

Fgf3 Cas9-CKO Strategy

Designer: Shilei Zhu

Project Overview

Project Name

Fgf3

Project type

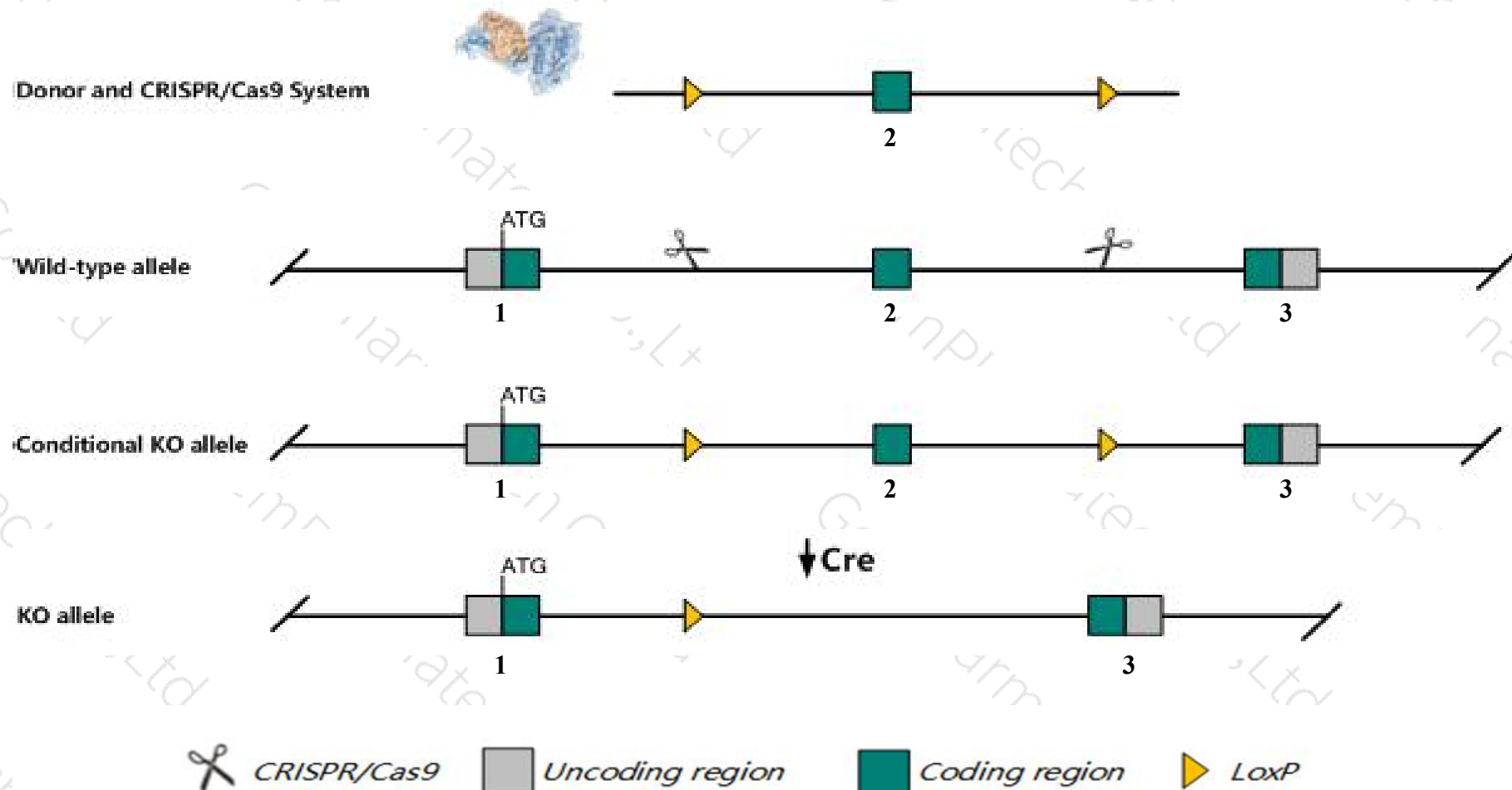
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fgf3* gene. The schematic diagram is as follows:



Technical routes

- The *Fgf3* gene has 2 transcripts. According to the structure of *Fgf3* gene, exon2 of *Fgf3-201* (ENSMUST00000105898.1) transcript is recommended as the knockout region. The region contains 104bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fgf3* 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.

- According to the existing MGI data, Mice homozygous for disruptions of this gene have short, thickened and curved tails. Otic vesicles are somewhat smaller than normal. Mice with some alleles apparently display more severe phenotypes.
- The *Fgf3* 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.

Fgf3 fibroblast growth factor 3 [Mus musculus (house mouse)]

Gene ID: 14174, updated on 31-Jan-2019

Summary

Official Symbol	Fgf3 provided by MGI
Official Full Name	fibroblast growth factor 3 provided by MGI
Primary source	MGI:MGI:95517
See related	Ensembl:ENSMUSG00000031074
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	Fgf-3, Int-2, Int-P
Expression	Biased expression in whole brain E14.5 (RPKM 2.4), CNS E14 (RPKM 2.0) and 5 other tissues See more
Orthologs	human all

Transcript information

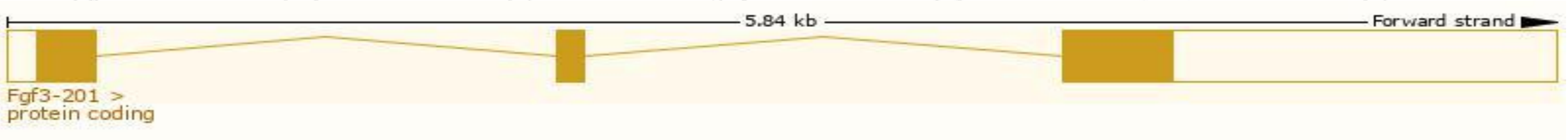
Ensembl



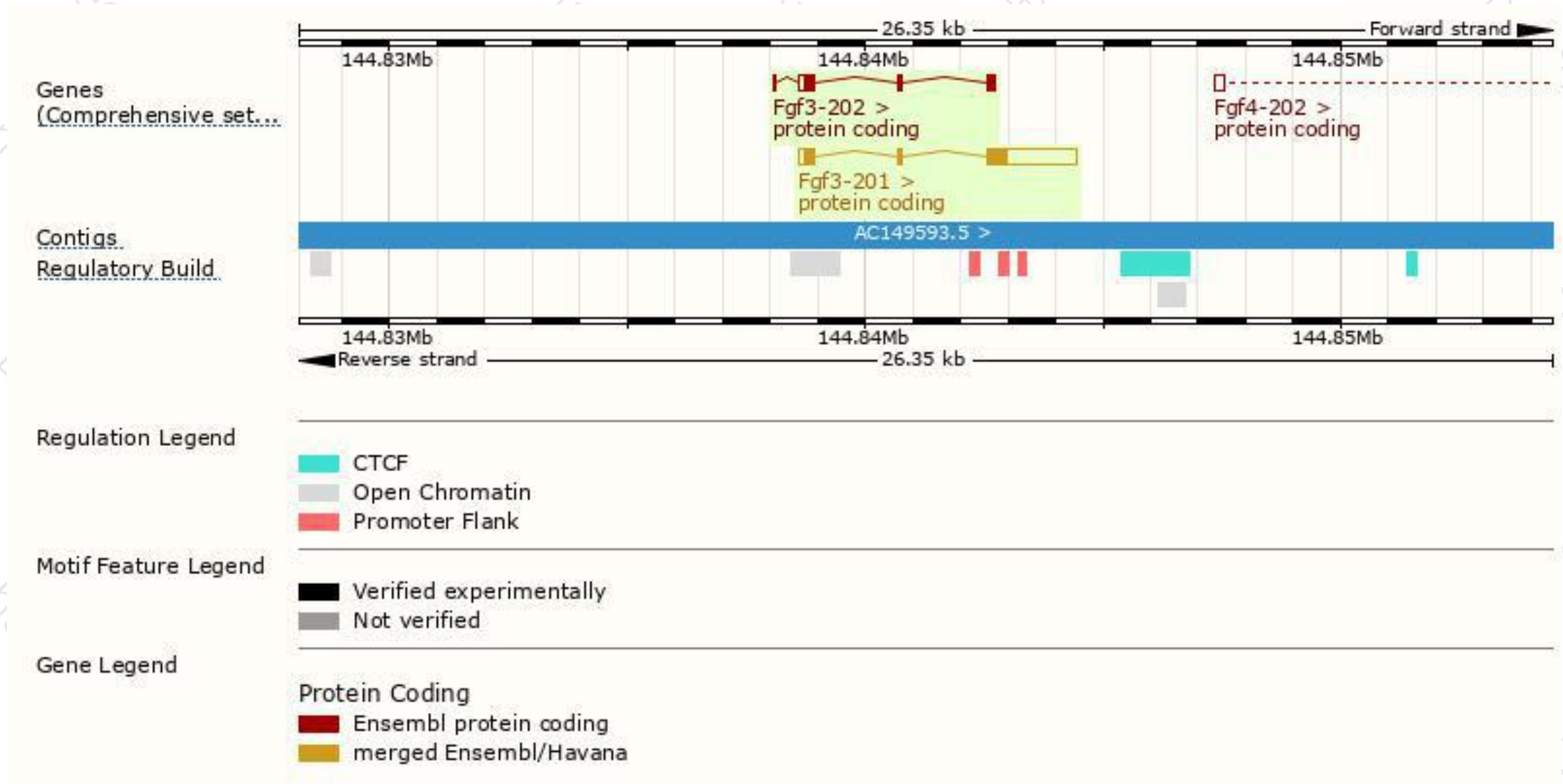
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fgf3-201	ENSMUST00000105898.1	2299	245aa	Protein coding	CCDS22051	Q0VG15	TSL:1 GENCODE basic APPRIS P1
Fgf3-202	ENSMUST00000155320.7	599	156aa	Protein coding	-	D3YWD4	CDS 3' incomplete TSL:3

