

Aff2 Cas9-KO Strategy

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Design Date: 2019-09-24

Project Overview

Project Name

Aff2

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Aff2* gene. The schematic diagram is as follows:



- The *Aff2* gene has 4 transcripts. According to the structure of *Aff2* gene, exon2 of *Aff2-201* (ENSMUST00000033532.6) transcript is recommended as the knockout region. The region contains 133bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Aff2* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Homozygotes for a targeted null mutation exhibit impaired conditioned fear responses and enhanced long-term potentiation in hippocampal slices.
- Transcript 204 is unaffected.
- The *Aff2* gene is located on the ChrX. 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)

Aff2 AF4/FMR2 family, member 2 [*Mus musculus* (house mouse)]

Gene ID: 14266, updated on 12-Aug-2019

Summary

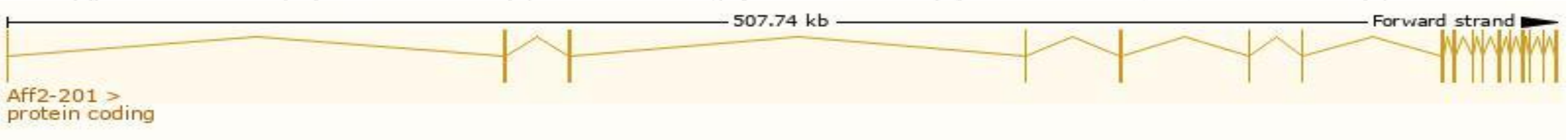
Official Symbol	Aff2 provided by MGI
Official Full Name	AF4/FMR2 family, member 2 provided by MGI
Primary source	MGI:MGI:1202294
See related	Ensembl:ENSMUSG00000031189
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<i>Mus musculus</i>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Oxh; Fmr2; Ox19; FMR2P
Expression	Broad expression in whole brain E14.5 (RPKM 3.1), CNS E14 (RPKM 3.0) and 15 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

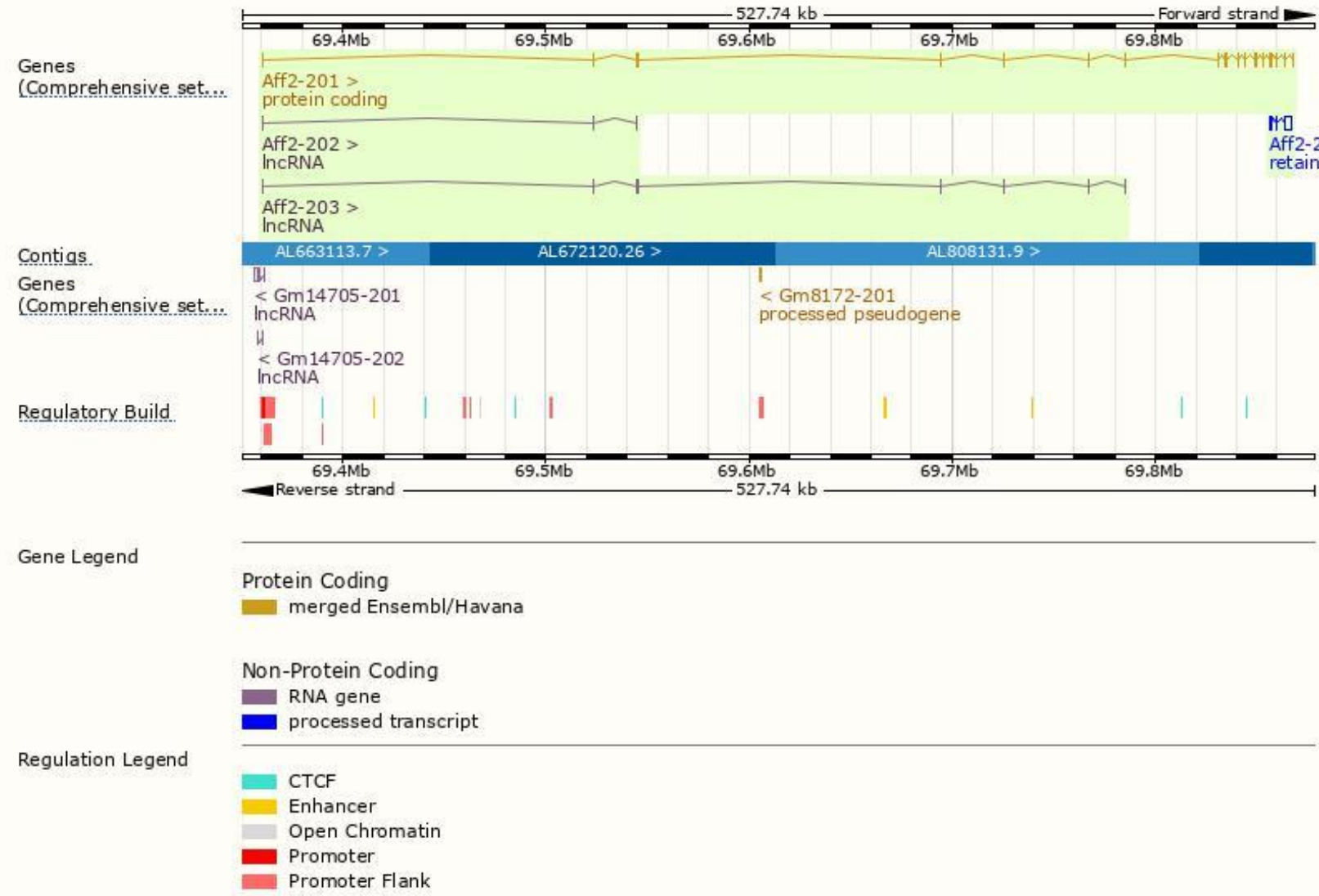
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Aff2-201	ENSMUST00000033532.6	4523	1272aa	Protein coding	CCDS30173	O55112	TSL:1 GENCODE basic APPRIS P1
Aff2-204	ENSMUST00000151662.1	3072	No protein	Retained intron	-	-	TSL:1
Aff2-203	ENSMUST00000143097.1	1449	No protein	lncRNA	-	-	TSL:5
Aff2-202	ENSMUST00000139977.7	670	No protein	lncRNA	-	-	TSL:3

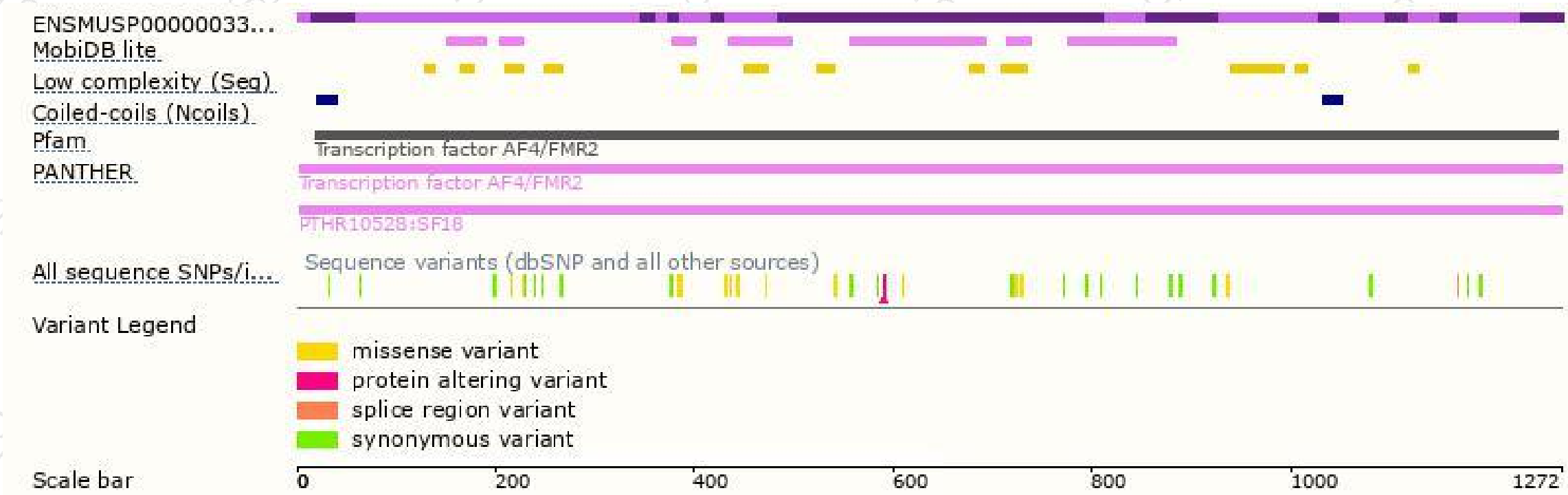
The strategy is based on the design of *Aff2-201* transcript,The transcription is shown below



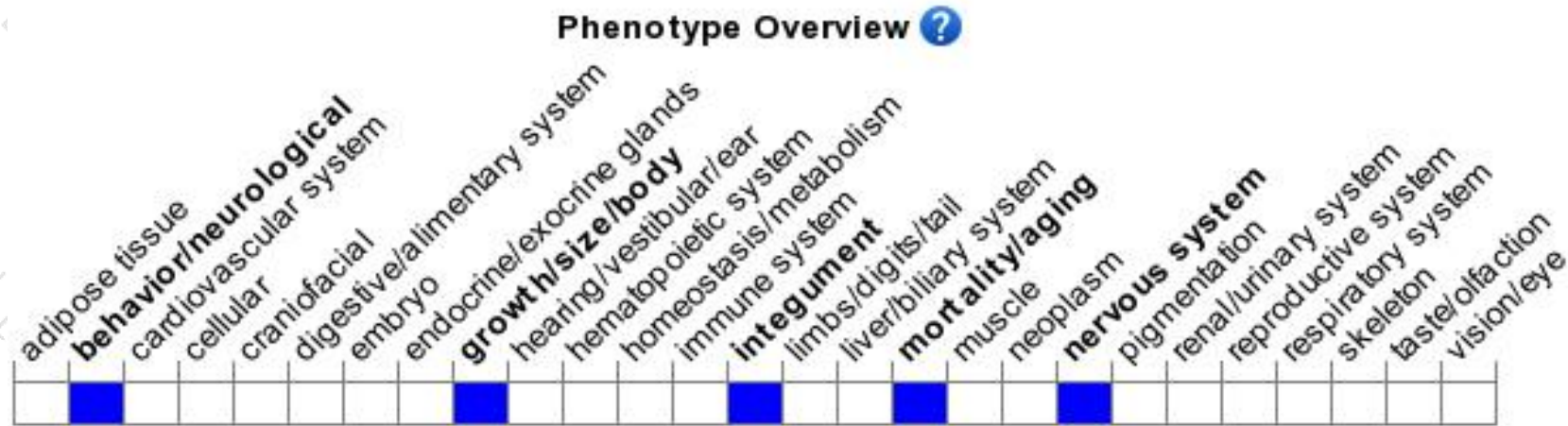
Genomic location distribution



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, Homozygotes for a targeted null mutation exhibit impaired conditioned fear responses and enhanced long-term potentiation in hippocampal slices.

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

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