Samd9l Cas9-CKO Strategy

Designer: Xueting Zhang

Reviewer: Daohua Xu

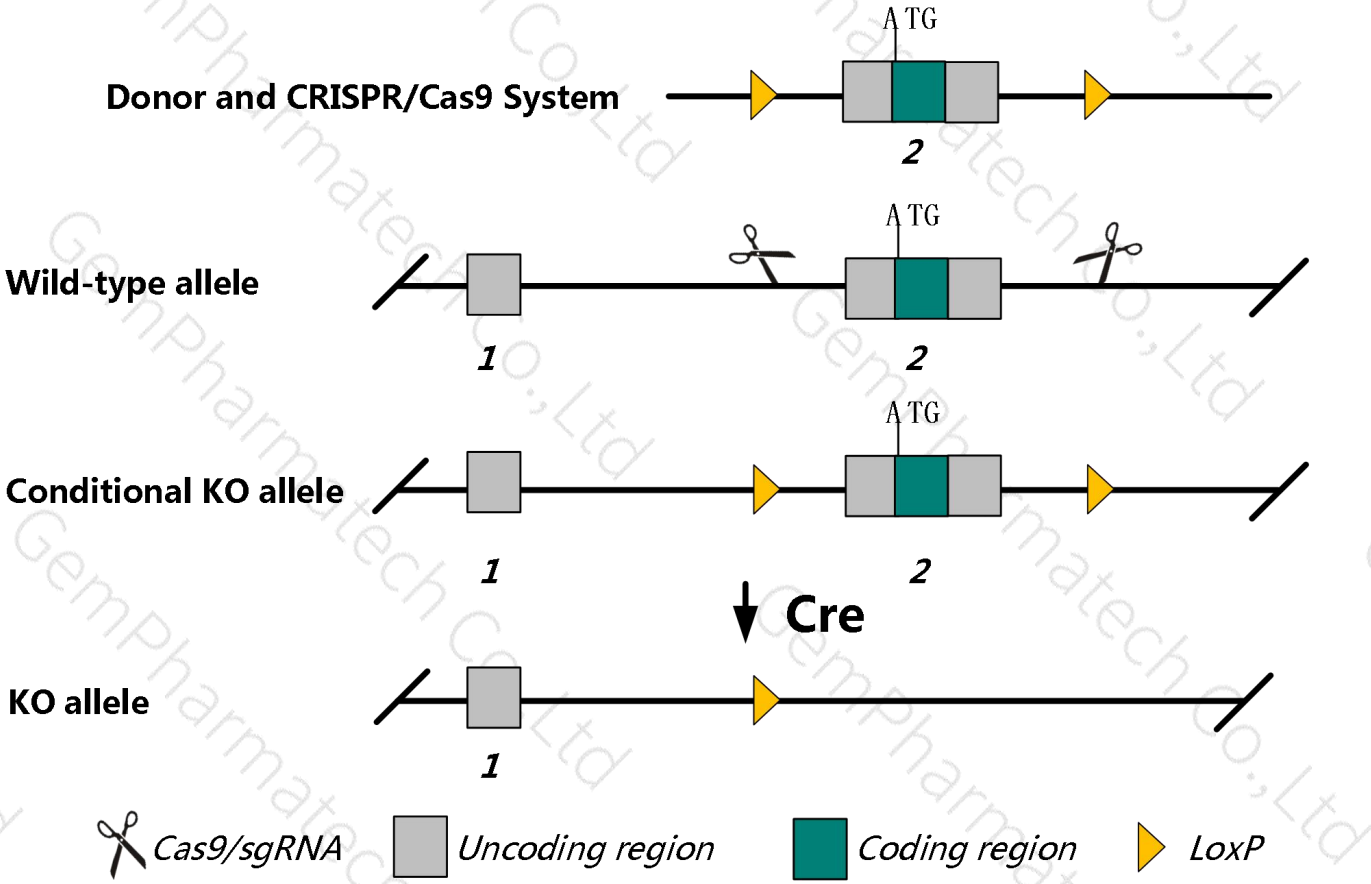
Design Date: 2020-7-24

Project Overview

Project Name	***Samd9l***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Samd9l* gene. The schematic diagram is as follows:



Technical routes

➢ The *Samd9l* gene has 2 transcripts. According to the structure of *Samd9l* gene, exon2 of *Samd9l-201*(ENSMUST00000120087.5) transcript is recommended as the knockout region.The region contains all 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 *Samd9l* gene. The brief process is as follows:sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA 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 was 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.

Notice

➢ According to the existing MGI data,mice that are either heterozygous or homozygous for a reporter allele develop myeloid diseases and acute myelogenous leukemia.

➢ The *Samd9l* gene is located on the Chr6. 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）

集萃药康 GemPharmatech

Samd9l sterile alpha motif domain containing 9-like [Mus musculus (house mouse)]

Gene ID: 209086, updated on 13-Mar-2020

Summary

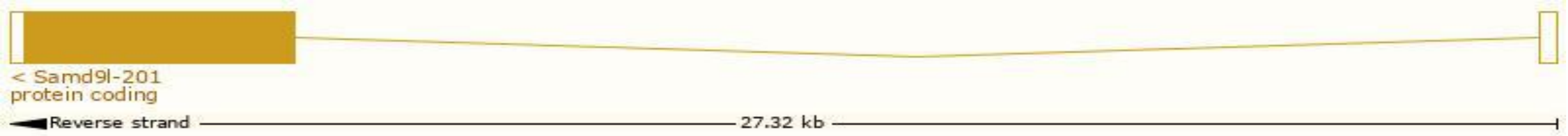
Official Symbol	Samd9l provided by MGI
Official Full Name	sterile alpha motif domain containing 9-like provided by MGI
Primary source	MGI:MGI:1343184
See related	Ensembl:ENSMUSG00000047735
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA175286, ESTM25, mKIAA2005
Expression	Broad expression in kidney adult (RPKM 4.1), bladder adult (RPKM 3.7) and 22 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

