

Efhd2 Cas9-CKO Strategy

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Project Overview

Project Name

Efhd2

Project type

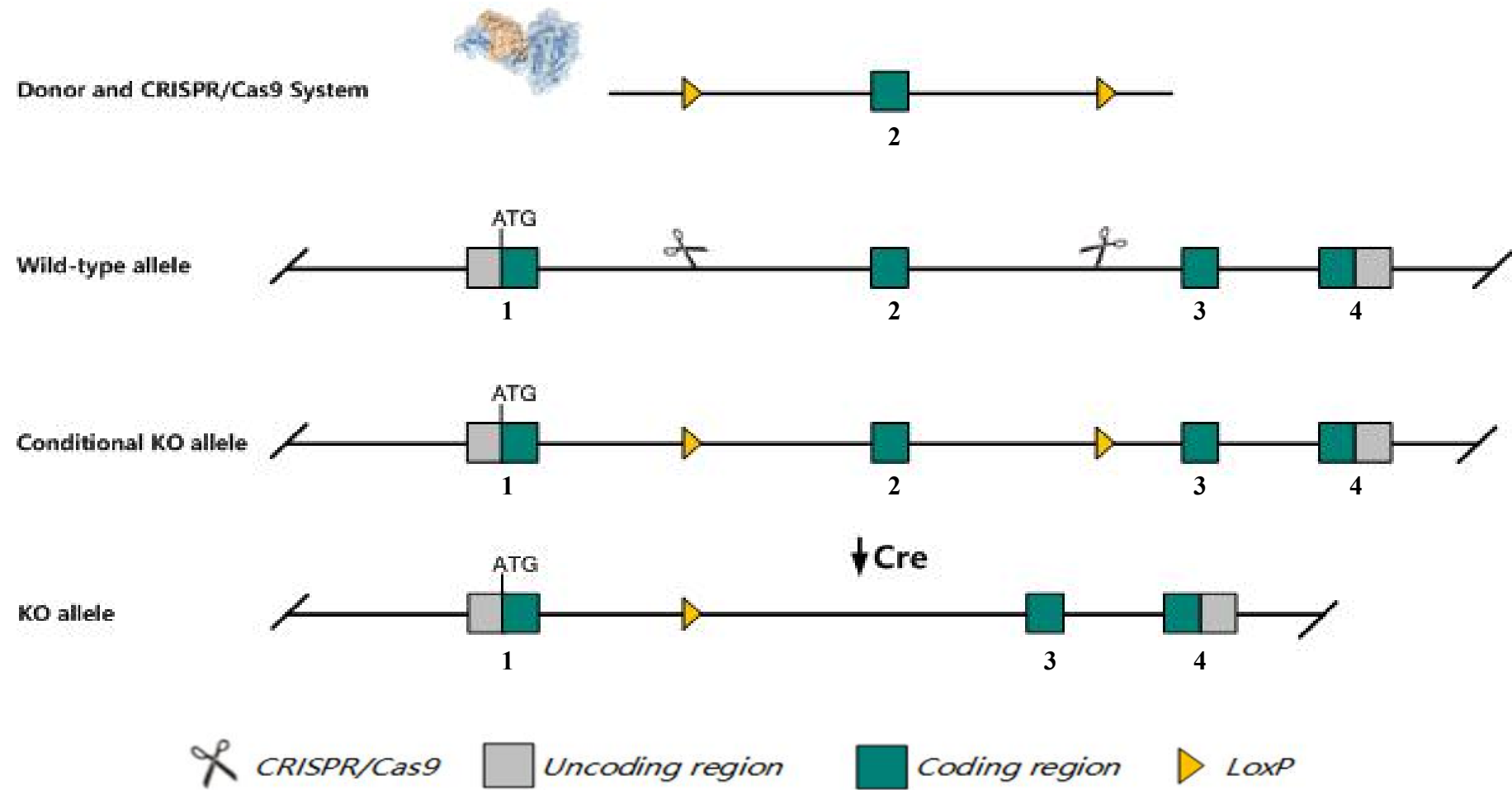
Cas9-CKO

Strain background

C57BL/6J

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Efhd2* gene. The schematic diagram is as follows:



The *Efh2* gene has 1 transcript. According to the structure of *Efh2* gene, exon2 of *Efh2-201* (ENSMUST00000036854.3) transcript is recommended as the knockout region. The region contains 148bp coding sequence. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Efh2* gene. The brief process is as follows: CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6J 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/6J 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.

