

Tuba8 Cas9-CKO Strategy

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Reviewer:

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Project Overview



Project Name

Tuba8

Project type

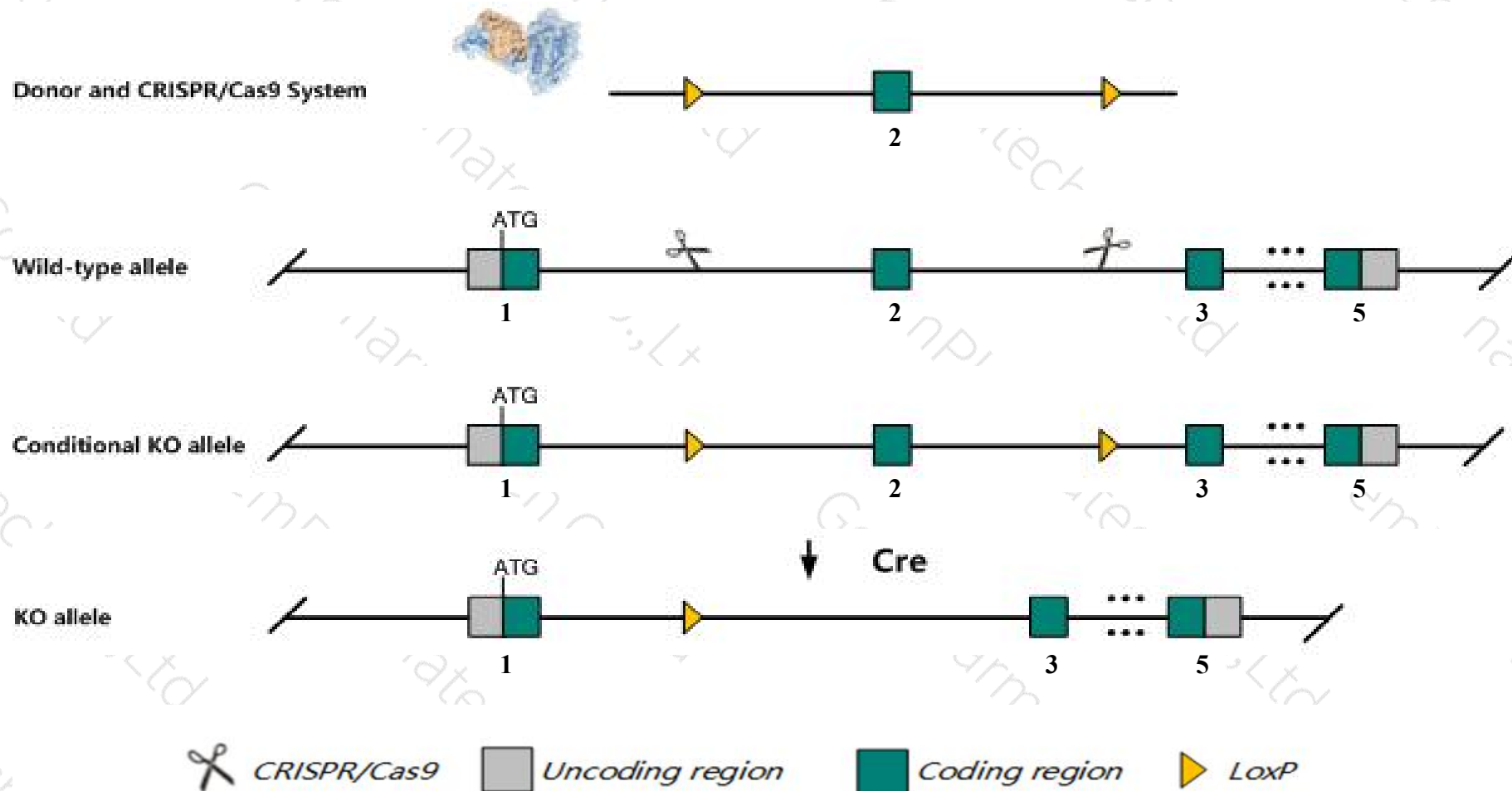
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tuba8* gene. The schematic diagram is as follows:



- The *Tuba8* gene has 1 transcript. According to the structure of *Tuba8* gene, exon2 of *Tuba8-201* (ENSMUST00000032233.8) 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 *Tuba8* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele appear neurologically normal, progress to adulthood and exhibit normal fertility.
- The *Tuba8* gene is located on the Chr6. 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)

Tuba8 tubulin, alpha 8 [*Mus musculus* (house mouse)]

Gene ID: 53857, updated on 5-Jan-2020

Summary

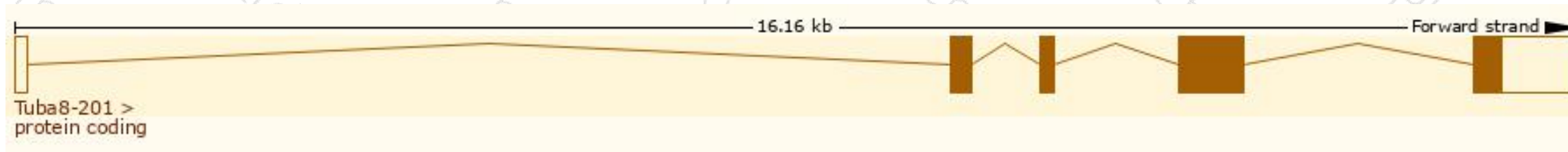
Official Symbol	Tuba8 provided by MGI
Official Full Name	tubulin, alpha 8 provided by MGI
Primary source	MGI:MGI:1858225
See related	Ensembl:ENSMUSG00000030137
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Summary	This gene encodes a member of the tubulin family of cytoskeletal proteins that form the integral component of microtubules. This gene is preferentially expressed in heart, skeletal muscle and testis. The encoded protein may play a role in liver tumorigenesis in mice. [provided by RefSeq, Sep 2015]
Expression	Biased expression in testis adult (RPKM 94.0), heart adult (RPKM 37.0) and 4 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

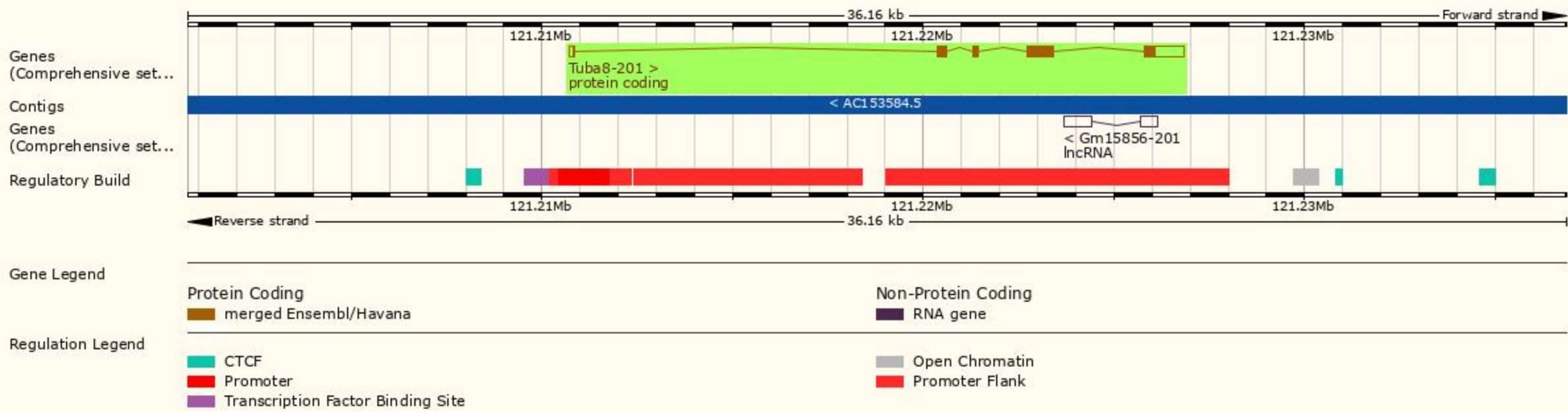
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tuba8-201	ENSMUST00000032233.8	2263	449aa	Protein coding	CCDS39615	Q9JJZ2	TSL:1 GENCODE basic APPRIS P1

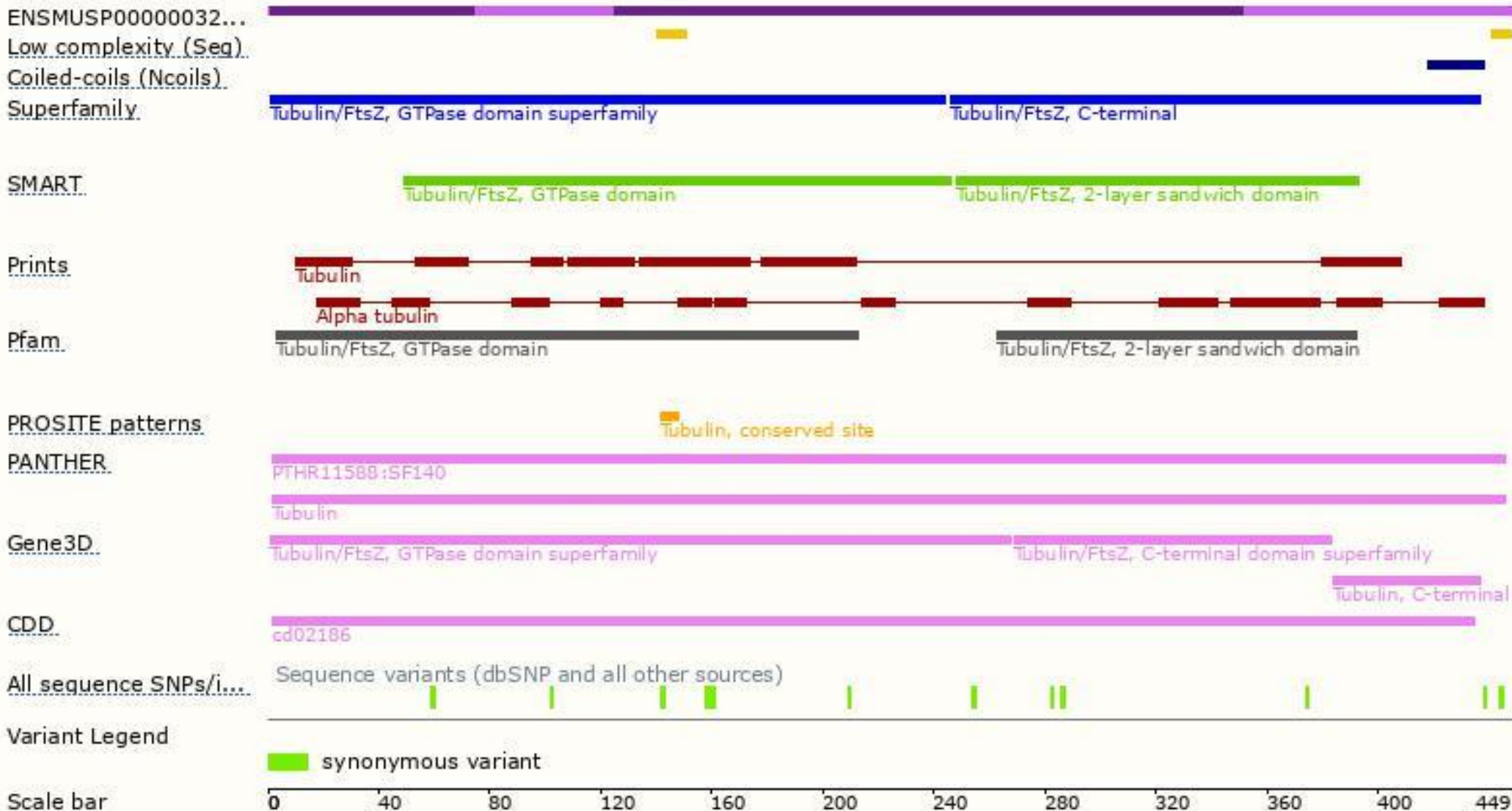
The strategy is based on the design of *Tuba8-201* transcript, the transcription is shown below:



Genomic location distribution



Protein domain



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

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