

Gtf2a1l Cas9-CKO Strategy

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Date: 2020-02-21

Project Overview

Project Name

Gtf2a1l

Project type

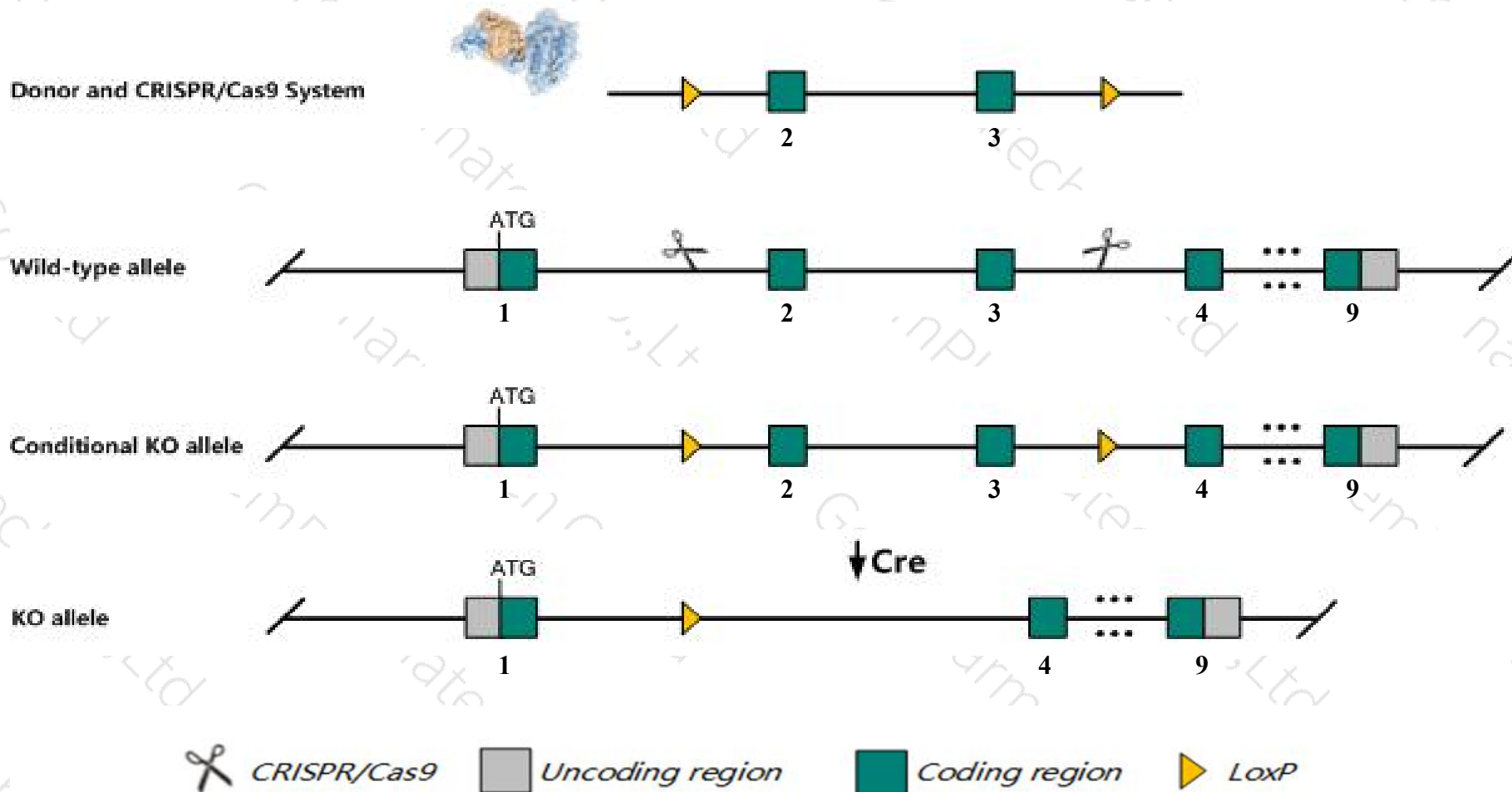
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gtf2all* gene. The schematic diagram is as follows:



Technical routes

- The *Gtf2all* gene has 3 transcripts. According to the structure of *Gtf2all* gene, exon2-exon3 of *Gtf2all-201* (ENSMUST00000024970.10) transcript is recommended as the knockout region. The region contains 223bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gtf2all* 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.

