

Efr3b Cas9-CKO Strategy

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Project Overview

Project Name

Efr3b

Project type

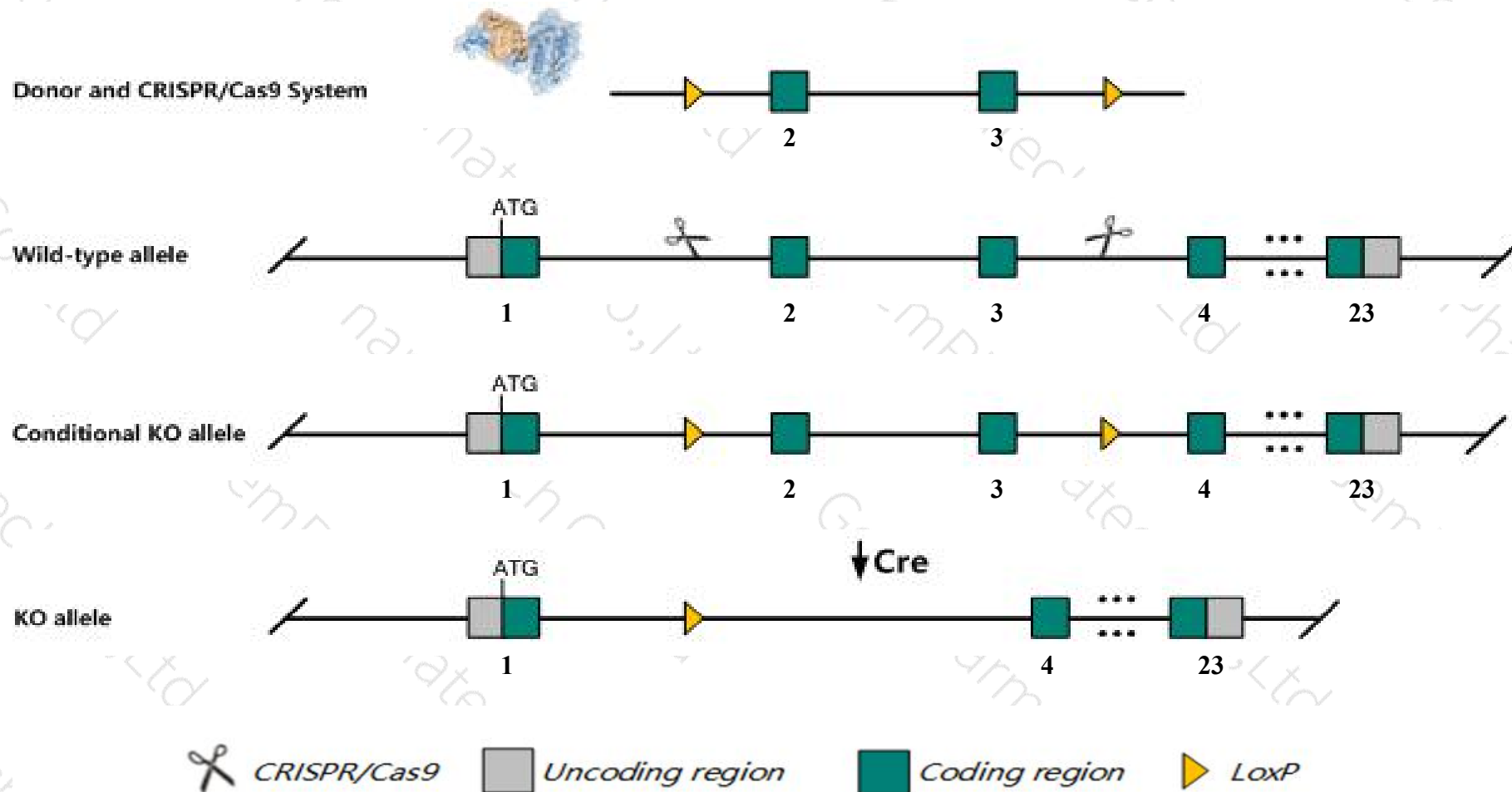
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Efr3b* gene. The schematic diagram is as follows:



- The *Efr3b* gene has 6 transcripts. According to the structure of *Efr3b* gene, exon2-exon3 of *Efr3b-201* (ENSMUST00000111178.1) transcript is recommended as the knockout region. The region contains 205bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Efr3b* 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

- The *Efr3b* gene is located on the Chr12. 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)

Efr3b EFR3 homolog B [Mus musculus (house mouse)]

Gene ID: 668212, updated on 13-Mar-2020

Summary



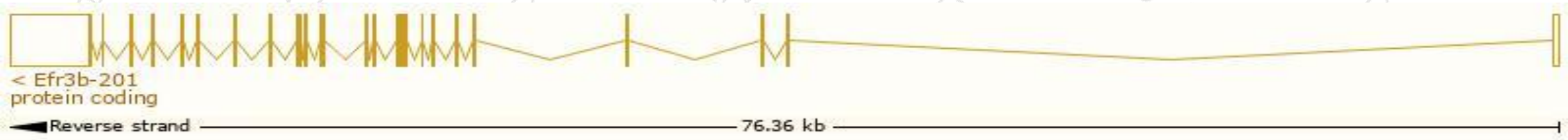
Official Symbol	Efr3b provided by MGI
Official Full Name	EFR3 homolog B provided by MGI
Primary source	MGI:MGI:2444851
See related	Ensembl:ENSMUSG00000020658
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI852640, C030014M07Rik, mKIAA0953
Expression	Biased expression in cerebellum adult (RPKM 20.2), frontal lobe adult (RPKM 17.7) and 13 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

