Fbln1 Cas9-CKO Strategy

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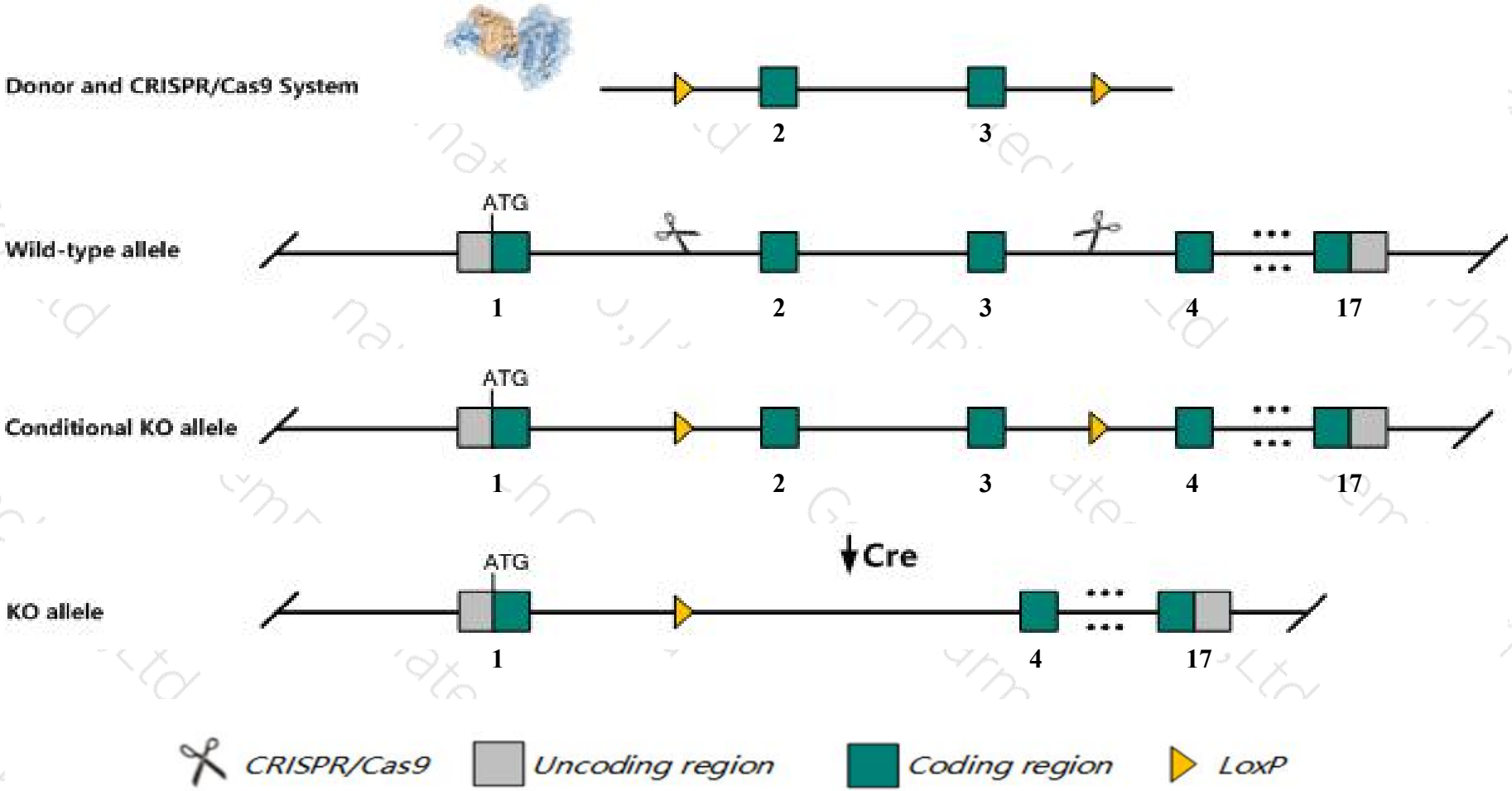
Design Date:2020-3-9

Project Overview

Project Name	***Fbln1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fbln1* gene. The schematic diagram is as follows:



Technical routes

- The *Fbln1* gene has 3 transcripts. According to the structure of *Fbln1* gene, exon2-exon3 of *Fbln1-201* (ENSMUST00000057410.13) transcript is recommended as the knockout region.The region contains 242bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Fbln1* gene. The brief process is as follows:CRISPR/Cas9 system 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 will be 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 homozygous for disruption of this gene develop problems with spontaneous bleeding as embryos. Most die within the first two days of life. Those that survive this period develop normally and eventually recover from their early developmental abnormalities.

➢ The *Fbln1* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Fbln1 fibulin 1 [*Mus musculus* (house mouse)]

Gene ID: 14114, updated on 25-Feb-2020

Summary

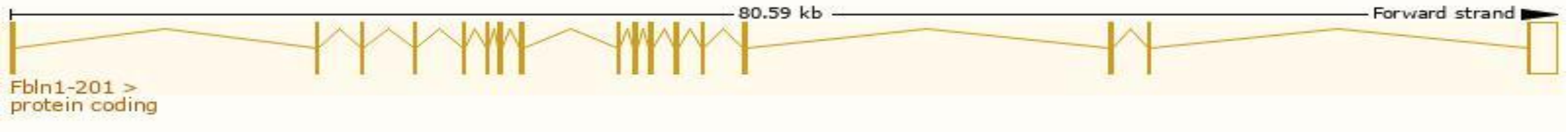
Official Symbol	Fbln1 provided by MGI
Official Full Name	fibulin 1 provided by MGI
Primary source	MGI:MGI:95487
See related	Ensembl:ENSMUSG00000006369
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Broad expression in bladder adult (RPKM 164.9), duodenum adult (RPKM 105.0) and 16 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

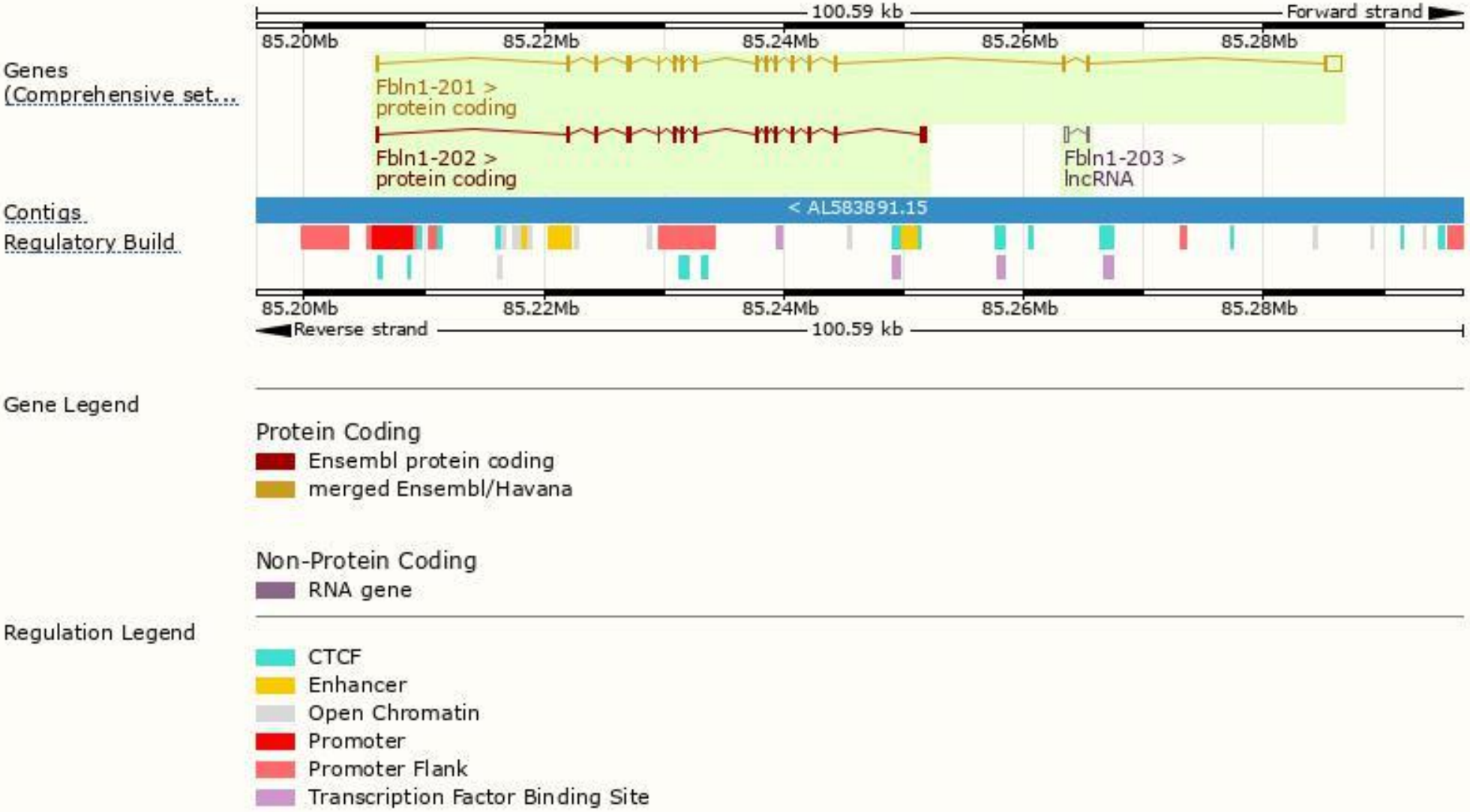
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fbln1-201	ENSMUST00000057410.13	3659	705aa	Protein coding	CCDS27719	B2CQD6 Q08879	TSL:1 GENCODE basic APPRIS P3
Fbln1-202	ENSMUST00000109432.3	2273	685aa	Protein coding	CCDS84186	Q08879	TSL:1 GENCODE basic APPRIS ALT2
Fbln1-203	ENSMUST00000160798.1	400	No protein	lncRNA	-	-	TSL:3

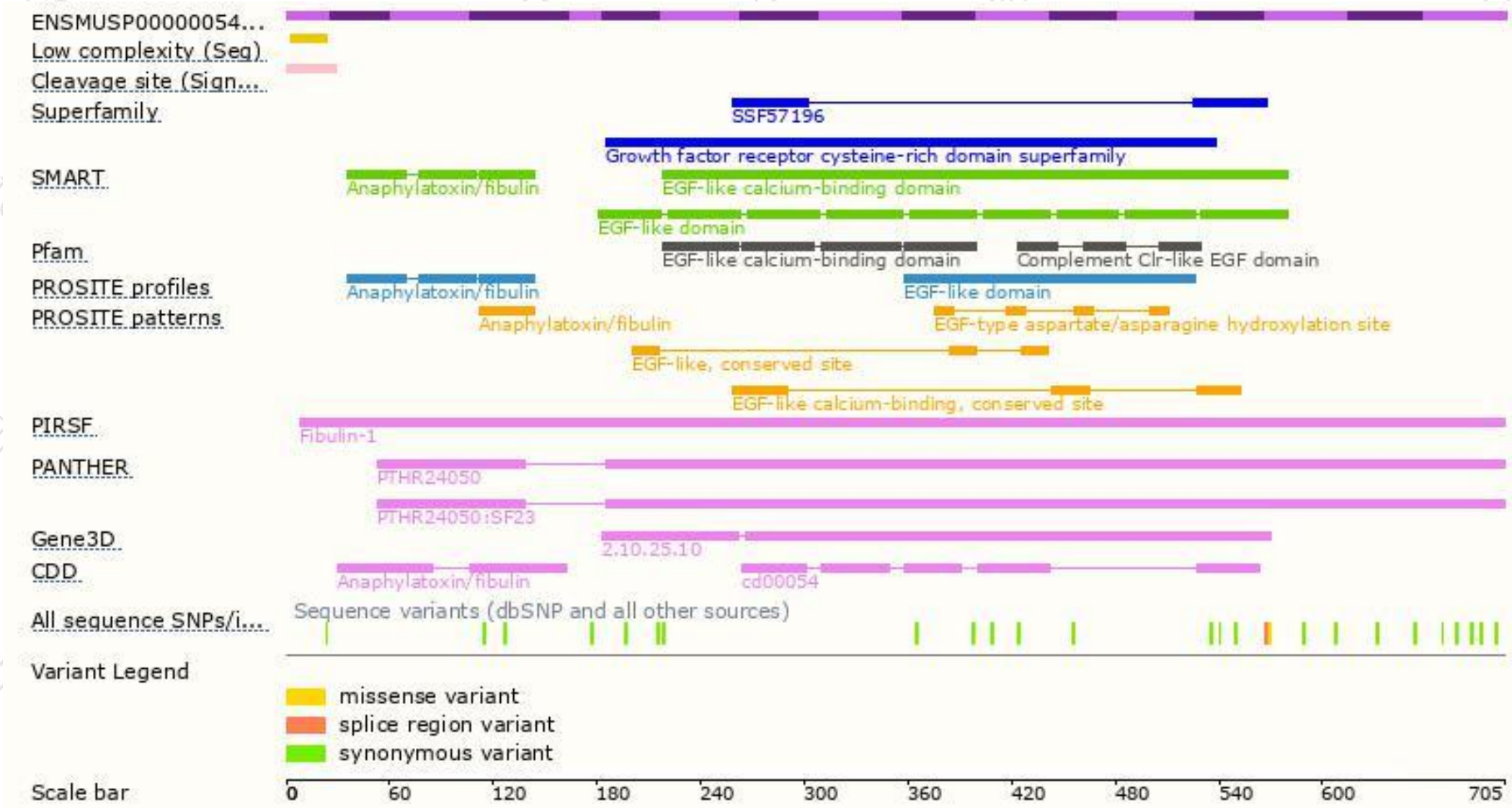
The strategy is based on the design of *Fbln1-201* transcript,The transcription is shown below



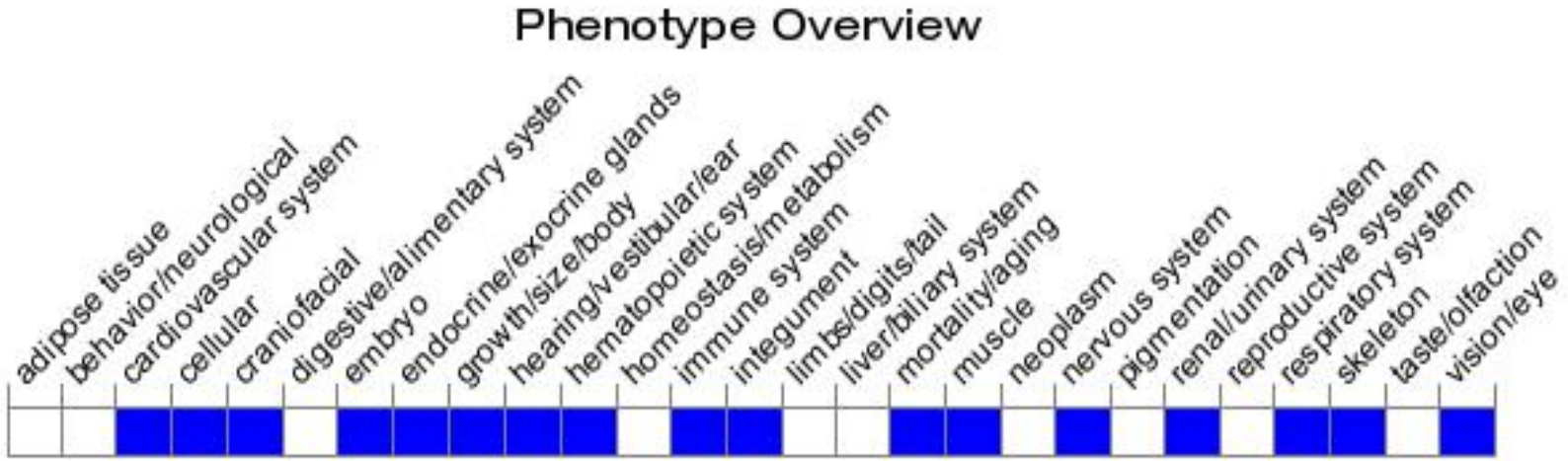
Genomic location distribution



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/).

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

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