

Catsper2 Cas9-KO Strategy

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Project Overview

Project Name

Catsper2

Project type

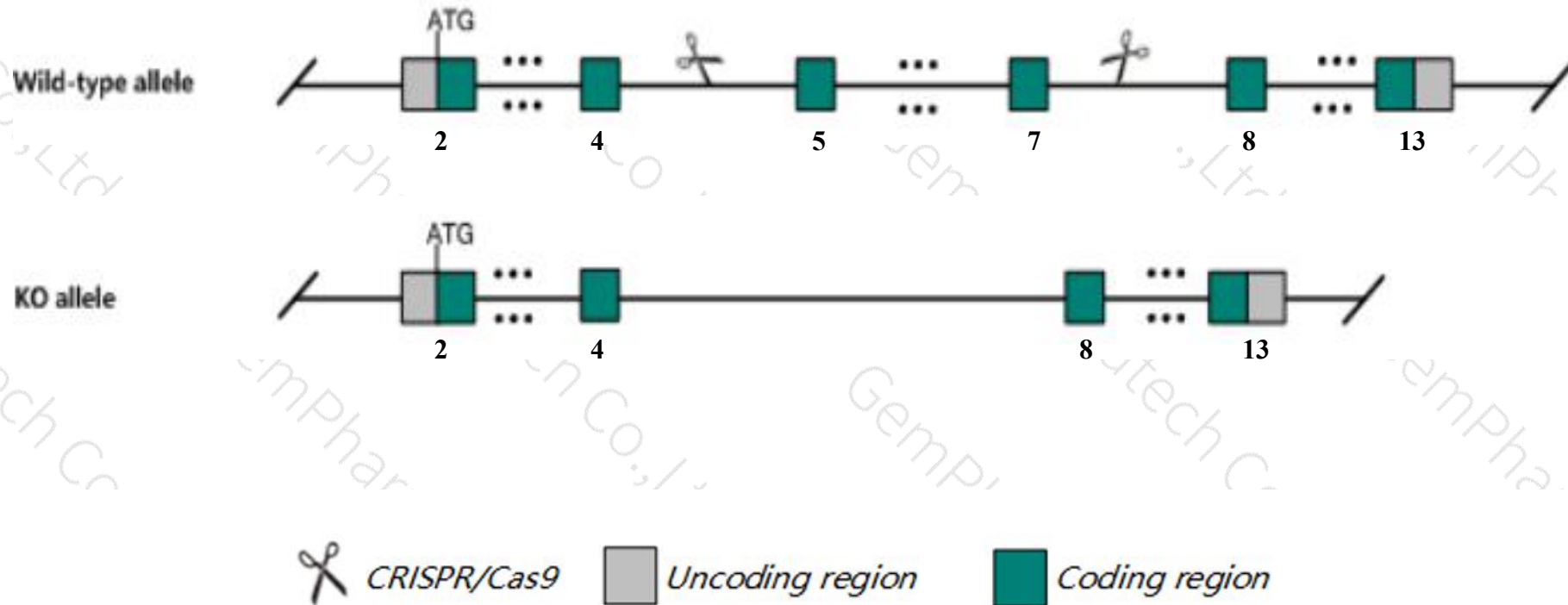
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Catsper2* gene. The schematic diagram is as follows:



- The *Catsper2* gene has 4 transcripts. According to the structure of *Catsper2* gene, exon5-exon7 of *Catsper2-201* (ENSMUST00000038073.4) transcript is recommended as the knockout region. The region contains 454bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Catsper2* gene. The brief process is as follows: CRISPR/Cas9 syst

- According to the existing MGI data, homozygous null male mice are infertile due to a sperm motility defect.
- The *Catsper2* gene is located on 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 gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Catsper2 cation channel, sperm associated 2 [Mus musculus (house mouse)]

Gene ID: 212670, updated on 13-Mar-2020

Summary



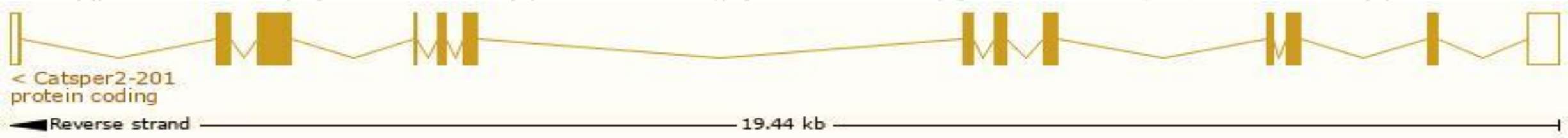
Official Symbol	Catsper2 provided by MGI
Official Full Name	cation channel, sperm associated 2 provided by MGI
Primary source	MGI:MGI:2387404
See related	Ensembl:ENSMUSG00000033486
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Biased expression in testis adult (RPKM 30.8) and CNS E18 (RPKM 1.2) See more
Orthologs	human all

Transcript information (Ensembl)

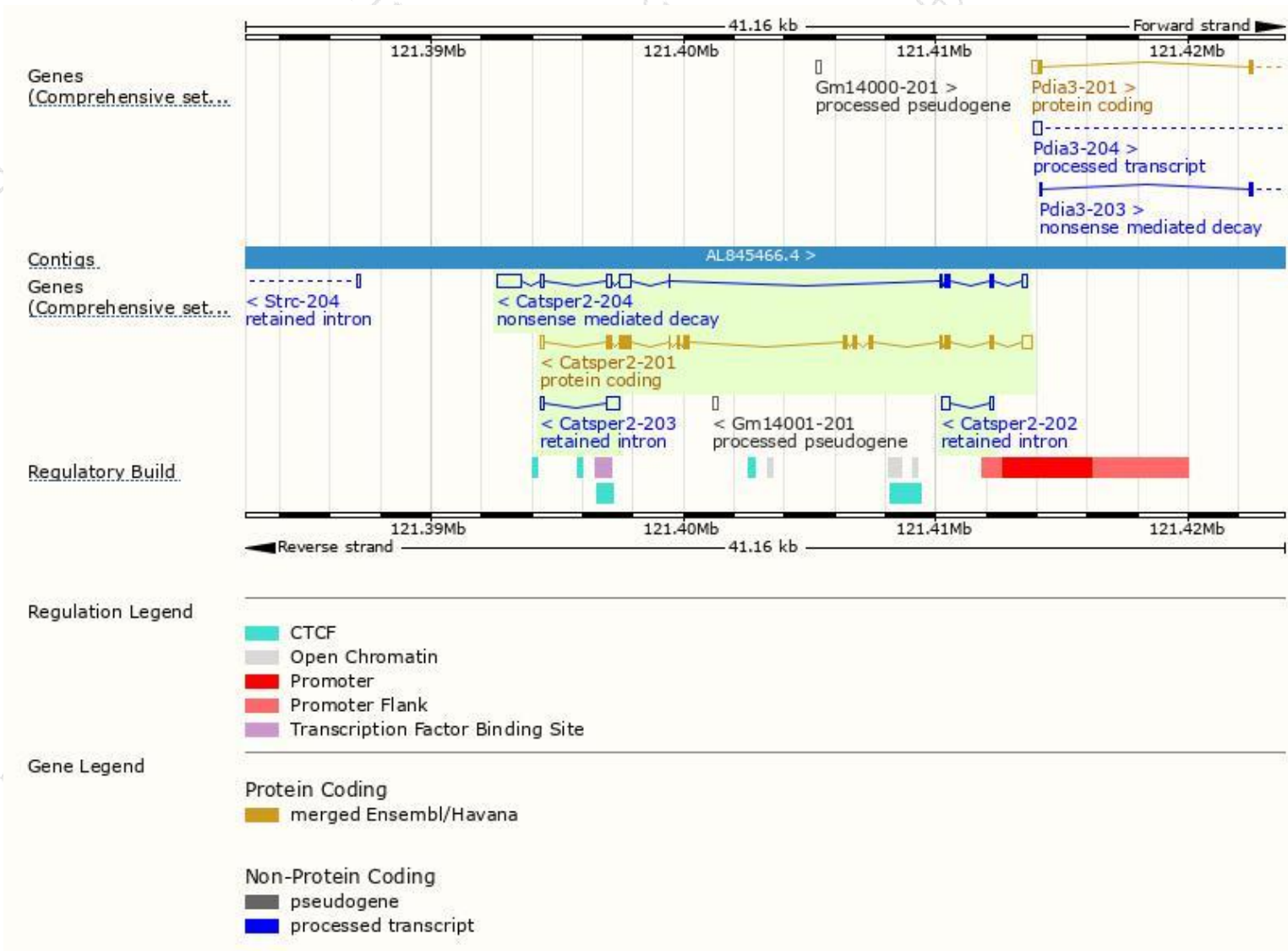
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Catsper2-201	ENSMUST00000038073.4	2247	588aa	Protein coding	CCDS38216	A0A0A0MQ85	TSL:1 GENCODE basic APPRIS P1
Catsper2-204	ENSMUST00000154604.7	2293	134aa	Nonsense mediated decay	-	D6RCY8	TSL:5
Catsper2-203	ENSMUST00000146521.1	634	No protein	Retained intron	-	-	TSL:2
Catsper2-202	ENSMUST00000123982.1	466	No protein	Retained intron	-	-	TSL:5

