

Vegfd Cas9-KO Strategy

Designer: Xueting Zhang

Reviewer: Yanhua Shen

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Project Overview

Project Name

Vegfd

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Vegfd* gene has 2 transcripts. According to the structure of *Vegfd* gene, exon2-exon6 of *Vegfd*-201 (ENSMUST00000033751.7) transcript is recommended as the knockout region. The region contains 863bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Vegfd* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous female and hemizygous male null mice are morphologically normal, can suckle, and have grossly normal lymphatic system morphology and function.
- The *Vegfd* gene is located on the ChrX. 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)

Vegfd vascular endothelial growth factor D [*Mus musculus* (house mouse)]

Gene ID: 14205, updated on 14-Aug-2019

Summary

Official Symbol	Vegfd provided by MGI
Official Full Name	vascular endothelial growth factor D provided by MGI
Primary source	MGI:MGI:108037
See related	Ensembl:ENSMUSG000000031380
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	Figf; VEGF-D; AI325264
Summary	This gene encodes a member of the vascular endothelial growth factor (VEGF) family that acts as a ligand for vascular endothelial growth factor receptor 3. Signalling through this protein is important for growth and development of endothelial and vascular tissue. Alternative splicing results in multiple transcript variants. [provided by RefSeq, May 2015]
Expression	Broad expression in lung adult (RPKM 6.5), adrenal adult (RPKM 5.0) and 20 other tissues See more
Orthologs	human all

Genomic context

Location: X F5; X 76.35 cM

See Vegfd in [Genome Data Viewer](#)

Exon count: 7

Annotation release	Status	Assembly	Chr	Location
108	current	GRCh38.p6 (GCF_000001635.26)	X	NC_000086.7 (164373522..164402650)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	X	NC_000086.6 (160811480..160840579)

Transcript information (Ensembl)

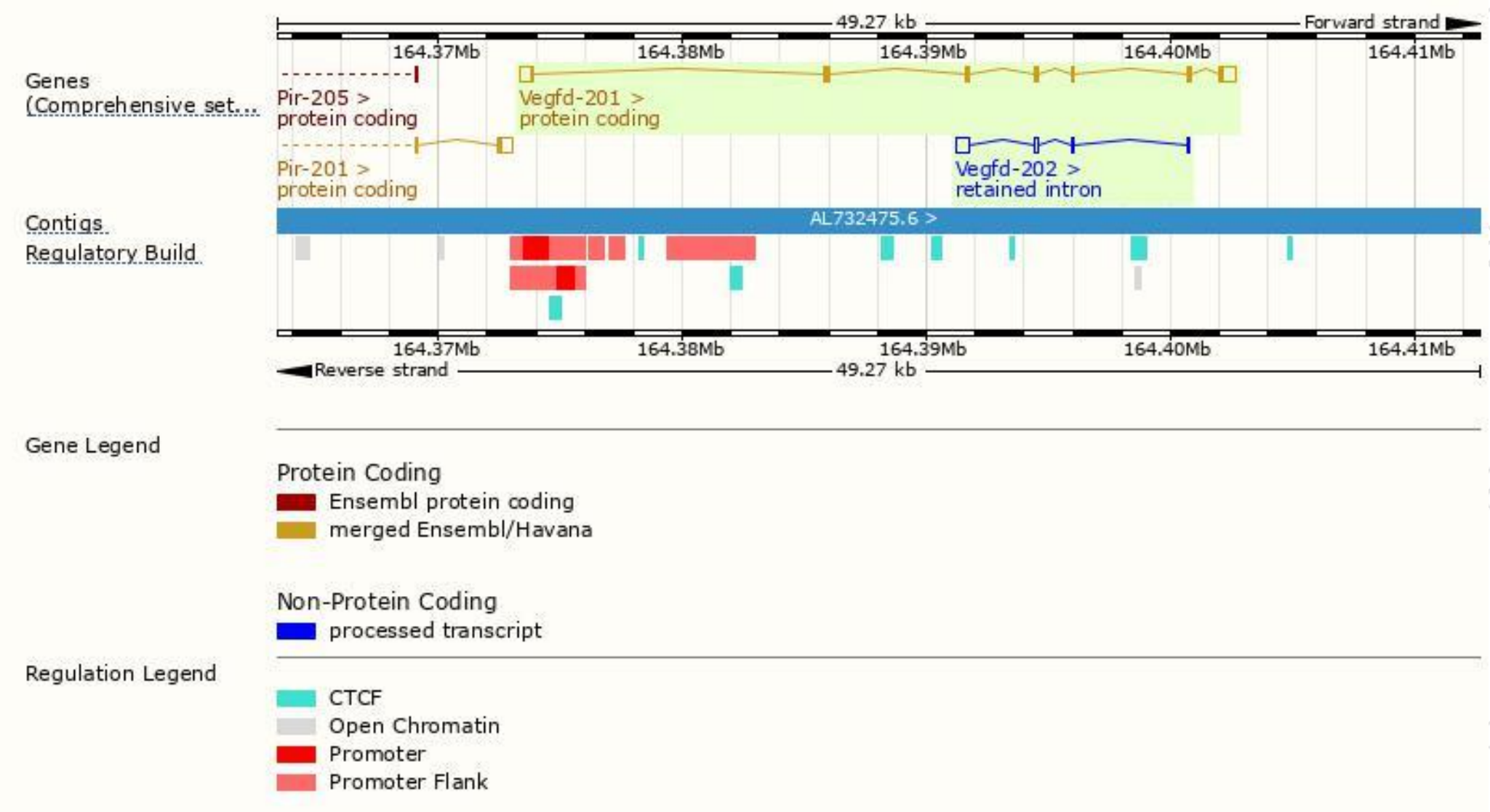
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Vegfd-201	ENSMUST00000033751.7	2049	358aa	Protein coding	CCDS30521	P97946	TSL:1 GENCODE basic APPRIS P1
Vegfd-202	ENSMUST00000124851.1	918	No protein	Retained intron	-	-	TSL:2