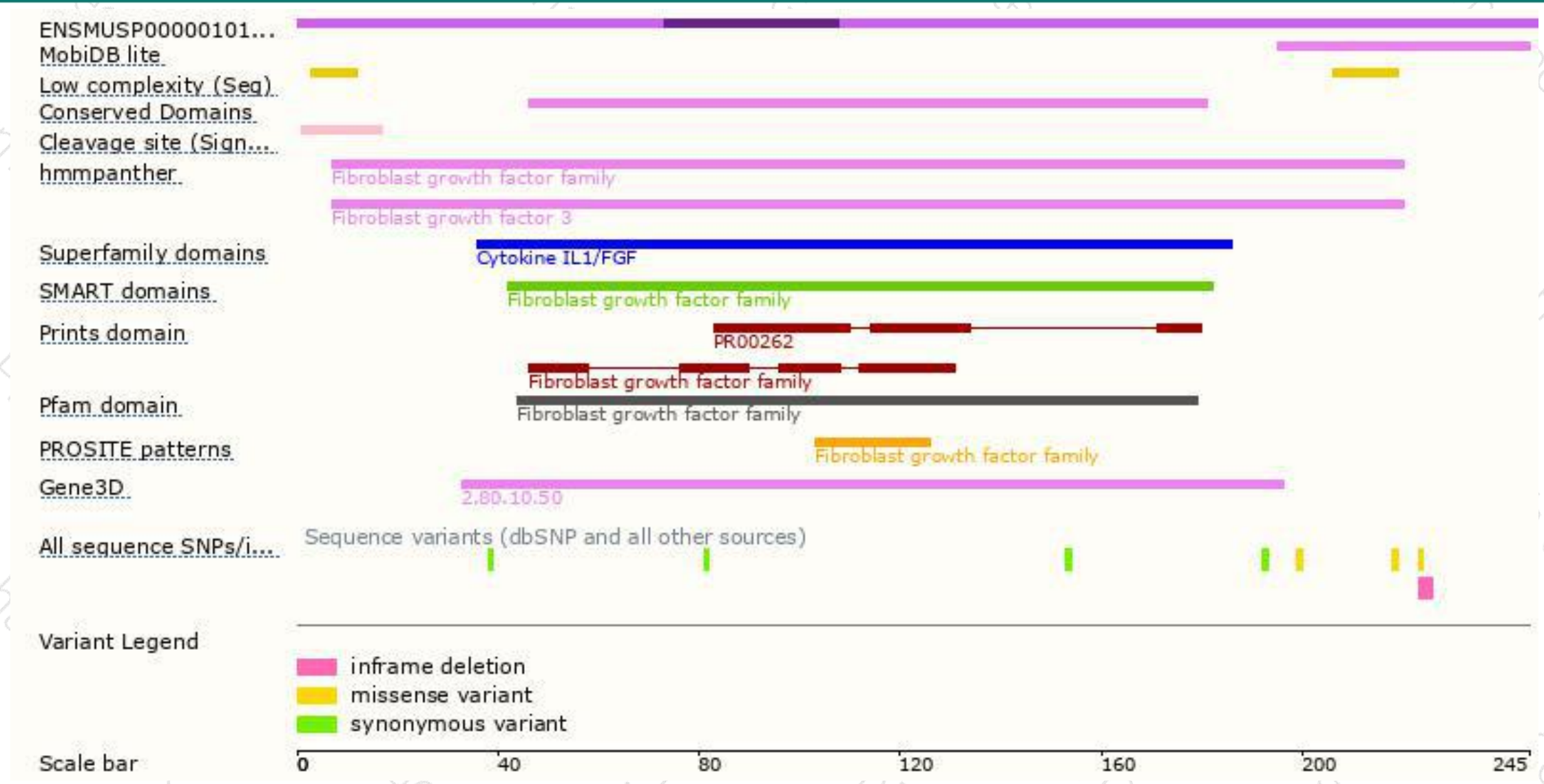
The strategy is based on the design of *Fgf3-201* transcript,The transcription is shown below



