

Gtf2h3 Cas9-CKO Strategy

Designer:

JiaYu

Reviewer:

Xiaojing Li

Design Date:

2020-2-28

Project Overview

Project Name

Gtf2h3

Project type

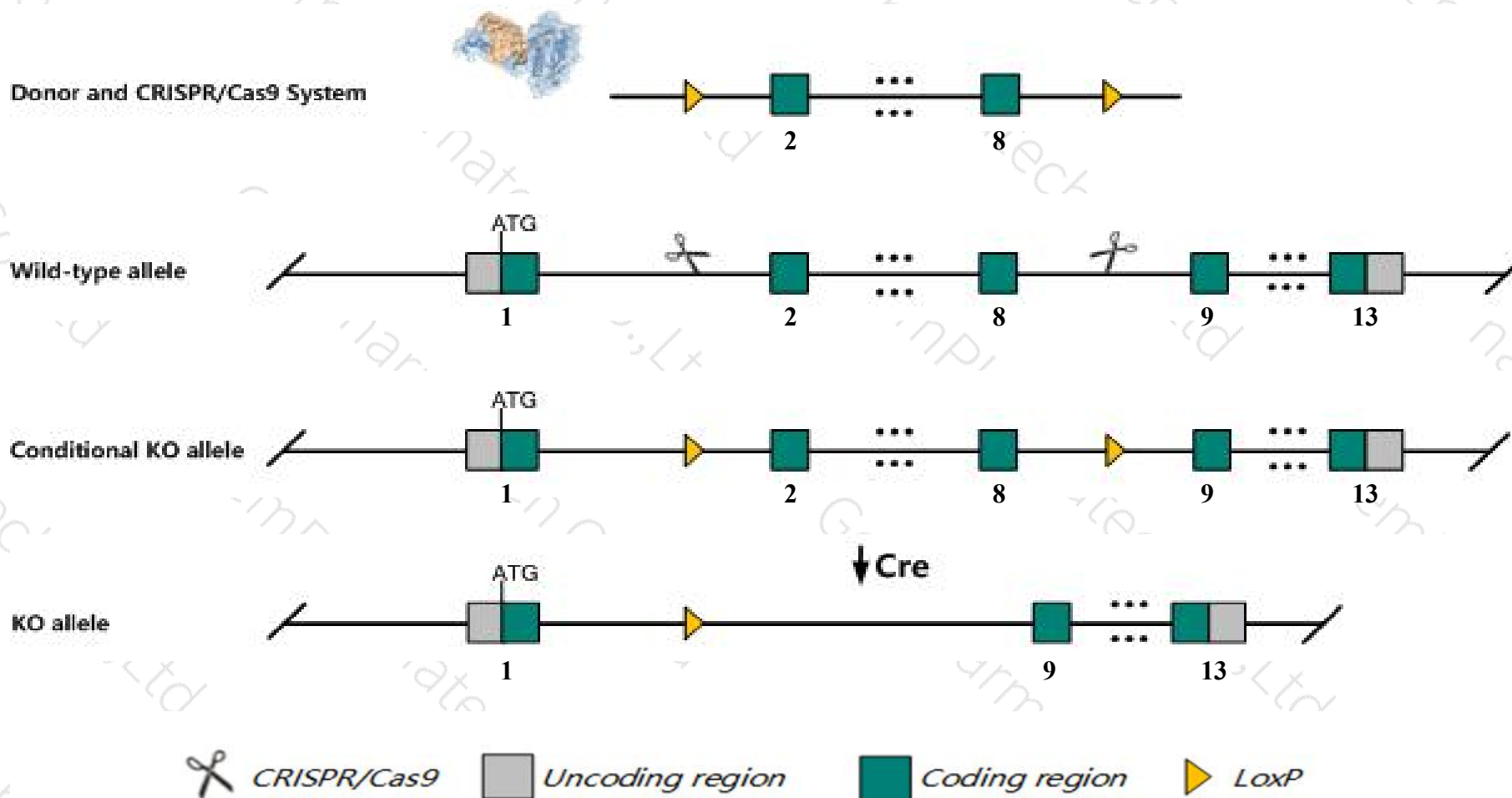
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gtf2h3* gene. The schematic diagram is as follows:



- The *Gtf2h3* gene has 6 transcripts. According to the structure of *Gtf2h3* gene, exon2-exon8 of *Gtf2h3-201* (ENSMUST00000031333.3) transcript is recommended as the knockout region. The region contains 551bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gtf2h3* 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 *Gtf2h3* gene is located on the Chr5. 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)

Gtf2h3 general transcription factor IIH, polypeptide 3 [Mus musculus (house mouse)]