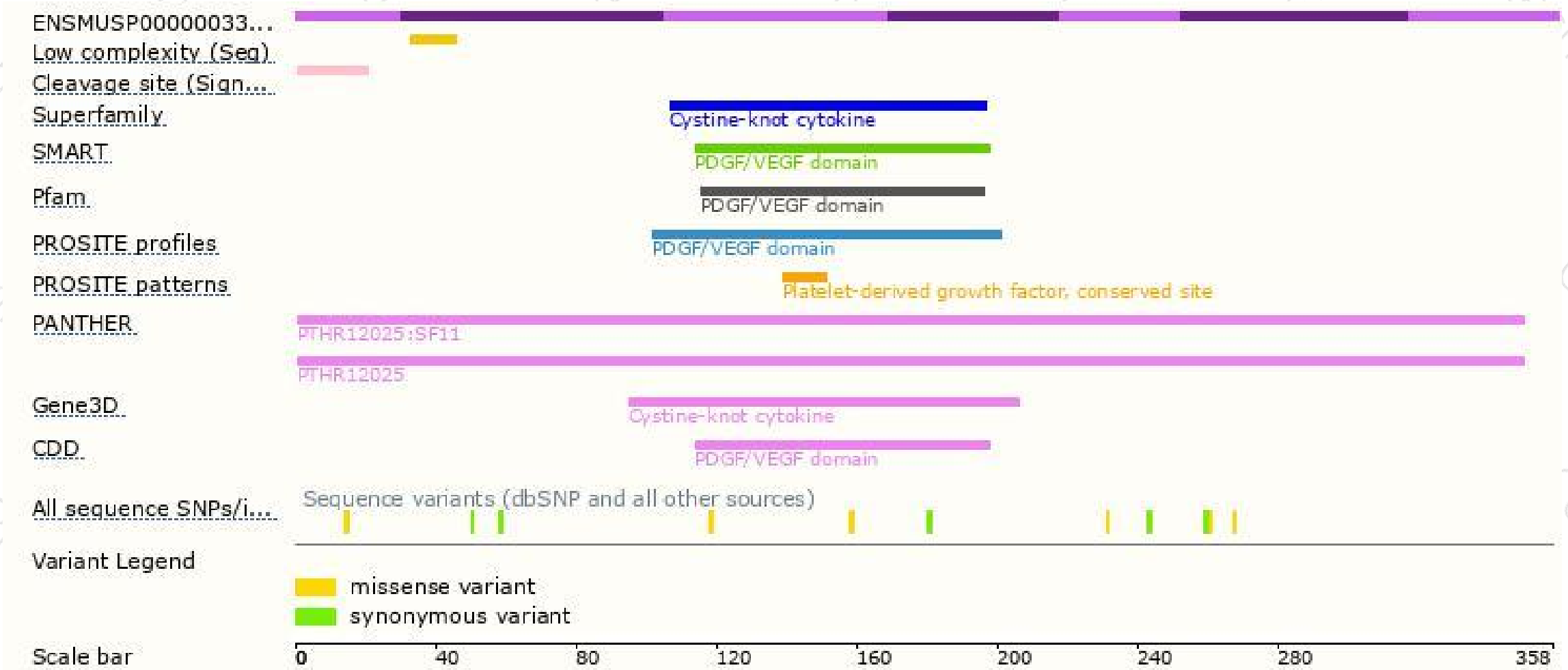
The strategy is based on the design of *Vegfd-201* transcript,The transcription is shown below



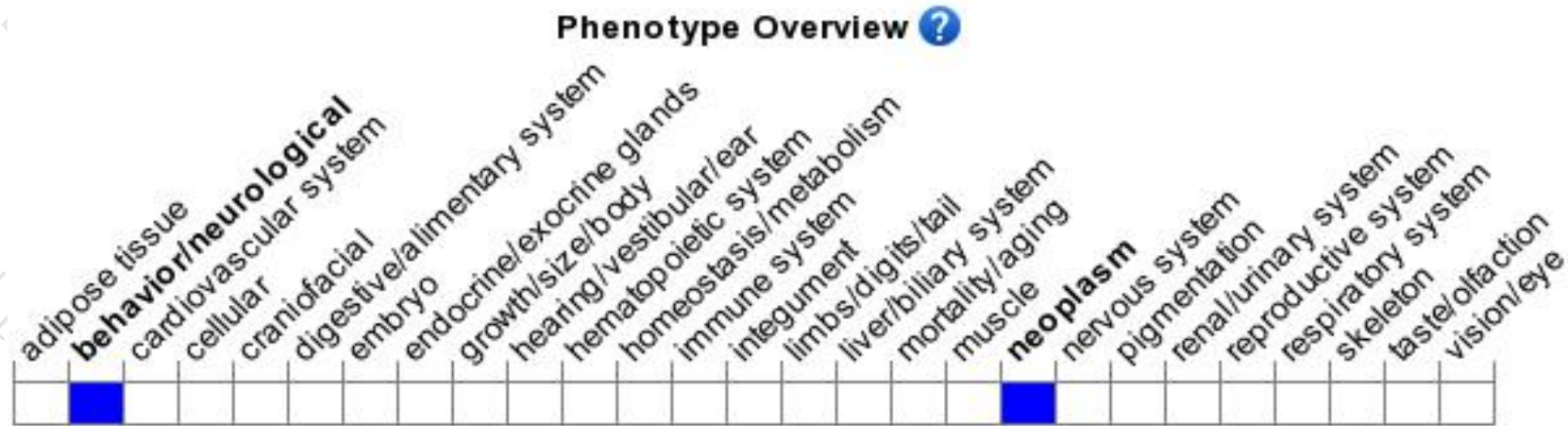
Genomic location distribution



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 female and hemizygous male null mice are morphologically normal, can suckle, and have grossly normal lymphatic system morphology and function.

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

Tel: 400-9660890