- The floxed region is near to the N-terminal of *Gm50056* gene, this strategy may influence the regulatory function of the N-terminal of *Gm50056* gene.
- The *Gtf2all* gene is located on the Chr17. 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)

Gtf2a1l general transcription factor IIA, 1-like [*Mus musculus* (house mouse)]

Gene ID: 71828, updated on 12-Aug-2019

Summary

- Official Symbol** Gtf2a1l provided by MGI
- Official Full Name** general transcription factor IIA, 1-like provided by MGI
- Primary source** MGI:MGI:1919078
- See related** Ensembl:ENSMUSG00000024154
- 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** Alf; Gtf2a1lf; 1700011N16Rik
- Expression** Restricted expression toward testis adult (RPKM 130.5) [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 17; 17 E4 See Gtf2a1l in [Genome Data Viewer](#)

Exon count: 10

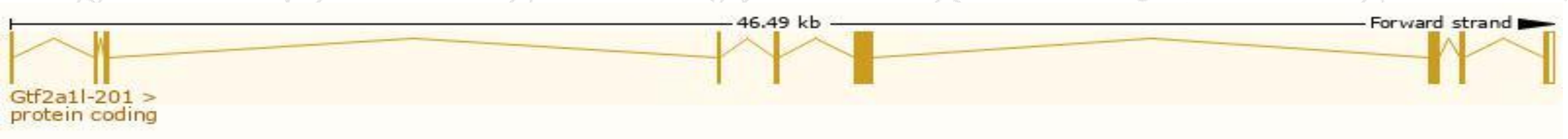
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	17	NC_000083.6 (88665493..88715157)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	17	NC_000083.5 (89068000..89114490)

Transcript information (Ensembl)

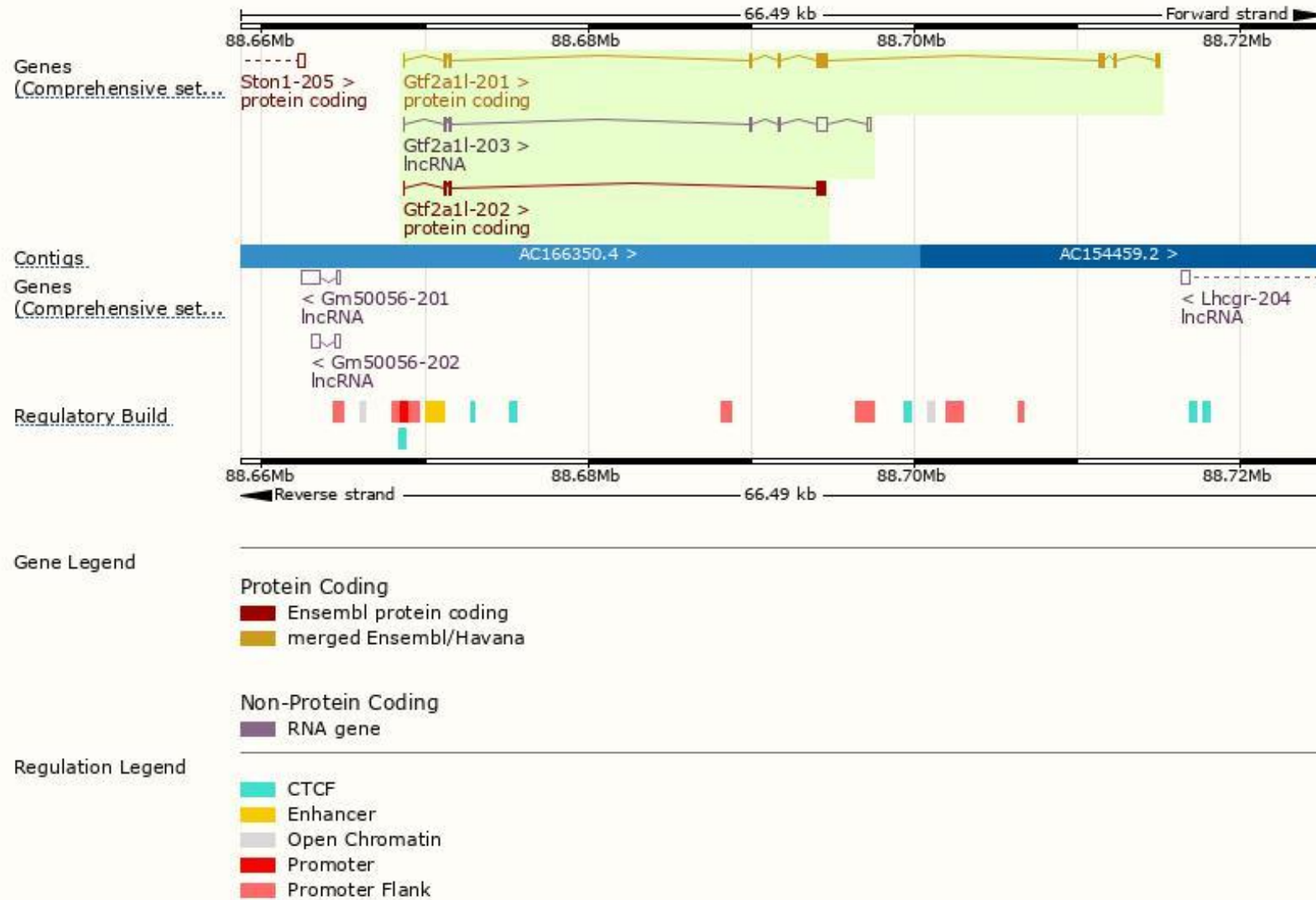
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gtf2a1l-201	ENSMUST00000024970.10	1621	468aa	Protein coding	CCDS29024	Q8R4I4	TSL:1 GENCODE basic APPRIS P1
Gtf2a1l-202	ENSMUST00000161481.1	743	242aa	Protein coding	-	E0CYD4	CDS 3' incomplete TSL:3
Gtf2a1l-203	ENSMUST00000234392.1	1252	No protein	lncRNA	-	-	

