

***Pkhd1l1* Cas9-KO Strategy**

Designer: Xiaojing Li

Reviewer: Jia Yu

Design Date: 2020-7-29

Project Overview

Project Name

Pkhd1l1

Project type

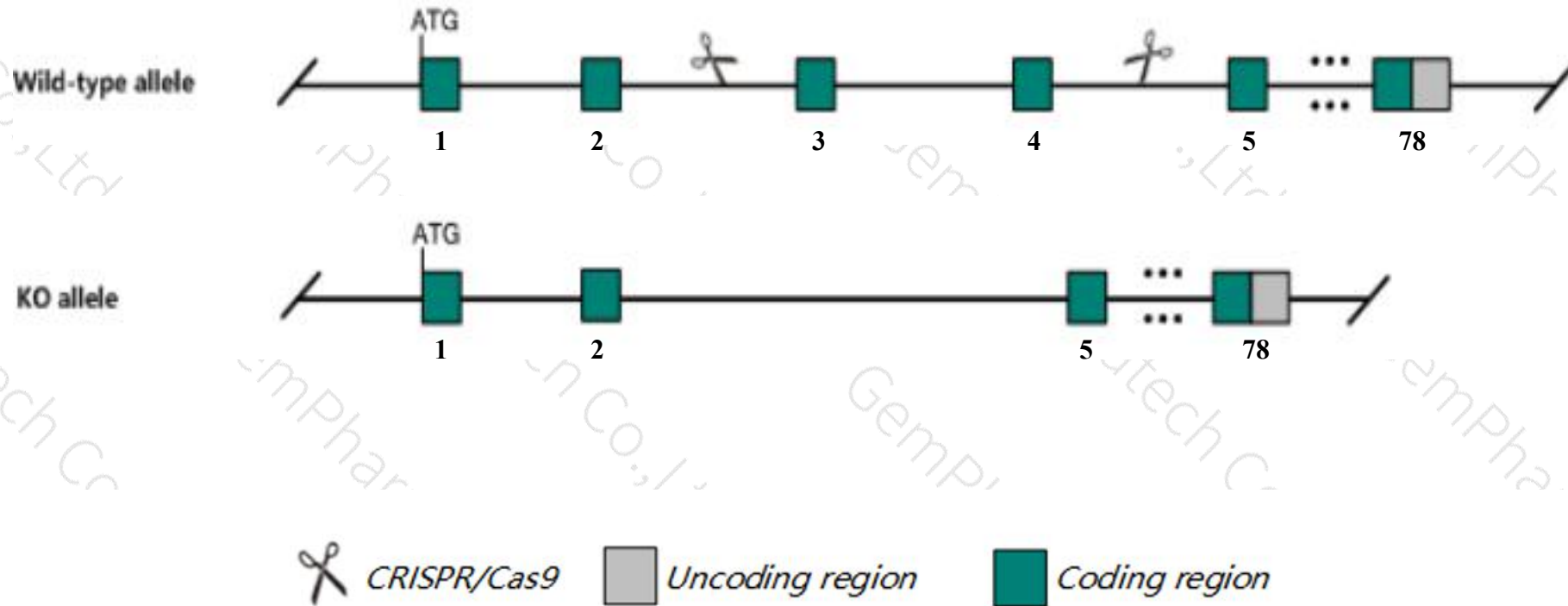
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pkhd1l1* gene. The schematic diagram is as follows:



- The *Pkhd11l* gene has 6 transcripts. According to the structure of *Pkhd11l* gene, exon3-exon4 of *Pkhd11l*-203(ENSMUST00000209244.1) transcript is recommended as the knockout region. The region contains 254bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pkhd11l* gene. The brief process is as follows: CRISPR/Cas9 system 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 *Pkhd11l* 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)

Pkhd1l1 polycystic kidney and hepatic disease 1-like 1 [Mus musculus (house mouse)]