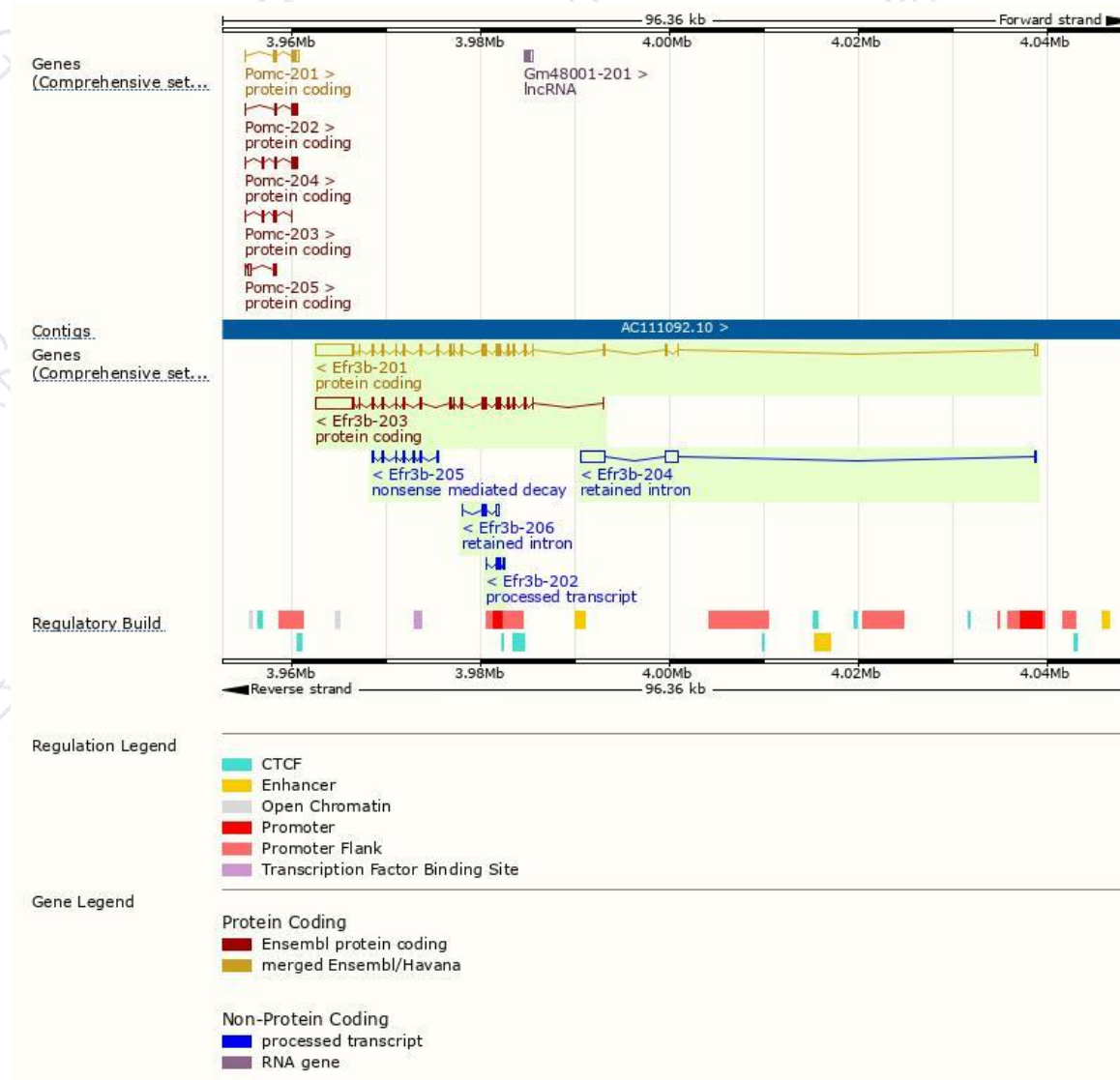
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Efr3b-201	ENSMUST00000111178.1	6547	817aa	Protein coding	CCDS49016	Q6ZQ18	TSL:1 GENCODE basic APPRIS P1
Efr3b-203	ENSMUST00000218166.1	5861	657aa	Protein coding	-	A0A1W2P7T9	CDS 5' incomplete TSL:1
Efr3b-205	ENSMUST00000219331.1	742	86aa	Nonsense mediated decay	-	A0A1W2P7E0	CDS 5' incomplete TSL:3
Efr3b-202	ENSMUST00000217677.1	427	No protein	Processed transcript	-	-	TSL:3
Efr3b-204	ENSMUST00000218545.1	3973	No protein	Retained intron	-	-	TSL:1
Efr3b-206	ENSMUST00000219797.1	437	No protein	Retained intron	-	-	TSL:2