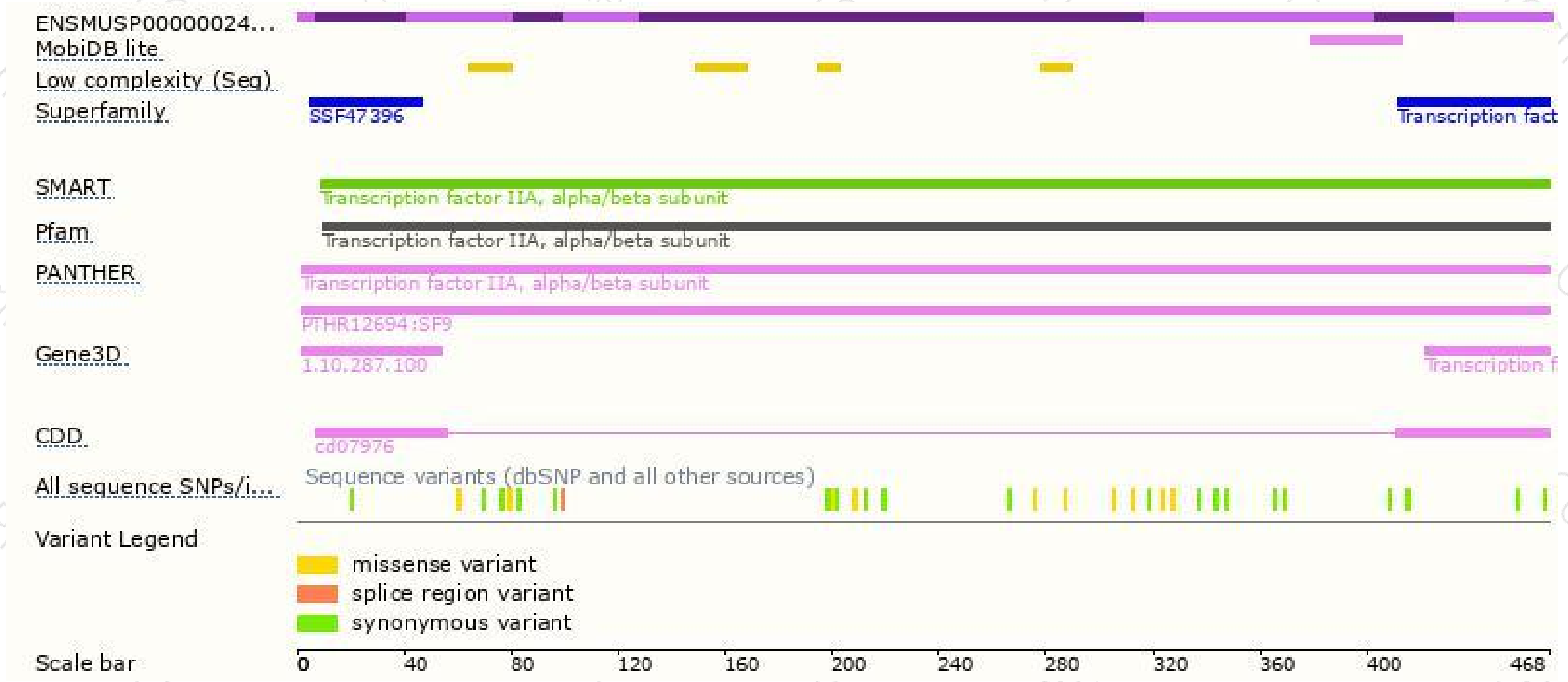
The strategy is based on the design of *Gtf2a1l-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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