Angpt1 Cas9-KO Strategy

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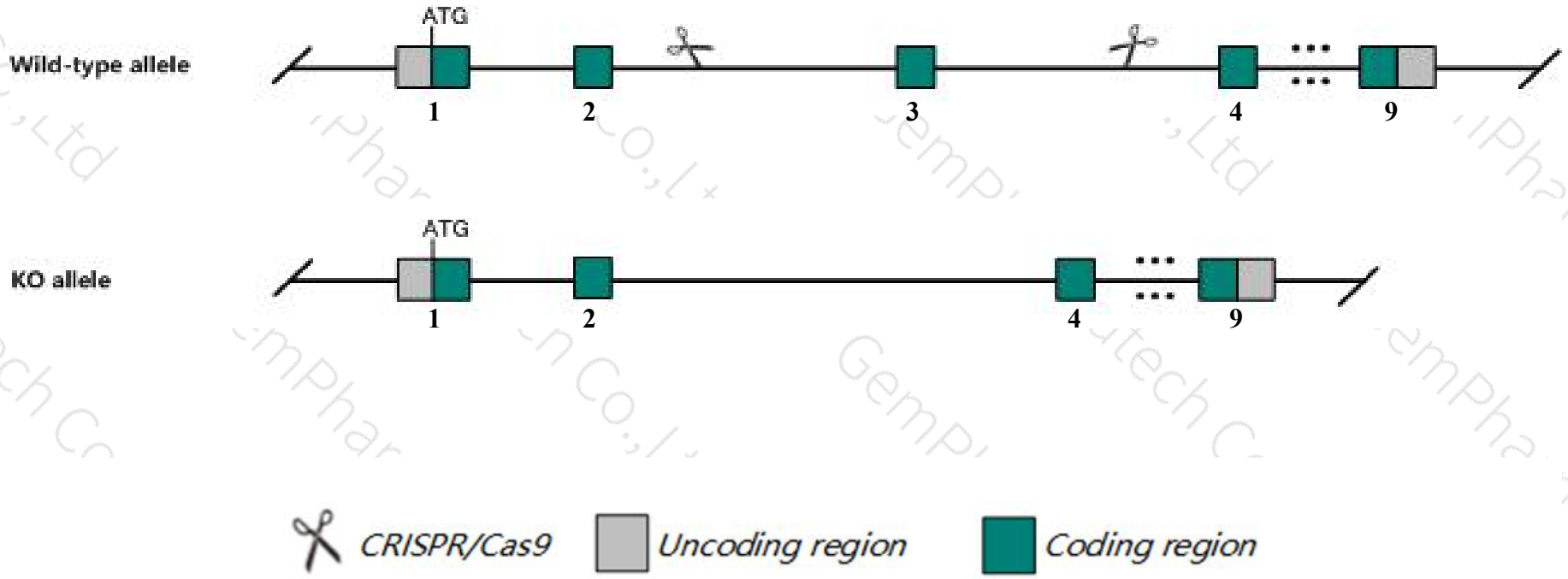
Project Overview

Project Name	***Angpt1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Angpt1* gene. The schematic diagram is as follows:



Technical routes

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- The *Angpt1* gene has 2 transcripts. According to the structure of *Angpt1* gene, exon3 of *Angpt1-201* (ENSMUST00000022921.6) transcript is recommended as the knockout region.The region contains 122bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Angpt1* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,Mice homozygous for disruptions in this gene display embryonic lethality by E12.5 and deficits in vascular development such as a reduction in vascular branching.

