

Mex3b Cas9-KO Strategy

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Project Overview

Project Name

Mex3b

Project type

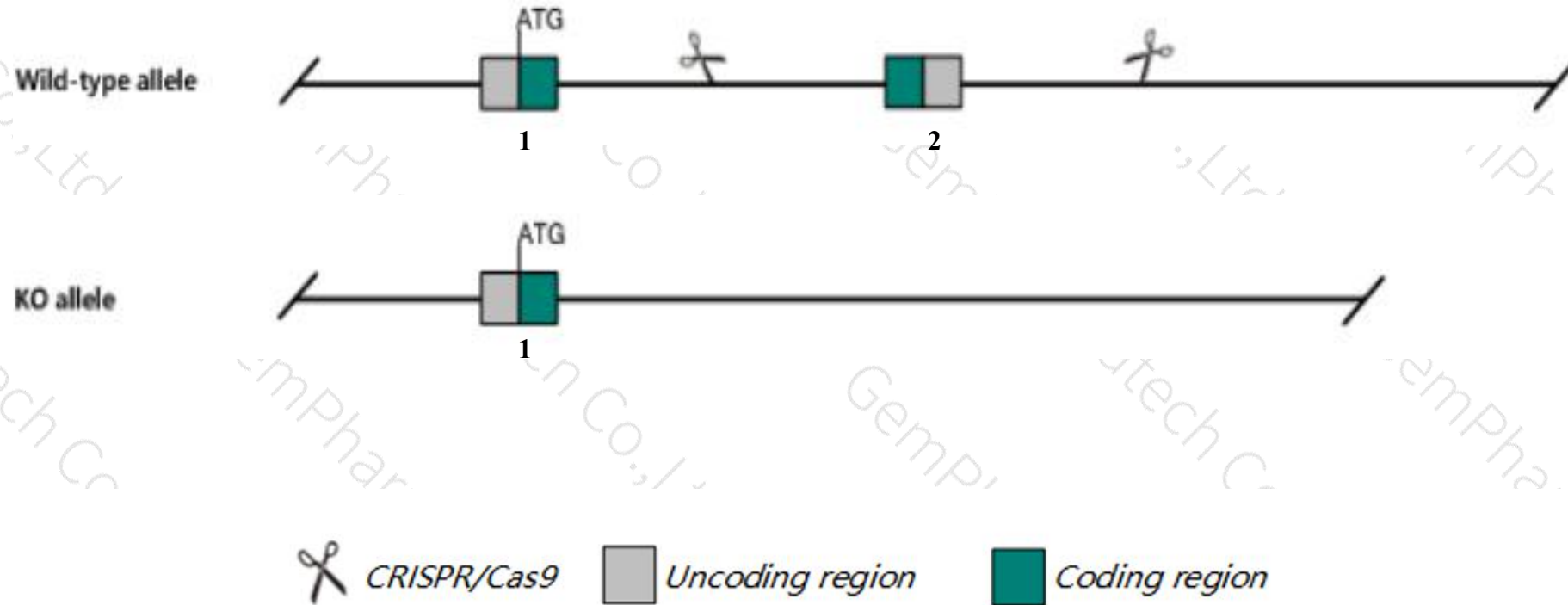
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mex3b* gene. The schematic diagram is as follows:



- The *Mex3b* gene has 1 transcript. According to the structure of *Mex3b* gene, exon2 of *Mex3b-201* (ENSMUST00000082237.6) transcript is recommended as the knockout region. The region contains most coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mex3b* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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.

- According to the existing MGI data, homozygous inactivation of this gene leads to partial neonatal lethality, decreased body weight and subfertility. males show seminiferous tubule obstruction, oligozoospermia, abnormalities in sertoli cell barrier morphology and function, and impaired sertoli cell and macrophage phagocytosis.
- The *Mex3b* gene is located on the Chr7. 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)

Mex3b mex3 RNA binding family member B [Mus musculus (house mouse)]

Gene ID: 108797, updated on 13-Mar-2020

Summary



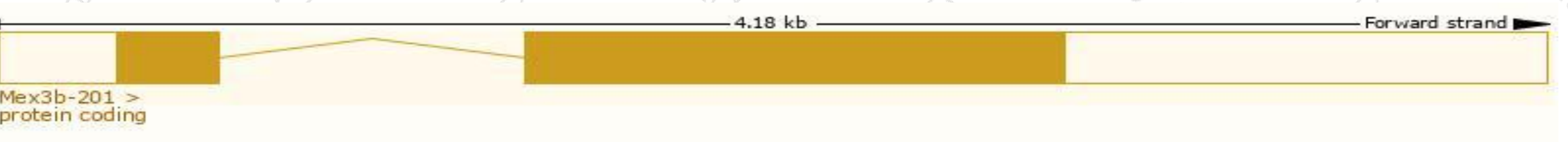
Official Symbol	Mex3b provided by MGI
Official Full Name	mex3 RNA binding family member B provided by MGI
Primary source	MGI:MGI:1918252
See related	Ensembl:ENSMUSG00000057706
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4931439A04Rik, M-04814, Rkhd3, mKIAA2009
Expression	Biased expression in whole brain E14.5 (RPKM 55.4), CNS E14 (RPKM 46.2) and 14 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

