

Zglp1 Cas9-CKO Strategy

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Project Overview

Project Name

Zglp1

Project type

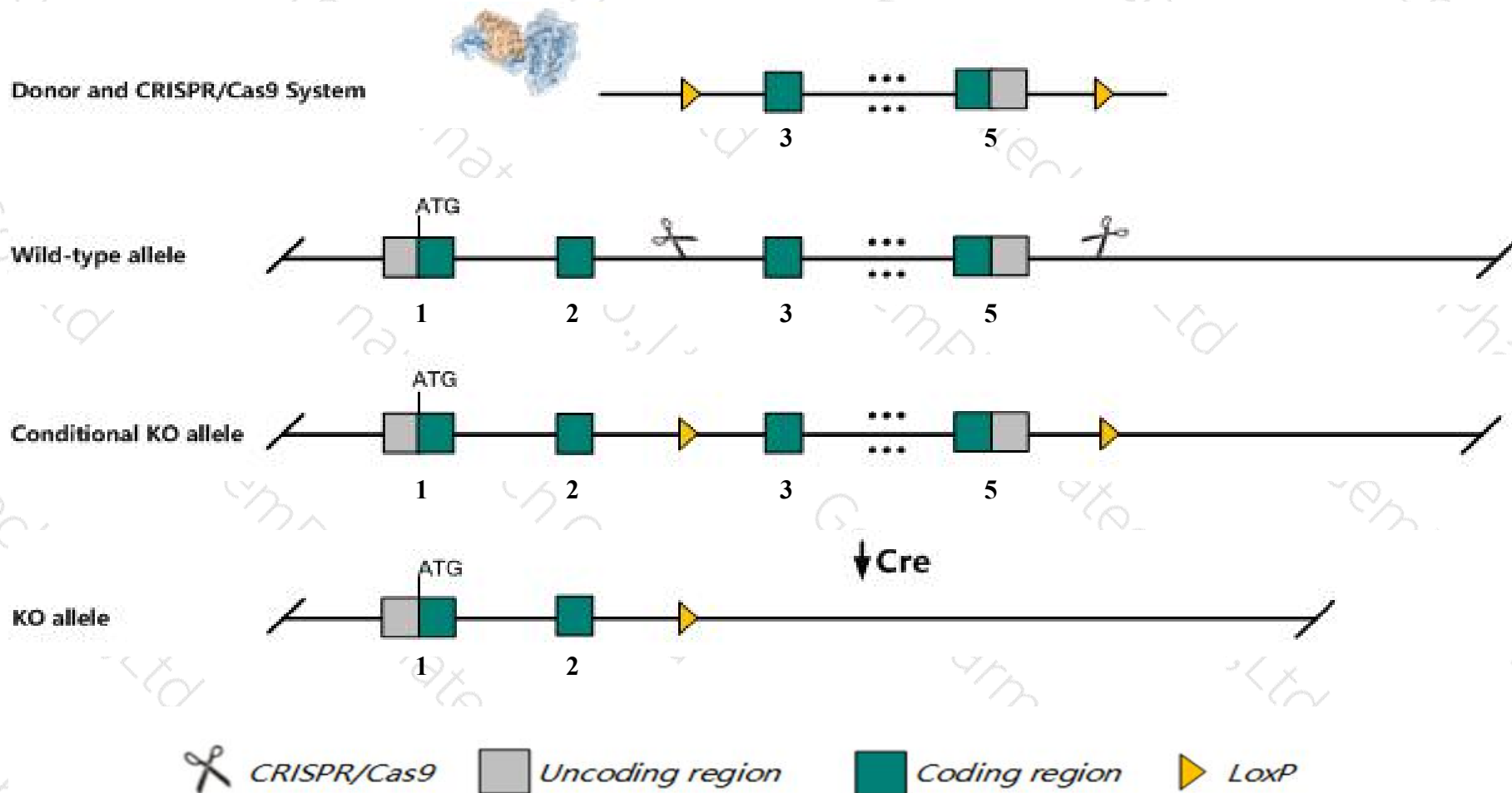
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zglp1* gene. The schematic diagram is as follows:



- The *Zglp1* gene has 2 transcripts. According to the structure of *Zglp1* gene, exon3-exon5 of *Zglp1-201*(ENSMUST00000115494.2) 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 *Zglp1* 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, mutations result in female and male infertility due to failure of germ cell development.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- The *Zglp1* gene is located on the Chr9. 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)

Zglp1 zinc finger, GATA-like protein 1 [Mus musculus (house mouse)]

Gene ID: 100009600, updated on 13-Mar-2020

Summary



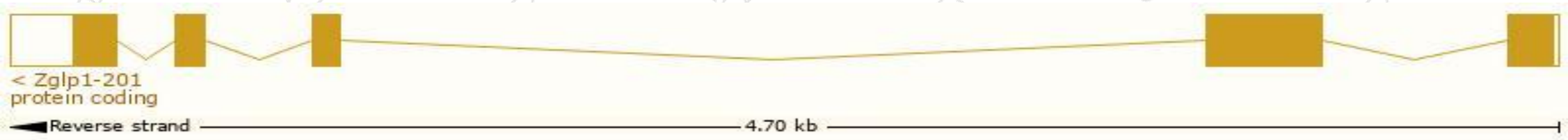
Official Symbol	Zglp1 provided by MGI
Official Full Name	zinc finger, GATA-like protein 1 provided by MGI
Primary source	MGI:MGI:3696042
See related	Ensembl:ENSMUSG00000079681
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Glp1
Expression	Ubiquitous expression in whole brain E14.5 (RPKM 1.2), CNS E14 (RPKM 1.2) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

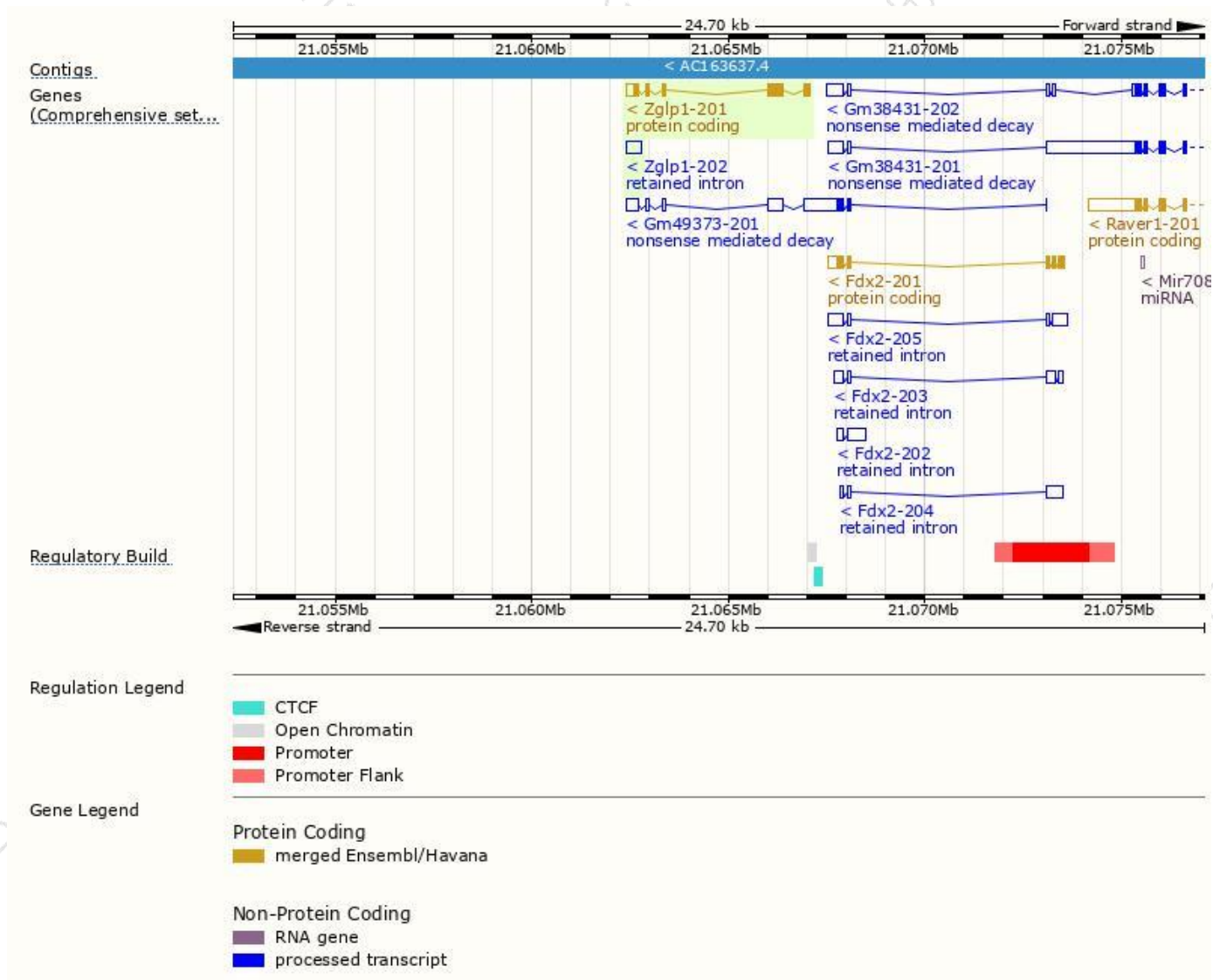
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zglp1-201	ENSMUST00000115494.2	1010	266aa	Protein coding	CCDS40549	Q1WG82	TSL:1 GENCODE basic APPRIS P1
Zglp1-202	ENSMUST00000216967.1	401	No protein	Retained intron	-	-	TSL:NA

