

# ***Emilin2* Cas9-KO Strategy**

Designer: Xueting Zhang

Reviewer: Yanhua Shen

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# Project Overview

**Project Name**

*Emilin2*

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Emilin2* gene. The schematic diagram is as follows:



- The *Emilin2* gene has 11 transcripts. According to the structure of *Emilin2* gene, exon3-exon7 of *Emilin2*-203 (ENSMUST00000233057.1) transcript is recommended as the knockout region. The region contains 2621bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Emilin2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit disruptions in platelet activation, thrombus formation and clot retraction.
- Transcript *Emilin2*-208 may not be affected.
- The *Emilin2* gene is located on the Chr17. 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)

## Emilin2 elastin microfibril interfacer 2 [ *Mus musculus* (house mouse) ]

Gene ID: 246707, updated on 24-Oct-2019

### Summary

<b>Official Symbol</b>	Emilin2 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	elastin microfibril interfacer 2 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:2389136</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000024053</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	FOAP-10
<b>Expression</b>	Broad expression in subcutaneous fat pad adult (RPKM 10.2), mammary gland adult (RPKM 9.7) and 21 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

### Genomic context

**Location:** 17; 17 E1.3

See Emilin2 in [Genome Data Viewer](#)

**Exon count:** 9

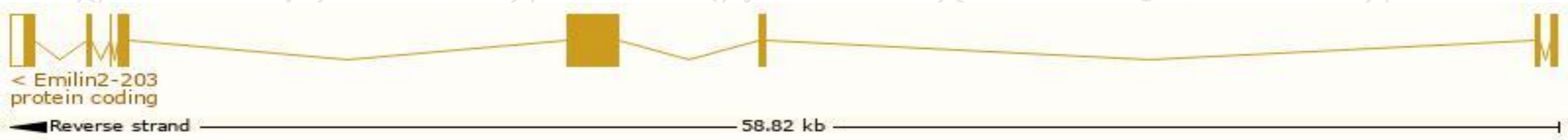
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	17	NC_000083.6 (71252172..71311556, complement)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	17	NC_000083.5 (71601516..71660305, complement)

# Transcript information (Ensembl)

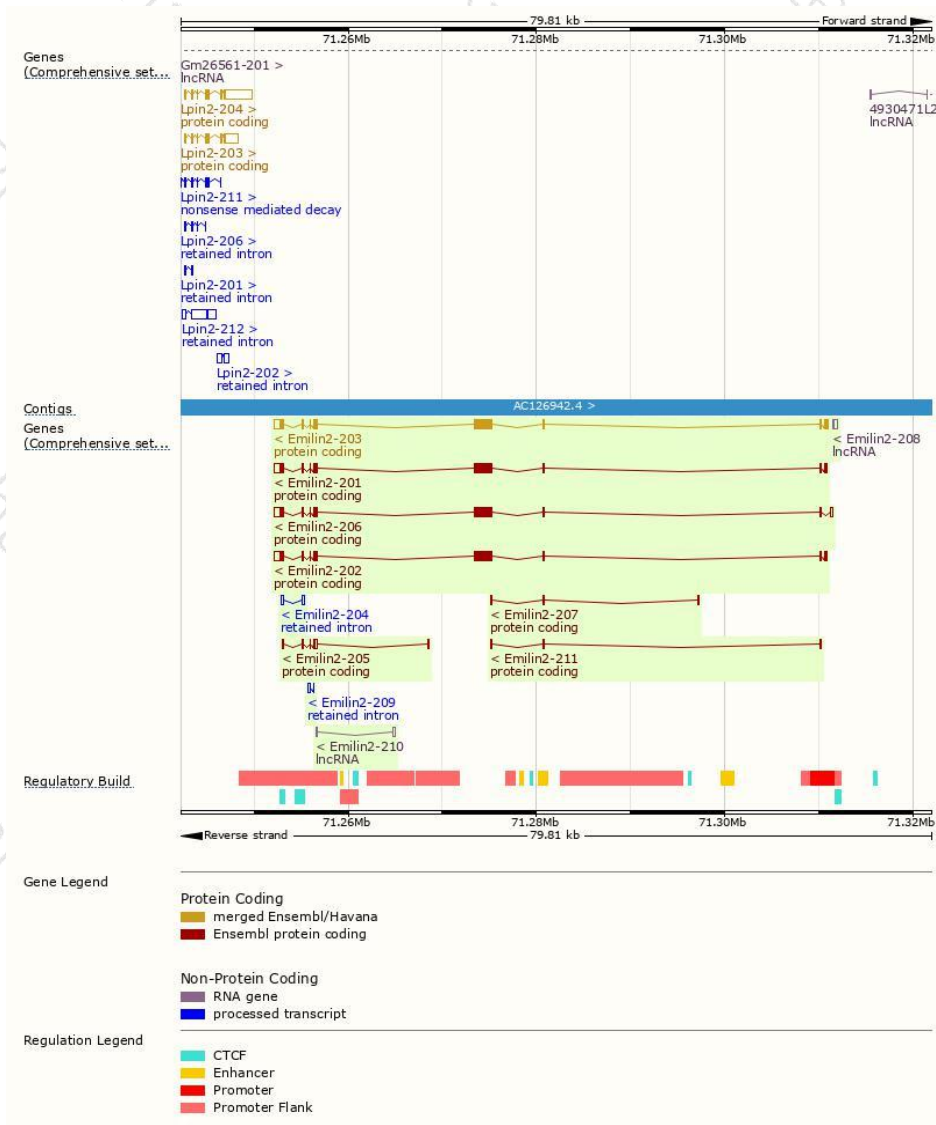
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Emilin2-203	<a href="#">ENSMUST00000233057.1</a>	3939	<a href="#">1074aa</a>	Protein coding	<a href="#">CCDS37686</a>	<a href="#">Q3U1J9</a> <a href="#">Q8K482</a>	GENCODE basic APPRIS P2
Emilin2-201	<a href="#">ENSMUST0000024849.10</a>	3906	<a href="#">1073aa</a>	Protein coding	-	<a href="#">Q3TDP9</a>	TSL:1 GENCODE basic APPRIS ALT2
Emilin2-206	<a href="#">ENSMUST00000233245.1</a>	3883	<a href="#">993aa</a>	Protein coding	-	<a href="#">A0A3B2WB50</a>	GENCODE basic
Emilin2-202	<a href="#">ENSMUST00000232777.1</a>	3873	<a href="#">1063aa</a>	Protein coding	-	<a href="#">A0A3B2W4E4</a>	GENCODE basic APPRIS ALT2
Emilin2-205	<a href="#">ENSMUST00000233148.1</a>	758	<a href="#">122aa</a>	Protein coding	-	<a href="#">A0A3B2WD46</a>	CDS 3' incomplete
Emilin2-211	<a href="#">ENSMUST00000233728.1</a>	405	<a href="#">98aa</a>	Protein coding	-	<a href="#">A0A3B2W437</a>	CDS 3' incomplete
Emilin2-207	<a href="#">ENSMUST00000233343.1</a>	404	<a href="#">95aa</a>	Protein coding	-	<a href="#">A0A3B2W846</a>	CDS 3' incomplete
Emilin2-204	<a href="#">ENSMUST00000233083.1</a>	479	No protein	Retained intron	-	-	
Emilin2-209	<a href="#">ENSMUST00000233677.1</a>	363	No protein	Retained intron	-	-	
Emilin2-210	<a href="#">ENSMUST00000233698.1</a>	399	No protein	lncRNA	-	-	
Emilin2-208	<a href="#">ENSMUST00000233659.1</a>	368	No protein	lncRNA	-	-	

The strategy is based on the design of *Emilin2-203* transcript,The transcription is shown below

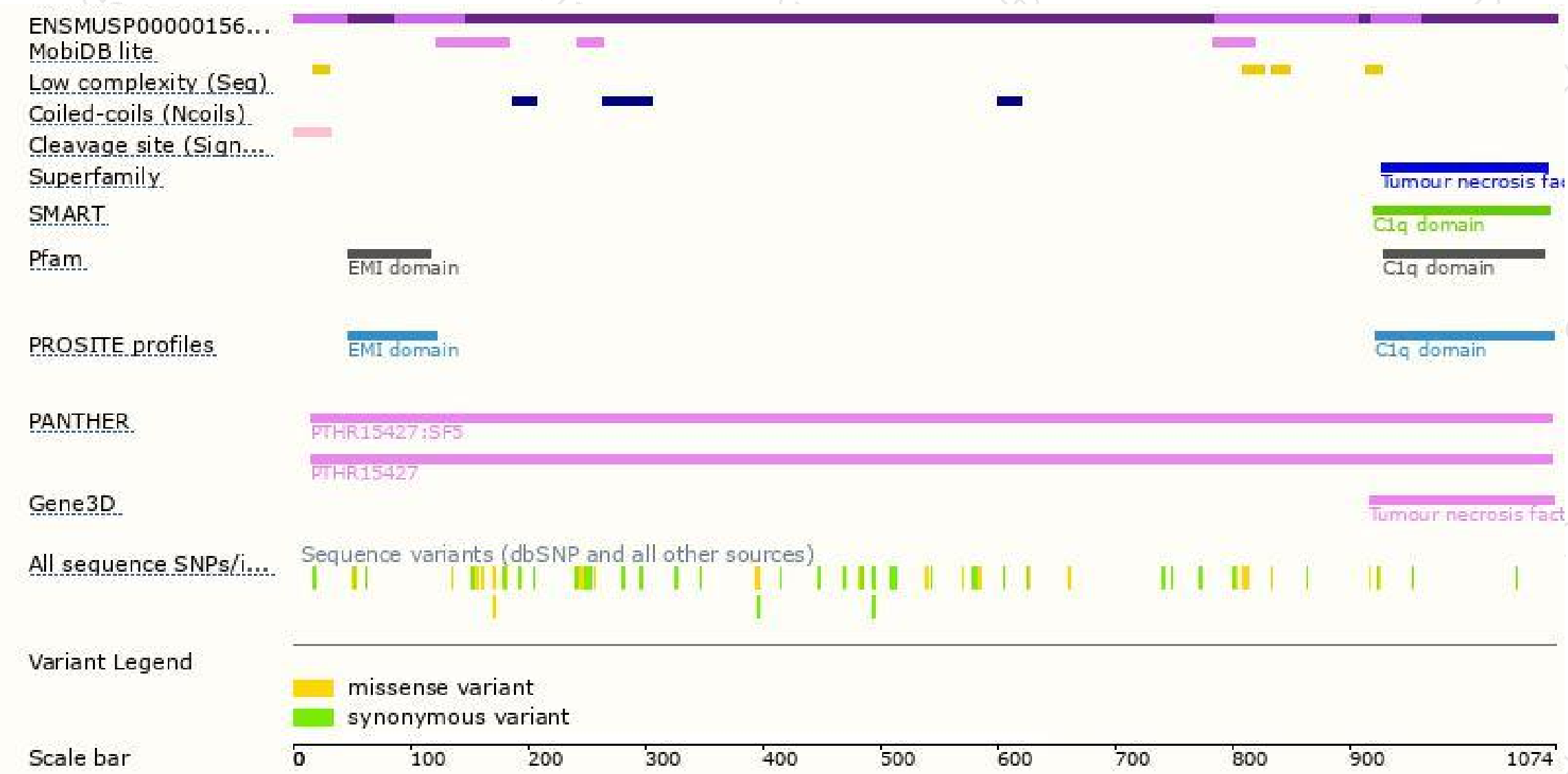


# Genomic location distribution

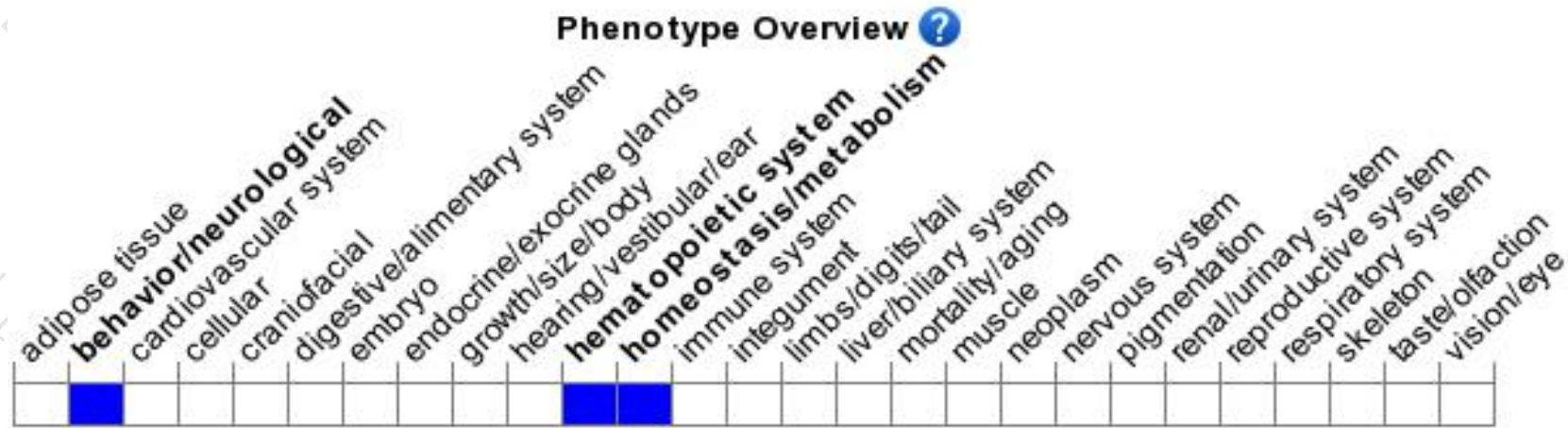




# Protein domain



# Mouse phenotype description(MGI )



*Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).*

According to the existing MGI data, Mice homozygous for a knock-out allele exhibit disruptions in platelet activation, thrombus formation and clot retraction.

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

Tel: 400-9660890