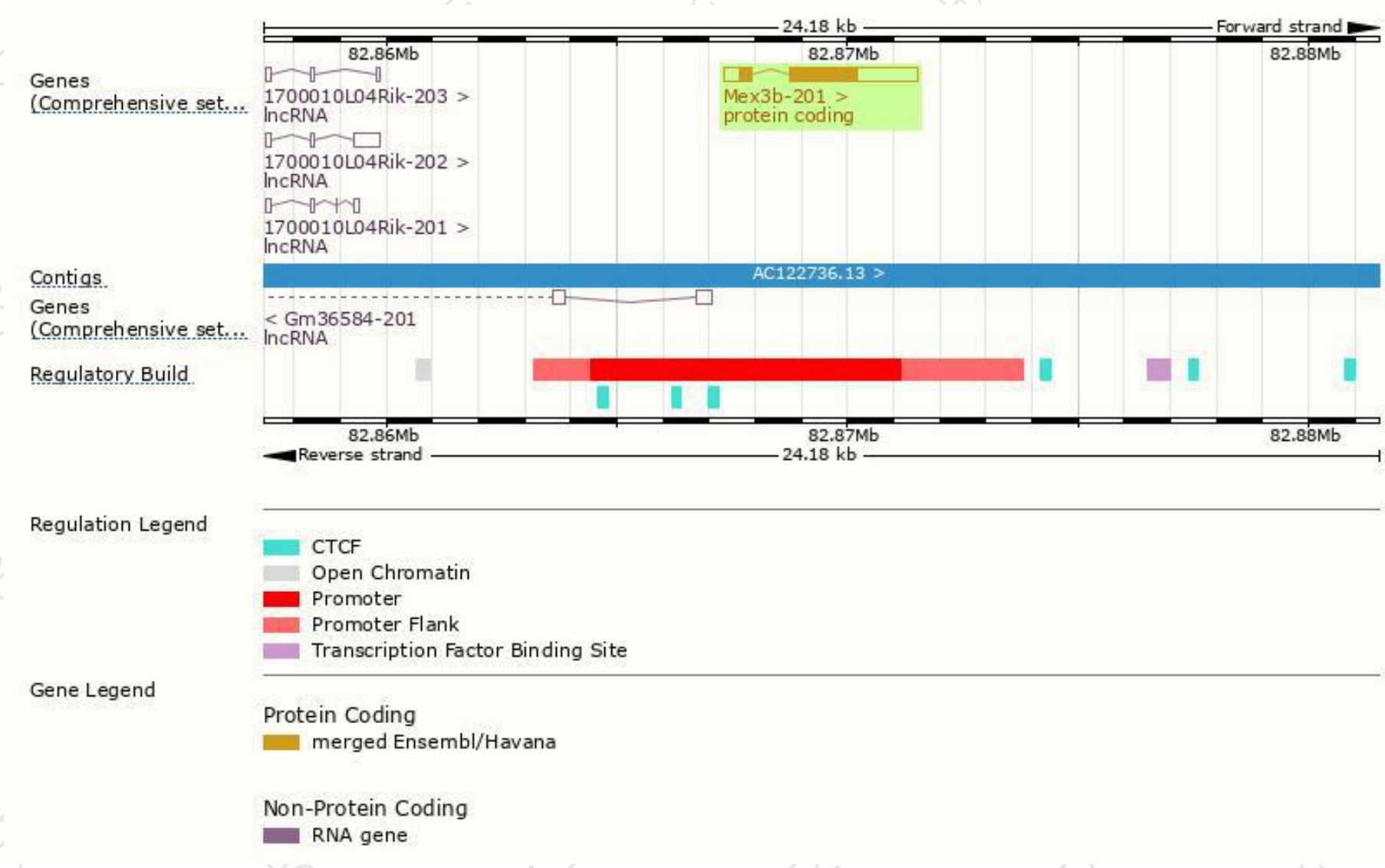
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mex3b-201	ENSMUST00000082237.6	3355	576aa	Protein coding	CCDS52286	F8WJD6	TSL:2 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1

