

Aff3 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Aff3

Project type

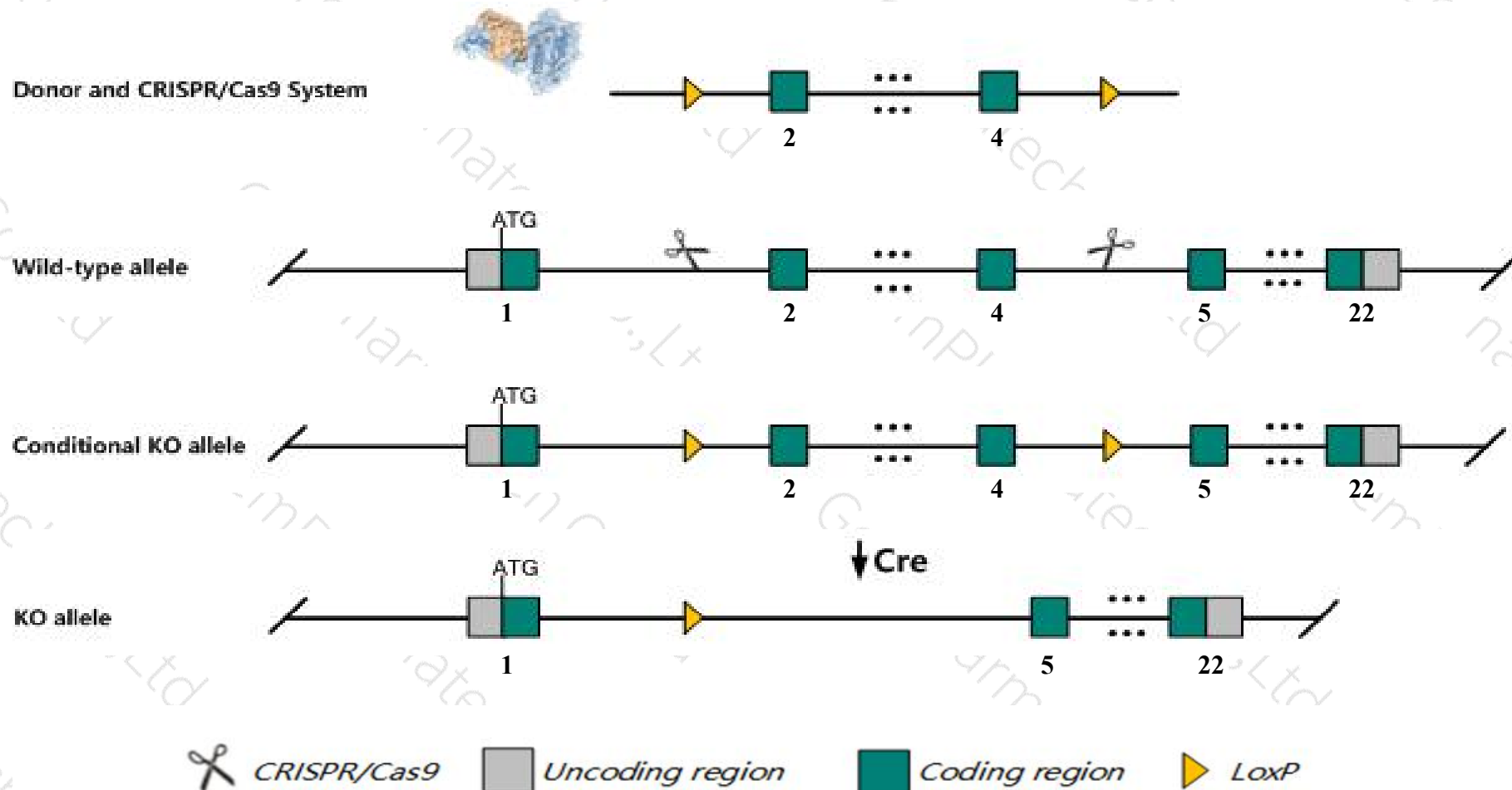
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Aff3* gene. The schematic diagram is as follows:



Technical routes

- The *Aff3* gene has 6 transcripts. According to the structure of *Aff3* gene, exon2-exon4 of *Aff3*-203 (ENSMUST00000095027.8) transcript is recommended as the knockout region. The region contains 820bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Aff3* 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.

Notice

- The *Aff3* gene is located on the Chr1. 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)

Aff3 AF4/FMR2 family, member 3 [Mus musculus (house mouse)]

Gene ID: 16764, updated on 31-Jan-2019

Summary



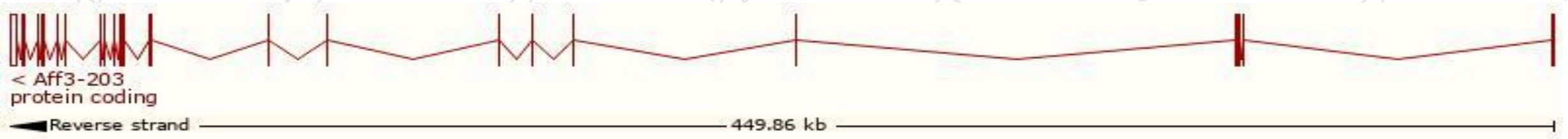
Official Symbol	Aff3 provided by MGI
Official Full Name	AF4/FMR2 family, member 3 provided by MGI
Primary source	MGI:MGI:106927
See related	Ensembl:ENSMUSG000000037138
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3222402O04Rik, A730046J16, LAF-4, Laf4
Expression	Broad expression in thymus adult (RPKM 9.9), spleen adult (RPKM 7.6) and 19 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

