Ptger4 Cas9-KO Strategy

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Project Overview

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Project Name	*Ptger4*
Project type	Cas9-KO
Strain background	C57BL/6JGpt

Knockout strategy

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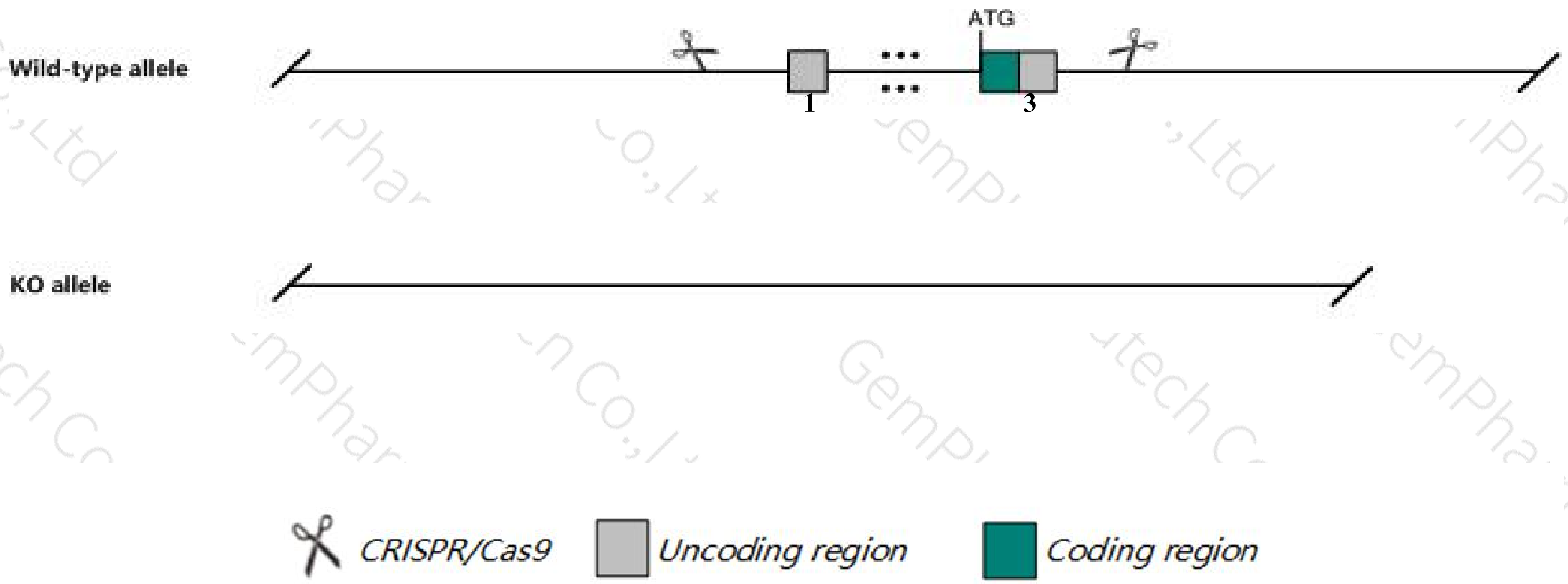
This model will use CRISPR/Cas9 technology to edit the *Ptger4* gene. The schematic diagram is as follows:



Technical routes

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- The *Ptger4* gene has 3 transcripts. According to the structure of *Ptger4* gene, exon1-exon3 of *Ptger4-202* (ENSMUST00000120563.1) 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 *Ptger4* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

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- According to the existing MGI data,Most homozygous targeted null mutants die shortly after birth due to failed closure of the ductus arteriosis. Survivors show decreased migration of Langerhans cells to lymph nodes, contact hypersensitivity and decreased incidence of induced arthritis.

- The *Ptger4* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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Ptger4 prostaglandin E receptor 4 (subtype EP4) [Mus musculus (house mouse)]

Gene ID: 19219, updated on 16-Mar-2019

Summary

Official Symbol	Ptger4 provided by MGI
Official Full Name	prostaglandin E receptor 4 (subtype EP4) provided byMGI
Primary source	MGI:MGI:104311
See related	Ensembl:ENSMUSG00000039942
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	EP4, Ptgerep4
Expression	Biased expression in small intestine adult (RPKM 27.1), colon adult (RPKM 22.4) and 14 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

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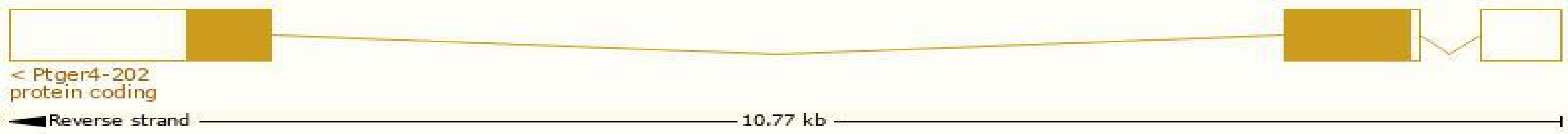
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptger4-202	ENSMUST00000120563.1	3312	488aa	Protein coding	CCDS49575	Q91VE4	TSL:1 GENCODE basic APPRIS ALT2
Ptger4-201	ENSMUST00000047379.14	3264	513aa	Protein coding	CCDS27365	P32240	TSL:1 GENCODE basic APPRIS P3
Ptger4-203	ENSMUST00000133966.1	3771	No protein	Processed transcript	-	-	TSL:1

The strategy is based on the design of *Ptger4-202* transcript,The transcription is shown below



Genomic location distribution

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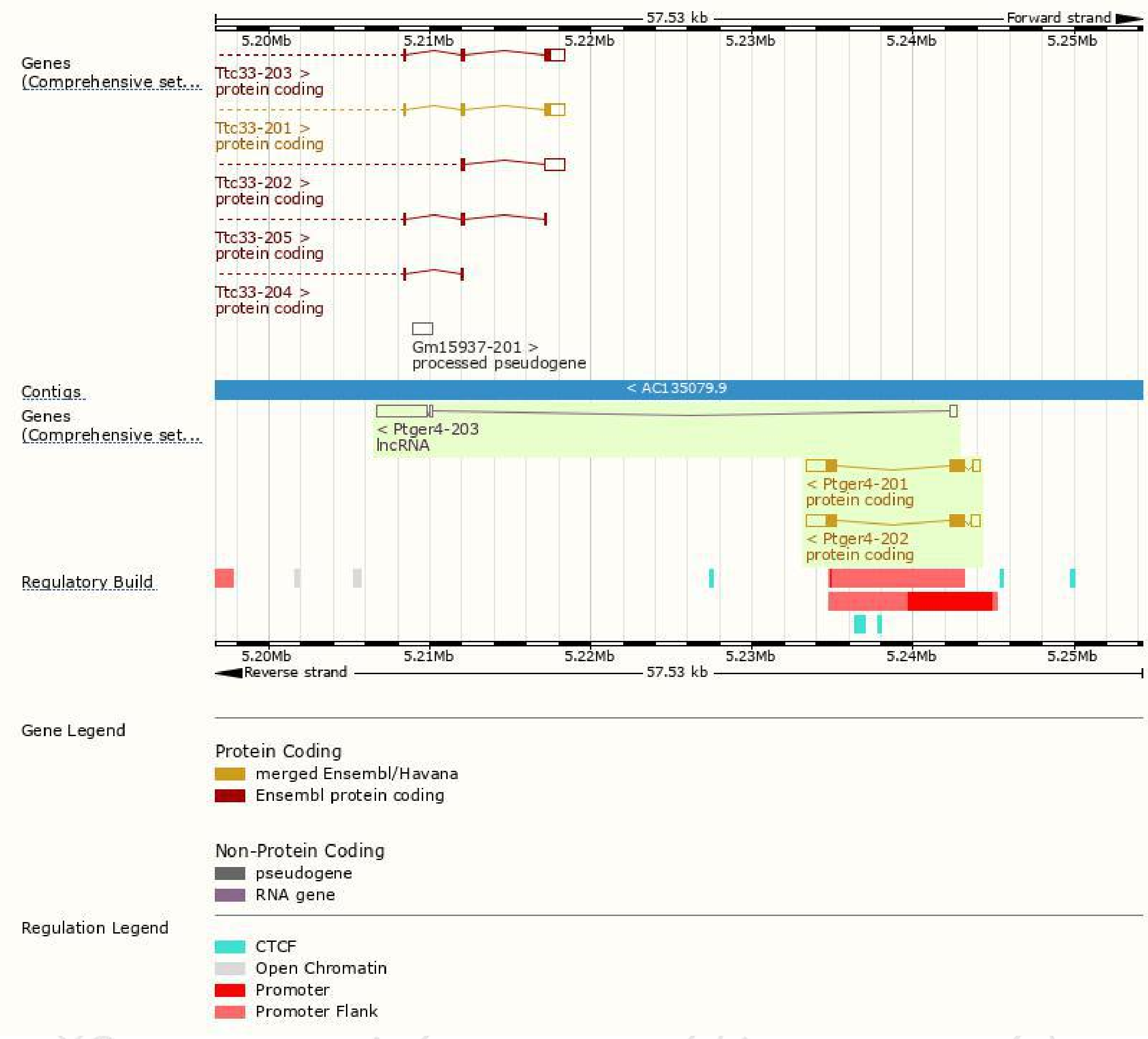