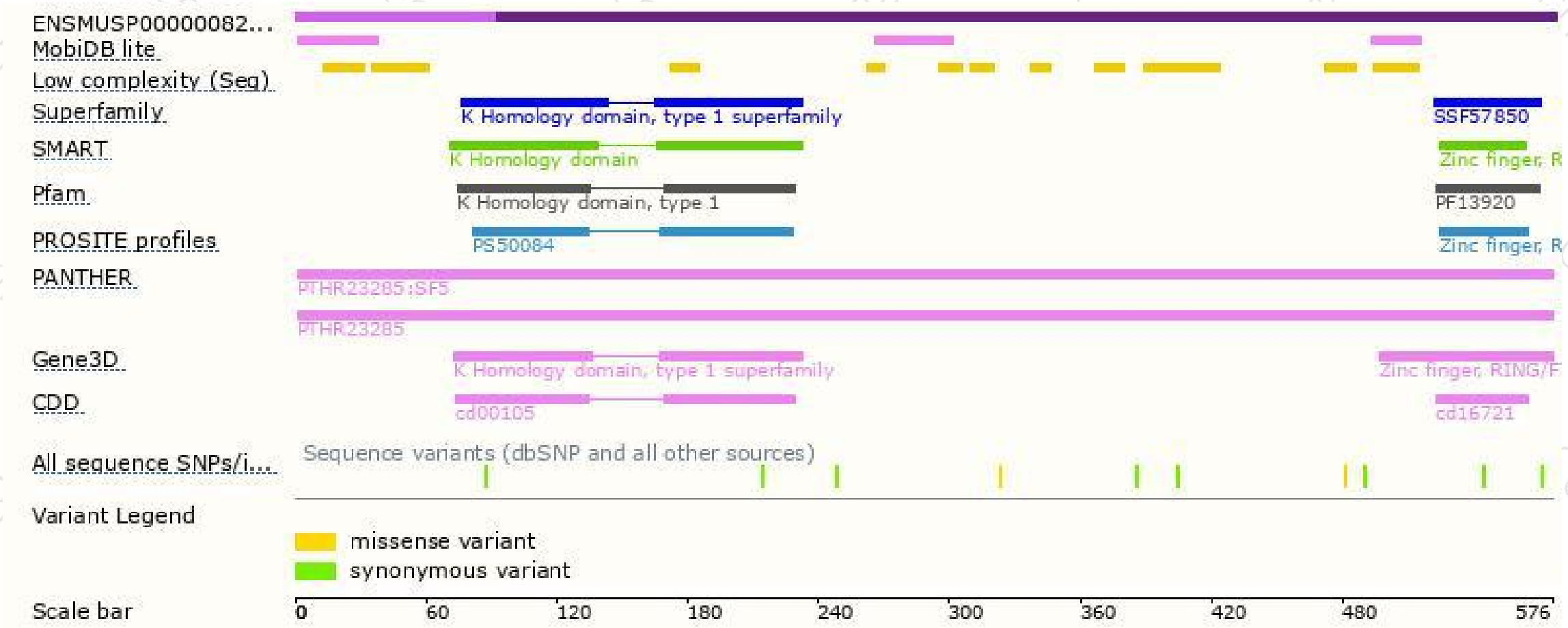
The strategy is based on the design of *Mex3b-201* transcript, the transcription is shown below:



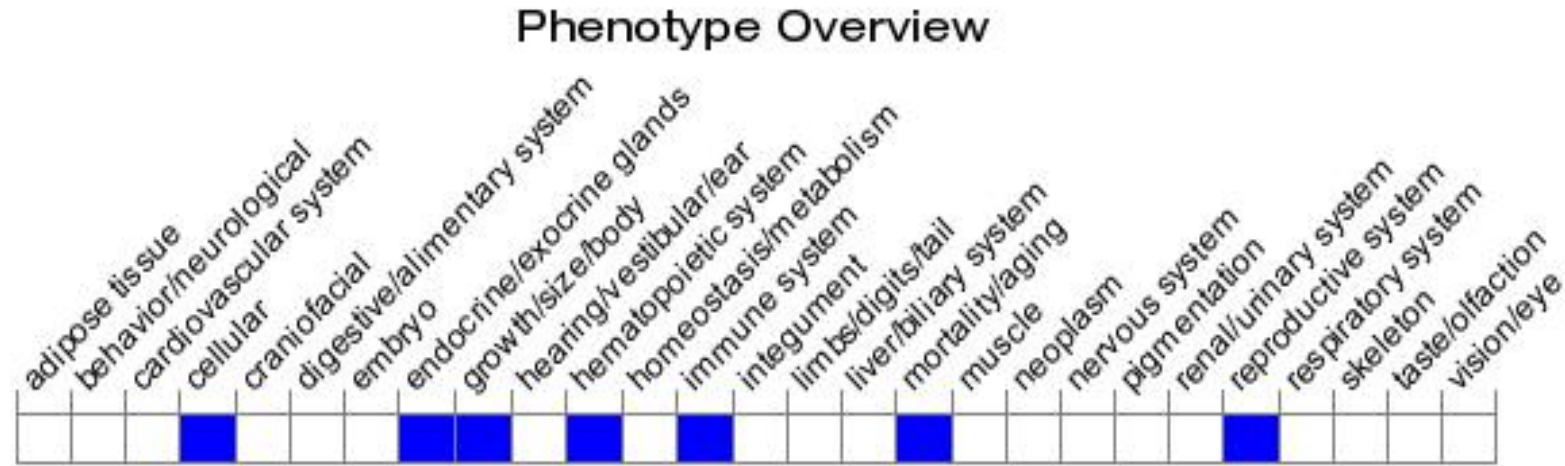
Genomic location distribution



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 inactivation of this gene leads to partial neonatal lethality, decreased body weight and subfertility. Males show seminiferous tubule obstruction, oligozoospermia, abnormalities in Sertoli cell barrier morphology and function, and impaired Sertoli cell and macrophage phagocytosis.

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

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