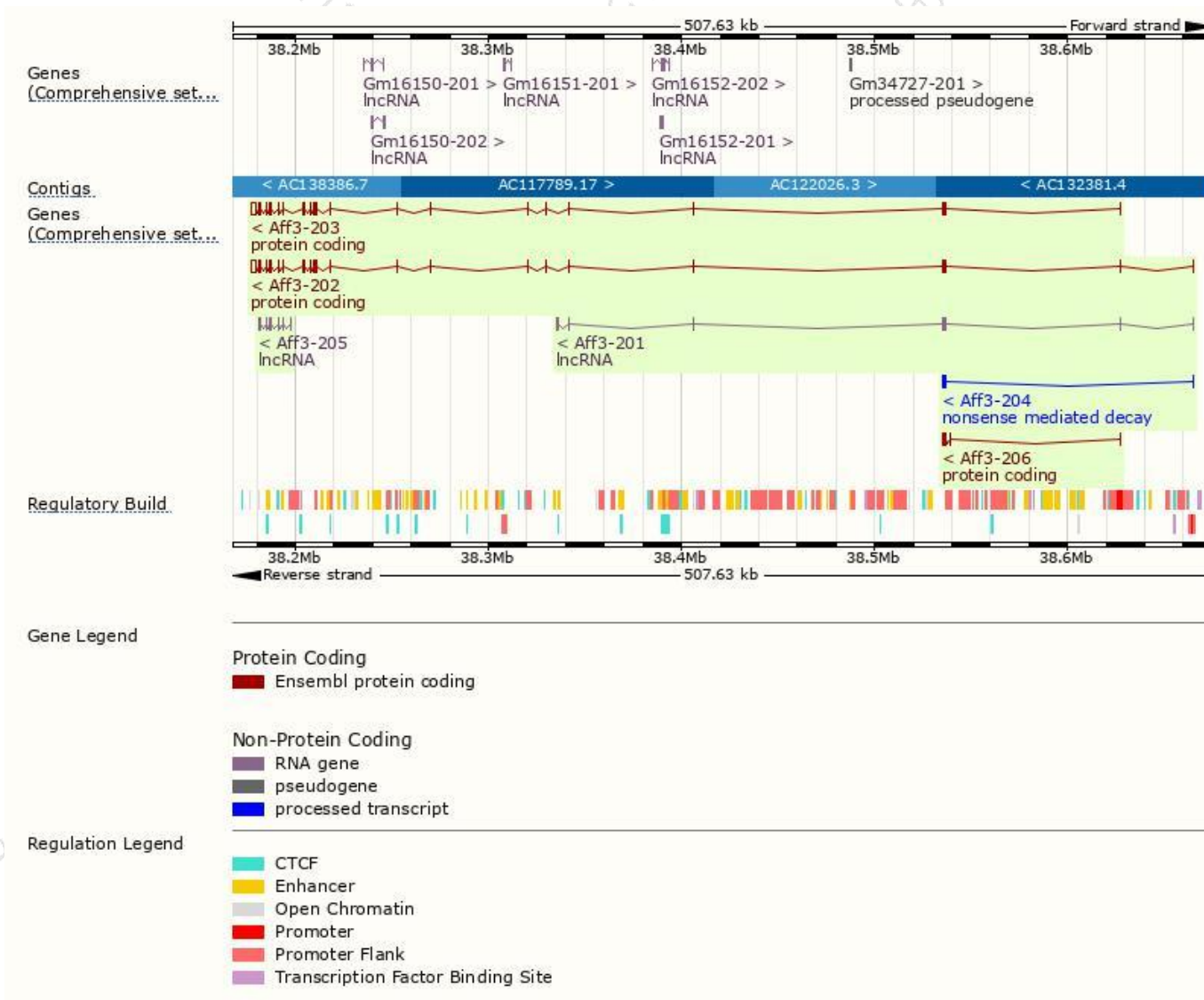
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Aff3-203	ENSMUST00000095027.8	5857	1229aa	Protein coding	CCDS69884	D3YYI6	TSL:5 GENCODE basic APPRIS P2
Aff3-202	ENSMUST00000039827.13	6010	1228aa	Protein coding	-	F8WJA7	TSL:5 GENCODE basic APPRIS ALT2
Aff3-206	ENSMUST00000212668.1	420	120aa	Protein coding	-	A0A1D5RLQ3	CDS 3' incomplete TSL:5
Aff3-204	ENSMUST00000134963.1	665	53aa	Nonsense mediated decay	-	D6RHR2	TSL:3
Aff3-201	ENSMUST00000027250.13	1646	No protein	lncRNA	-	-	TSL:1
Aff3-205	ENSMUST00000136641.2	761	No protein	lncRNA	-	-	TSL:3