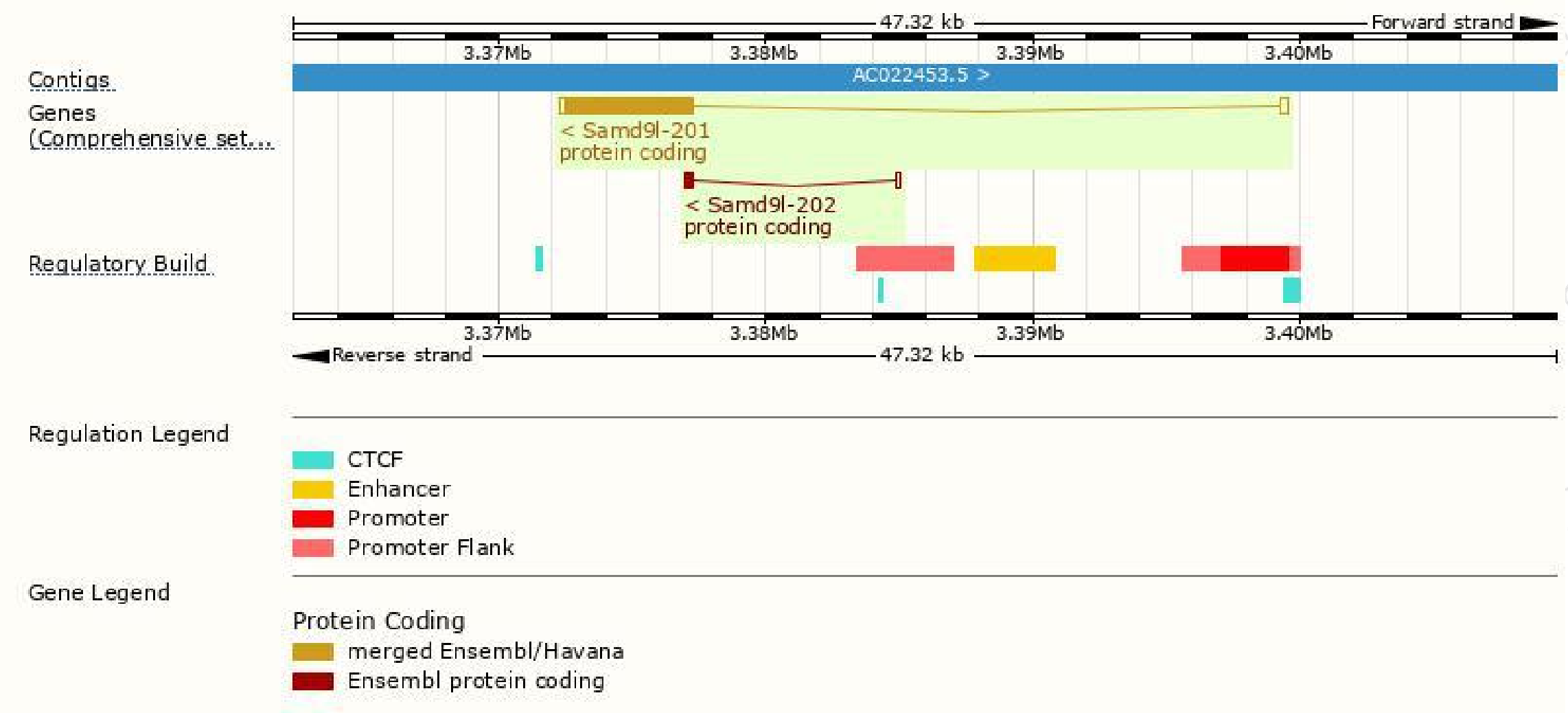
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Samd9l-201	ENSMUST00000120087.5	5330	1579aa	Protein coding	CCDS51712	E9PX59	TSL:1 GENCODE basic APPRIS P1
Samd9l-202	ENSMUST00000201638.1	429	103aa	Protein coding	-	V9GX63	CDS 3' incomplete TSL:2

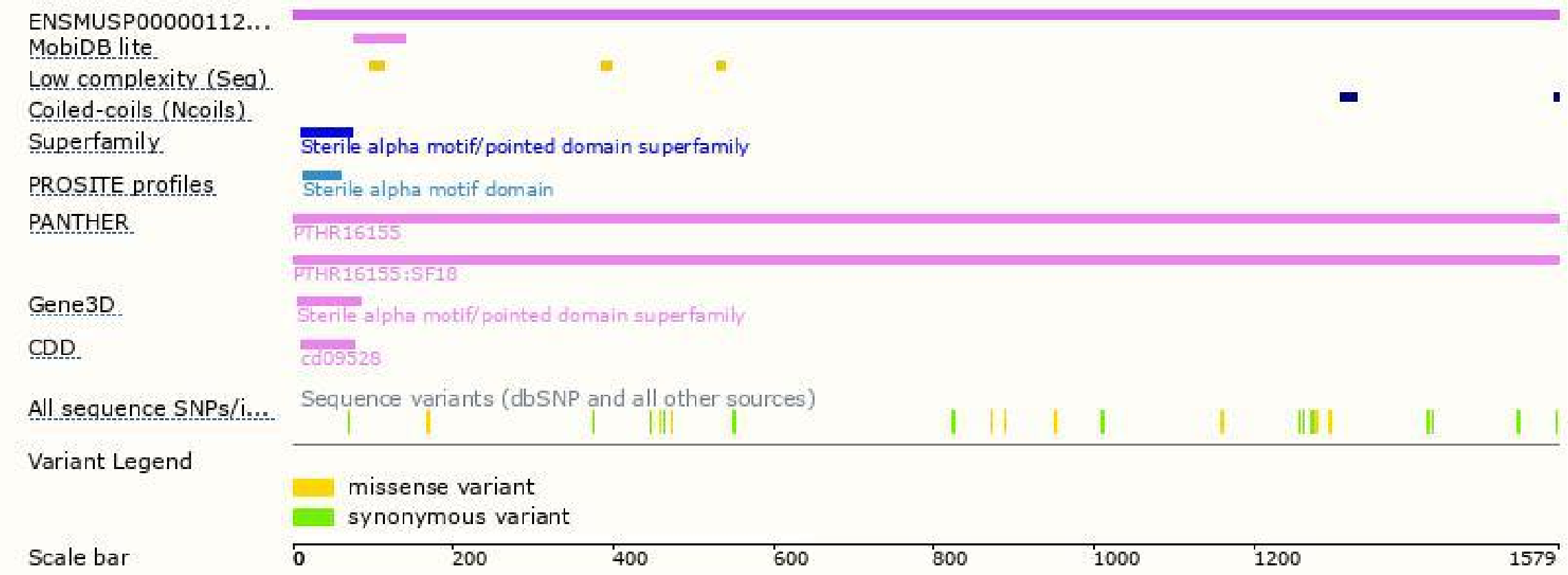
The strategy is based on the design of *Samd9l-201* transcript,the transcription is shown below:



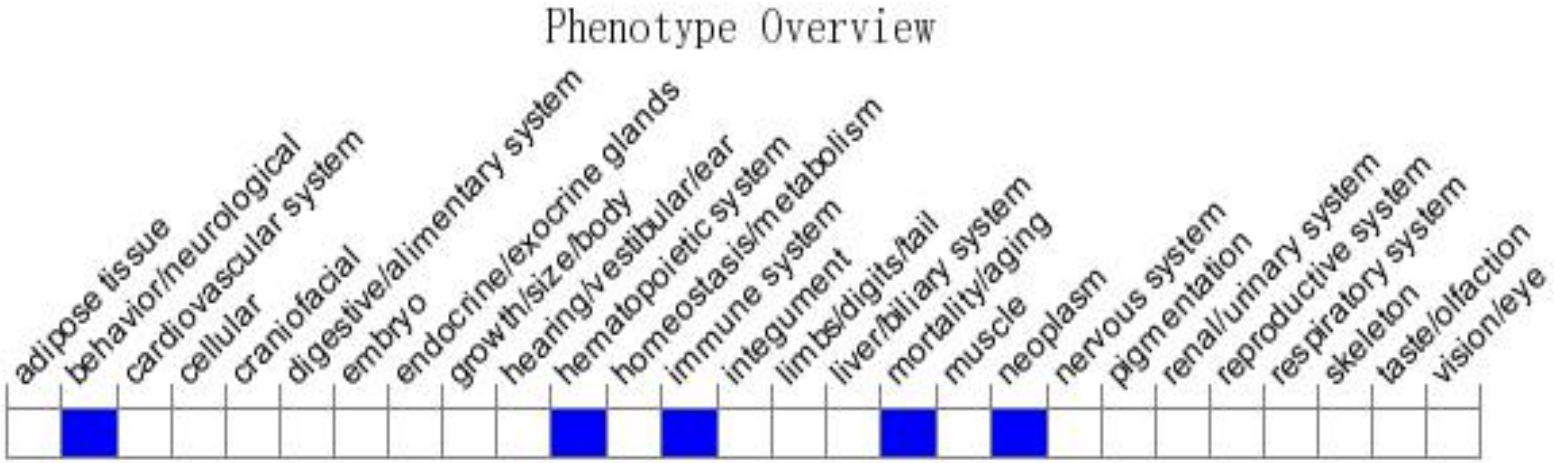
Genomic location distribution



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 that are either heterozygous or homozygous for a reporter allele develop myeloid diseases and acute myelogenous leukemia.

集萃药康
GemPharmatech

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

Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd