

Ctcf Cas9-KO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Ctcf

Project type

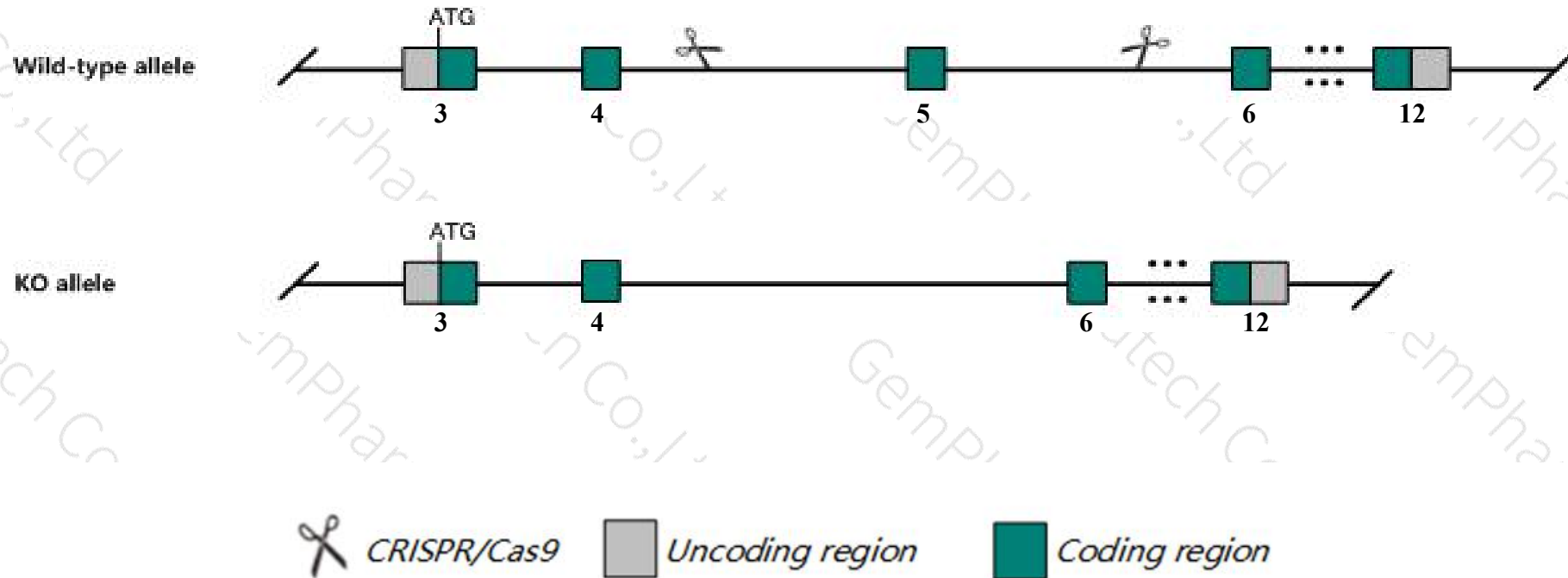
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Ctcf* gene has 6 transcripts. According to the structure of *Ctcf* gene, exon5 of *Ctcf-201* (ENSMUST00000005841.15) transcript is recommended as the knockout region. The region contains 134bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ctcf* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Mice homozygous for a null allele die prior at implantation. Mice homozygous for a conditional allele activated in T cells exhibit a defect in the transition from immature single positive T cells to double positive T cells.
- The *Ctcf* gene is located on the Chr8. 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)

Ctcf CCCTC-binding factor [Mus musculus (house mouse)]

Gene ID: 13018, updated on 26-Mar-2019







Summary



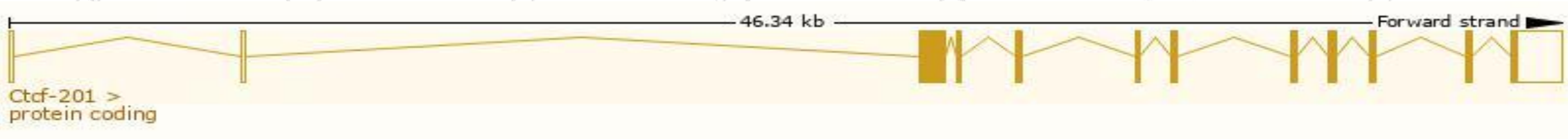
Official Symbol	Ctcf provided by MGI
Official Full Name	CCCTC-binding factor provided by MGI
Primary source	MGI:MGI:109447
See related	Ensembl:ENSMUSG000000005698
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW108038
Expression	Ubiquitous expression in CNS E11.5 (RPKM 18.2), thymus adult (RPKM 13.4) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

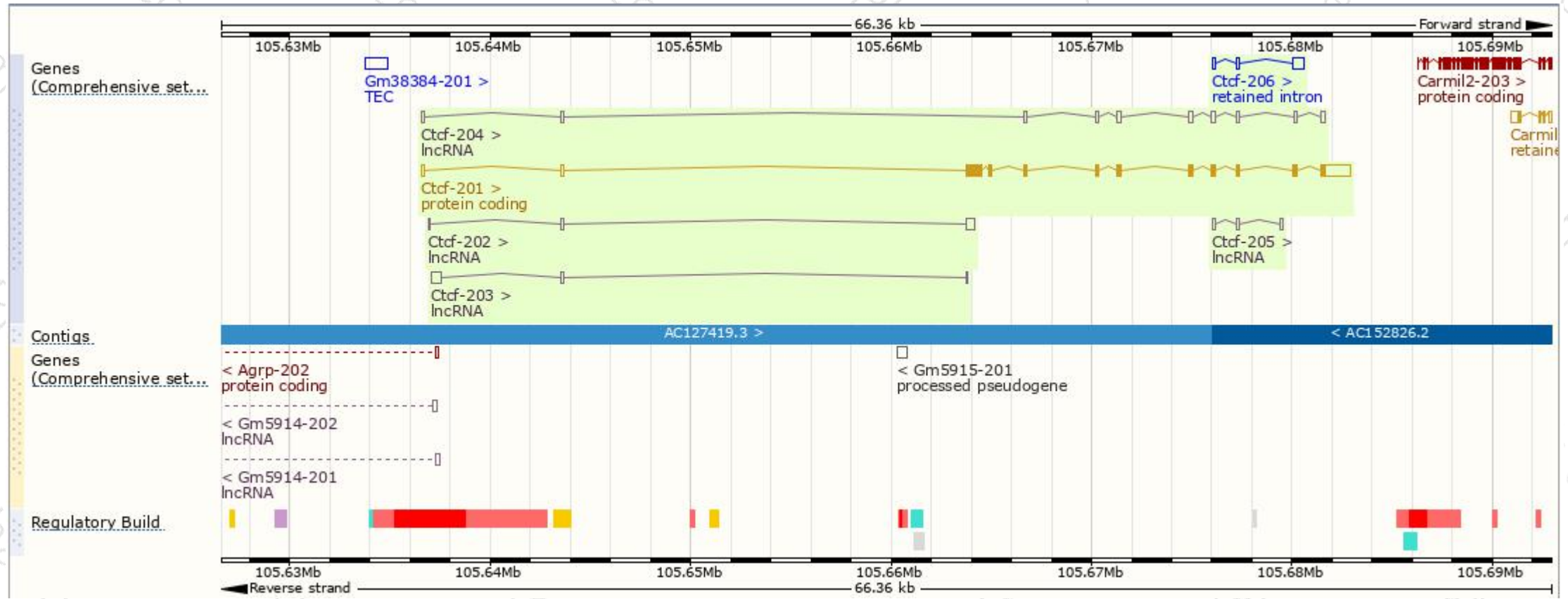
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ctcf-201	ENSMUST00000005841.15	3782	736aa	 Protein coding	CCDS22606	Q61164	TSL:1 GENCODE basic APPRIS P1
Ctcf-206	ENSMUST00000156436.1	851	No protein	 Retained intron	-	-	TSL:3
Ctcf-204	ENSMUST00000132679.7	1554	No protein	 lncRNA	-	-	TSL:5
Ctcf-203	ENSMUST00000129388.1	729	No protein	 lncRNA	-	-	TSL:3
Ctcf-202	ENSMUST00000128510.7	528	No protein	 lncRNA	-	-	TSL:3
Ctcf-205	ENSMUST00000137735.7	469	No protein	 lncRNA	-	-	TSL:3

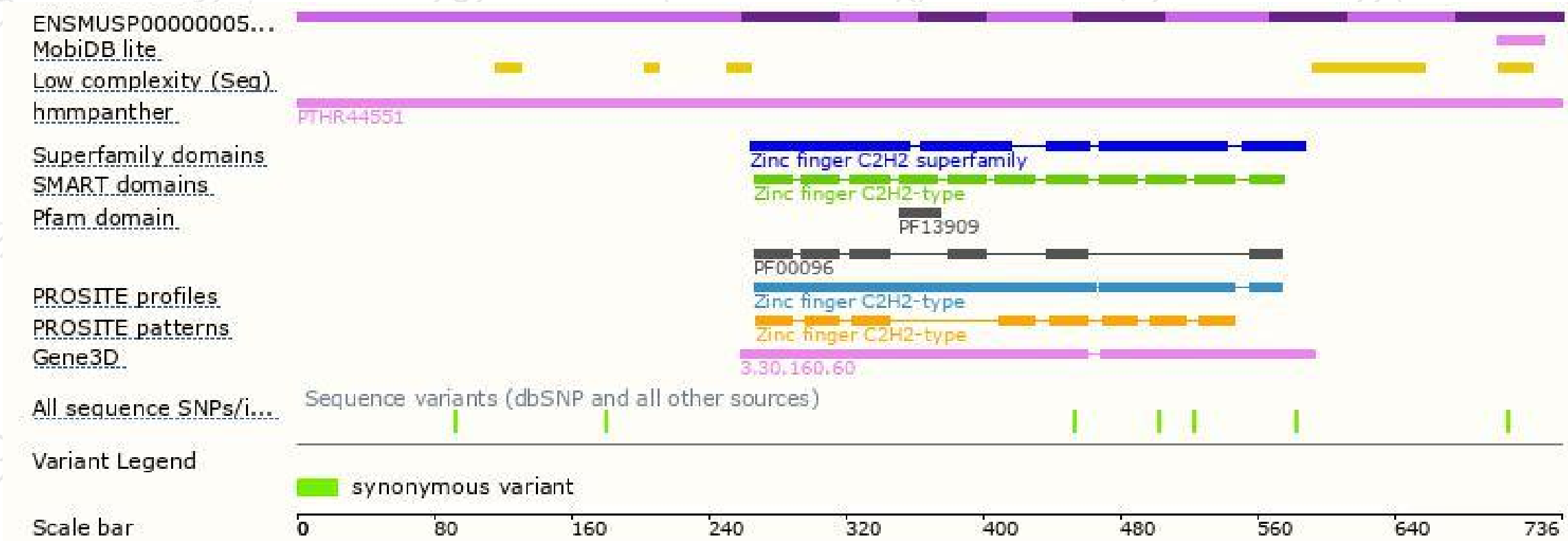
The strategy is based on the design of *Ctcf-201* transcript,The transcription is shown below



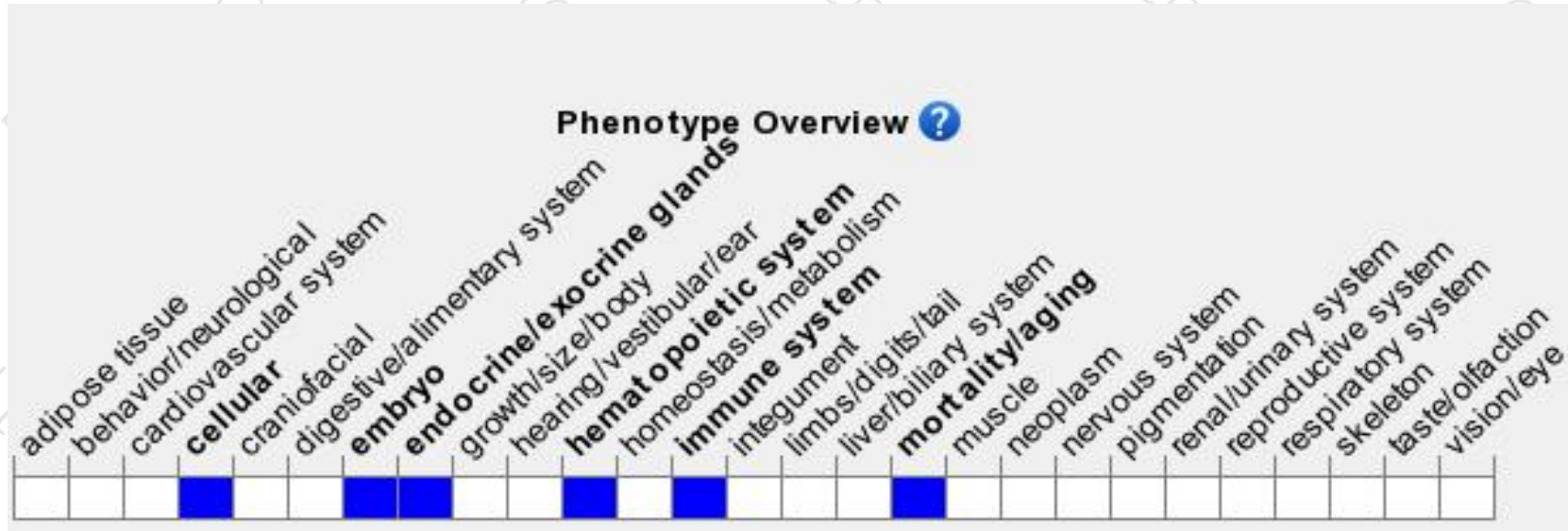
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Mice homozygous for a null allele die prior at implantation. Mice homozygous for a conditional allele activated in T cells exhibit a defect in the transition from immature single positive T cells to double positive T cells.

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

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