

Fgf4 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Fgf4

Project type

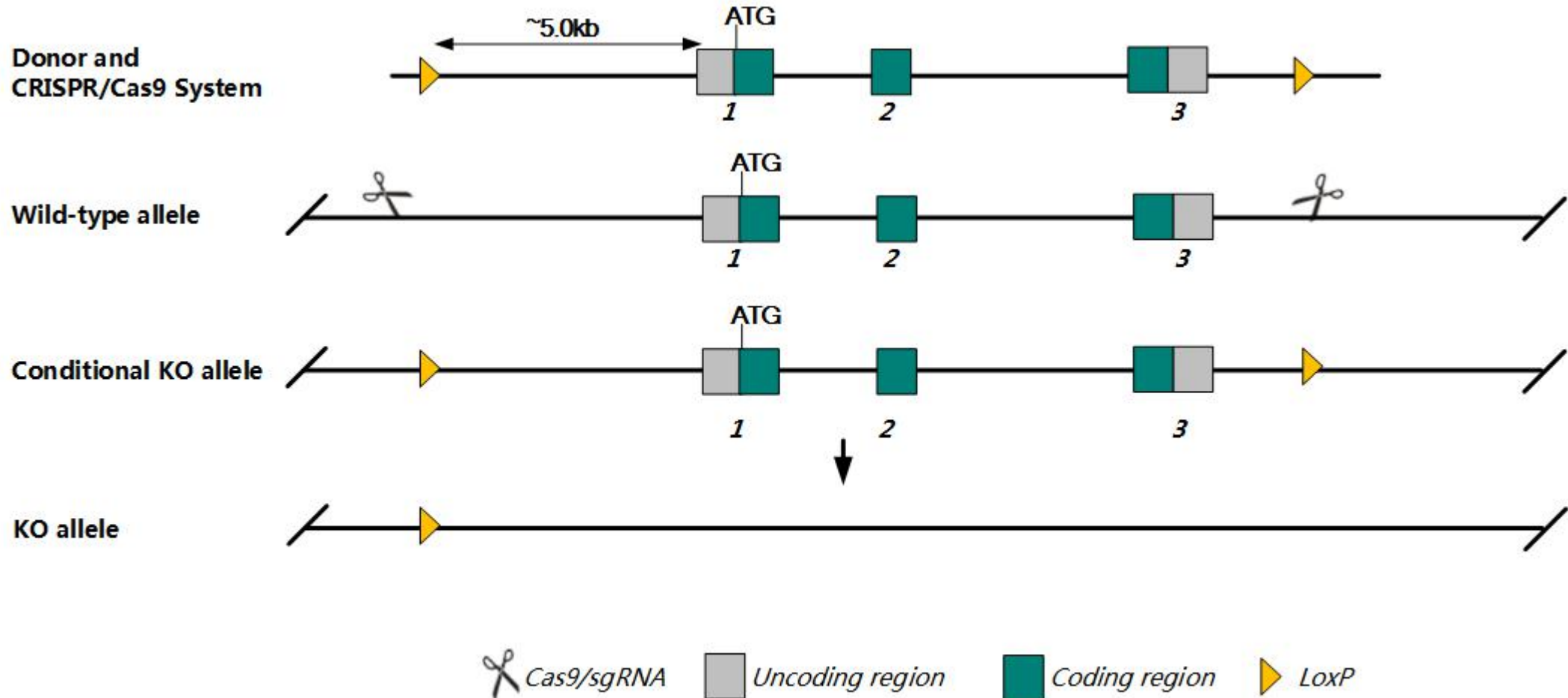
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fgf4* gene. The schematic diagram is as follows:



- The *Fgf4* gene has 2 transcript. According to the structure of *Fgf4* gene, exon1-exon3 of *Fgf4-201* (ENSMUST00000060336.4) transcript is recommended as the knockout region. The region contains all coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fgf4* 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.

- Embryos homozygous for a knock-out allele undergo implantation but degenerate shortly thereafter. In vitro, cultured embryos show severely impaired proliferation of the inner cell mass.
- The *Fgf4* 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.
- 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)

Fgf4 fibroblast growth factor 4 [*Mus musculus* (house mouse)]

Gene ID: 14175, updated on 7-Aug-2018

Summary

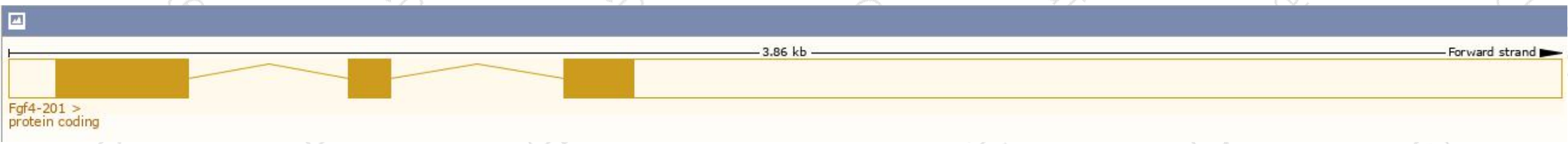
Official Symbol	Fgf4 provided by MGI
Official Full Name	fibroblast growth factor 4 provided by MGI
Primary source	MGI:MGI:95518
See related	Ensembl:ENSMUSG000000050917 Vega:OTTMUSG000000059887
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	KS3; hst; Fgfk; Hst1; kFGF; Fgf-4; hst-1; HBGF-4; Hstf-1
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

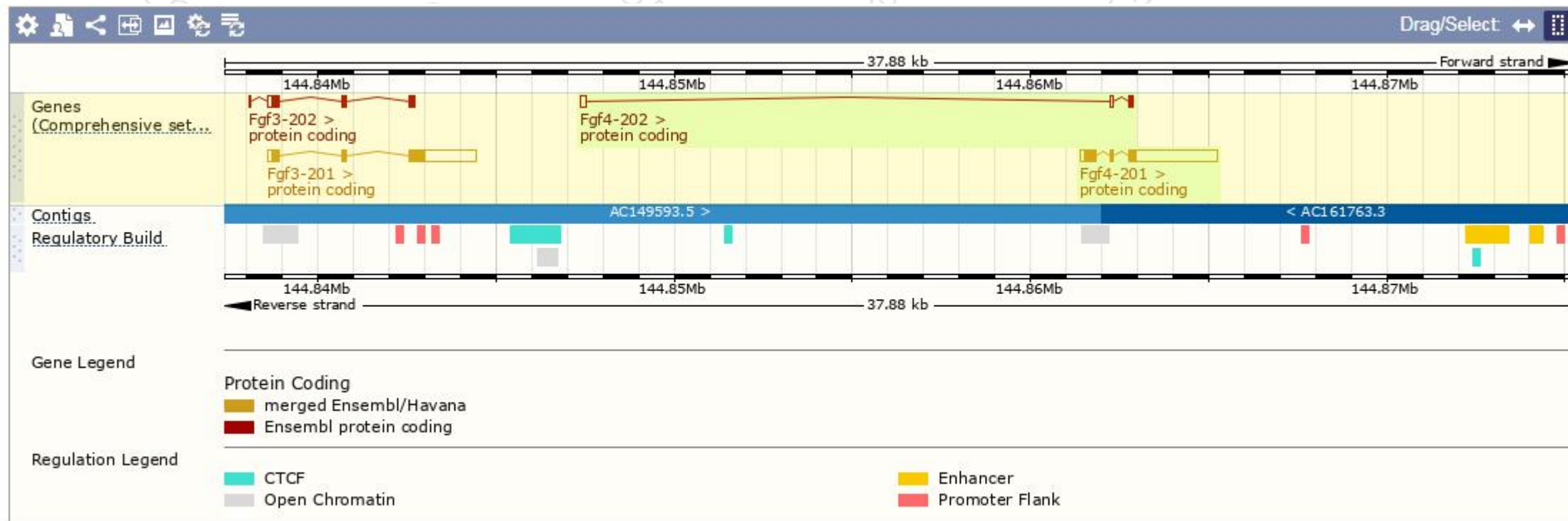
The gene has 2 transcripts, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Fgf4-201	ENSMUST00000060336.4	3030	202aa	Protein coding	CCDS22052	P11403	NM_010202 NP_034332	TSL:1 GENCODE basic APPRIS P1
Fgf4-202	ENSMUST00000208265.1	395	52aa	Protein coding	-	A0A140LIV6	-	CDS 3' incomplete TSL:2