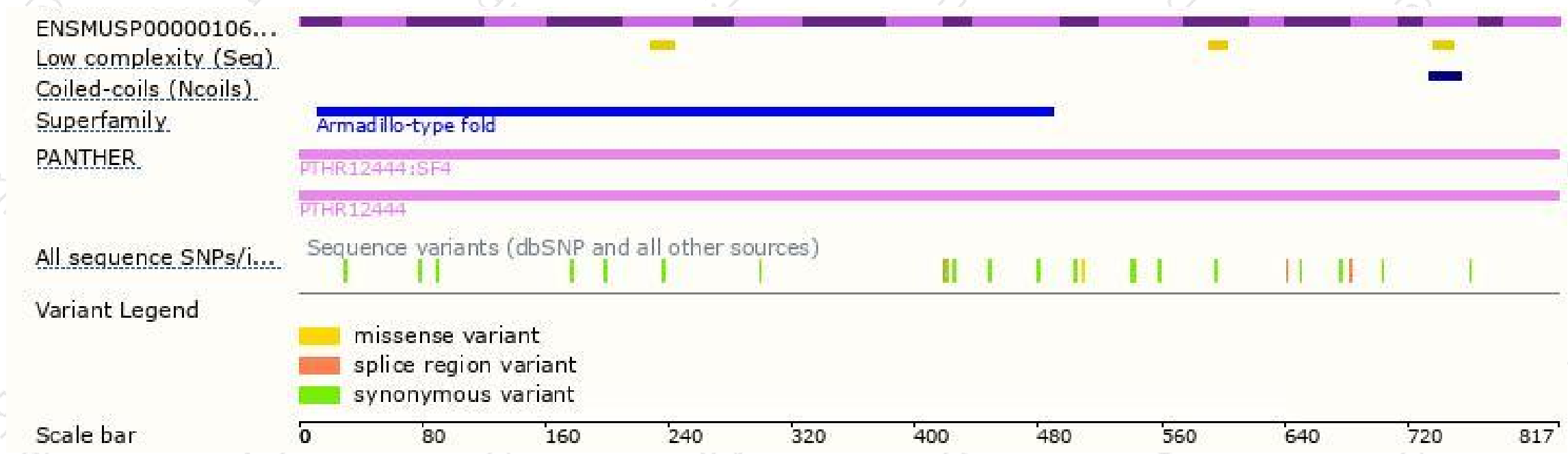
The strategy is based on the design of *Efr3b-201* transcript,the transcription is shown below:



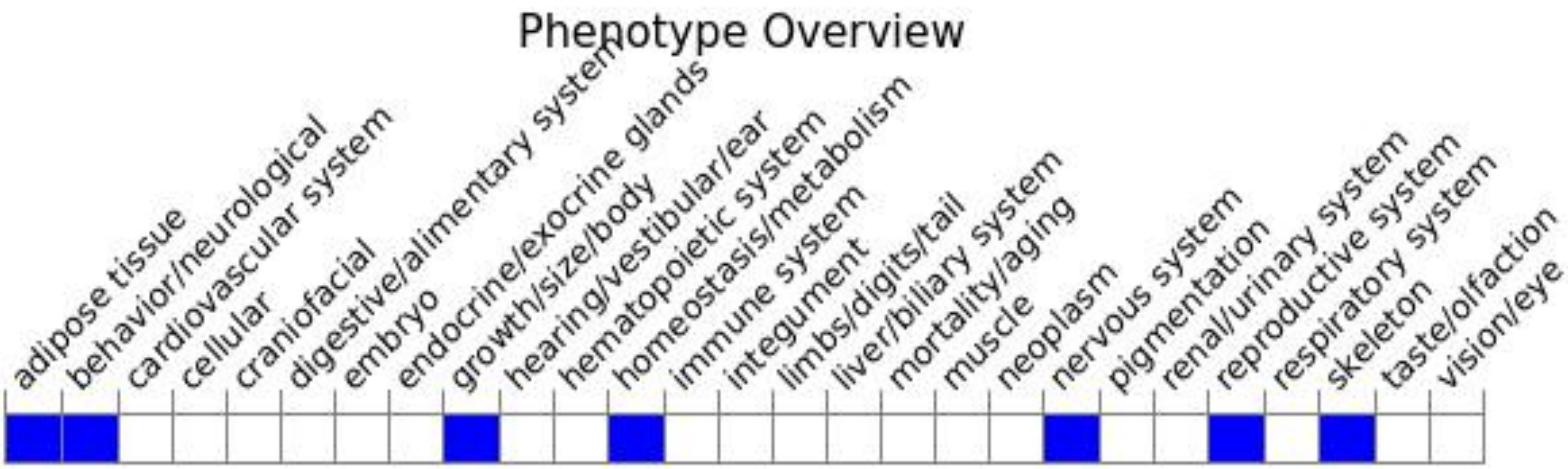
Genomic location distribution



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/>).

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

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