

Gtf2a1 Cas9-KO Strategy

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Project Overview

Project Name

Gtf2a1l

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- 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

- The knockout 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology 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

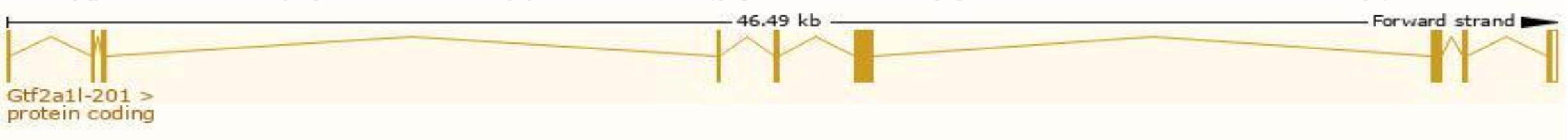
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	17	NC_000083.6 (88665493..88715157)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	17	NC_000083.5 (89068000..89114490)

Transcript information (Ensembl)

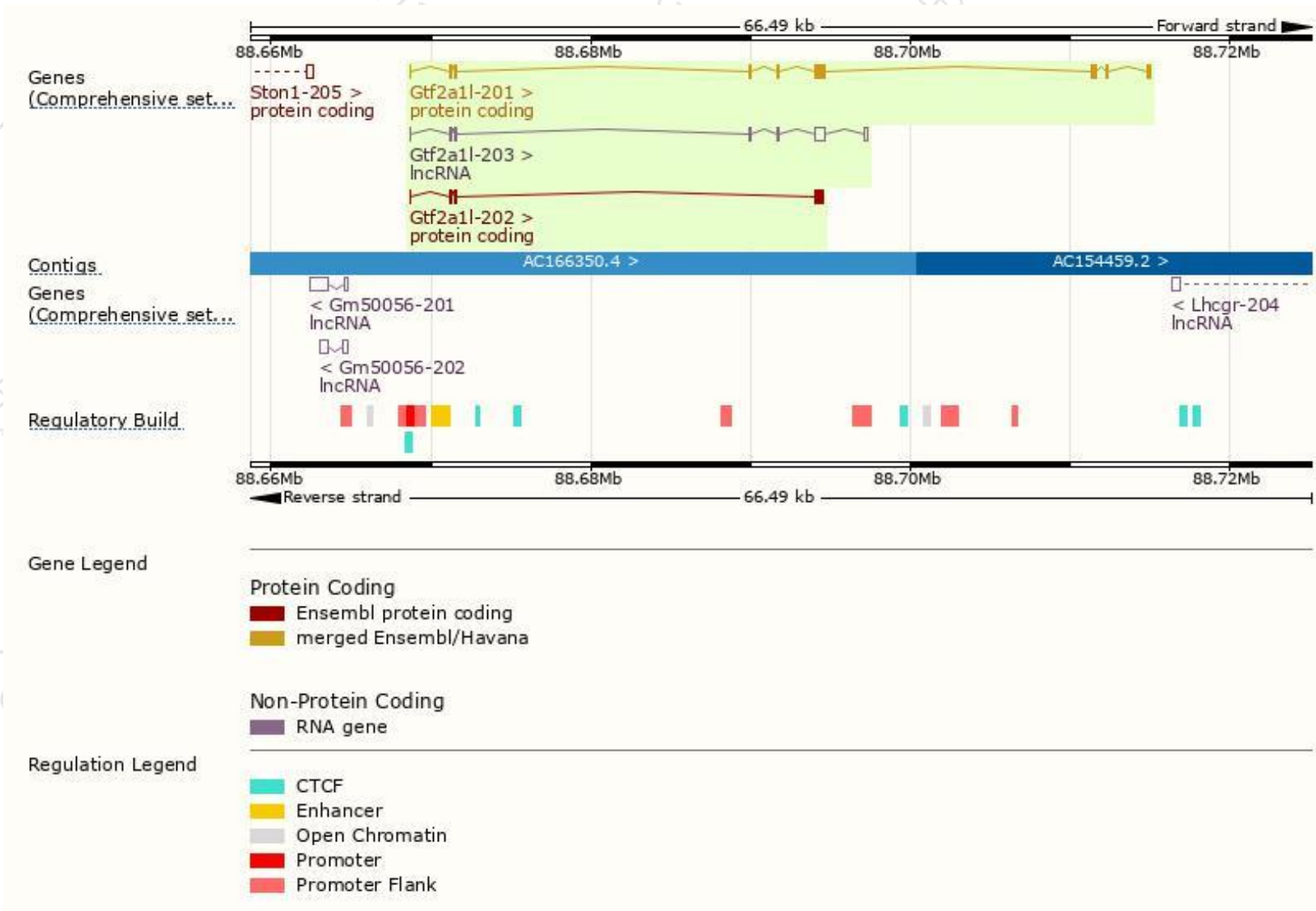
The gene has 3 transcripts,all transcripts are shown below:

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	-	-	

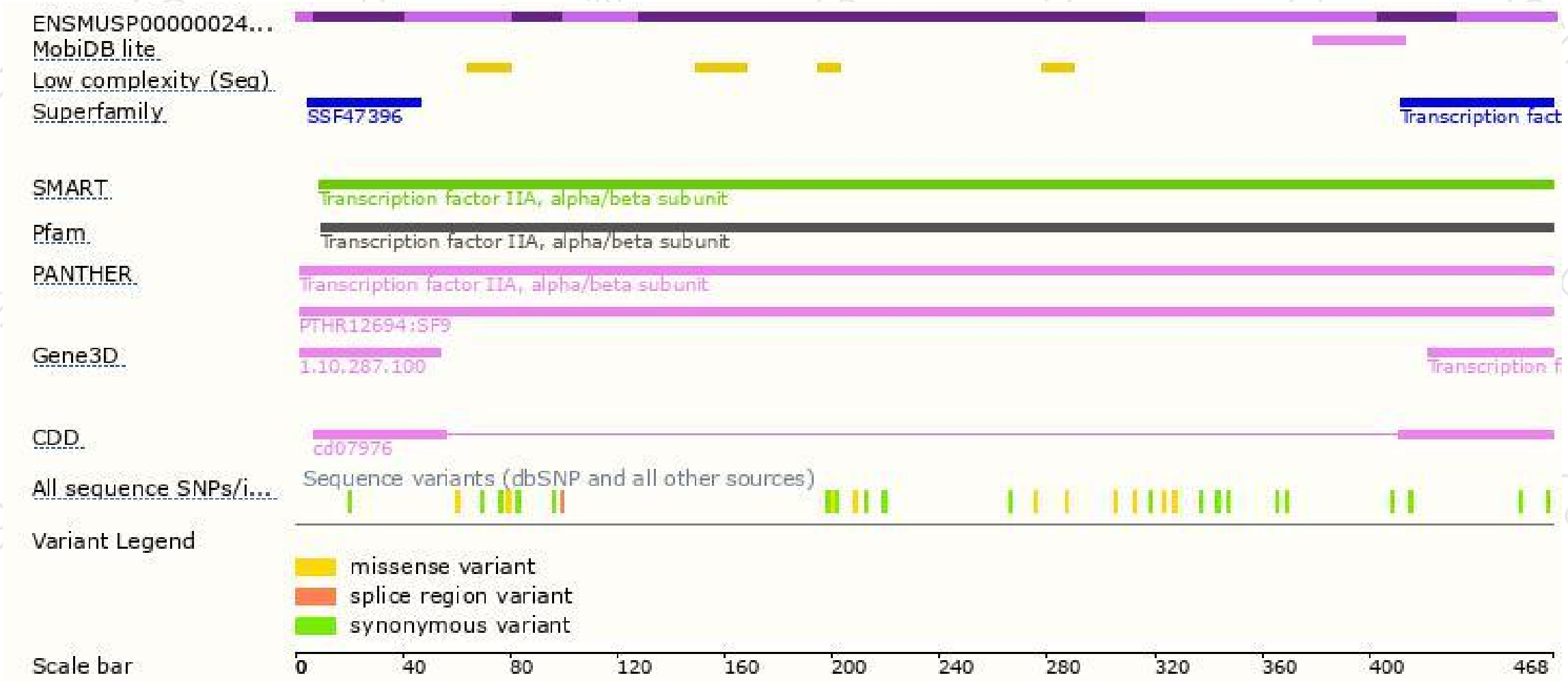
The strategy is based on the design of *Gtf2a1l-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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