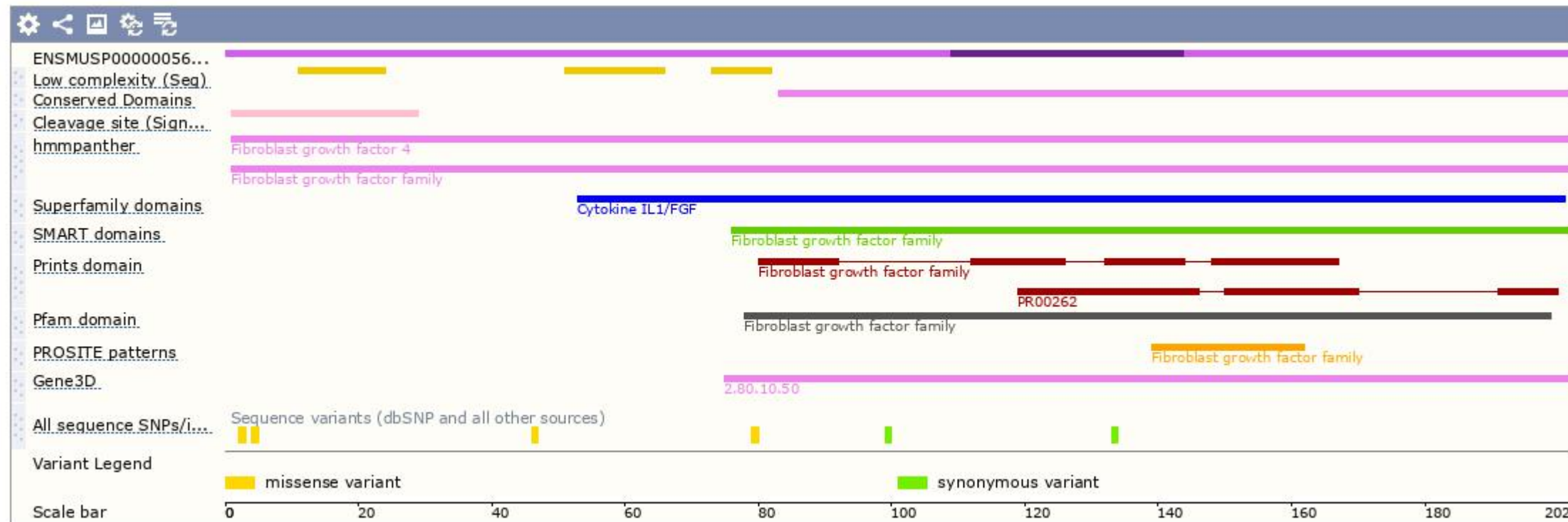
The strategy is based on the design of *Fgf4-201* transcript, The transcription is shown below



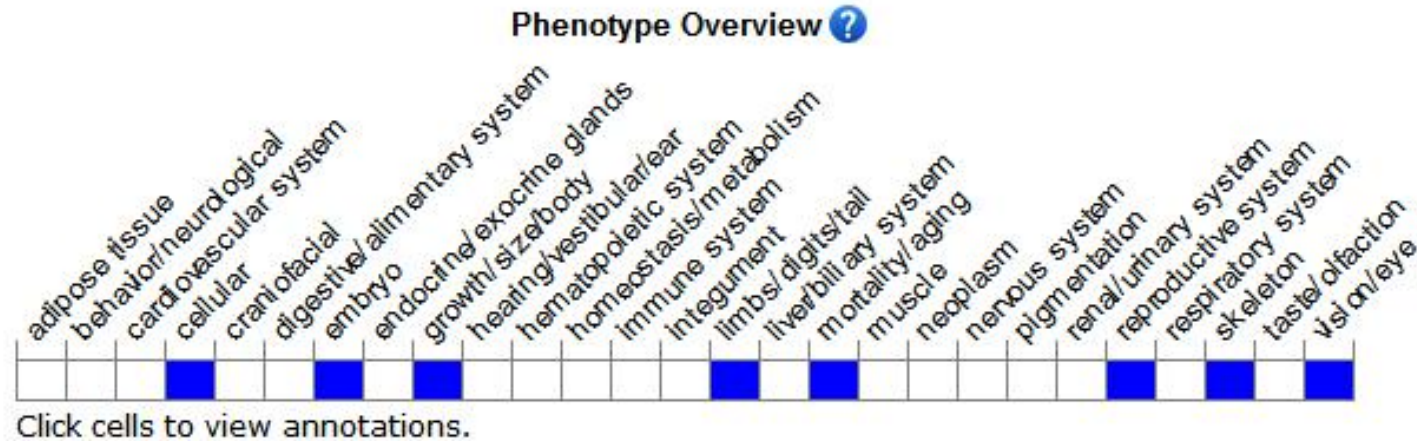
Genomic location distribution



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/>).

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

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