Efhc1 Cas9-KO Strategy

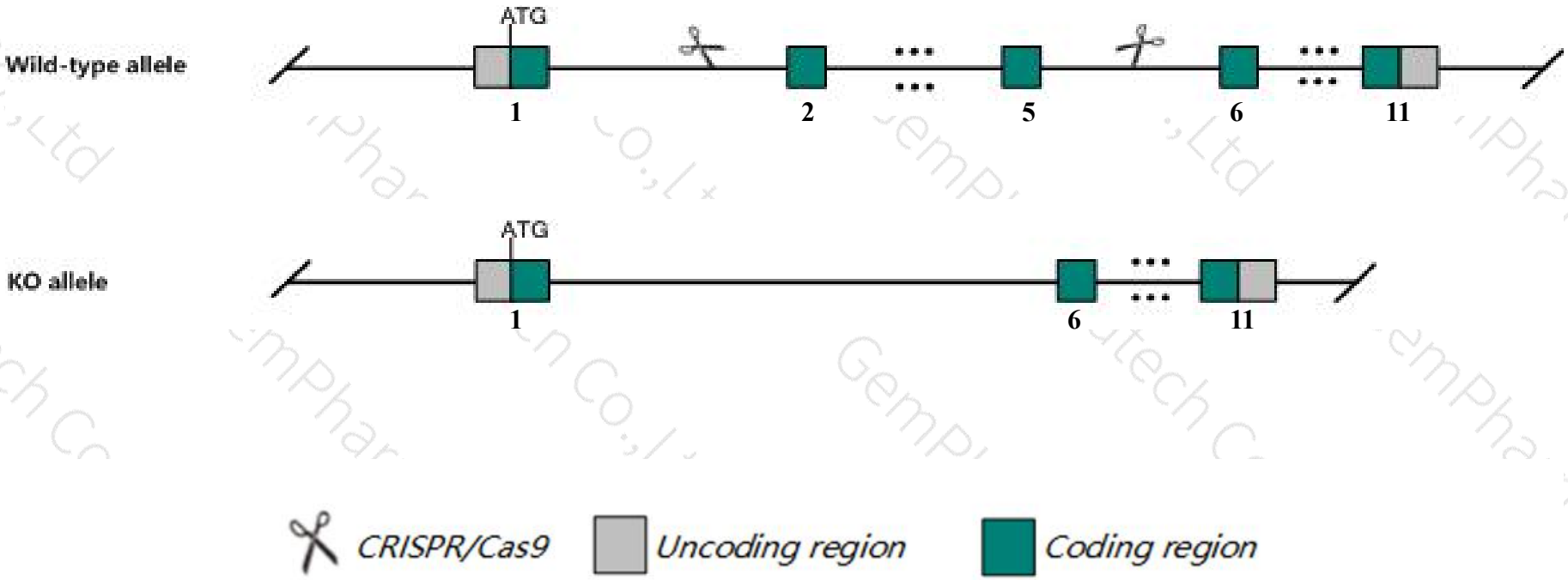
Designer:	**JiaYu**
Reviewer:	**Xiaojing Li**
Design Date:	**2020-2-11**

Project Overview

Project Name	***Efhc1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Efhc1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Efhc1* gene has 2 transcripts. According to the structure of *Efhc1* gene, exon2-exon5 of *Efhc1-201* (ENSMUST00000038447.5) transcript is recommended as the knockout region.The region contains 853bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Efhc1* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ According to the existing MGI data,Mice homozygous or heterozygous for a null mutation display myoclonus and increased susceptibility to pharmacologically induced seizures. Homozygous mice also display enlarged brain ventricles and reduced hippocampal size.

➢ The *Efhc1* gene is located on the Chr1. 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）

集萃药康 GemPharmatech

Efhc1 EF-hand domain (C-terminal) containing 1 [Mus musculus (house mouse)]

Gene ID: 71877, updated on 31-Jan-2019

Summary

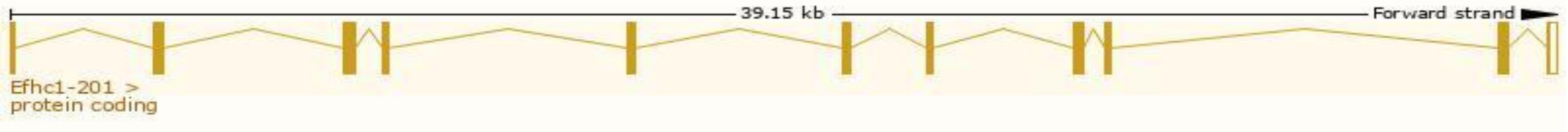
Official Symbol	Efhc1 provided by MGI
Official Full Name	EF-hand domain (C-terminal) containing 1 provided by MGI
Primary source	MGI:MGI:1919127
See related	Ensembl:ENSMUSG00000041809
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700029F22Rik, mRib72-1, myoclonin1
Expression	Biased expression in testis adult (RPKM 84.4) and ovary adult (RPKM 3.4) See more
Orthologs	human all

