Fer Cas9-KO Strategy

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Reviewer:
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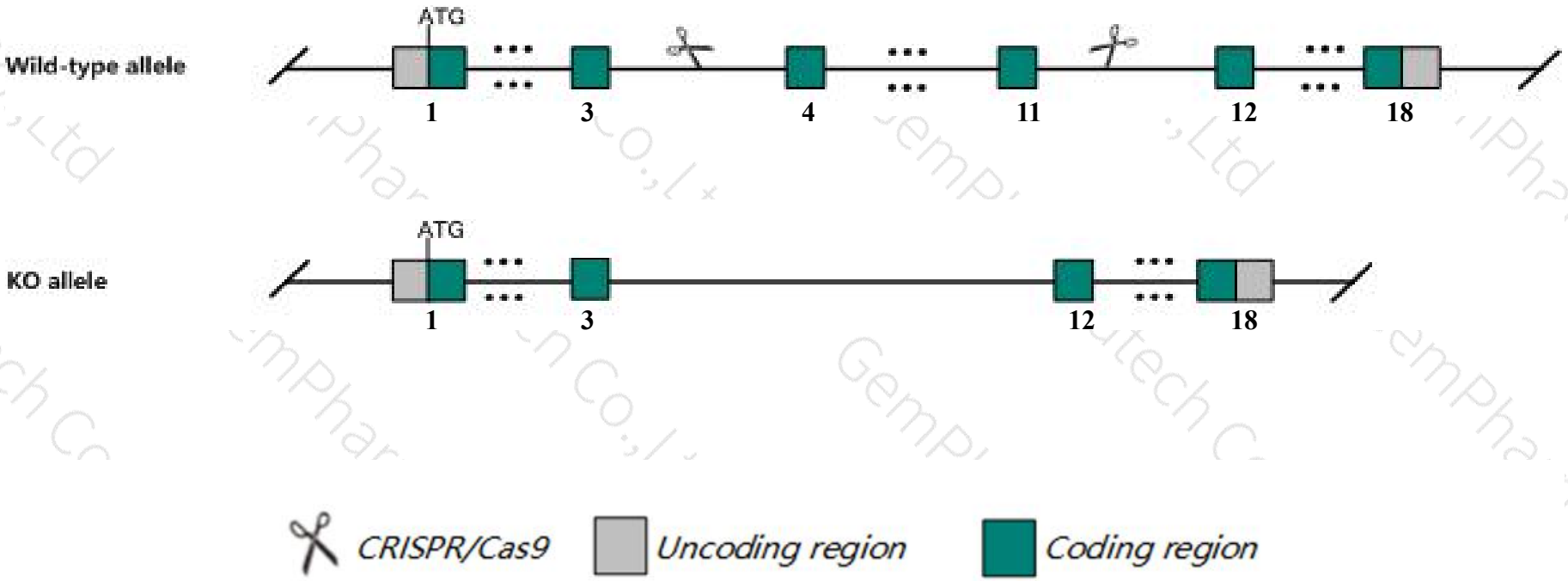
Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Fer* gene has 5 transcripts. According to the structure of *Fer* gene, exon4-exon11 of *Fer-201* (ENSMUST00000000129.13) transcript is recommended as the knockout region.The region contains 1178bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

- According to the existing MGI data,Homozygotes for a targeted mutation exhibit elevated lipopolysaccharide-induced leukocyte adhesion and migration. Mutant cells also exhibit reduced phosphorylation of cortactin

- The *Fer* 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）

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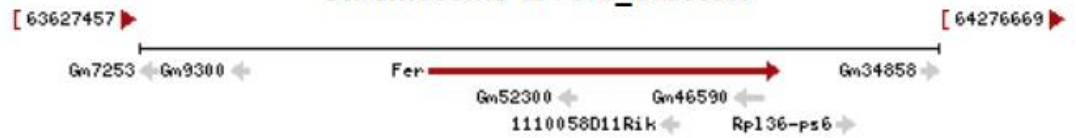
Fer fer (fms/fps related) protein kinase [*Mus musculus* (house mouse)]

Gene ID: 14158, updated on 24-Oct-2019

Summary

Official Symbol	Fer provided by MGI
Official Full Name	fer (fms/fps related) protein kinase provided by MGI
Primary source	MGI:MGI:105917
See related	Ensembl:ENSMUSG00000000127
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	Fer; Fert; Fert2; AV082135; C330004K01Rik
Expression	Ubiquitous expression in CNS E18 (RPKM 3.4), whole brain E14.5 (RPKM 3.1) and 28 other tissues See more
Orthologs	human all

Chromosome 17 - NC_000083.6

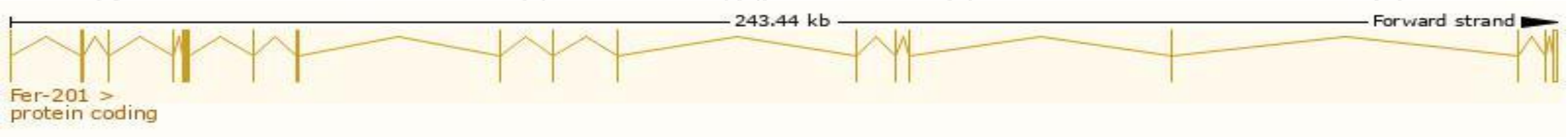


Transcript information（Ensembl）

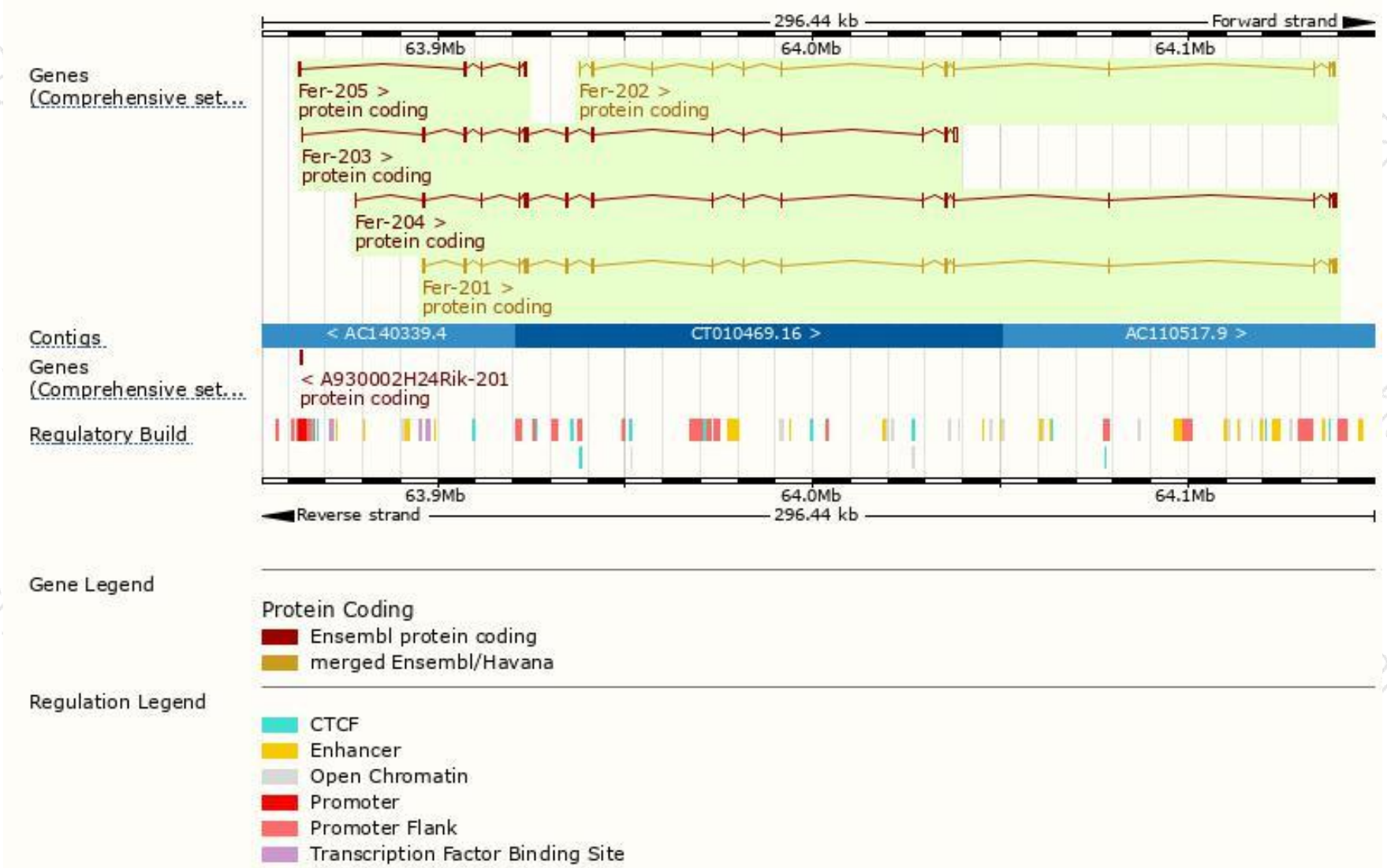
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Fer-201	ENSMUST00000000129.13	2973	823aa	ENSMUSP00000000129.6	Protein coding	CCDS28936	P70451	TSL:1 GENCODE basic APPRIS P1
Fer-202	ENSMUST00000038080.6	2068	453aa	ENSMUSP00000037418.5	Protein coding	CCDS28937	P70451	TSL:1 GENCODE basic
Fer-203	ENSMUST00000232945.1	2948	645aa	ENSMUSP00000156416.1	Protein coding	-	Q3TZJ5	GENCODE basic
Fer-204	ENSMUST00000233190.1	2913	765aa	ENSMUSP00000156523.1	Protein coding	-	P70451	GENCODE basic
Fer-205	ENSMUST00000233225.1	657	160aa	ENSMUSP00000156905.1	Protein coding	-	A0A3B2W4F1	CDS 3' incomplete

