

Egr4 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Egr4

Project type

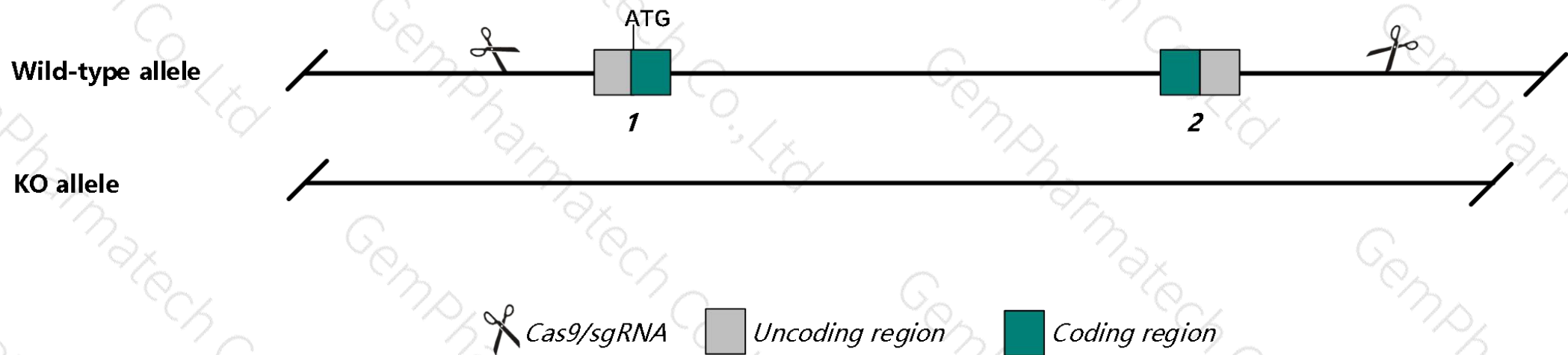
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Egr4* gene. The schematic diagram is as follows:



- The *Egr4* gene has 1 transcript. According to the structure of *Egr4* gene, exon1-exon2 of *Egr4-201* (ENSMUST00000095759.4) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Egr4* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Male homozygous null mice are viable but infertile due to an impairment of meiosis during spermatogenesis. Females are fertile and the gross anatomy of both sexes appears normal.
- The *Egr4* gene is located on the Chr6. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Egr4 early growth response 4 [*Mus musculus* (house mouse)]

Gene ID: 13656, updated on 10-Oct-2019

Summary

Official Symbol	Egr4 provided by MGI
Official Full Name	early growth response 4 provided by MGI
Primary source	MGI:MGI:99252
See related	Ensembl:ENSMUSG000000071341
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	NGFIC; NGF1-C; NGFI-C; pAT133
Expression	Biased expression in frontal lobe adult (RPKM 10.9), cortex adult (RPKM 9.9) and 2 other tissues See more
Orthologs	human all

Genomic context

Location: 6 C3; 6 37.48 cM

Exon count: 2

See Egr4 in [Genome Data Viewer](#)

Transcript information (Ensembl)

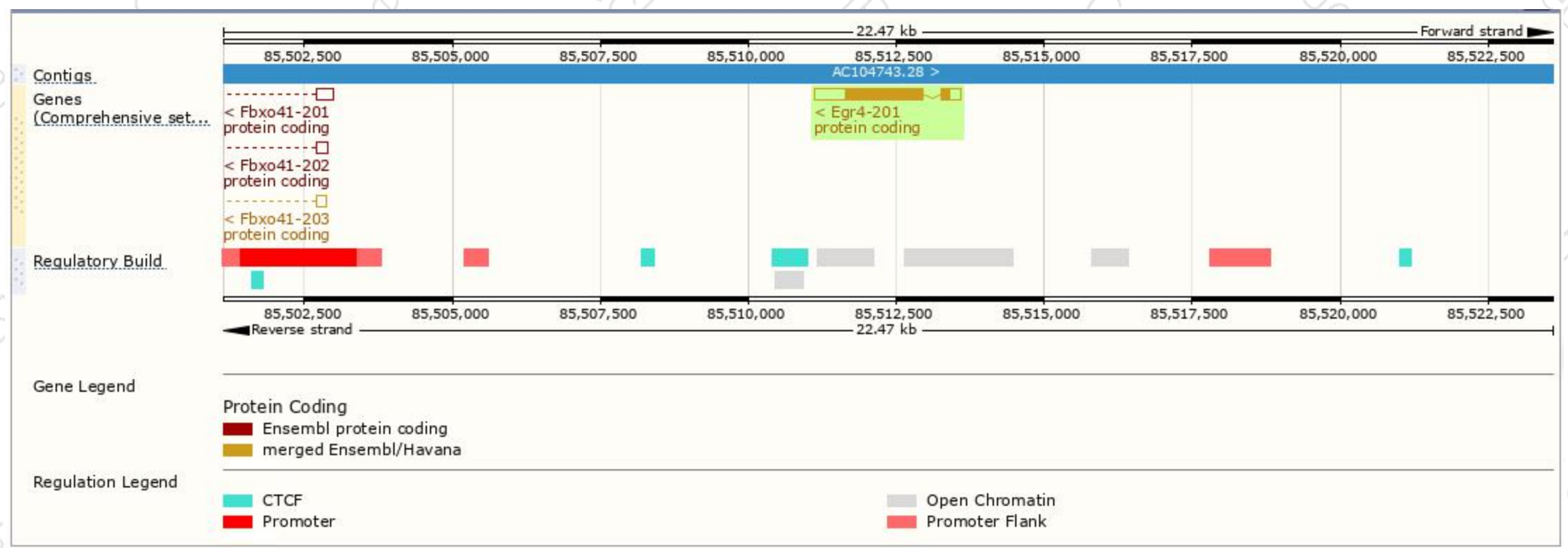
The gene has 1 transcript,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Egr4-201	ENSMUST00000095759.4	2148	478aa	Protein coding	CCDS20297	Q3URA9 Q9WUF2	TSL:1 Gencode basic APPRIS P1

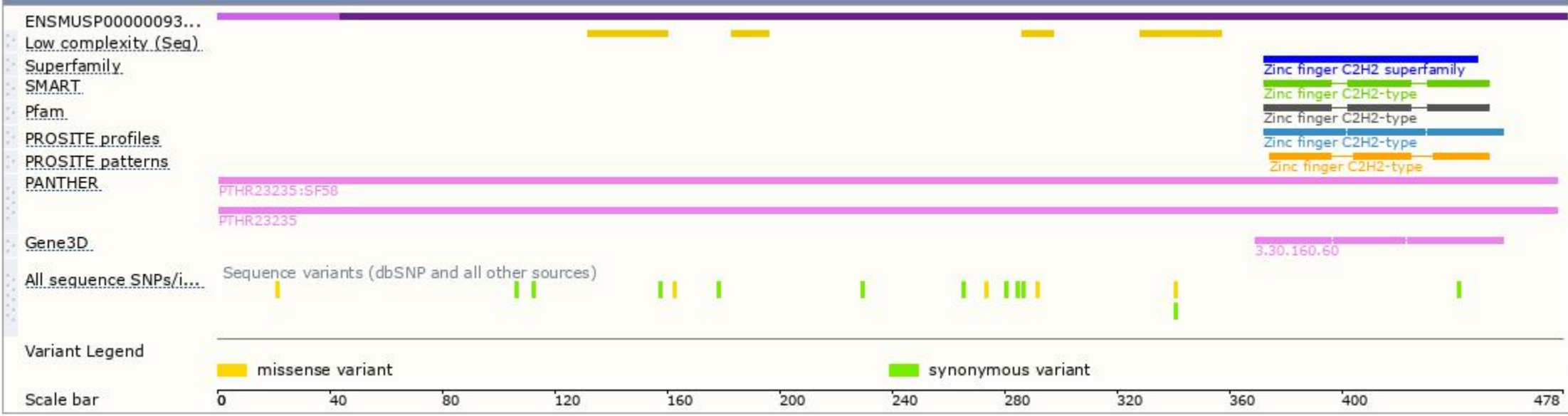
The strategy is based on the design of *Egr4-201* transcript,The transcription is shown below



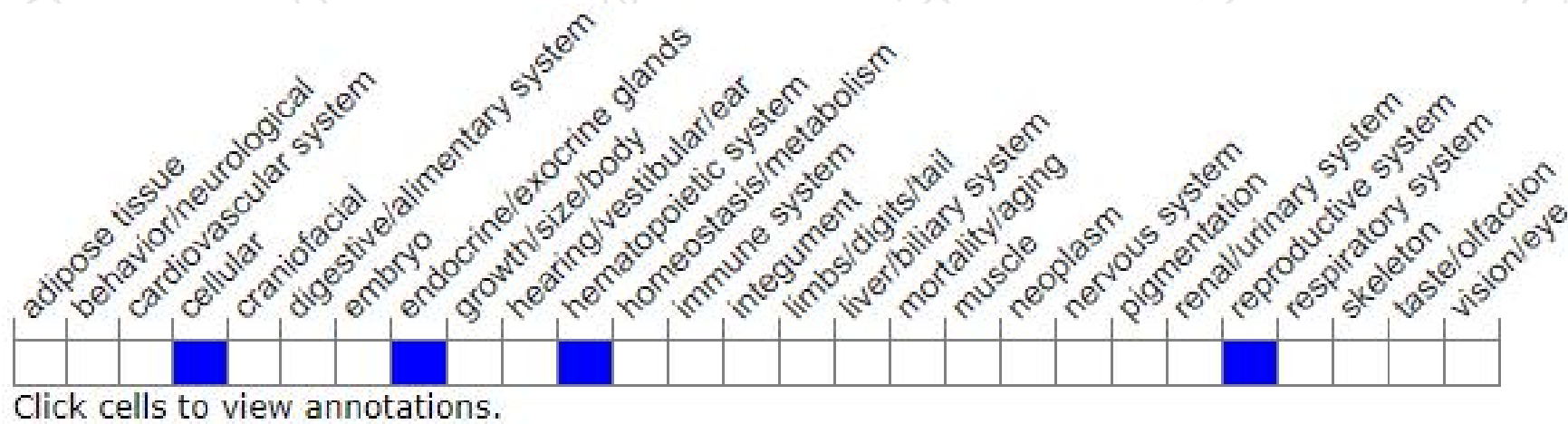
Genomic location distribution



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, Male homozygous null mice are viable but infertile due to an impairment of meiosis during spermatogenesis. Females are fertile and the gross anatomy of both sexes appears normal.

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

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