Fermt3 Cas9-KO Strategy

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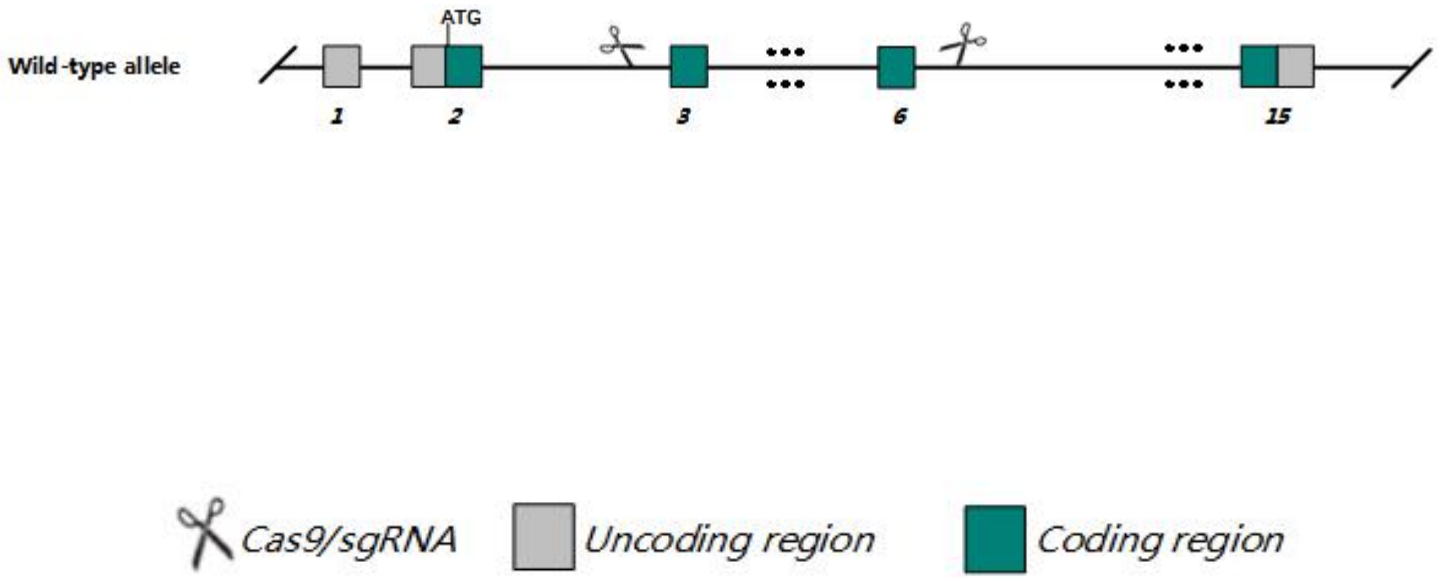
Project Overview

Project Name	***Fermt3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fermt3* gene. The schematic diagram is as follows:



Technical routes

➢ The *Fermt3* gene has 5 transcripts. According to the structure of *Fermt3* gene, exon3-exon6 of *Fermt3-201* (ENSMUST00000040772.8) transcript is recommended as the knockout region.The region contains 626bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Fermt3* gene. The brief process is as follows: CRISPR/Cas9 syster

Notice

- According to the existing MGI data,Disruption of this marker results in lethality in the first week after birth, abnormal erythropoiesis and platelet function, and severe hemorrhage.