Transcript information（Ensembl）

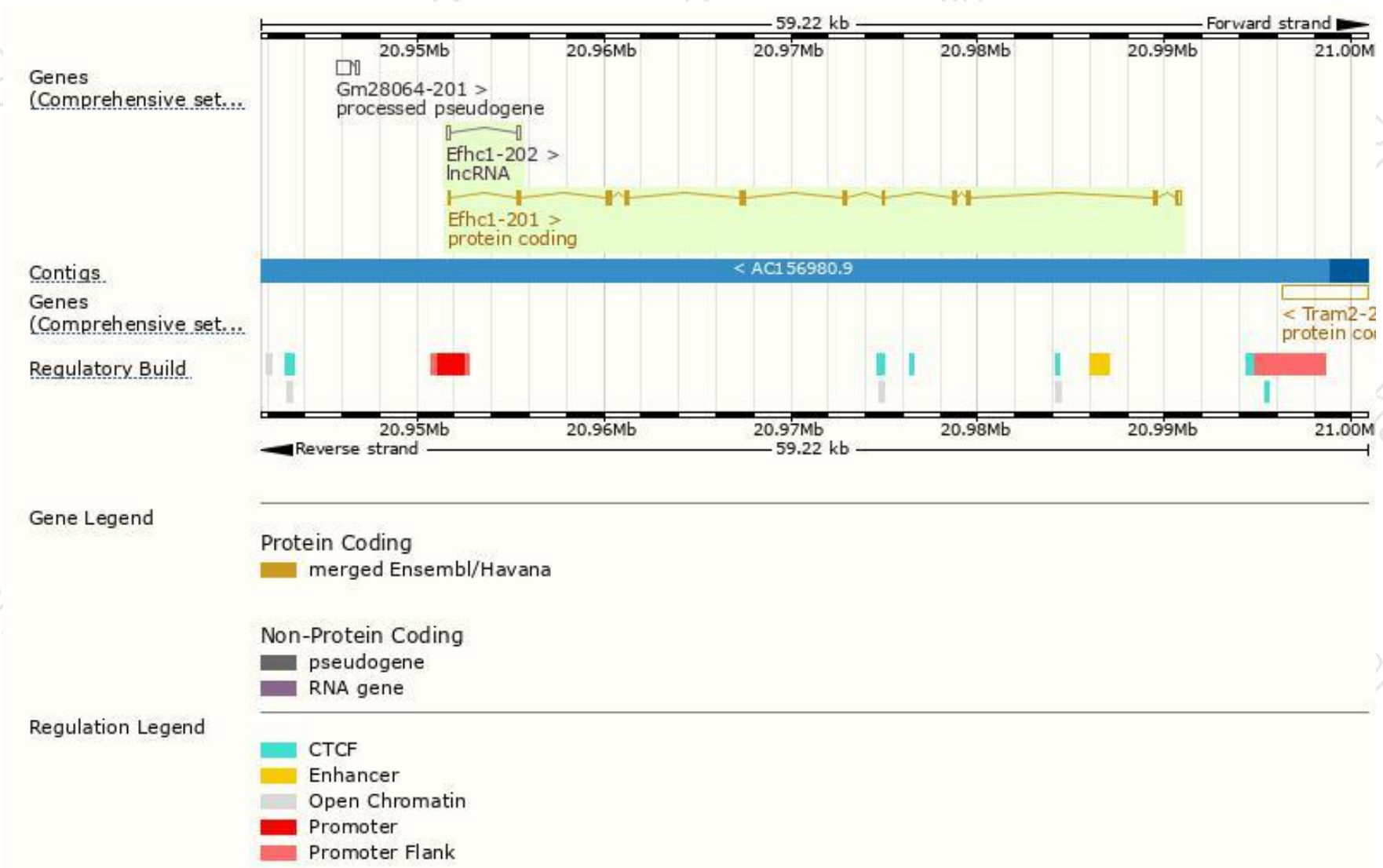
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Efhc1-201	ENSMUST00000038447.5	2146	648aa	Protein coding	CCDS48227	B2CKC6	TSL:1 GENCODE basic APPRIS P1
Efhc1-202	ENSMUST00000160782.1	357	No protein	lncRNA	-	-	TSL:3