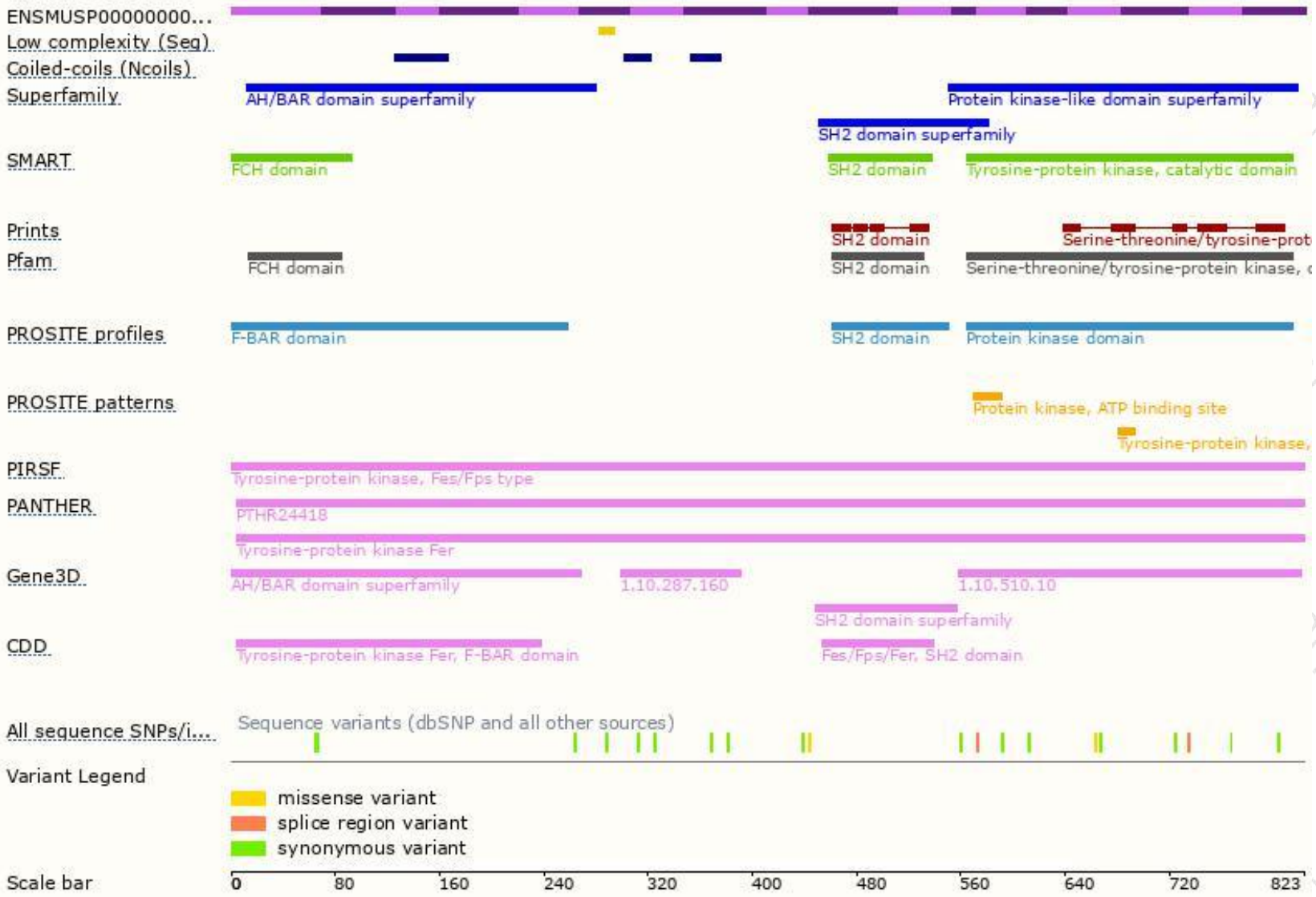
The strategy is based on the design of *Fer-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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