Protein domain

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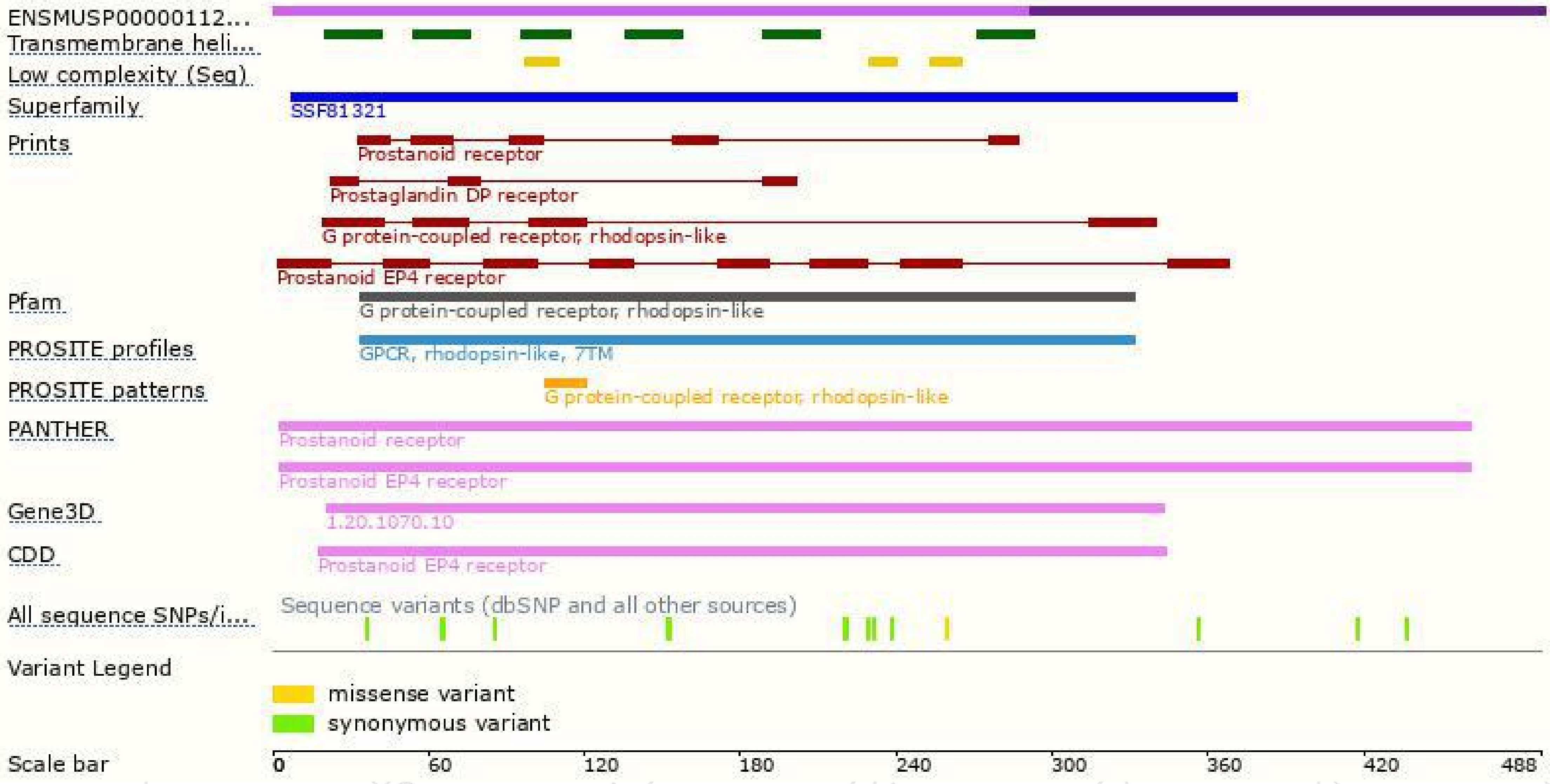

