

Gtf2h4 Cas9-KO Strategy

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Project Overview

Project Name

Gtf2h4

Project type

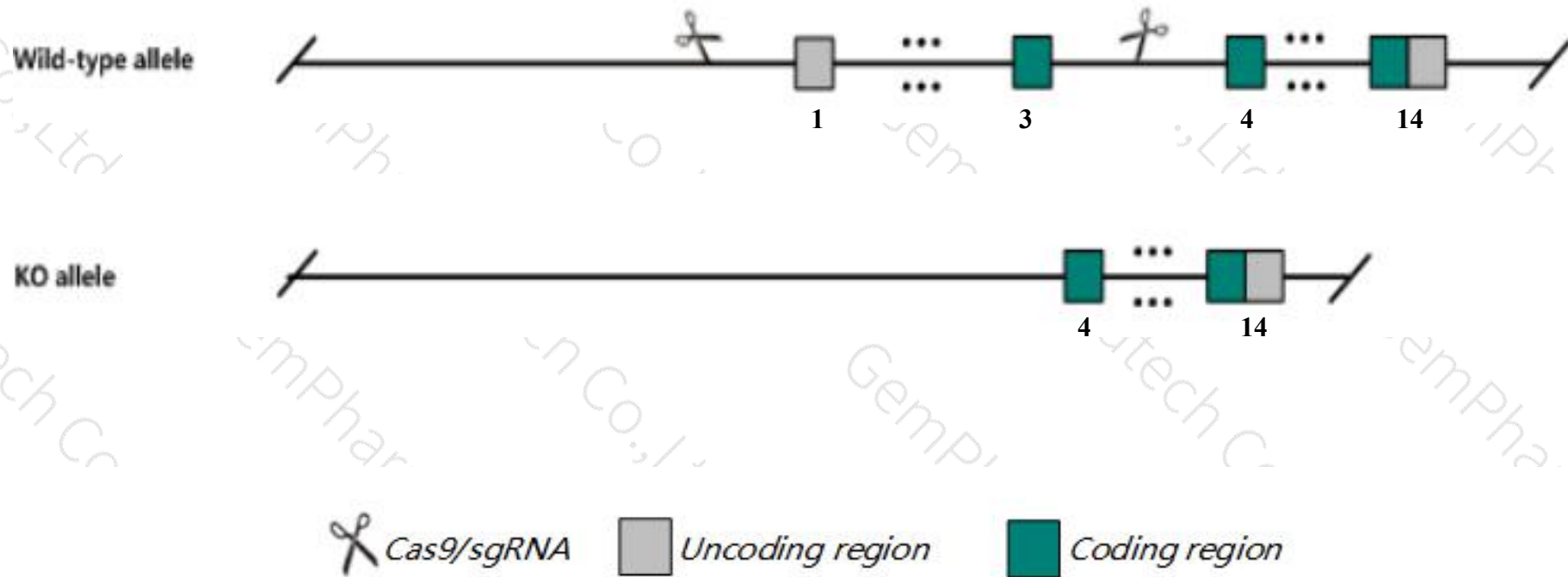
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gtf2h4* gene. The schematic diagram is as follows:



- The *Gtf2h4* gene has 12 transcripts. According to the structure of *Gtf2h4* gene, exon1-exon3 of *Gtf2h4-201*(ENSMUST00000001565.14) transcript is recommended as the knockout region. The region contains 245bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gtf2h4* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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 *Gtf2h4* 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)

Gtf2h4 general transcription factor II H, polypeptide 4 [Mus musculus (house mouse)]

Gene ID: 14885, updated on 13-Mar-2020

Summary



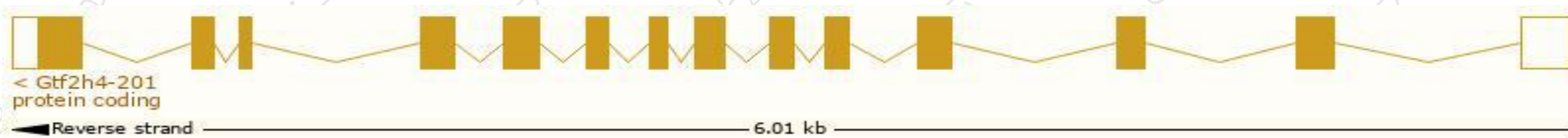
Official Symbol	Gtf2h4 provided by MGI
Official Full Name	general transcription factor II H, polypeptide 4 provided by MGI
Primary source	MGI:MGI:1338799
See related	Ensembl:ENSMUSG00000001524
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW545633, BTF2 p52, p52
Summary	This gene encodes a subunit of the general transcription factor multiprotein complex that plays roles in basal transcription, DNA repair and cell cycle control. [provided by RefSeq, Dec 2014]
Expression	Ubiquitous expression in thymus adult (RPKM 68.7), limb E14.5 (RPKM 11.4) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

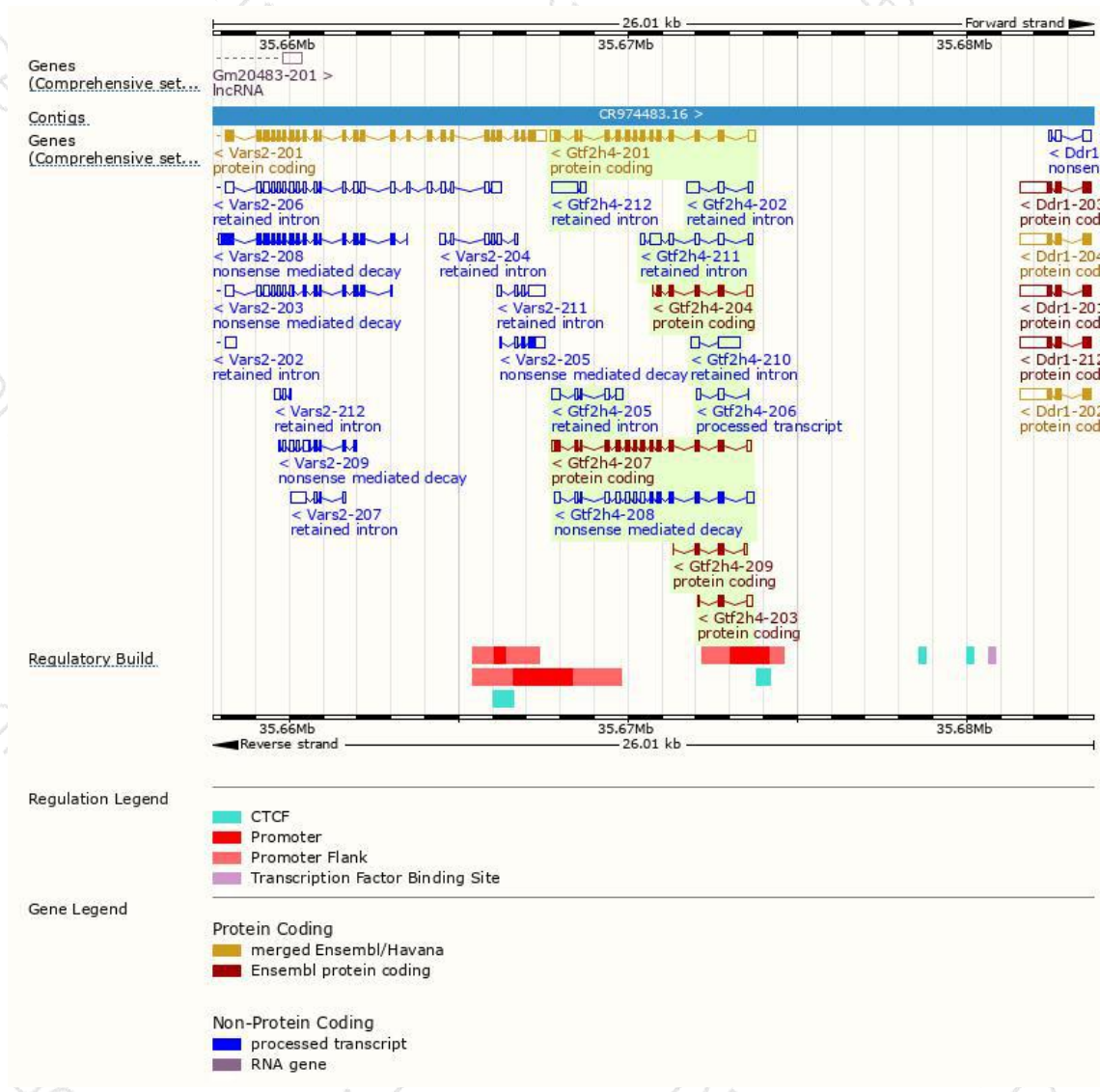
The gene has 12 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gtf2h4-201	ENSMUST0000001565.14	1679	463aa	Protein coding	CCDS28702	O70422 Q542U3	TSL:1 GENCODE basic APPRIS P1
Gtf2h4-207	ENSMUST00000160734.7	1569	463aa	Protein coding	CCDS28702	O70422 Q542U3	TSL:5 GENCODE basic APPRIS P1
Gtf2h4-204	ENSMUST00000160039.7	660	164aa	Protein coding	-	E0CXV5	CDS 3' incomplete TSL:3
Gtf2h4-209	ENSMUST00000162266.7	367	91aa	Protein coding	-	E0CYK8	CDS 3' incomplete TSL:3
Gtf2h4-203	ENSMUST00000159852.1	331	61aa	Protein coding	-	E0CYM3	CDS 3' incomplete TSL:3
Gtf2h4-208	ENSMUST00000160752.8	1569	184aa	Nonsense mediated decay	-	E0CY64	TSL:5
Gtf2h4-206	ENSMUST00000160711.1	271	No protein	Processed transcript	-	-	TSL:5
Gtf2h4-211	ENSMUST00000162894.7	925	No protein	Retained intron	-	-	TSL:5
Gtf2h4-212	ENSMUST00000162927.1	920	No protein	Retained intron	-	-	TSL:2
Gtf2h4-210	ENSMUST00000162604.1	827	No protein	Retained intron	-	-	TSL:2
Gtf2h4-205	ENSMUST00000160535.7	731	No protein	Retained intron	-	-	TSL:2
Gtf2h4-202	ENSMUST00000159671.7	620	No protein	Retained intron	-	-	TSL:2

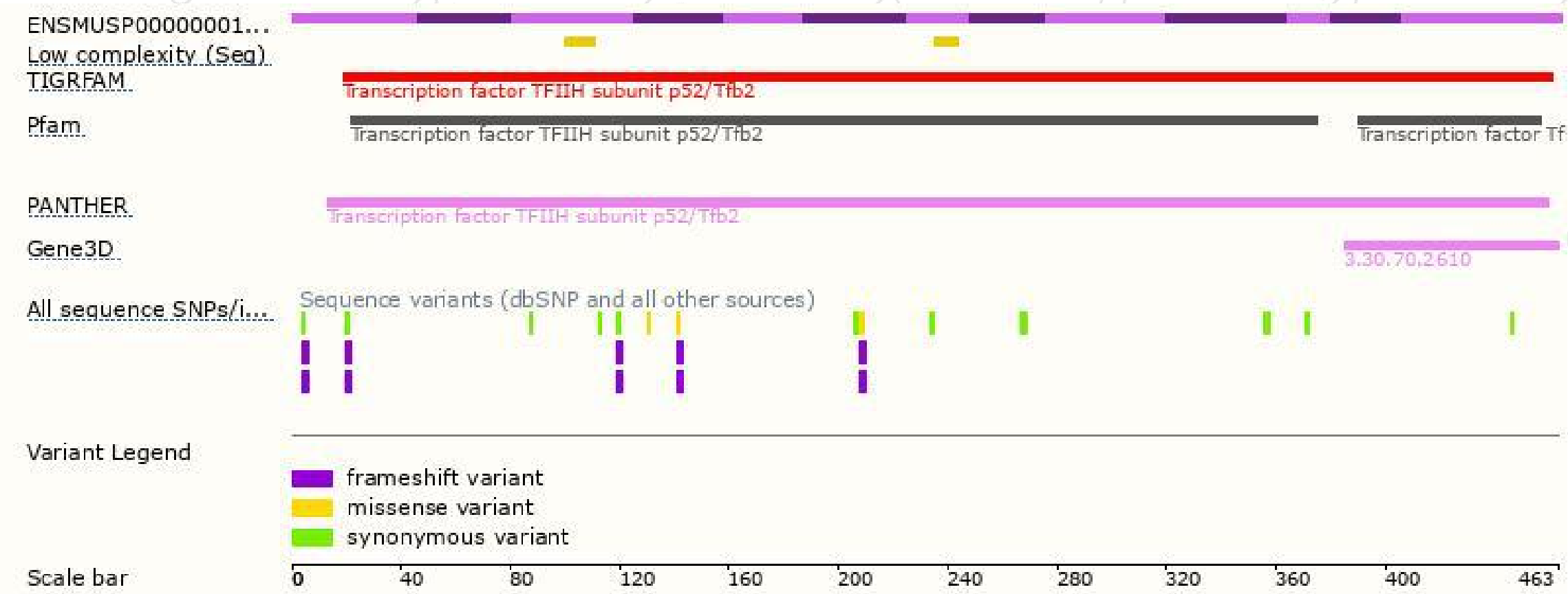
The strategy is based on the design of *Gtf2h4-201* transcript, the transcription is shown below:



Genomic location distribution



Protein domain



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

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