- The *Angpt1* 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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Angpt1 angiopoietin 1 [Mus musculus (house mouse)]

Gene ID: 11600, updated on 2-Apr-2019

Summary

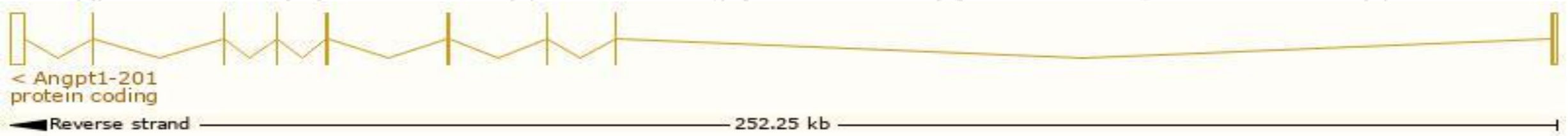
Official Symbol	Angpt1 provided by MGI
Official Full Name	angiopoietin 1 provided byMGI
Primary source	MGI:MGI:108448
See related	Ensembl:ENSMUSG00000022309
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110046O21Rik, Ang-1, Ang1
Summary	This gene encodes a secreted glycoprotein that belongs to the angiopoietin family of vascular growth factors. The encoded protein is a ligand in the vascular tyrosine kinase signaling pathway and regulates the formation and stabilization of blood vessels. This protein also functions in striated muscles by promoting proliferation, migration and differentiation of skeletal myoblasts and plays an essential role in the vascular response to tissue injury. Alternative splicing results in multiple transcript variants. [provided by RefSeq, Oct 2013]
Expression	Broad expression in heart adult (RPKM 3.3), lung adult (RPKM 2.4) and 18 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

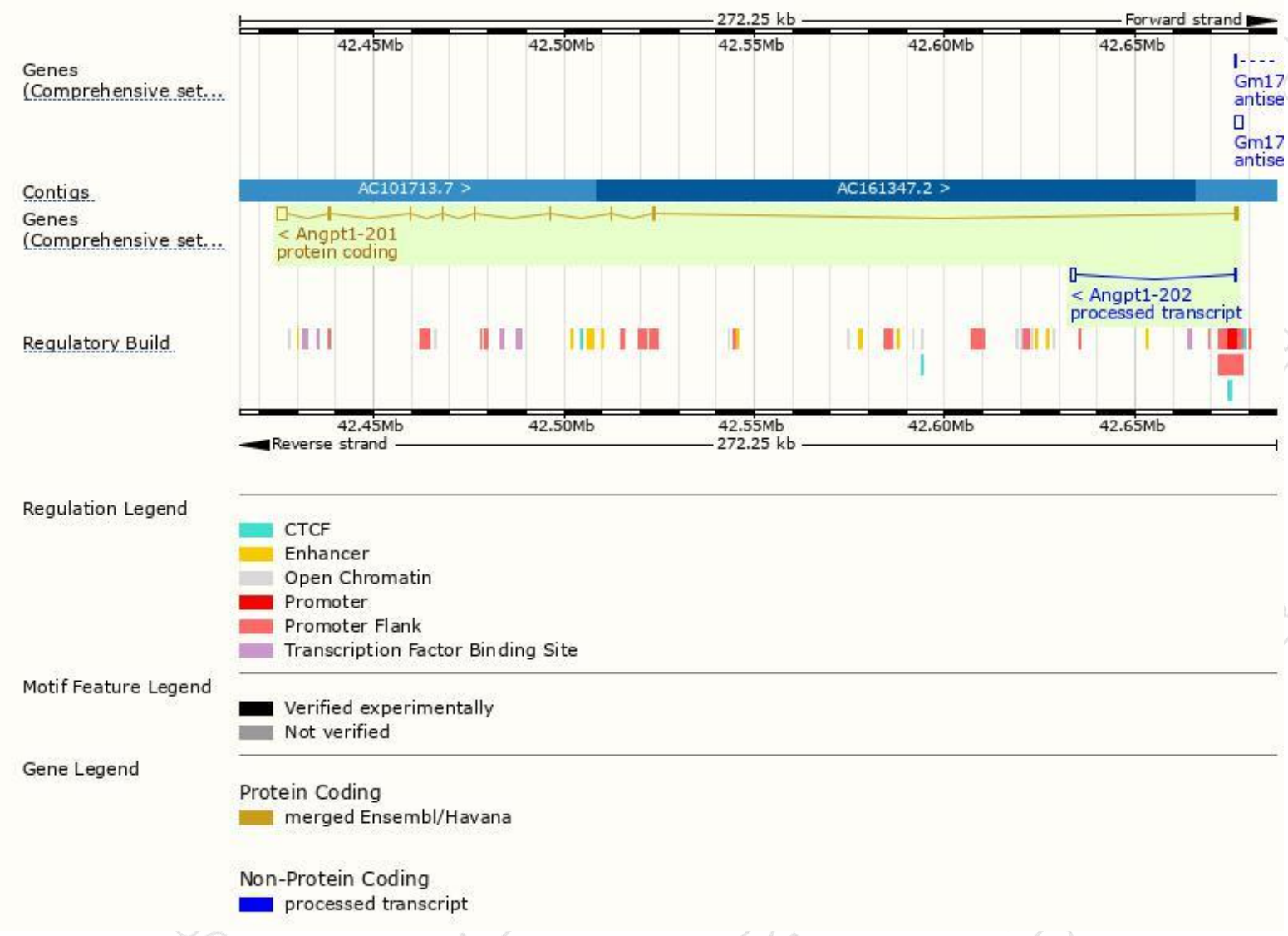
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Angpt1-201	ENSMUST00000022921.6	4260	498aa	Protein coding	CCDS27450	O08538	TSL:1 GENCODE basic APPRIS P1
Angpt1-202	ENSMUST00000227738.1	1530	No protein	Processed transcript	-	-	

