

Mov10l1 Cas9-CKO Strategy

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Project Overview

Project Name

Mov10l1

Project type

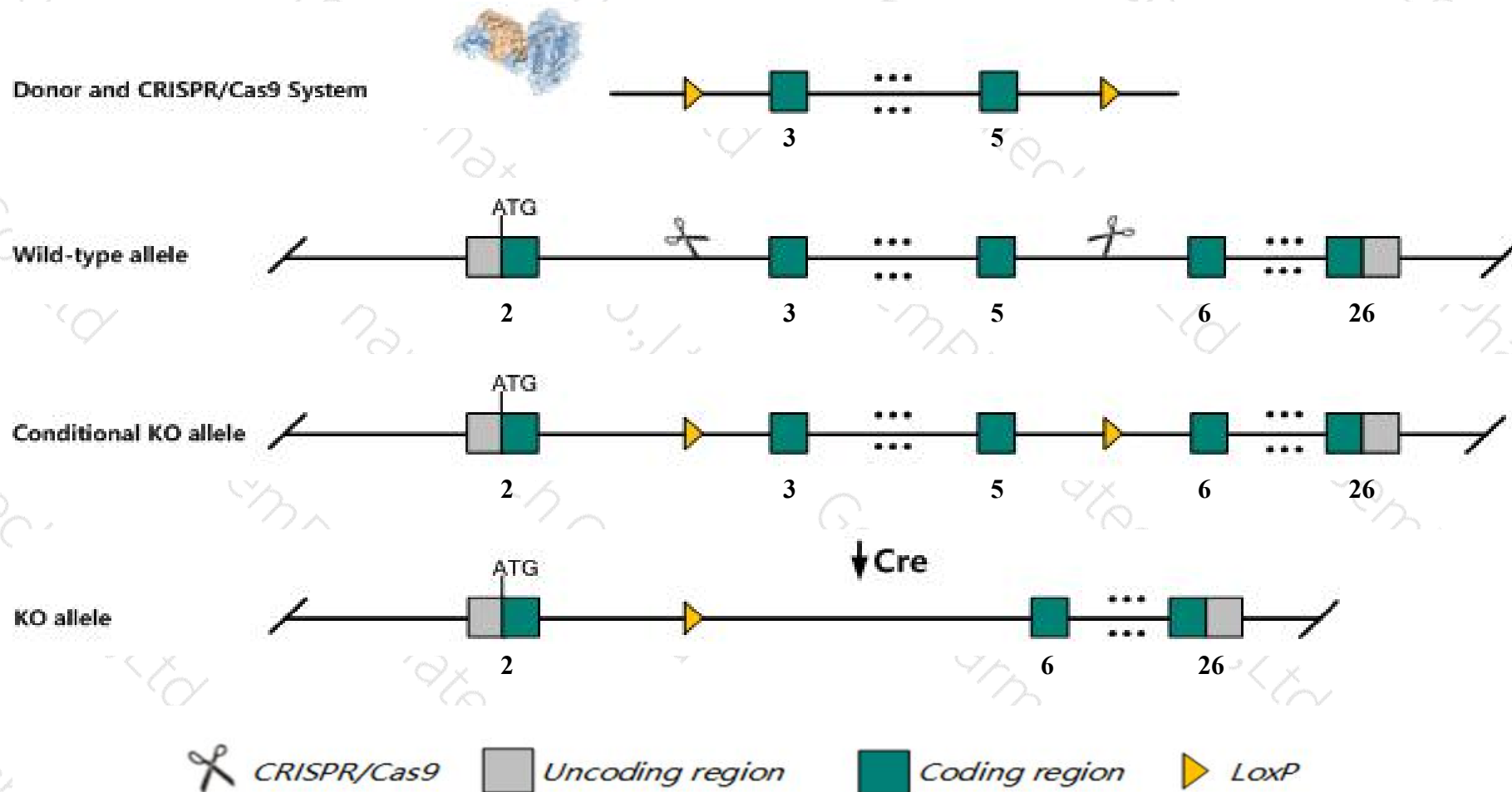
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mov10l1* gene. The schematic diagram is as follows:



Technical routes

- The *Mov10l1* gene has 5 transcripts. According to the structure of *Mov10l1* gene, exon3-exon5 of *Mov10l1-201* (ENSMUST00000015509.10) transcript is recommended as the knockout region. The region contains 461bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mov10l1* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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 flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, mice homozygous for a targeted allele lacking the helicase domain exhibit male infertility due to meiotic arrest, apoptosis, and derepression of retrotransposons in male germ cells.
- The *Mov10l1* gene is located on the Chr15. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Mov10l1 Mov10 like RISC complex RNA helicase 1 [Mus musculus (house mouse)]

Gene ID: 83456, updated on 22-Mar-2020

Summary



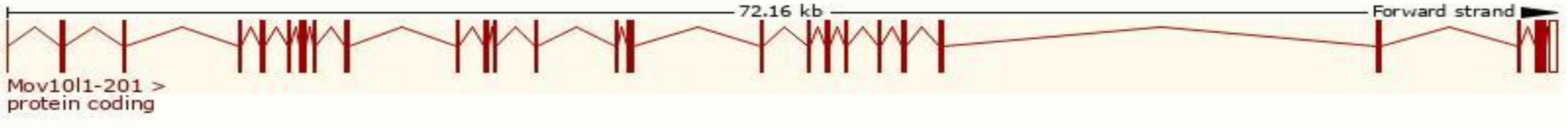
Official Symbol	Mov10l1 provided by MGI
Official Full Name	Mov10 like RISC complex RNA helicase 1 provided by MGI
Primary source	MGI:MGI:1891384
See related	Ensembl:ENSMUSG00000015365
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	CHAMP, Csm
Expression	Biased expression in testis adult (RPKM 12.7) and heart adult (RPKM 9.4) See more
Orthologs	human all

Transcript information (Ensembl)

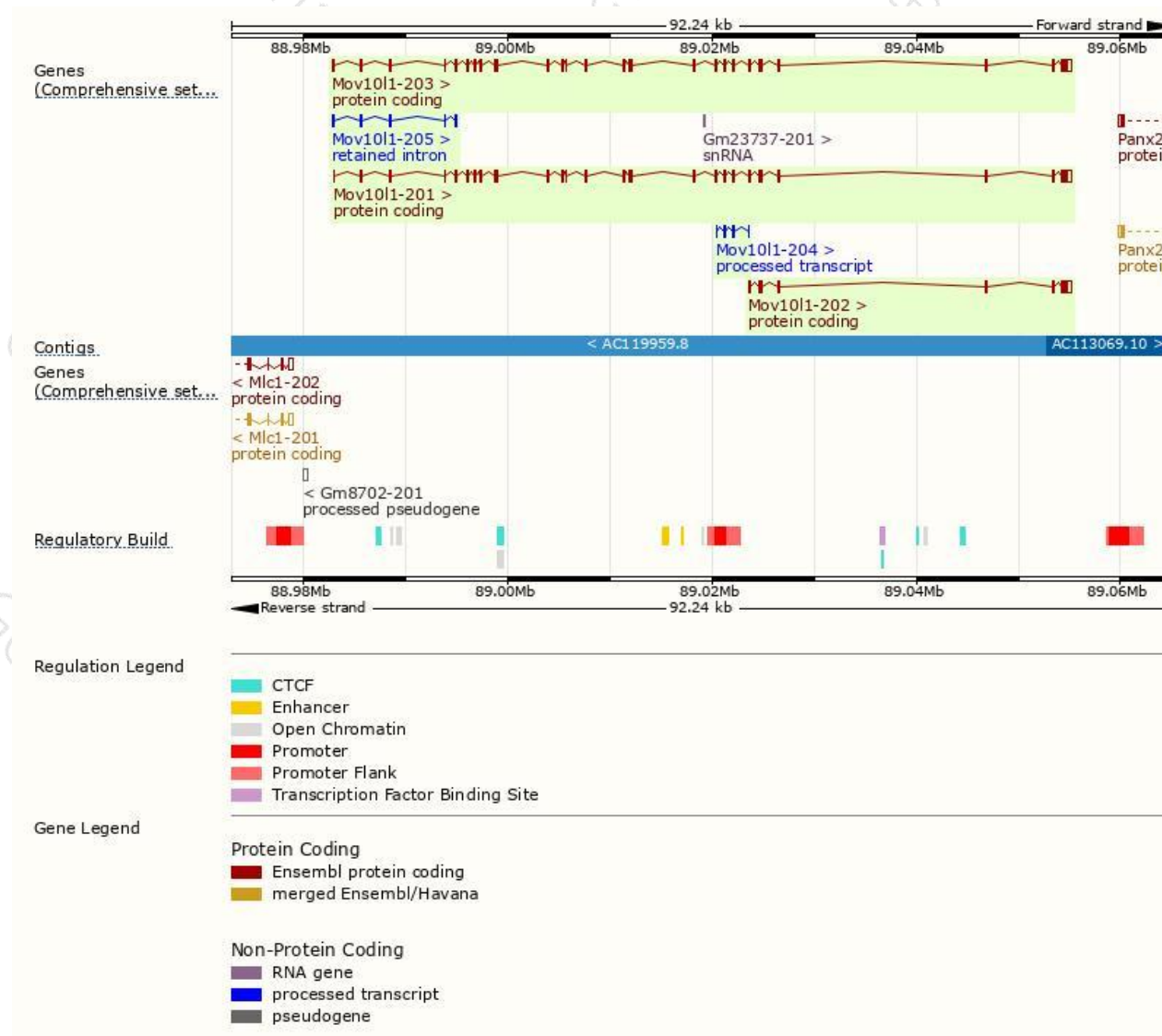
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mov10l1-201	ENSMUST00000015509.10	4052	1187aa	Protein coding	CCDS27737	G3X8T0	TSL:5 GENCODE basic APPRIS P2
Mov10l1-203	ENSMUST00000146993.7	4133	1239aa	Protein coding	-	D3YWG8	TSL:5 GENCODE basic APPRIS ALT2
Mov10l1-202	ENSMUST00000143030.2	1260	310aa	Protein coding	-	G3UYS5	CDS 5' incomplete TSL:5
Mov10l1-204	ENSMUST00000148198.2	265	No protein	Processed transcript	-	-	TSL:5
Mov10l1-205	ENSMUST00000156949.1	845	No protein	Retained intron	-	-	TSL:1

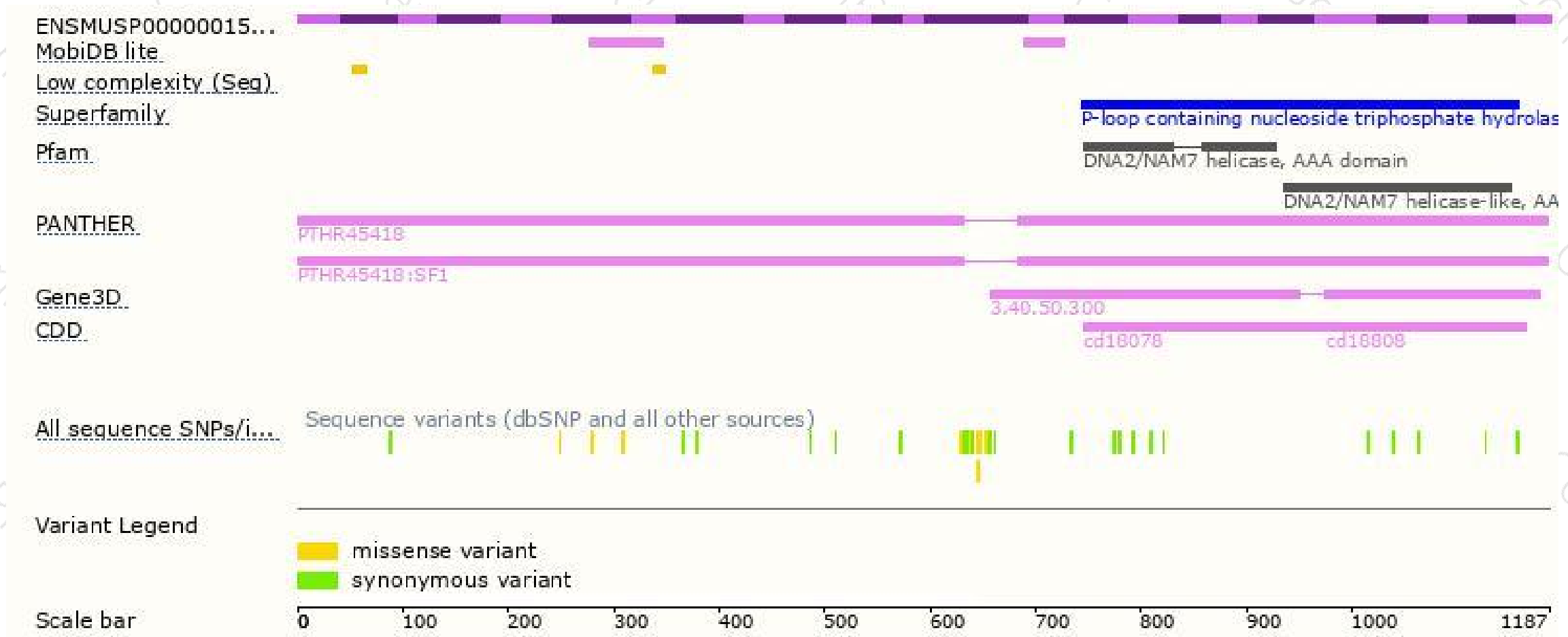
The strategy is based on the design of *Mov10l1-201* transcript,The transcription is shown below



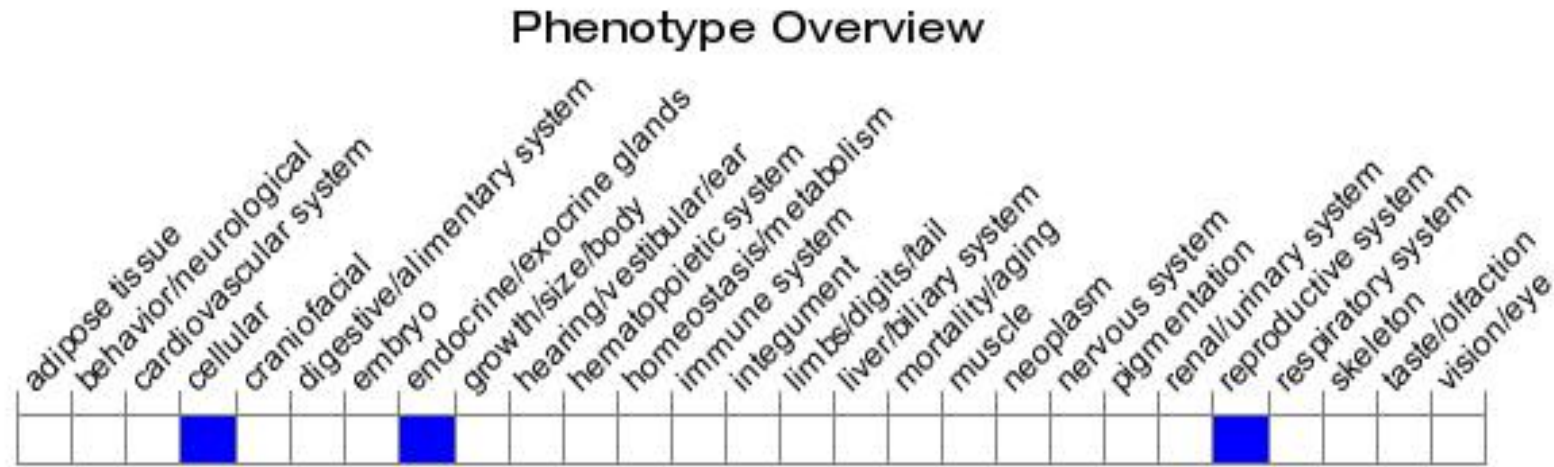
Genomic location distribution



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 targeted allele lacking the helicase domain exhibit male infertility due to meiotic arrest, apoptosis, and derepression of retrotransposons in male germ cells.

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

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