

Eif3k Cas9-CKO Strategy

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Project Overview

Project Name

Eif3k

Project type

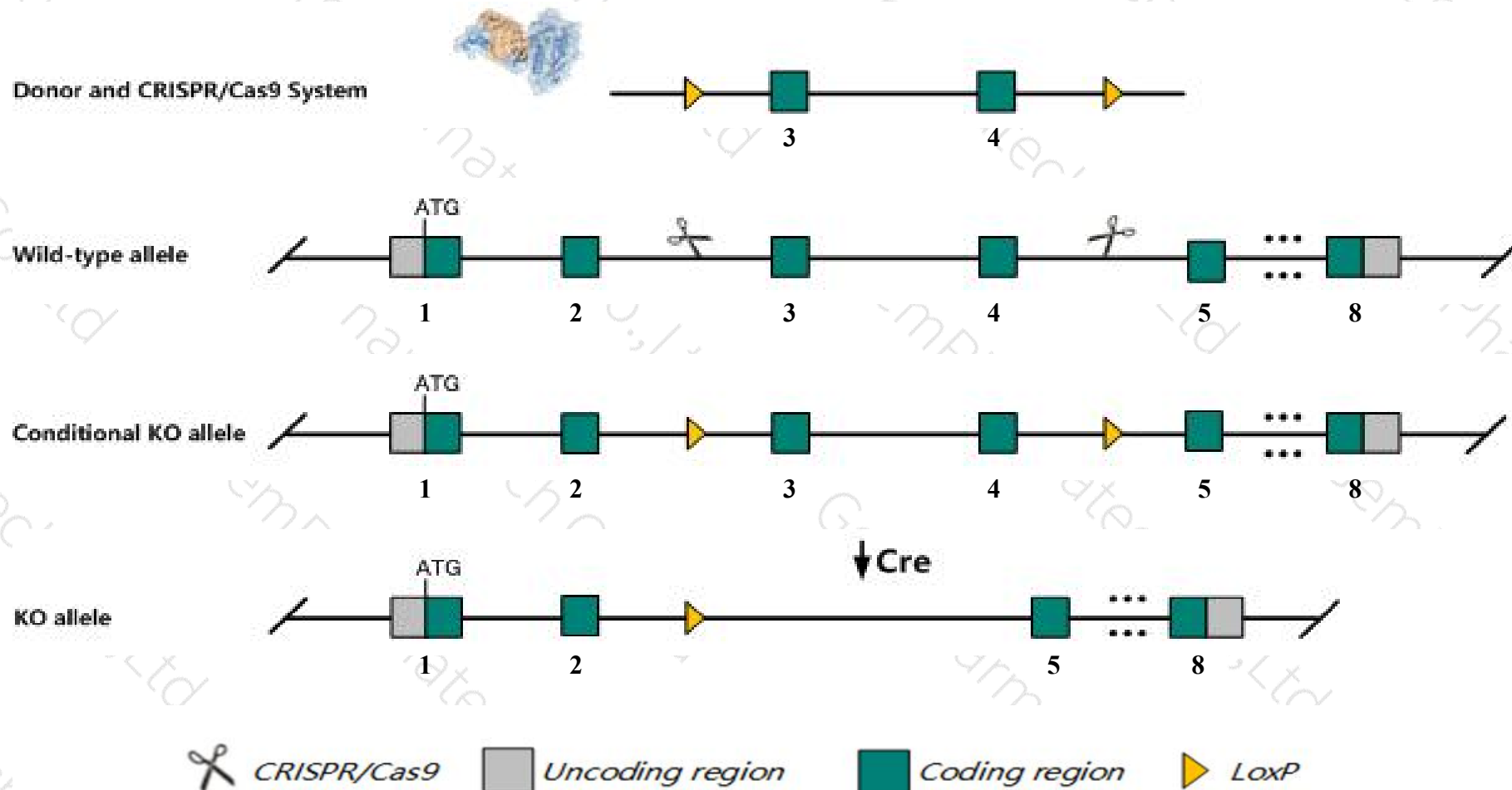
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Eif3k* gene. The schematic diagram is as follows:



Technical routes

- The *Eif3k* gene has 6 transcripts. According to the structure of *Eif3k* gene, exon3-exon4 of *Eif3k-201* (ENSMUST00000066070.6) transcript is recommended as the knockout region. The region contains 196bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Eif3k* 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.

