

Efnb2 Cas9-KO Strategy

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Project Overview

Project Name

Efnb2

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Efnb2* gene. The schematic diagram is as follows:



- The *Efnb2* gene has 3 transcripts. According to the structure of *Efnb2* gene, exon2 of *Efnb2-201* (ENSMUST00000001319.14) transcript is recommended as the knockout region. The region contains 284bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Efnb2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygotes for targeted null mutations exhibit defects in angiogenesis of both arteries and veins and die by embryonic day 11.5.
- The *Efnb2* gene is located on the Chr8. 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)

Efnb2 ephrin B2 [Mus musculus (house mouse)]

Gene ID: 13642, updated on 5-Mar-2019

Summary



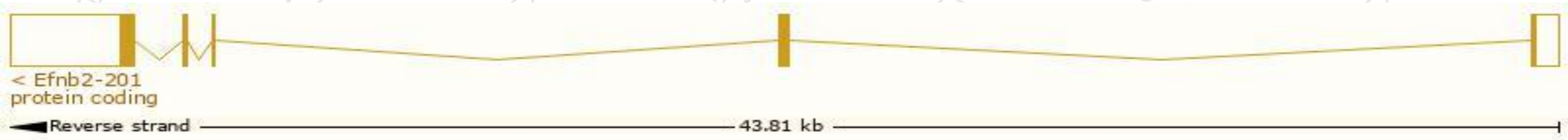
Official Symbol	Efnb2 provided by MGI
Official Full Name	ephrin B2 provided by MGI
Primary source	MGI:MGI:105097
See related	Ensembl:ENSMUSG000000001300
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	ELF-2, Epl5, Eplg5, Htk-L, LERK-5, Lerk5, NLERK-1
Expression	Broad expression in lung adult (RPKM 20.3), colon adult (RPKM 11.2) and 23 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

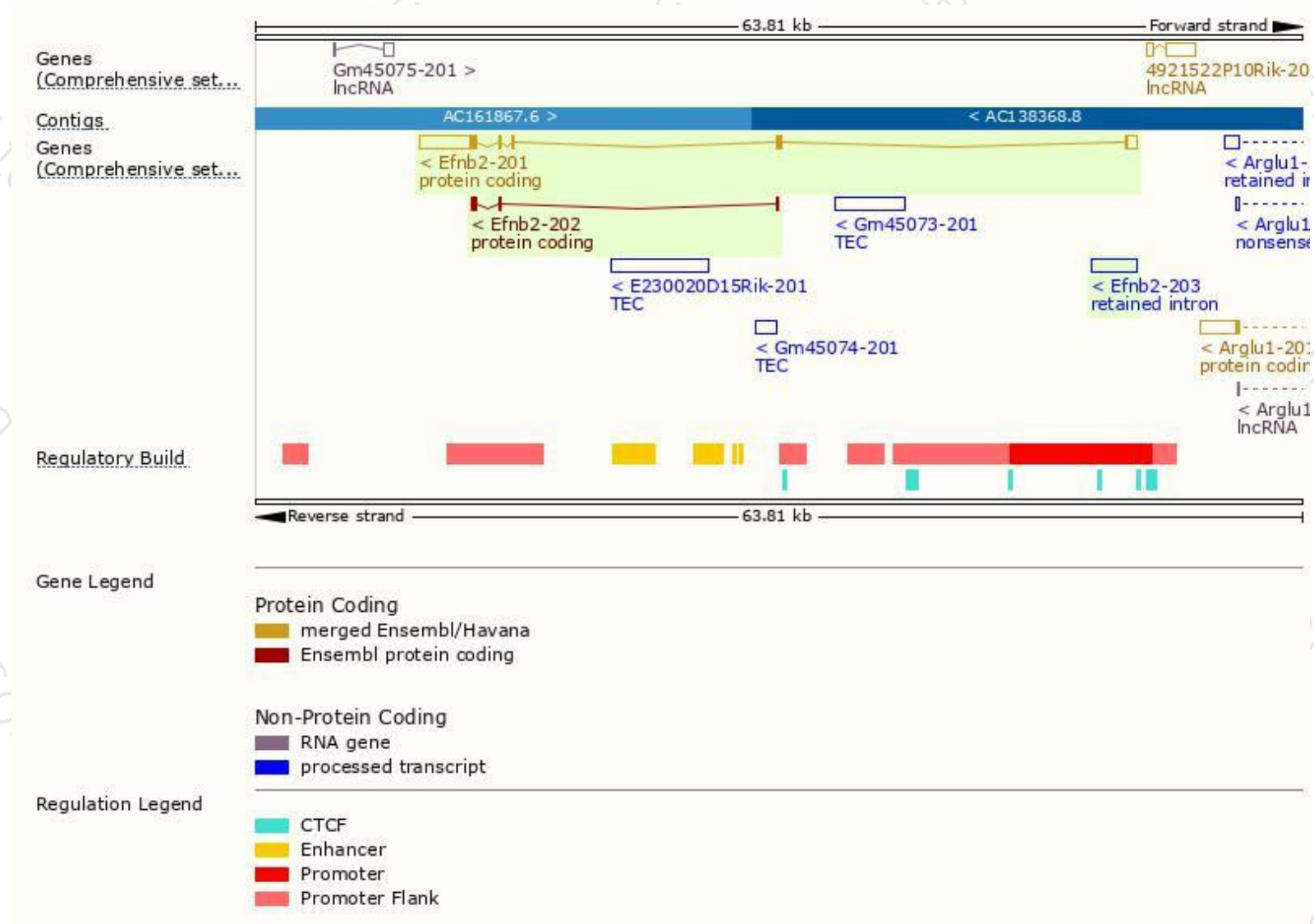
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Efnb2-201	ENSMUST000000001319.14	4793	336aa	Protein coding	CCDS22090	P52800 Q4FJM3	TSL:1 GENCODE basic APPRIS P1
Efnb2-202	ENSMUST000000152698.1	652	218aa	Protein coding	-	F6RSU6	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3
Efnb2-203	ENSMUST000000209169.1	2818	No protein	Retained intron	-	-	TSL:NA