Gene ID: 192190, updated on 13-Mar-2020

Summary



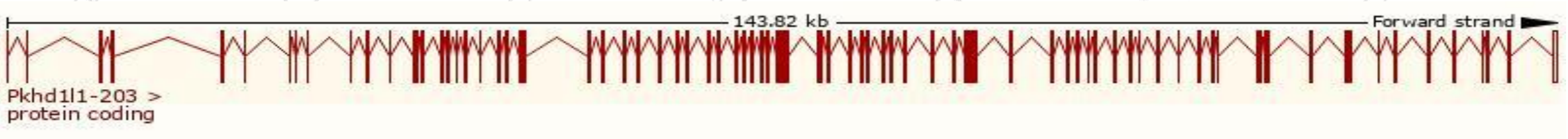
Official Symbol	Pkhd1l1 provided by MGI
Official Full Name	polycystic kidney and hepatic disease 1-like 1 provided by MGI
Primary source	MGI:MGI:2183153
See related	Ensembl:ENSMUSG00000038725
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AB055648, PKHDL1
Expression	Biased expression in liver E14 (RPKM 4.1), liver E14.5 (RPKM 4.1) and 11 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

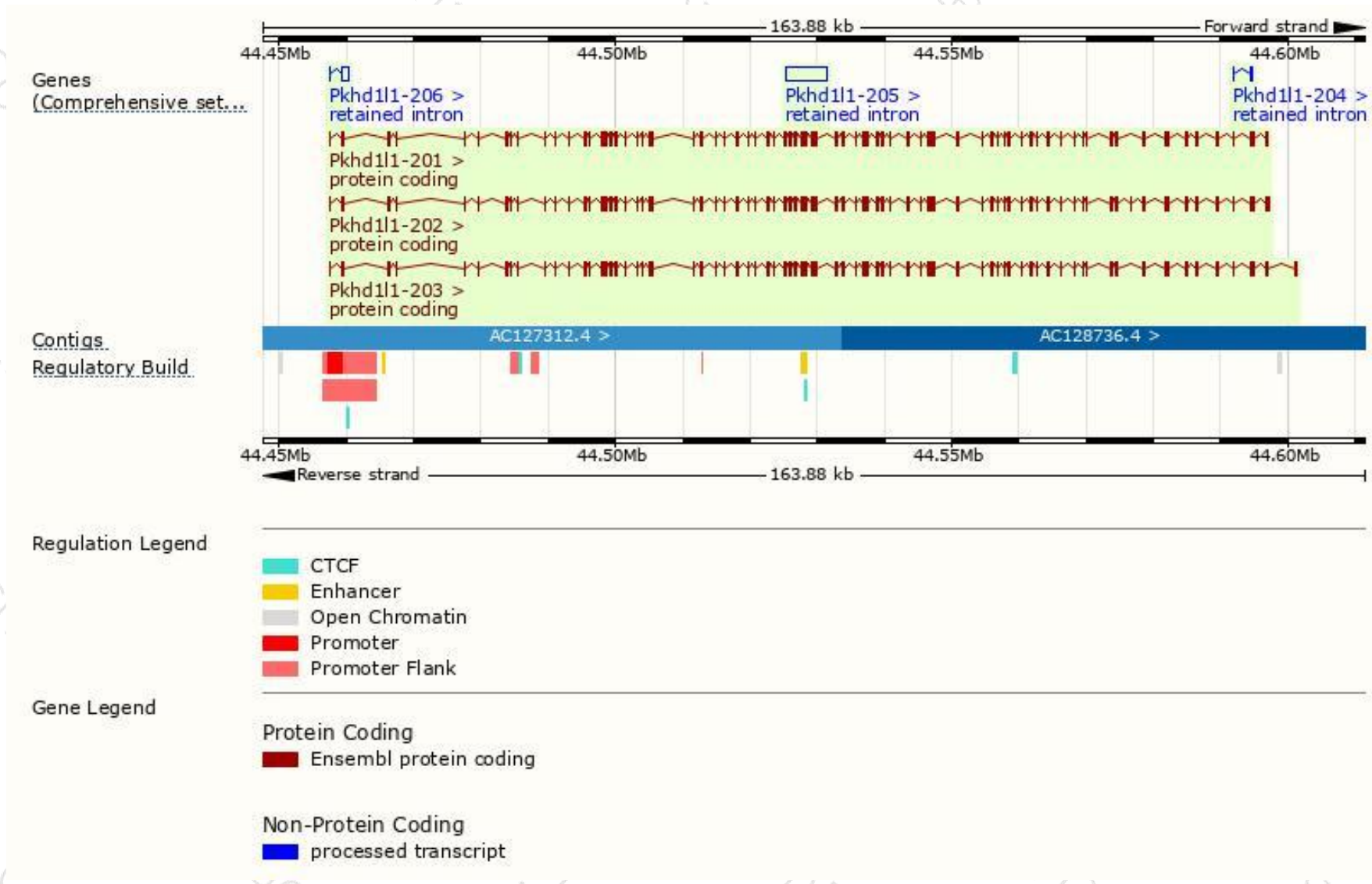
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pkhd1l1-203	ENSMUST00000209244.1	12949	4249aa	Protein coding	CCDS84169	Q80ZA4	TSL:5 GENCODE basic APPRIS P1
Pkhd1l1-202	ENSMUST00000166957.1	12747	4249aa	Protein coding	-	E9PUU8	TSL:5 GENCODE basic
Pkhd1l1-201	ENSMUST00000038336.11	12741	4247aa	Protein coding	-	F8WH29	TSL:1 GENCODE basic
Pkhd1l1-205	ENSMUST00000231867.1	6155	No protein	Retained intron	-	-	
Pkhd1l1-206	ENSMUST00000232355.1	1045	No protein	Retained intron	-	-	
Pkhd1l1-204	ENSMUST00000209939.1	464	No protein	Retained intron	-	-	TSL:3

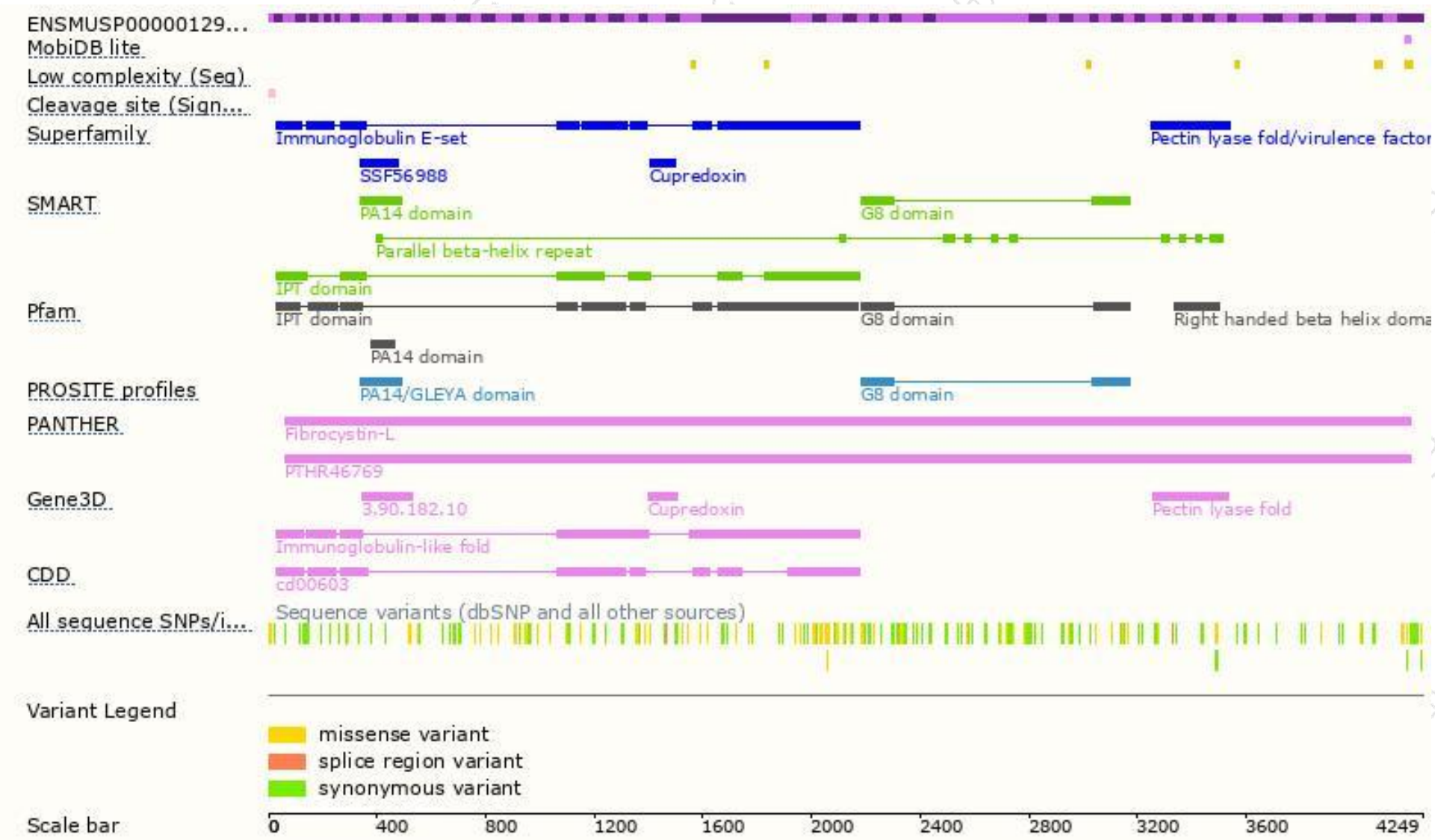
The strategy is based on the design of *Pkhd1l1-203* transcript,the transcription is shown below:



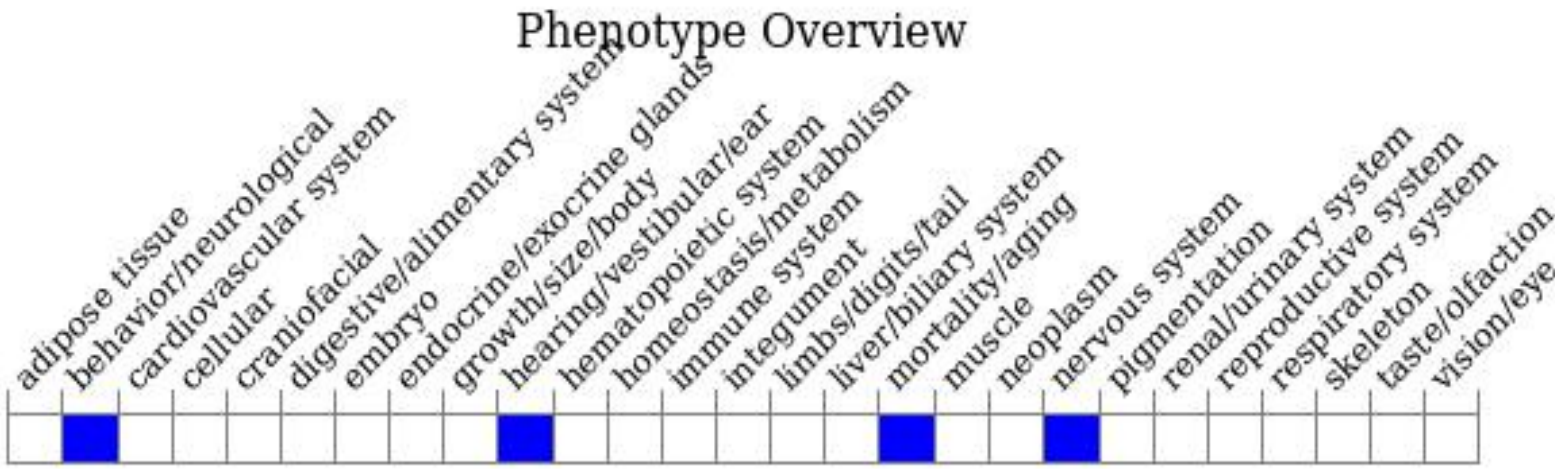
Genomic location distribution



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/>).

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

Tel: 400-9660890