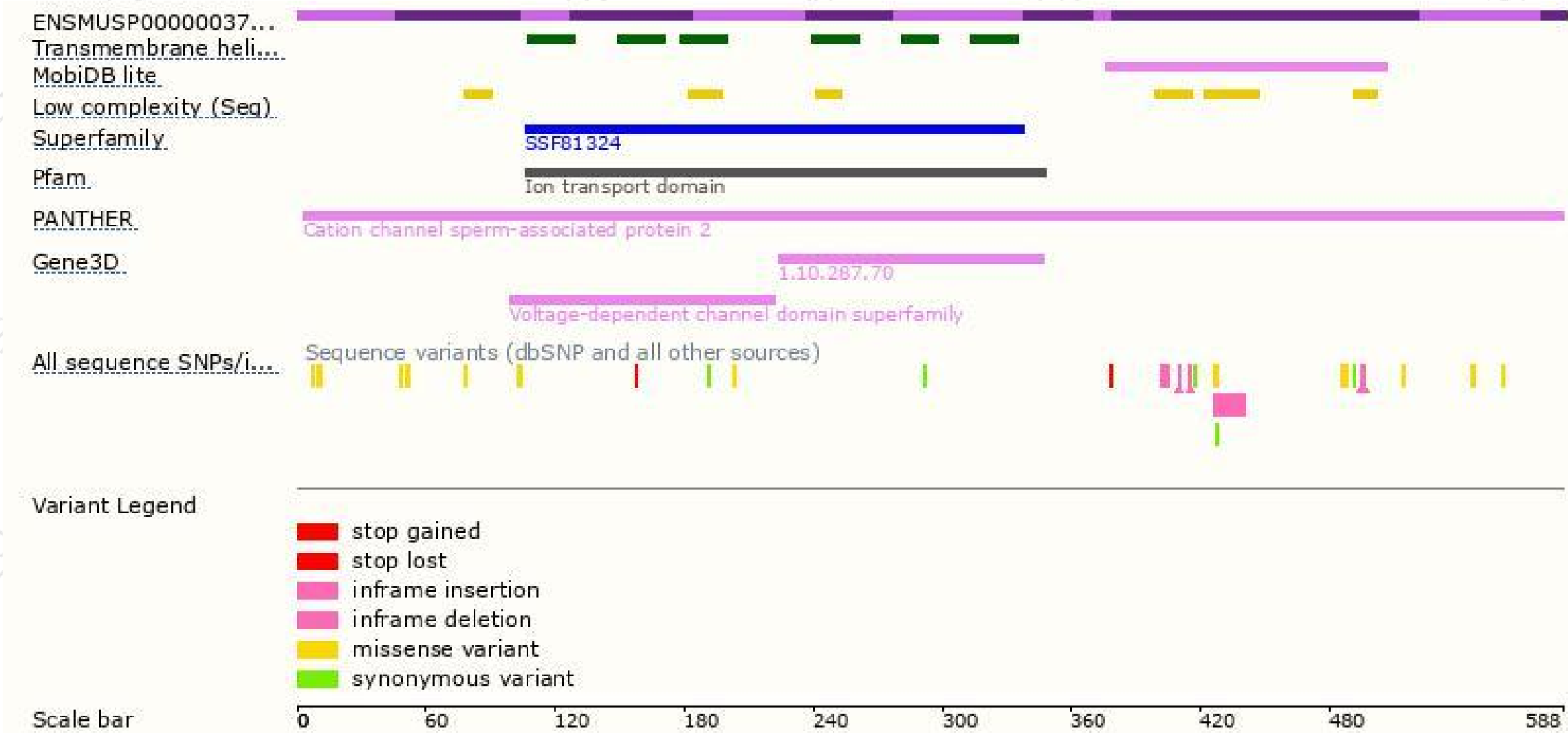
The strategy is based on the design of *Catsper2-201* transcript,the transcription is shown below:



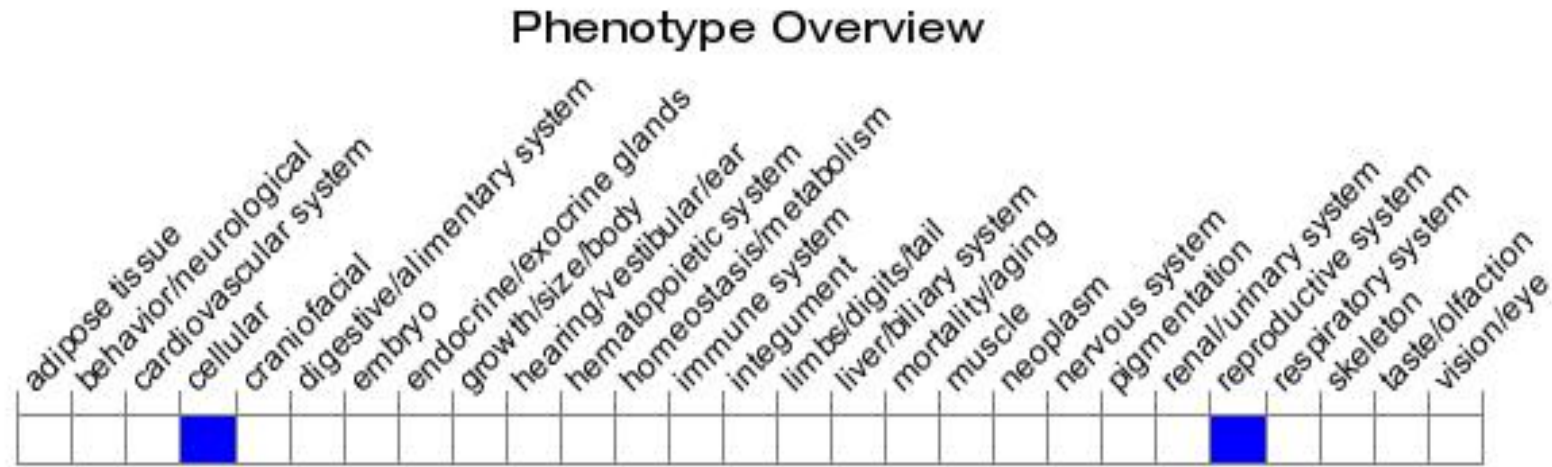
Genomic location distribution



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, homozygous null male mice are infertile due to a sperm motility defect.

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

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