According to the existing MGI data, Mice homozygous for a knock-out allele exhibit enhanced germinal center responses and humoral type 2 immunity.

The *Efh2* gene is located on the Chr4. 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.

Efhd2 EF hand domain containing 2 [Mus musculus (house mouse)]

Gene ID: 27984, updated on 31-Jan-2019

Summary



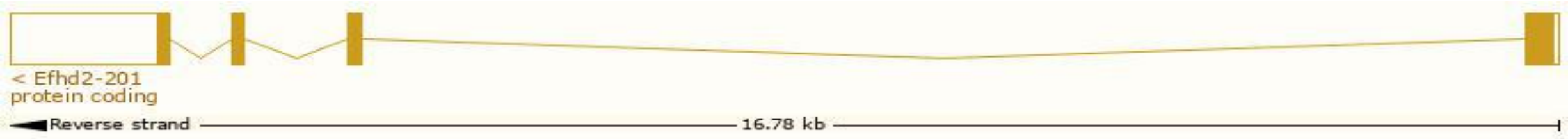
Official Symbol	Efhd2 provided by MGI
Official Full Name	EF hand domain containing 2 provided by MGI
Primary source	MGI:MGI:106504
See related	Ensembl:ENSMUSG00000040659
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2600015J22Rik, AA408606, D4Wsu27e
Expression	Ubiquitous expression in duodenum adult (RPKM 142.8), small intestine adult (RPKM 133.3) and 28 other tissues See more
Orthologs	human all

Transcript information Ensembl

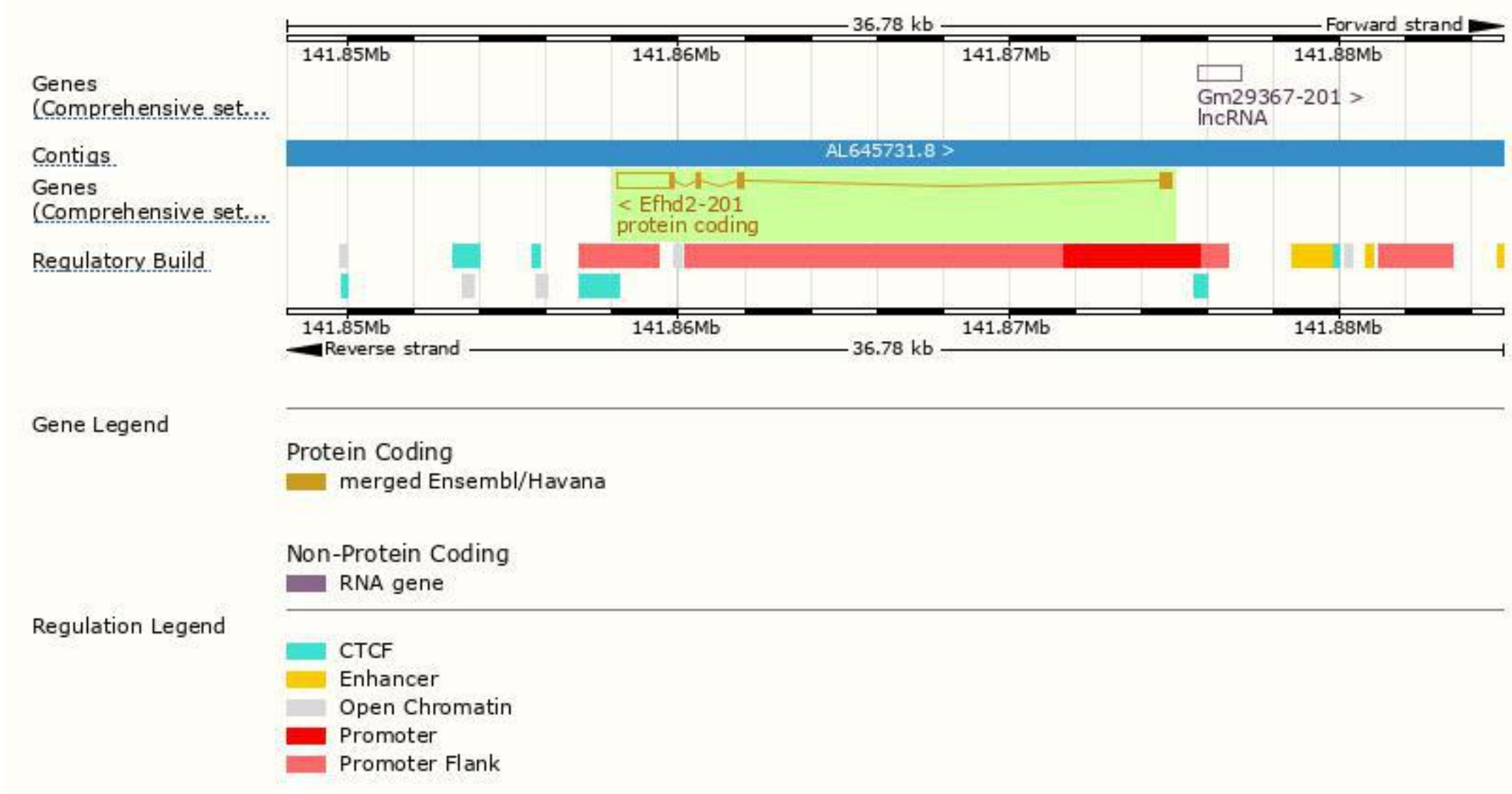
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Efhd2-201	ENSMUST00000036854.3	2381	240aa	Protein coding	CCDS18885	Q8C845	TSL:1 GENCODE basic APPRIS P1