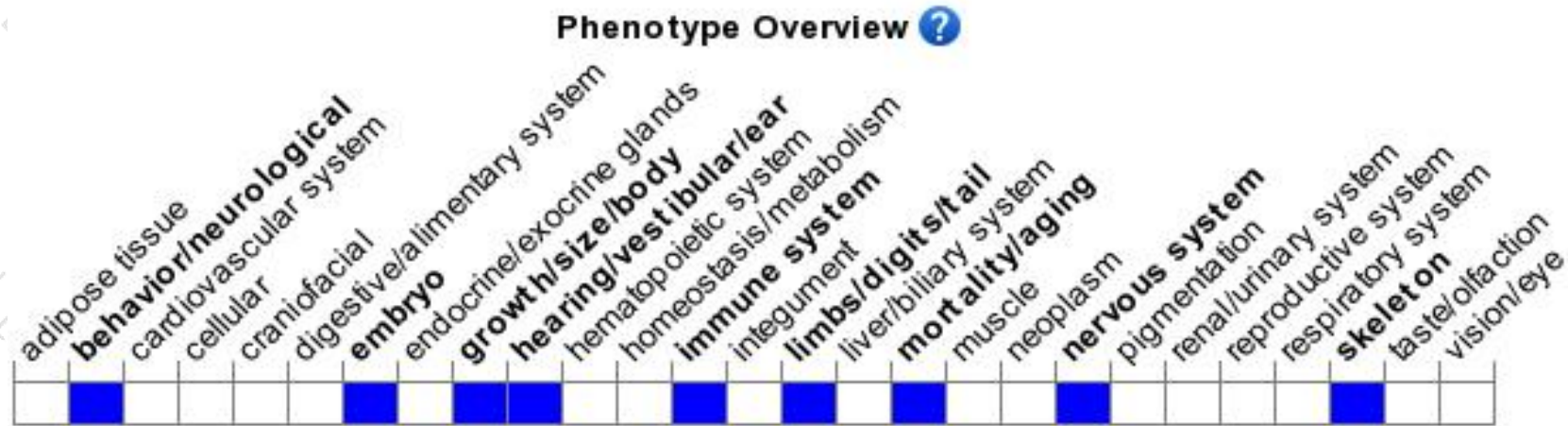
Genomic location distribution



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 disruptions of this gene have short, thickened and curved tails.

Otic vesicles are somewhat smaller than normal. Mice with some alleles apparently display more severe phenotypes.

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

Tel: 400-9660890