- The *Eif3k* gene is located on the Chr7. 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.
- The knockout area of this strategy is about 3.5kb away from the 5-terminal of Map4k1, which may affect its 5-terminal regulation after knockout.
- 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)

Eif3k eukaryotic translation initiation factor 3, subunit K [Mus musculus (house mouse)]

Gene ID: 73830, updated on 13-Mar-2020

Summary



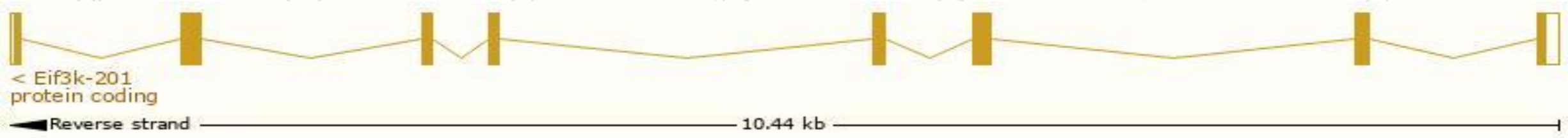
Official Symbol	Eif3k provided by MGI
Official Full Name	eukaryotic translation initiation factor 3, subunit K provided by MGI
Primary source	MGI:MGI:1921080
See related	Ensembl:ENSMUSG00000053565
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1200009C21Rik, Eif3s12
Expression	Ubiquitous expression in liver E14.5 (RPKM 97.7), placenta adult (RPKM 93.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

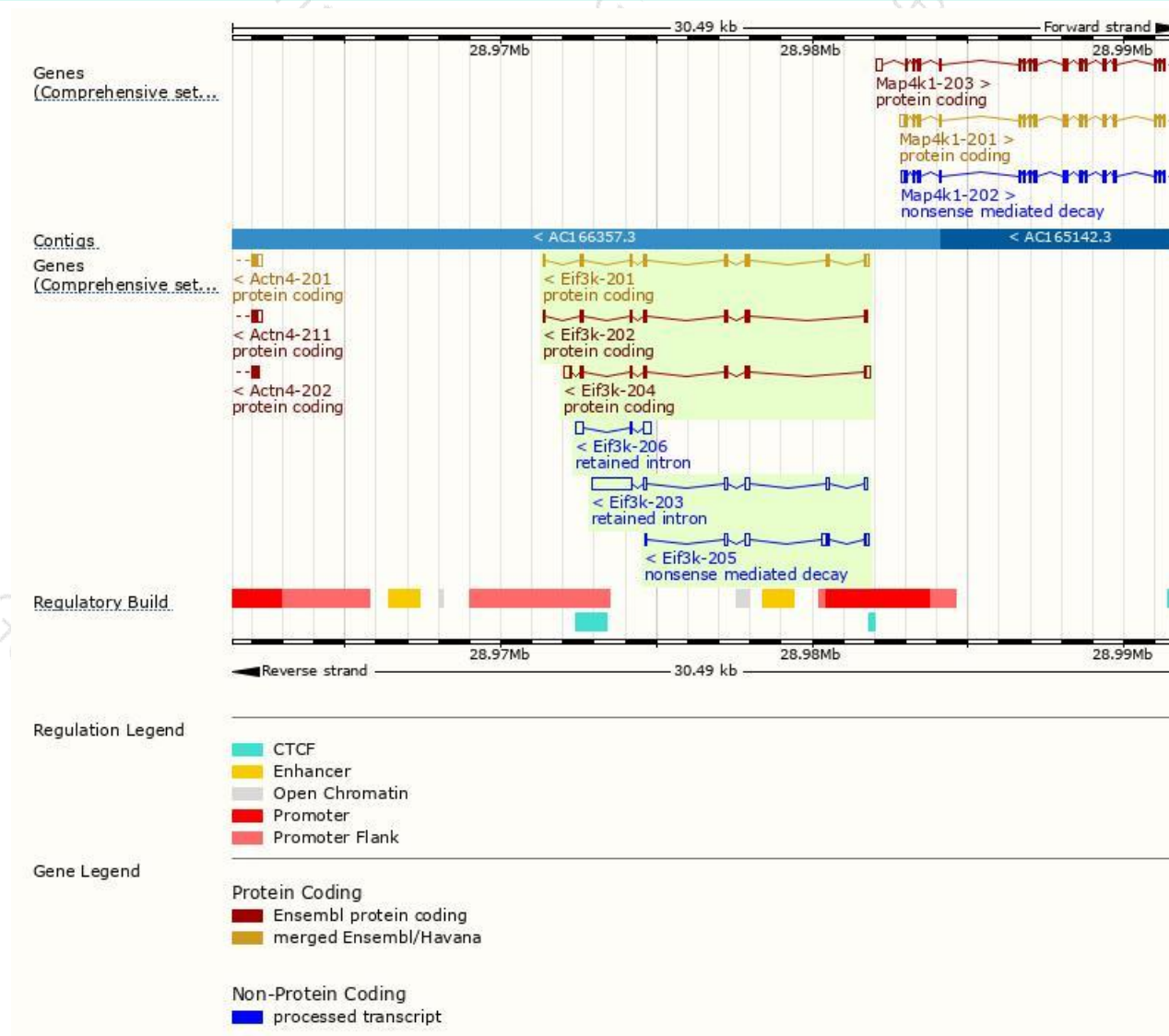
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Eif3k-204	ENSMUST00000208616.1	909	192aa	Protein coding	CCDS85255	Q3TY56	TSL:1 GENCODE basic
Eif3k-201	ENSMUST00000066070.6	774	218aa	Protein coding	CCDS21062	Q9DBZ5	TSL:1 GENCODE basic APPRIS P1
Eif3k-202	ENSMUST00000207683.1	647	185aa	Protein coding	CCDS85254	Q9DBZ5	TSL:1 GENCODE basic
Eif3k-205	ENSMUST00000208707.1	578	53aa	Nonsense mediated decay	-	A0A140LJ59	TSL:5
Eif3k-203	ENSMUST00000207762.1	1782	No protein	Retained intron	-	-	TSL:1
Eif3k-206	ENSMUST00000208810.1	537	No protein	Retained intron	-	-	TSL:2

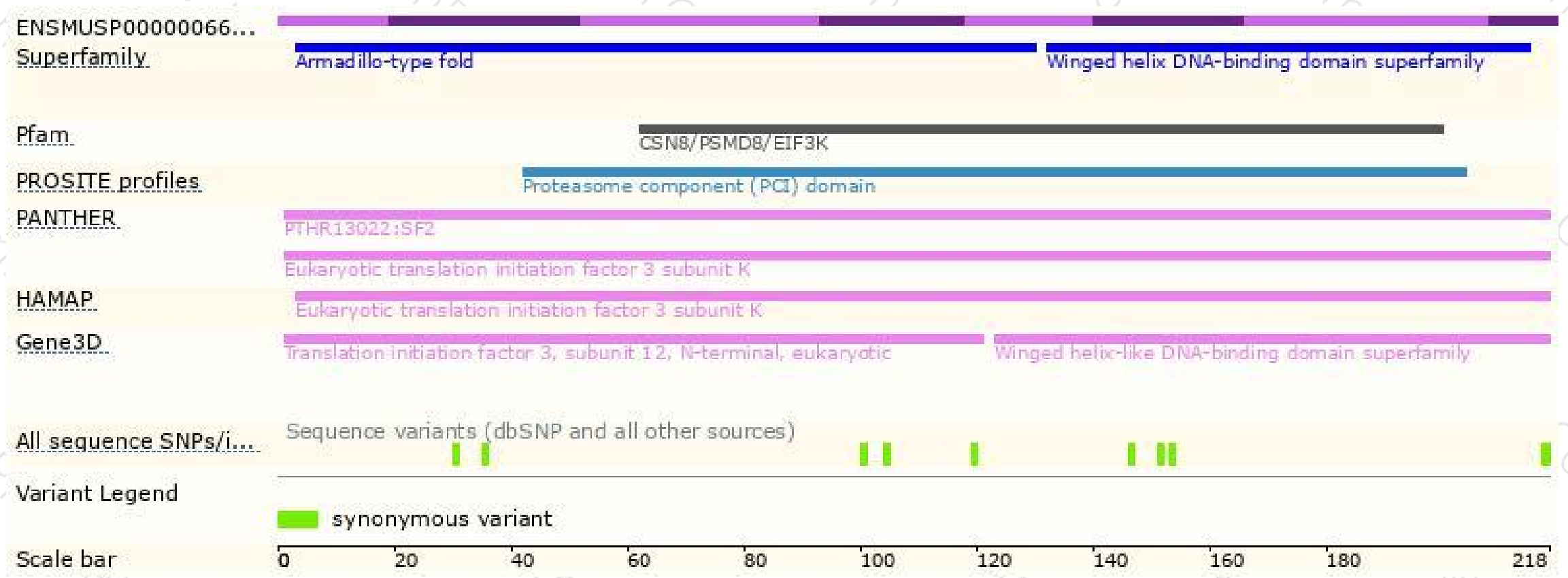
The strategy is based on the design of *Eif3k-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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