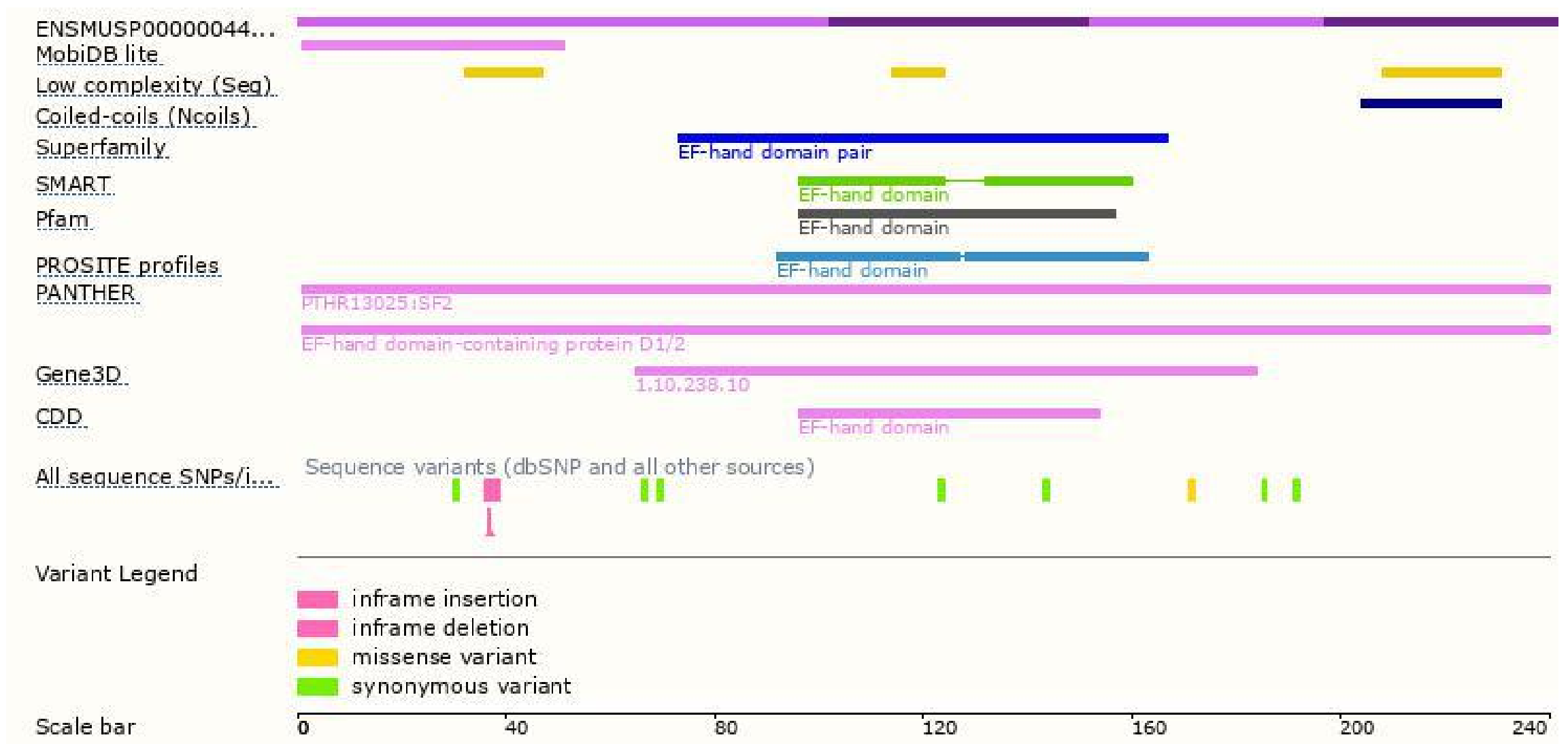
The strategy is based on the design of *Efhd2-201* transcript,The transcription is shown below