Gene ID: 209357, updated on 12-Mar-2019

Summary



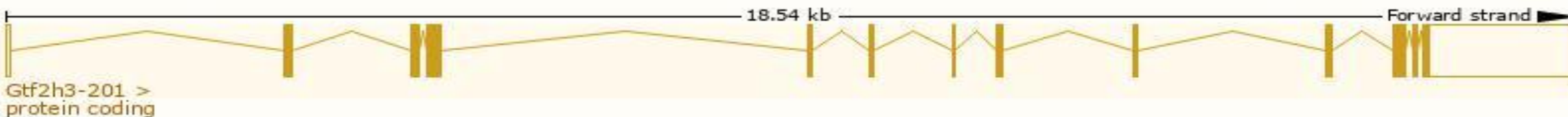
Official Symbol	Gtf2h3 provided by MGI
Official Full Name	general transcription factor IIH, polypeptide 3 provided by MGI
Primary source	MGI:MGI:1277143
See related	Ensembl:ENSMUSG00000029387
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	34kDa, 5033417D07Rik, BTF2, BTF2 p34, C730029A10, D5ErtD679e, TFIIH
Expression	Ubiquitous expression in CNS E11.5 (RPKM 13.8), limb E14.5 (RPKM 12.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

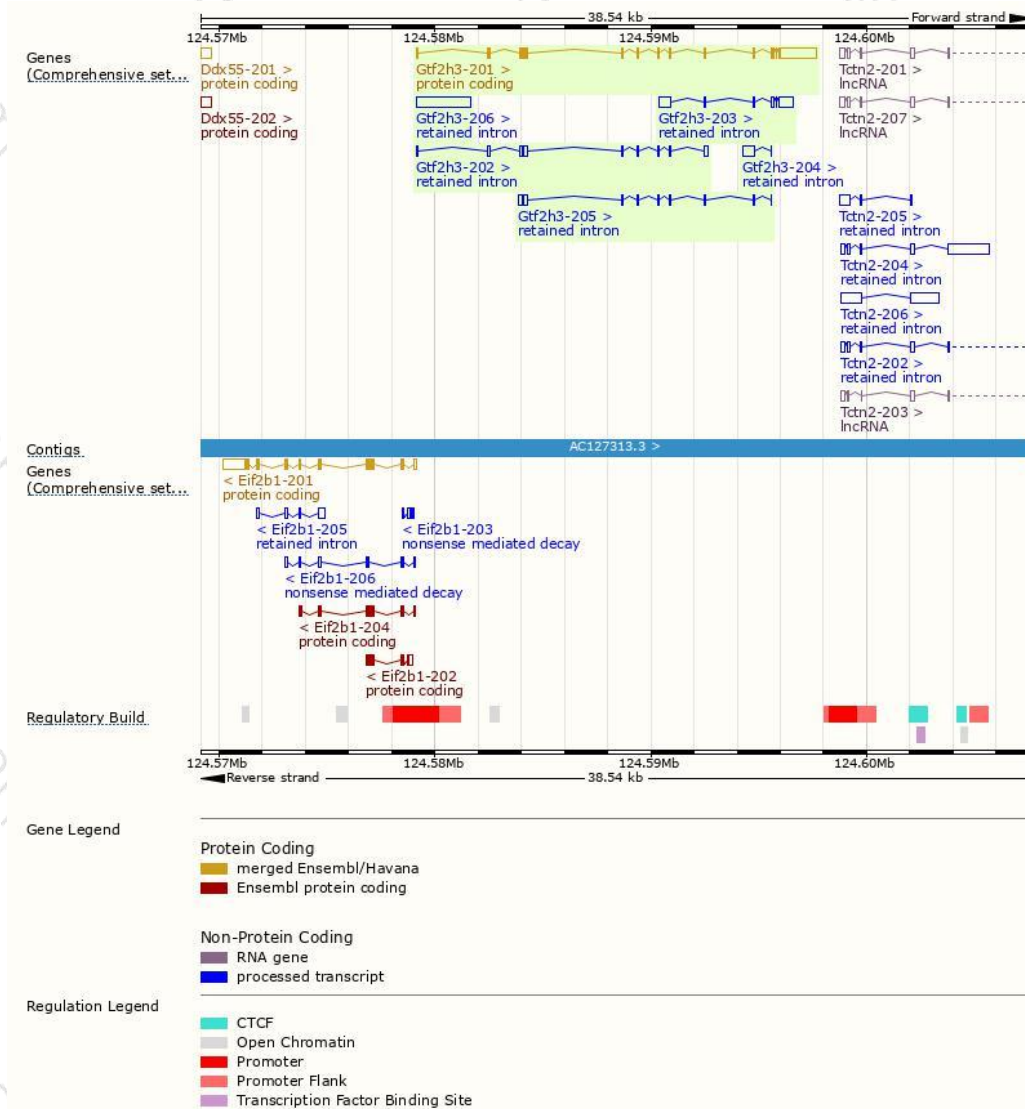
The gene has 6 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gtf2h3-201	ENSMUST00000031333.3	2672	309aa	Protein coding	CCDS19680	Q3UZB8 Q8VD76	TSL:1 GENCODE basic APPRIS P1
Gtf2h3-206	ENSMUST00000200670.1	2531	No protein	Retained intron	-	-	TSL:NA
Gtf2h3-203	ENSMUST00000142746.1	1531	No protein	Retained intron	-	-	TSL:1
Gtf2h3-202	ENSMUST00000126466.7	734	No protein	Retained intron	-	-	TSL:3
Gtf2h3-205	ENSMUST00000153436.7	725	No protein	Retained intron	-	-	TSL:3
Gtf2h3-204	ENSMUST00000143810.1	620	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Gtf2h3-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