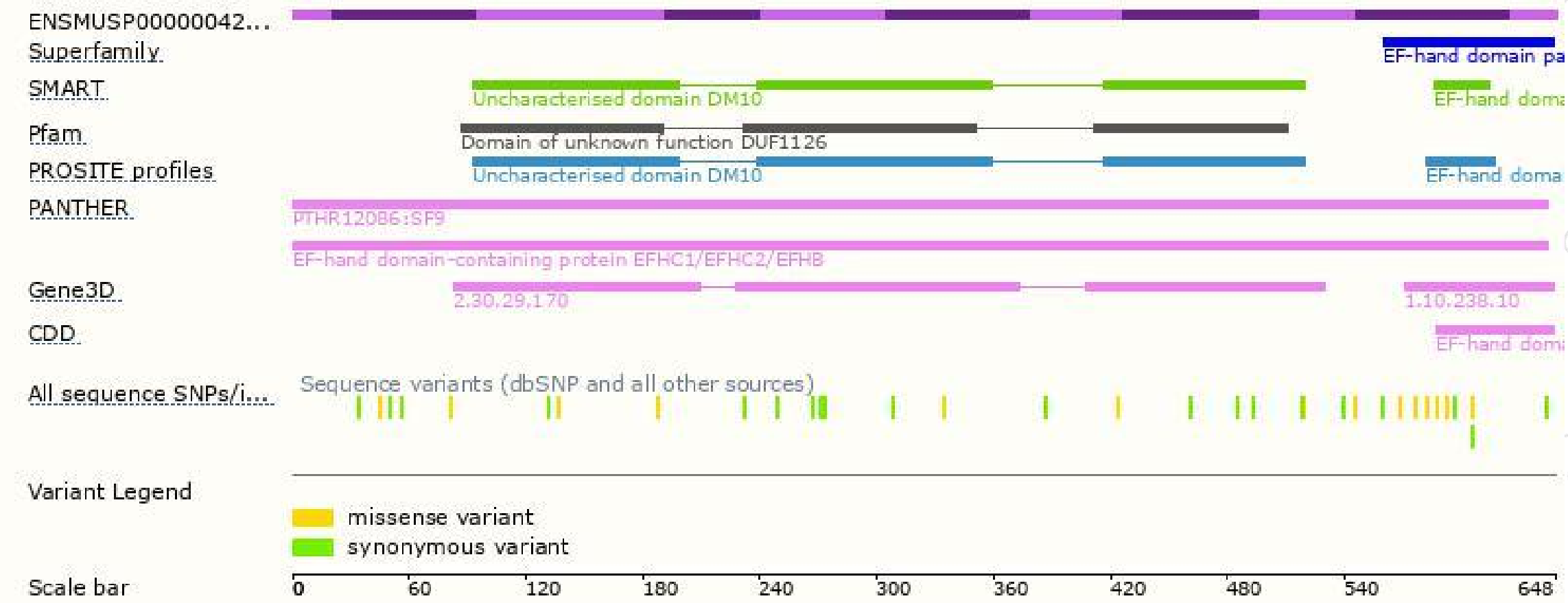
The strategy is based on the design of *Efhc1-201* transcript,The transcription is shown below



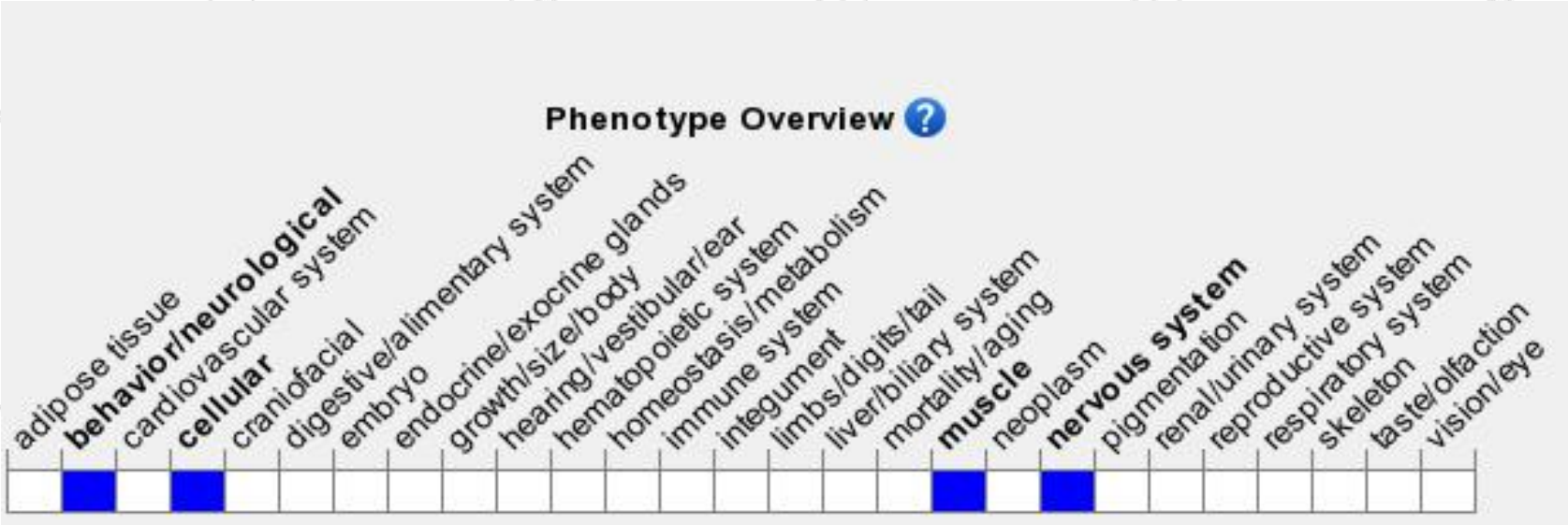
Genomic location distribution



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,Mice homozygous or heterozygous for a null mutation display myoclonus and increased susceptibility to pharmacologically induced seizures. Homozygous mice also display enlarged brain ventricles and reduced hippocampal size.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd