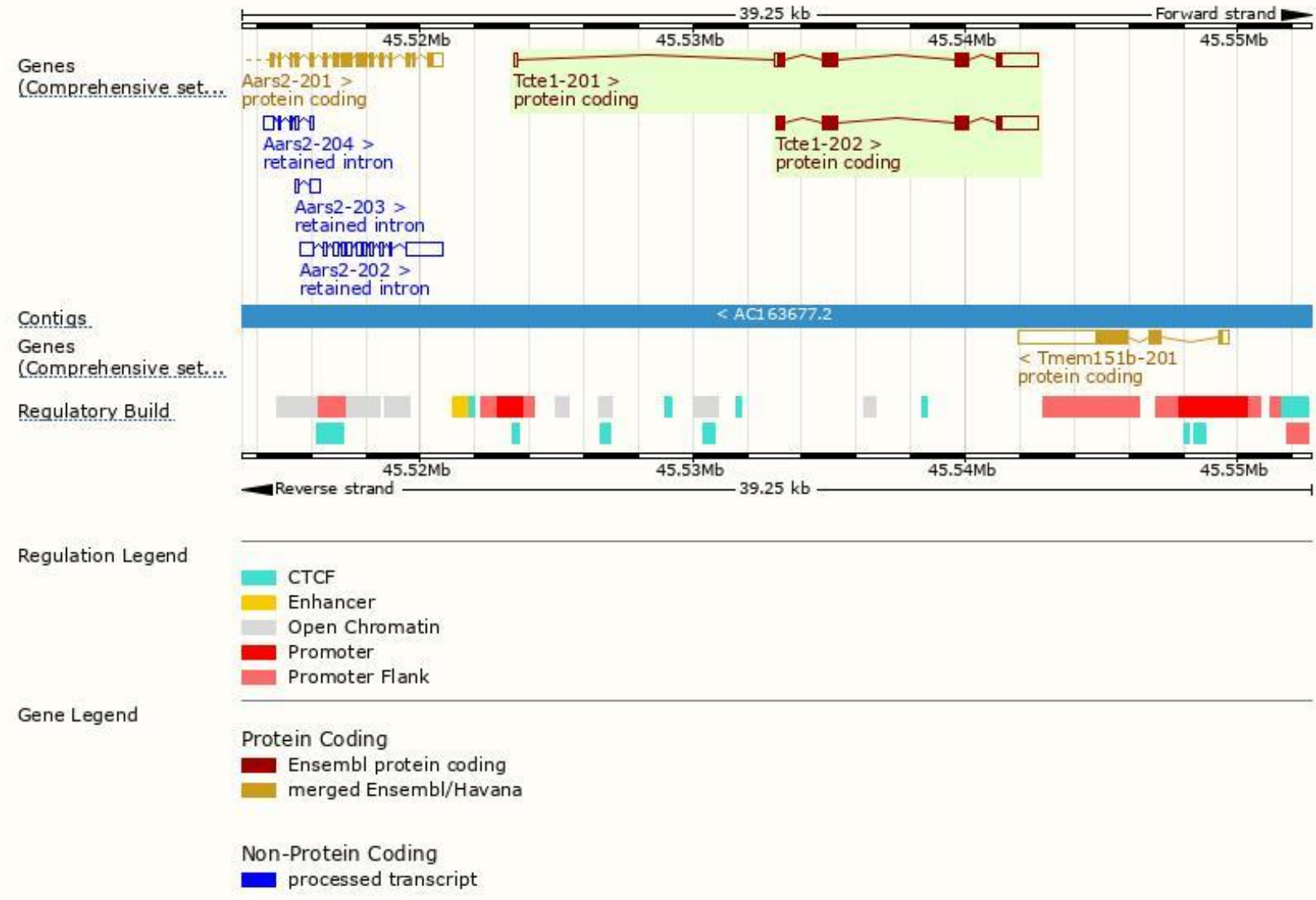
The gene has 2 transcripts,all transcripts are shown below:

Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲
Tcte1-201	ENSMUST00000113547.1	3074	498aa	■ Protein coding	CCDS37629	A6H639	TSL:5 GENCODE basic APPRIS P1
Tcte1-202	ENSMUST00000233588.1	2885	498aa	■ Protein coding	CCDS37629	A6H639	GENCODE basic APPRIS P1

The strategy is based on the design of *Tcte1-201* transcript,the transcription is shown below:



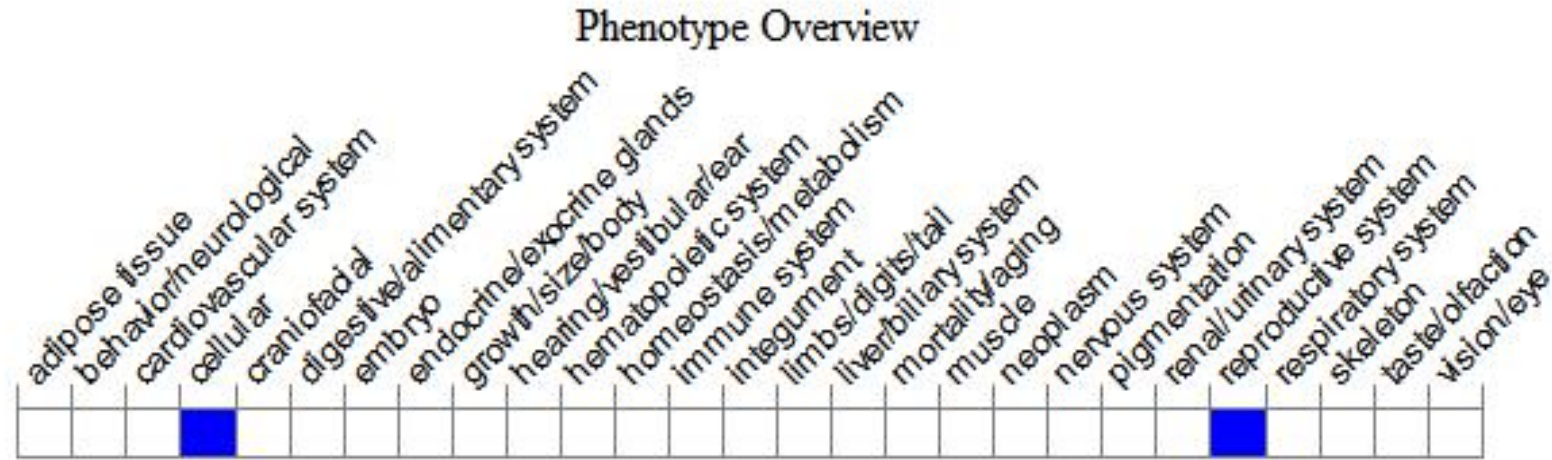
Genomic location distribution



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/>).

According to the existing MGI data, mice homozygous for a knock-out allele exhibit male sterility characterized by asthenozoospermia and decreased ATP generation within sperm.

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

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