

Catsper3 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Catsper3

Project type

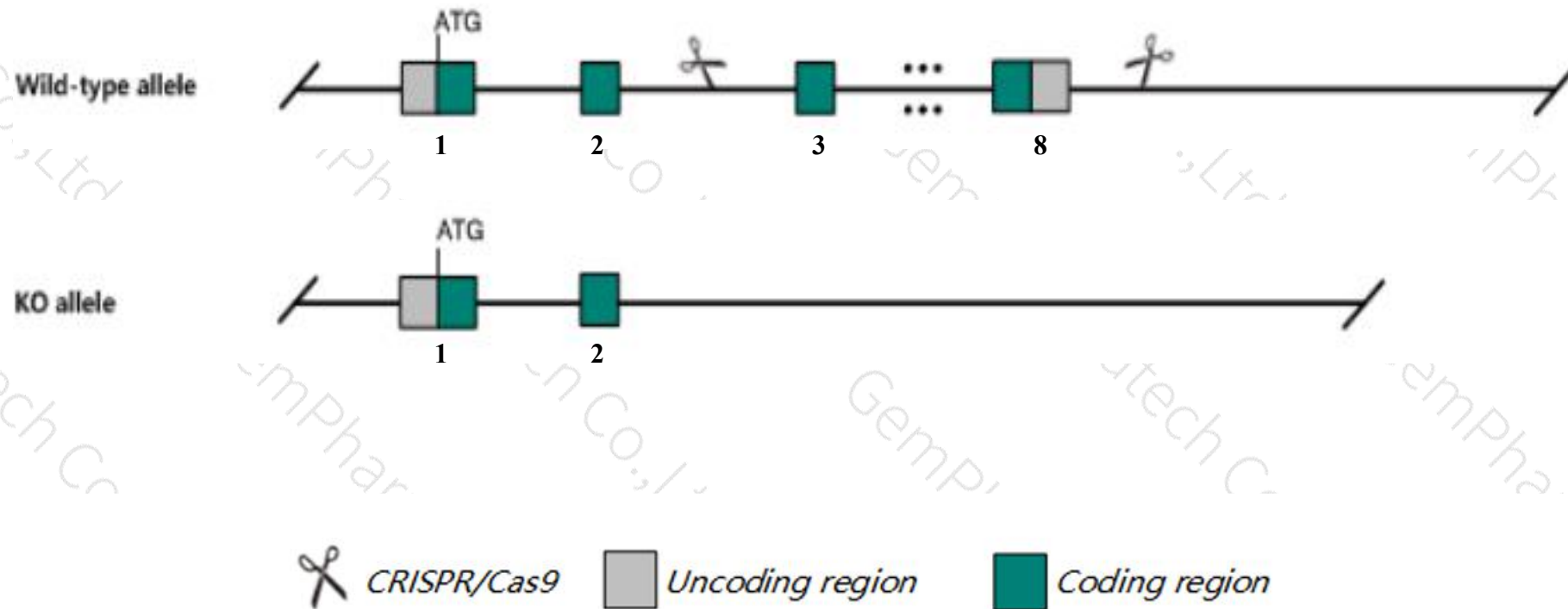
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Catsper3* gene. The schematic diagram is as follows:



- The *Catsper3* gene has 2 transcripts. According to the structure of *Catsper3* gene, exon3-exon8 of *Catsper3-201* (ENSMUST00000021961.11) 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 *Catsper3* gene. The brief process is as follows: CRISPR/Cas9 syst

- According to the existing MGI data, mice homozygous for this mutation are viable and exhibit no gross physical or behavioral abnormality. although wild-type and homozygous mutant females bred to wild-type males exhibit similar fertility, male homozygotes are infertile.
- The *Catsper3* gene is located on the Chr13. 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)

Catsper3 cation channel, sperm associated 3 [Mus musculus (house mouse)]

Gene ID: 76856, updated on 13-Mar-2020

Summary



Official Symbol	Catsper3 provided by MGI
Official Full Name	cation channel, sperm associated 3 provided by MGI
Primary source	MGI:MGI:1924106
See related	Ensembl:ENSMUSG000000021499
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	4921522D01Rik, CACRC
Expression	Restricted expression toward testis adult (RPKM 22.1) See more
Orthologs	human all

Transcript information (Ensembl)