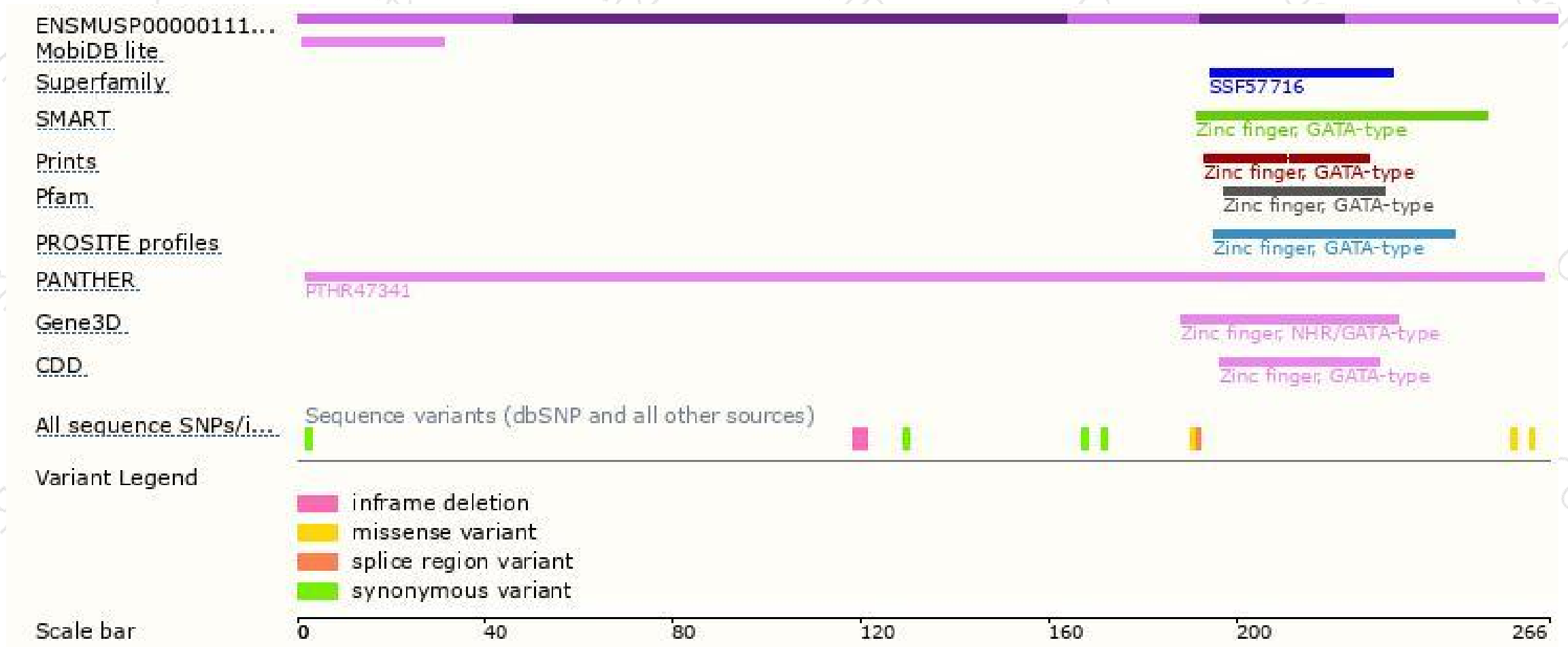
The strategy is based on the design of *Zglp1-201* transcript,the transcription is shown below:



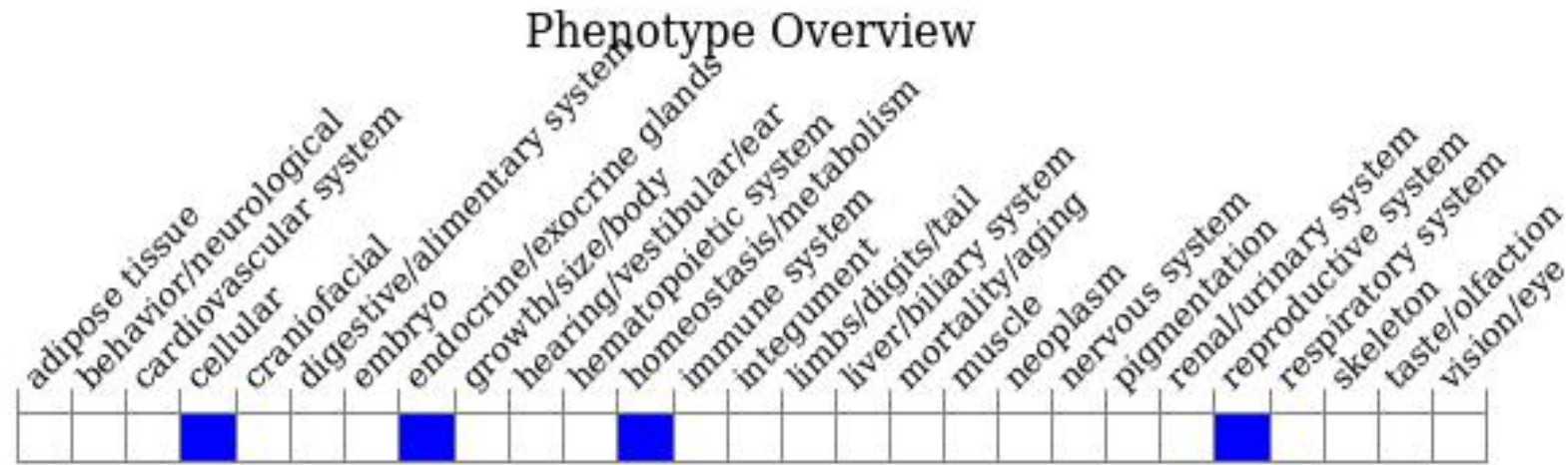
Genomic location distribution



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, mutations result in female and male infertility due to failure of germ cell development.

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

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