- The *Fermt3* gene is located on the Chr19. 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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Fermt3 fermitin family member 3 [Mus musculus (house mouse)]

Gene ID: 108101, updated on 31-Jan-2019

Summary

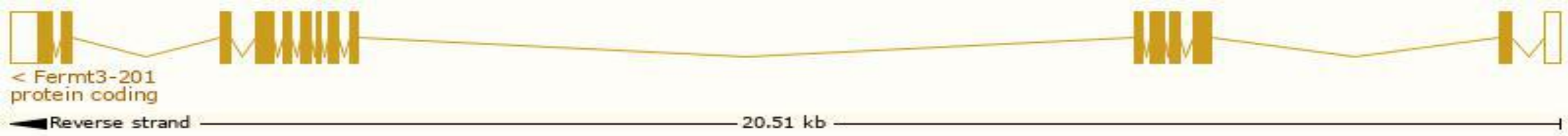
Official Symbol	Fermt3 provided by MGI
Official Full Name	fermitin family member 3 provided by MGI
Primary source	MGI:MGI:2147790
See related	Ensembl:ENSMUSG00000024965
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C79673, Kindlin3
Expression	Biased expression in thymus adult (RPKM 110.9), spleen adult (RPKM 102.1) and 13 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

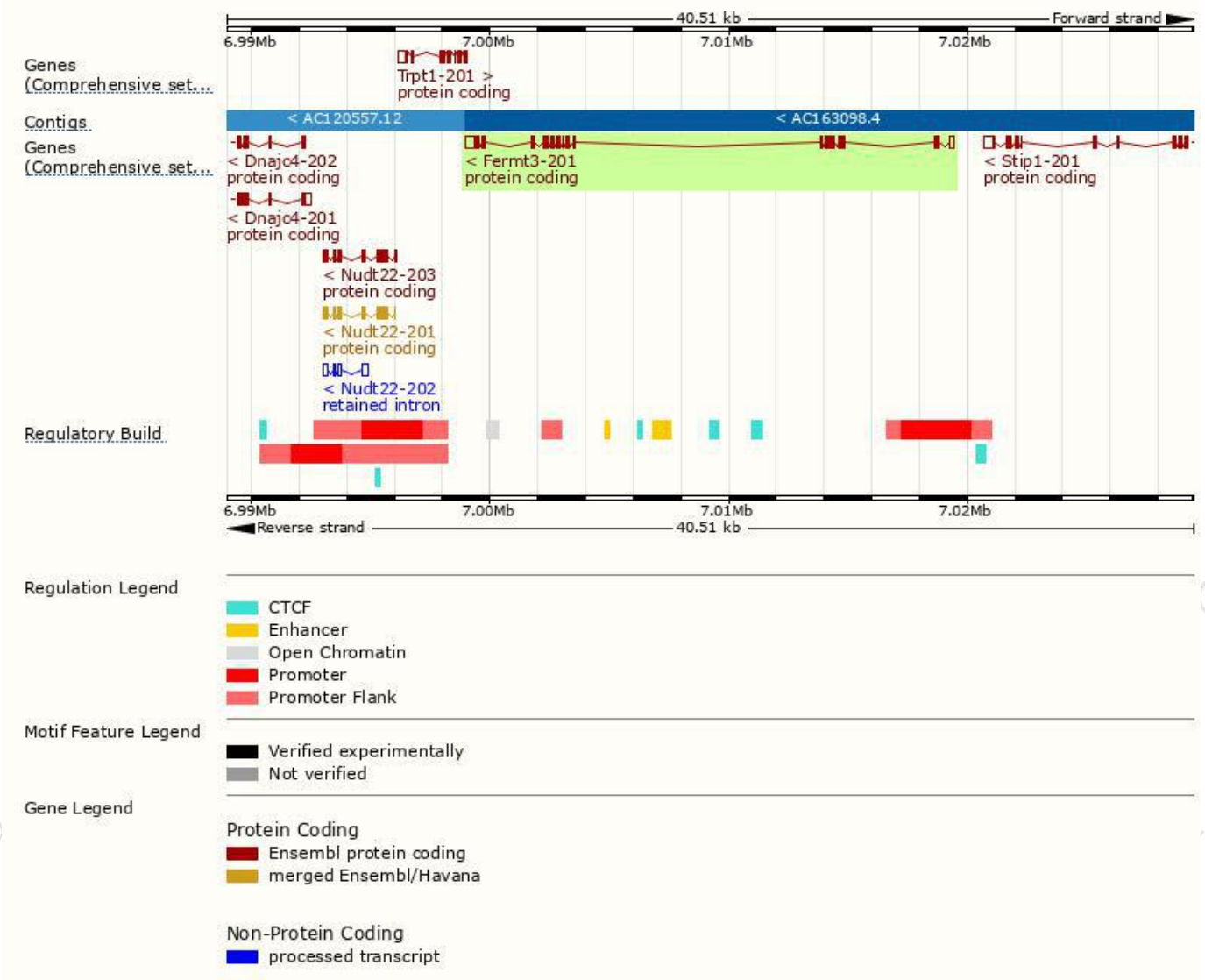
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fermt3-201	ENSMUST00000040772.8	2587	665aa	Protein coding	CCDS29518	Q3TEE6 Q8K1B8	TSL:1 GENCODE basic APPRIS P1
Fermt3-202	ENSMUST00000236188.1	379	93aa	Protein coding	-	-	CDS 3' incomplete
Fermt3-204	ENSMUST00000237960.1	2988	266aa	Nonsense mediated decay	-	-	
Fermt3-203	ENSMUST00000237888.1	2856	530aa	Nonsense mediated decay	-	-	
Fermt3-205	ENSMUST00000238171.1	2947	No protein	Retained intron	-	-	

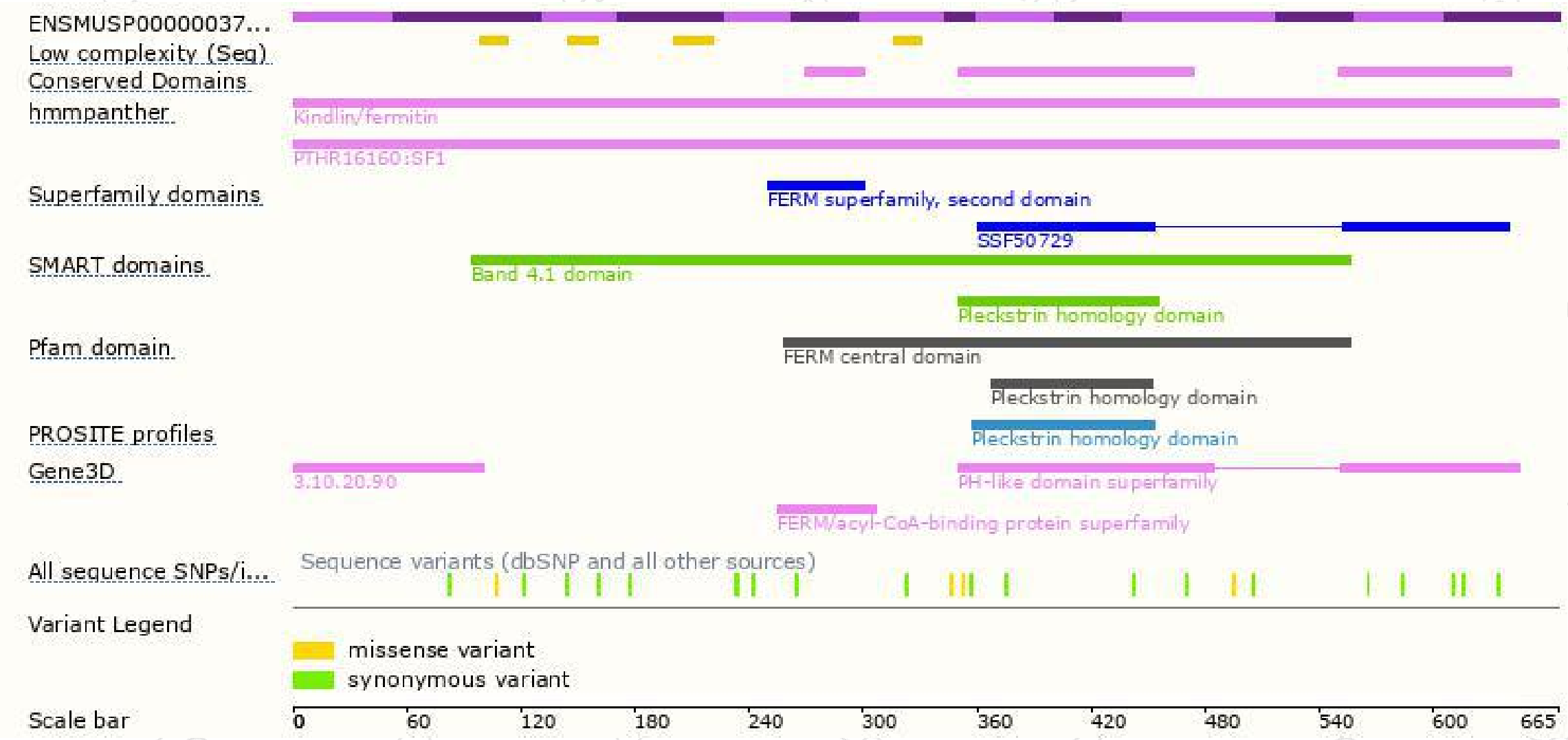
The strategy is based on the design of *Fermt3-201* transcript,The transcription is shown below



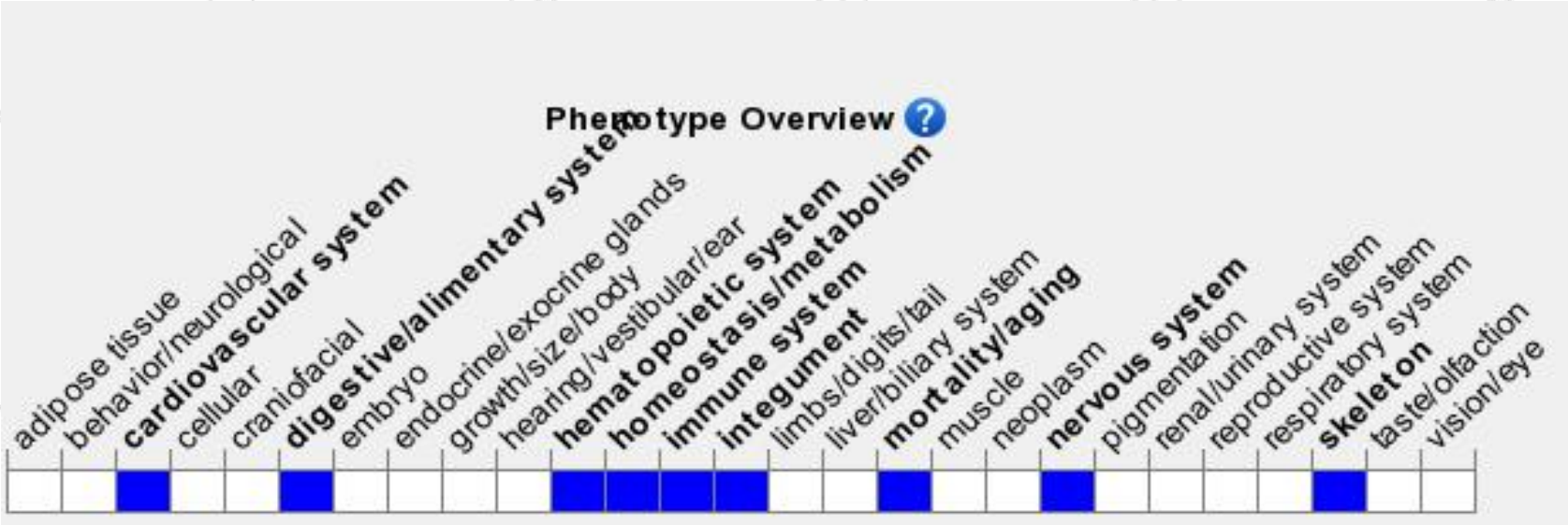
Genomic location distribution



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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