Mouse phenotype description(MGI)

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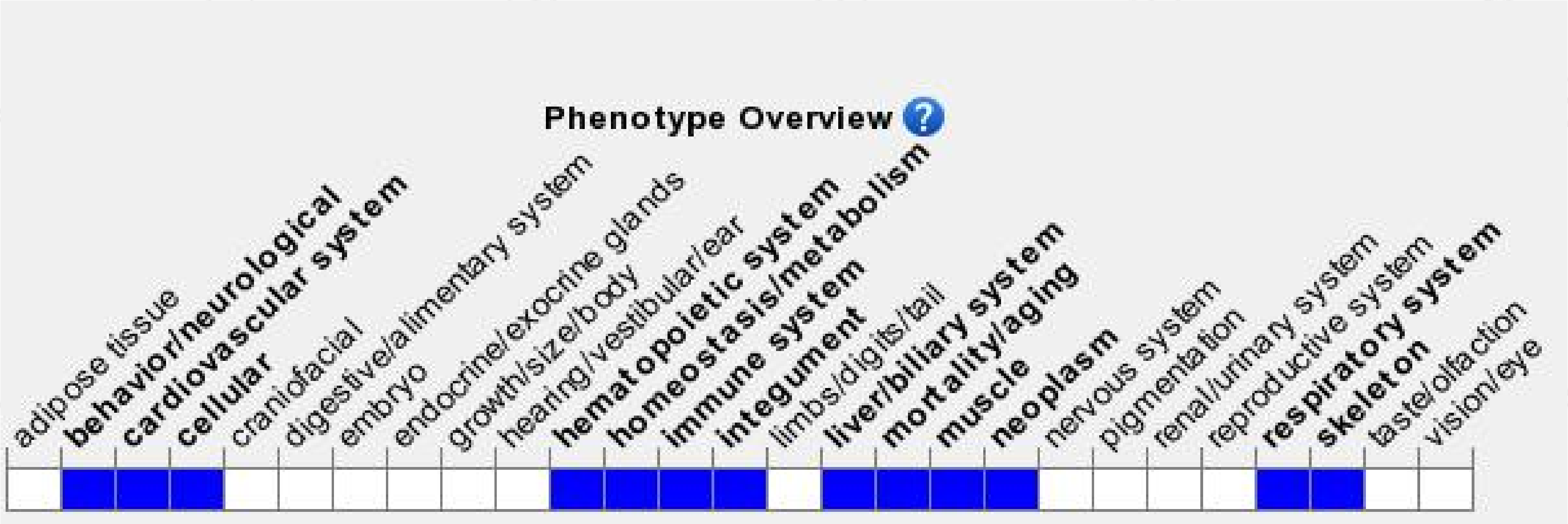

Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

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

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