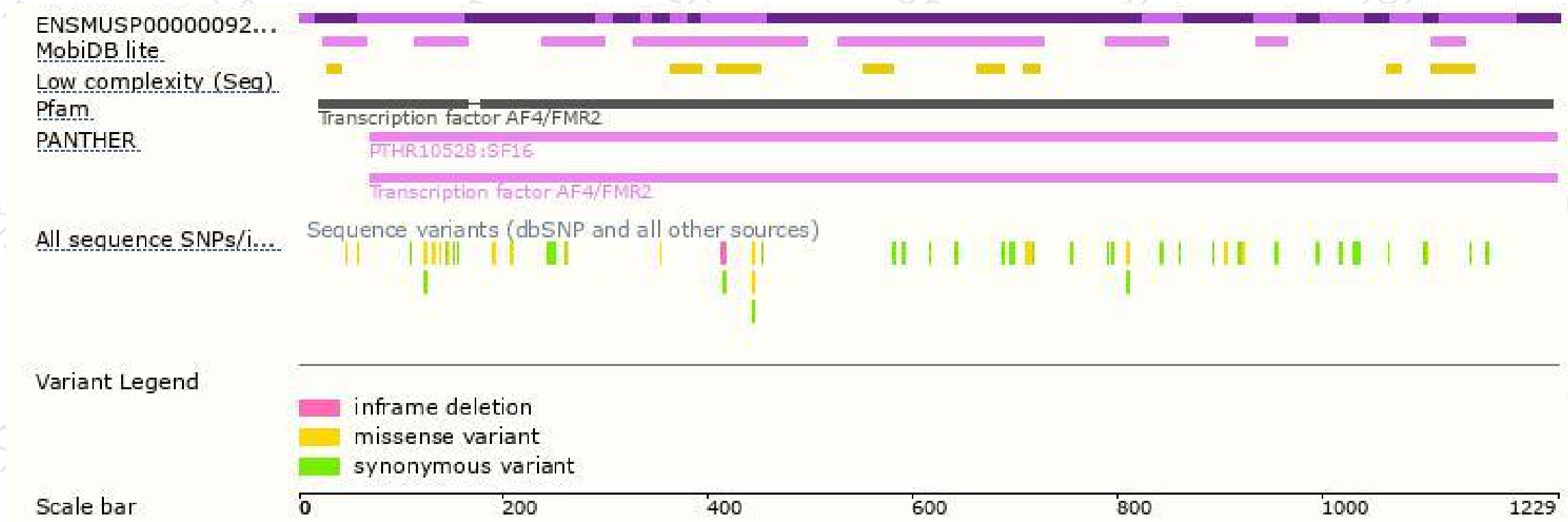
The strategy is based on the design of *Aff3-203* transcript,The transcription is shown below



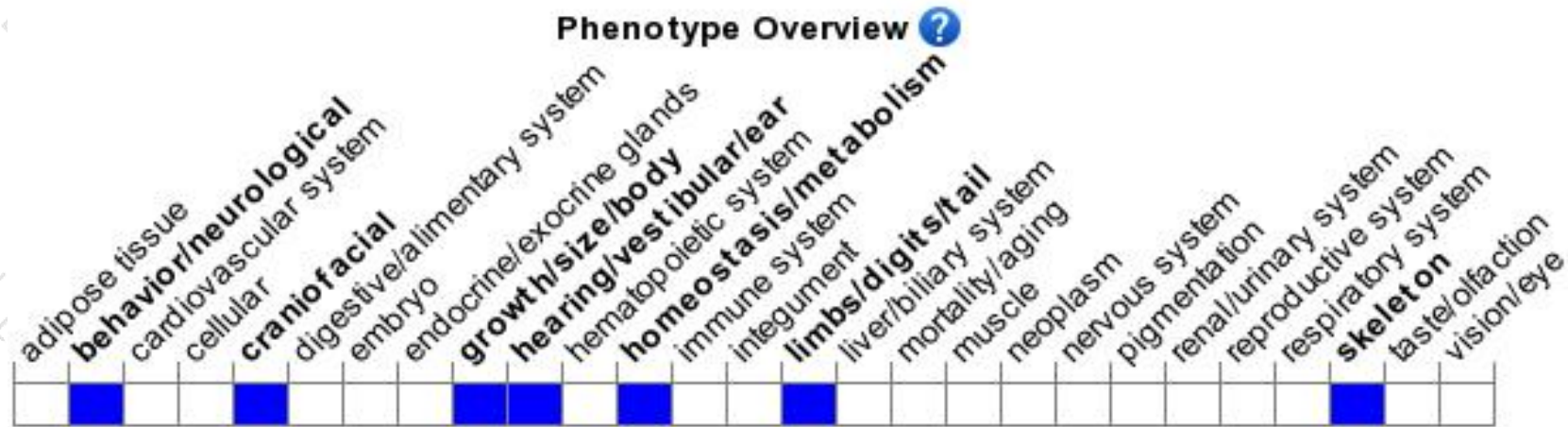
Genomic location distribution



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/>).

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

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