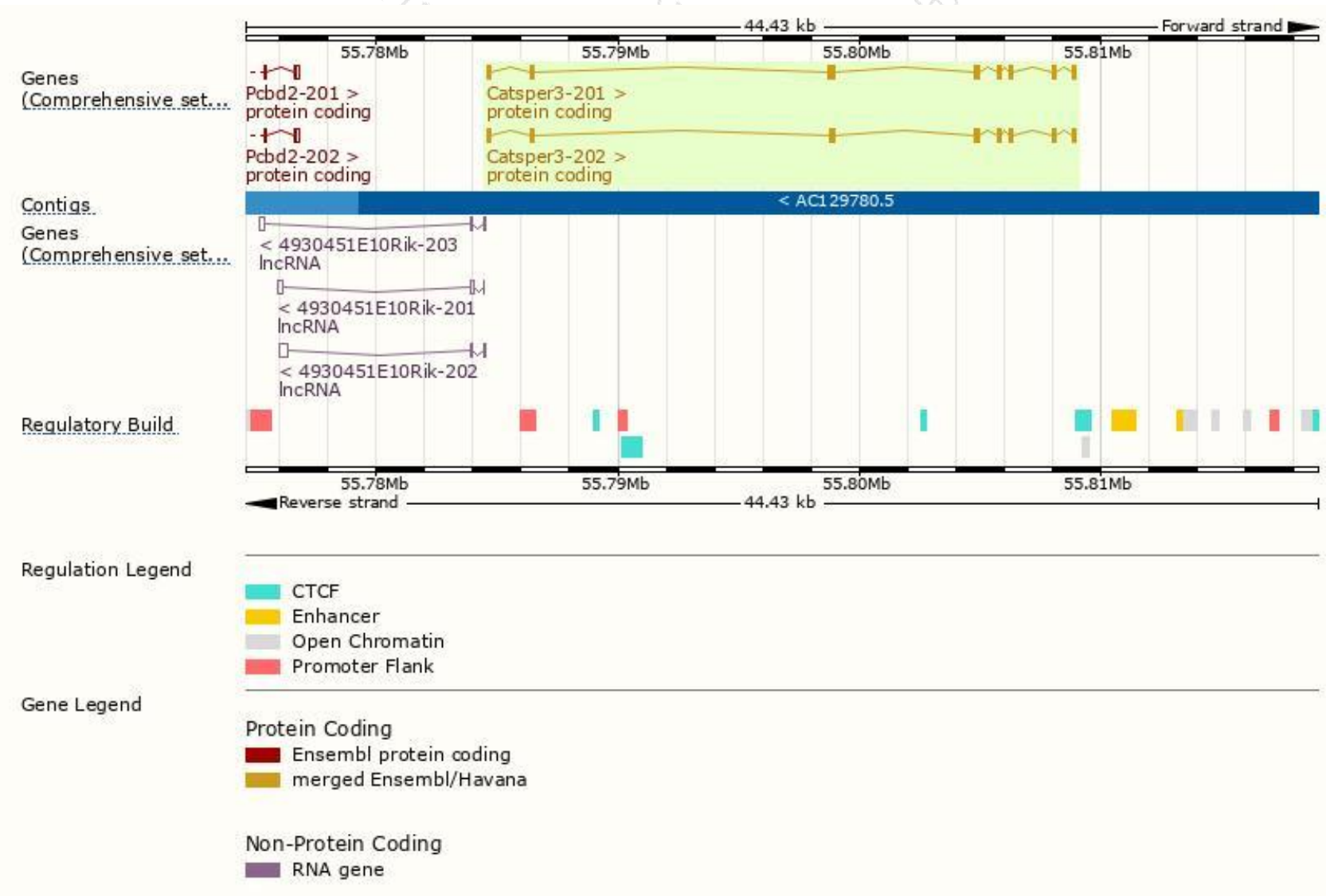
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Catsper3-201	ENSMUST00000021961.11	1330	395aa	Protein coding	CCDS56885	E0Z0E0 Q80W99	TSL:1 GENCODE basic APPRIS ALT2
Catsper3-202	ENSMUST00000109898.2	1311	382aa	Protein coding	CCDS26555	Q80W99	TSL:1 GENCODE basic APPRIS P3

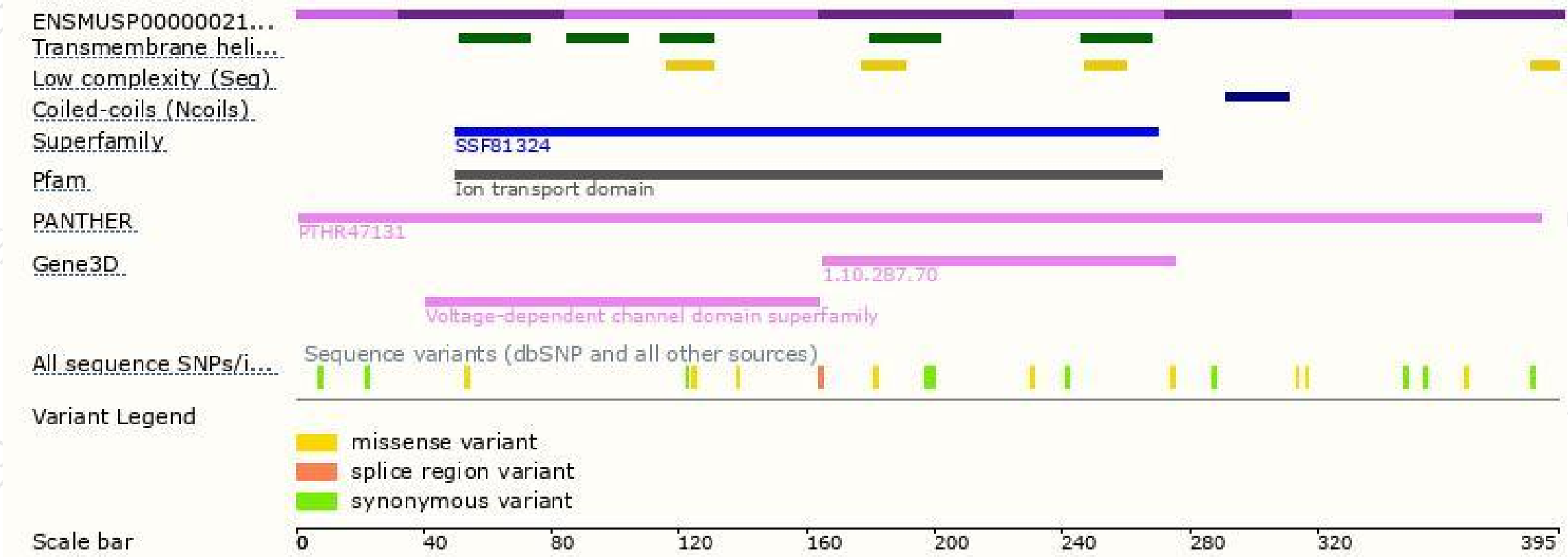
The strategy is based on the design of *Catsper3-201* transcript,the transcription is shown below:



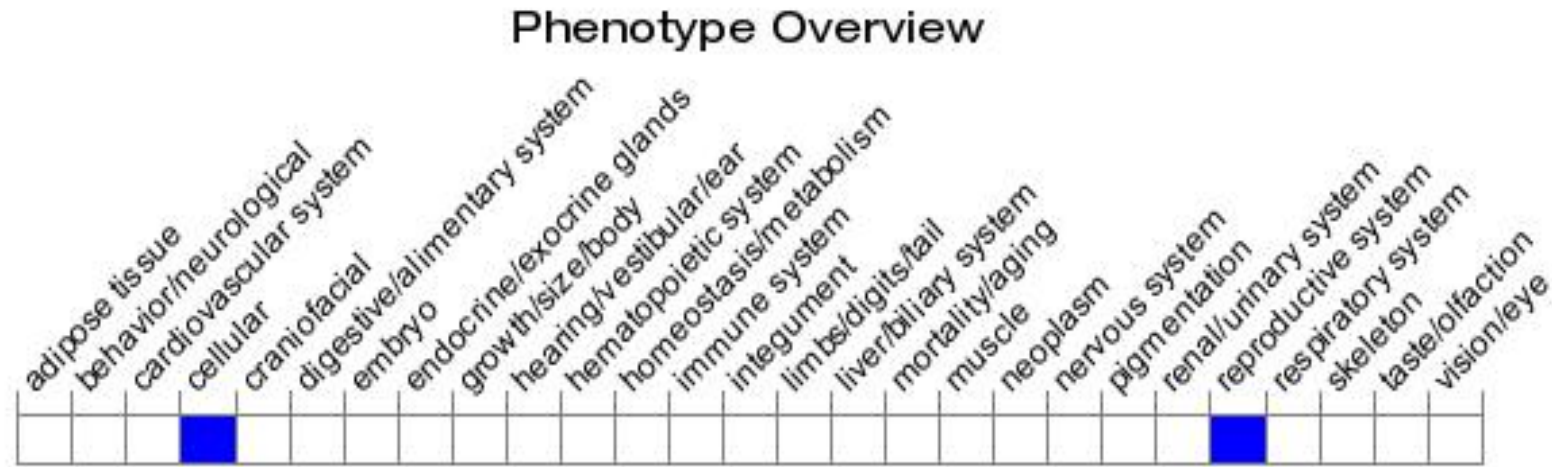
Genomic location distribution



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 this mutation are viable and exhibit no gross physical or behavioral abnormality. Although wild-type and homozygous mutant females bred to wild-type males exhibit similar fertility, male homozygotes are infertile.

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

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