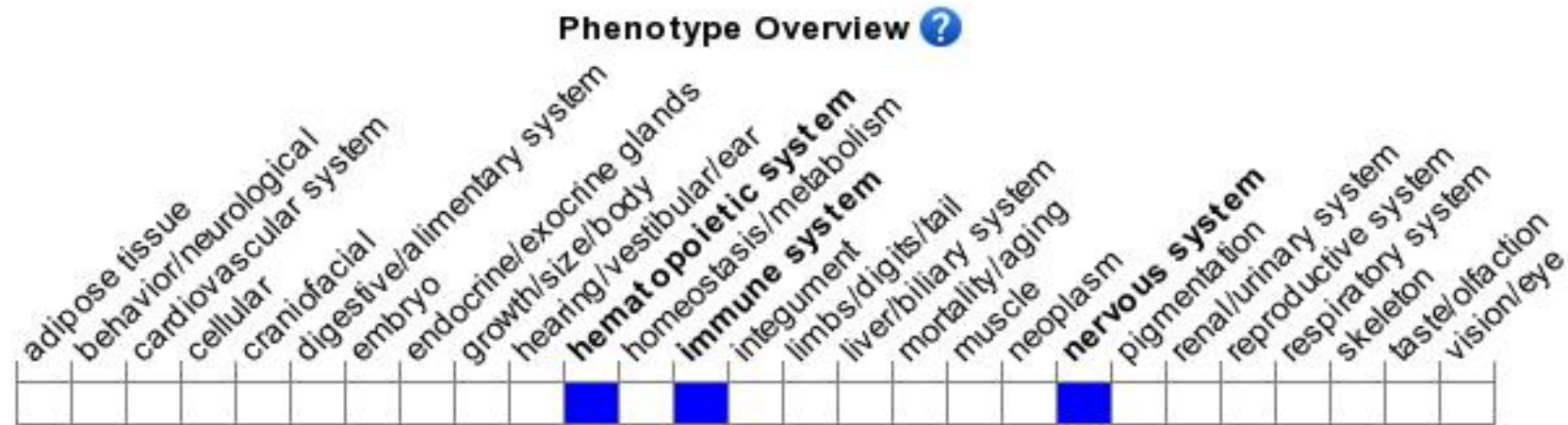
Genomic location distribution



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 for a knock-out allele exhibit enhanced germinal center responses and humoral type 2 immunity.

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