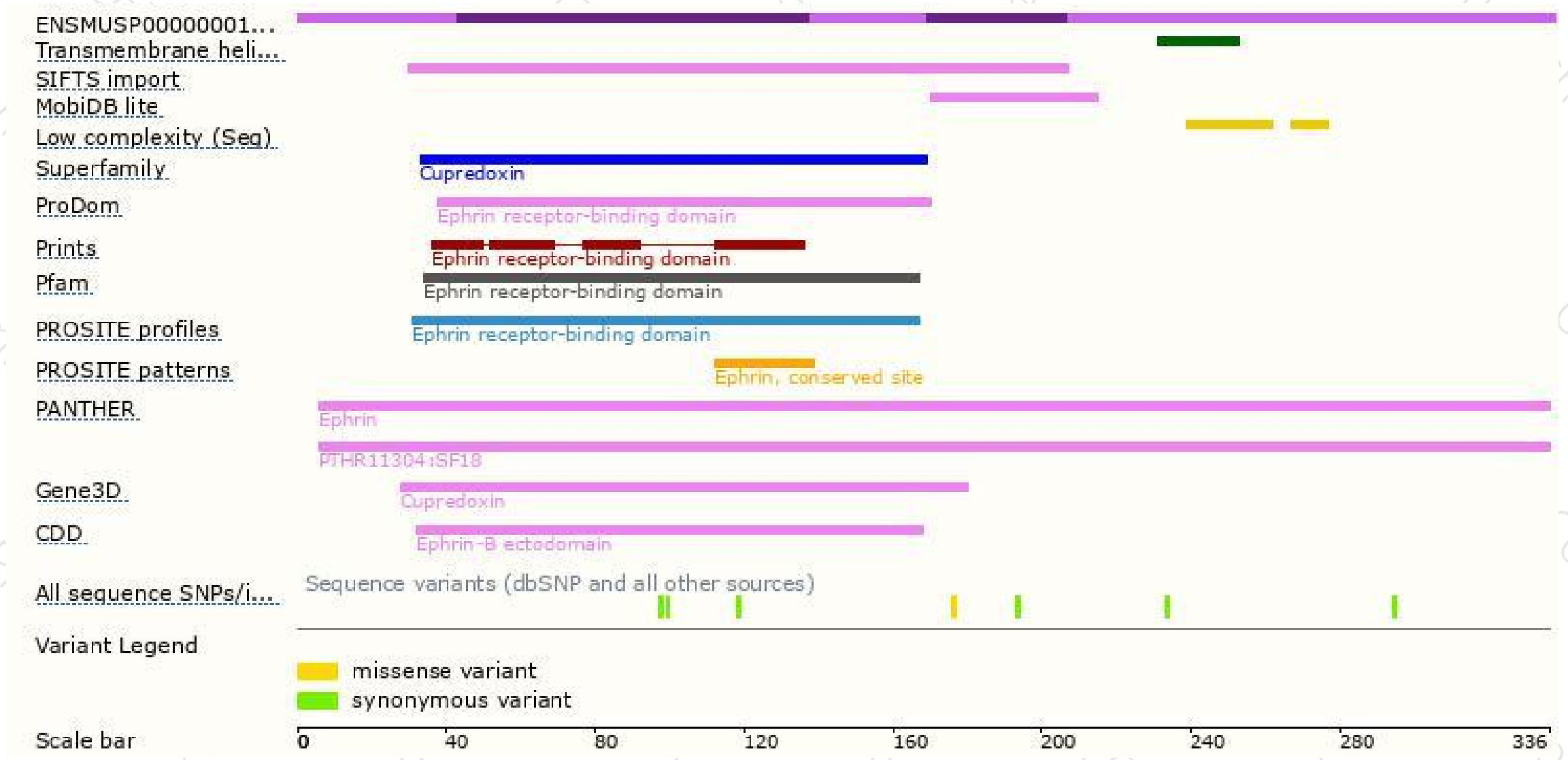
The strategy is based on the design of *Efnb2-201* transcript,The transcription is shown below



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, Homozygotes for targeted null mutations exhibit defects in angiogenesis of both arteries and veins and die by embryonic day 11.5.

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

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