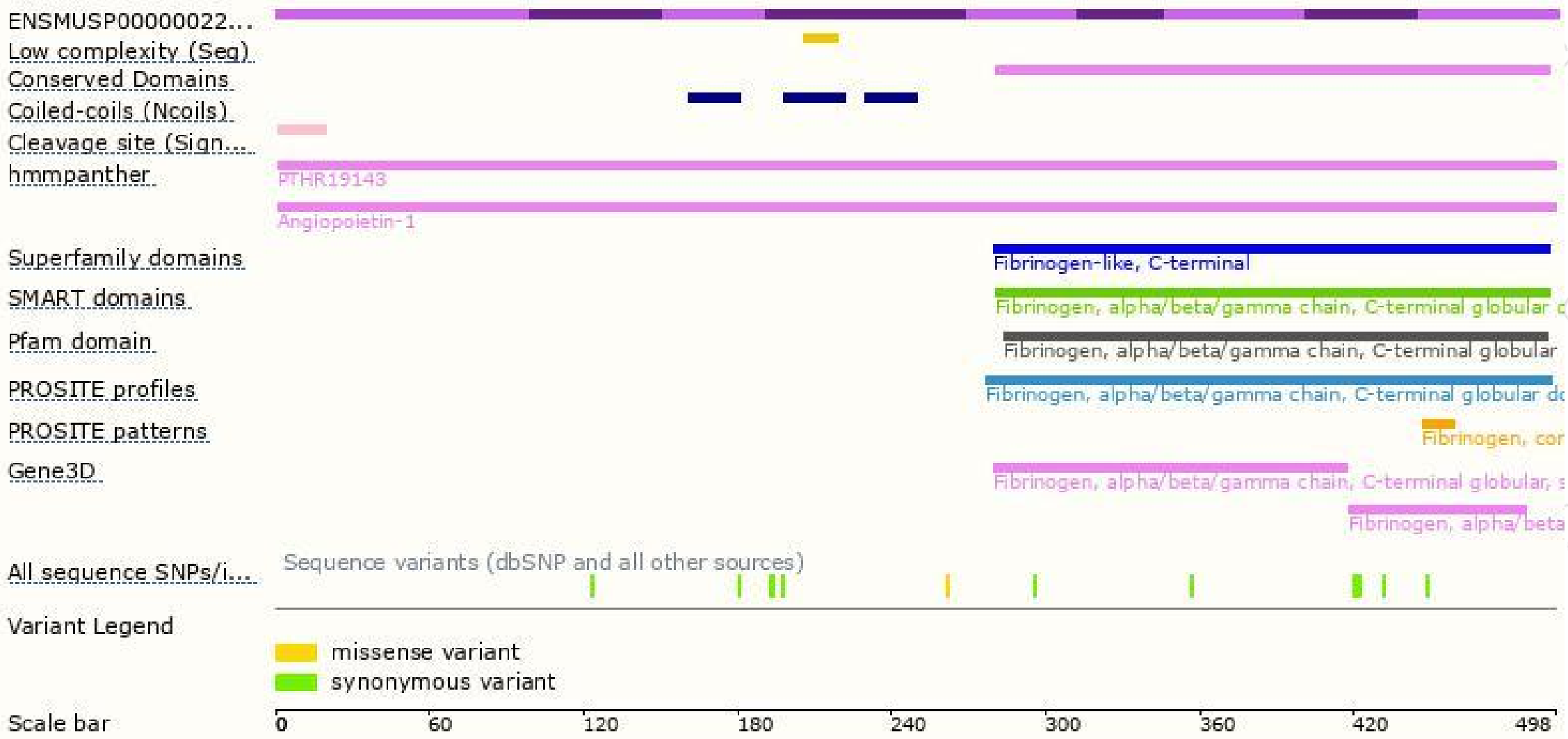
The strategy is based on the design of *Angpt1-201* transcript,The transcription is shown below



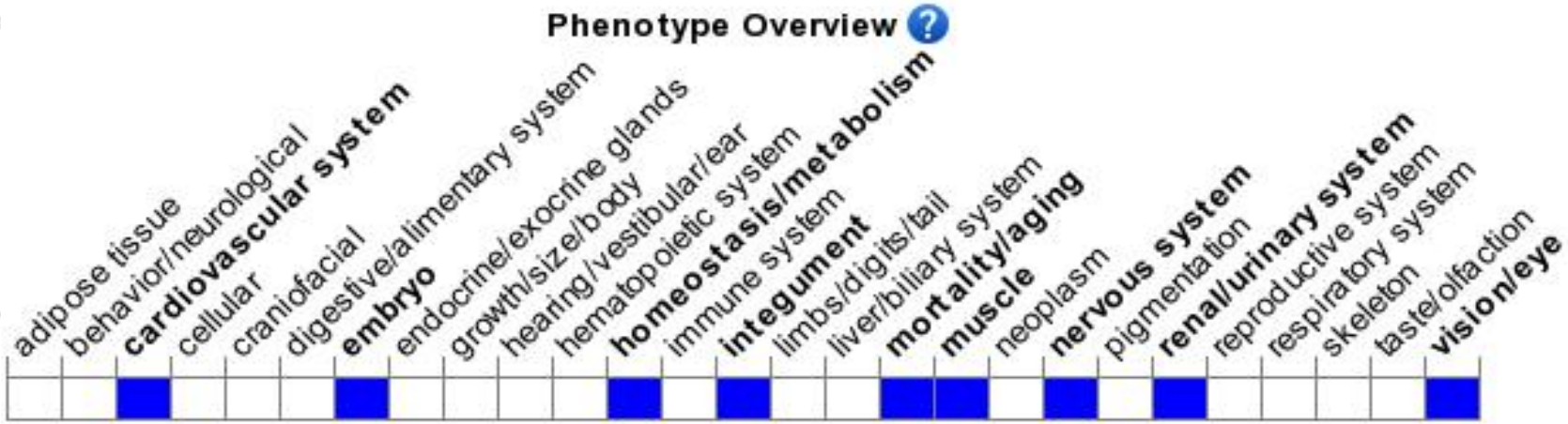
Genomic location distribution



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 homozygous for disruptions in this gene display embryonic lethality by E12.5 and deficits in vascular development such as a reduction in vascular branching.

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