

Med13 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Med13

Project type

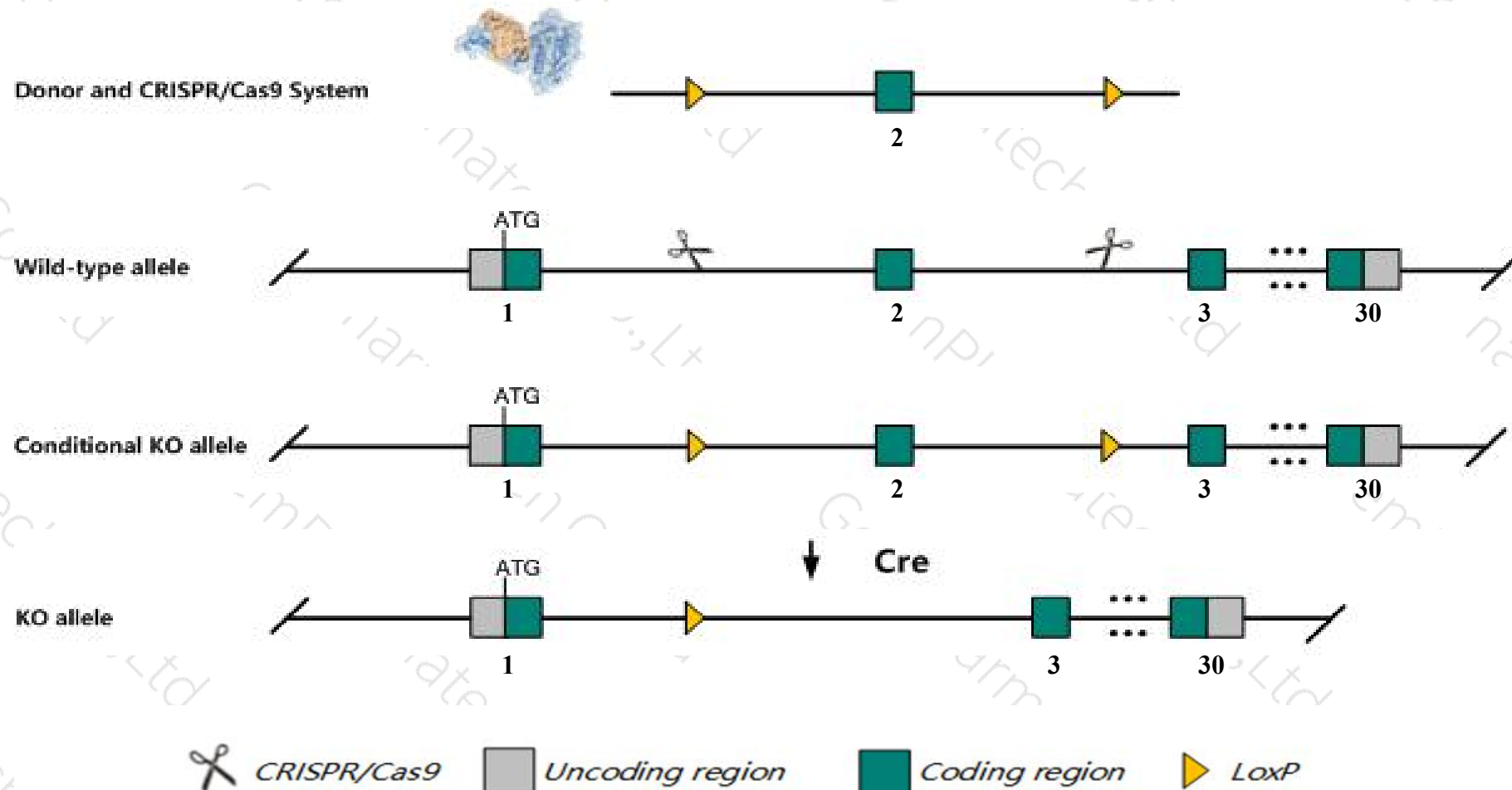
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Med13* gene. The schematic diagram is as follows:



- The *Med13* gene has 4 transcripts. According to the structure of *Med13* gene, exon2 of *Med13-201* (ENSMUST00000043624.8) transcript is recommended as the knockout region. The region contains 235bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Med13* 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.

- According to the existing MGI data, Mice homozygous for a conditional allele exhibited in the heart exhibit increased susceptibility to obesity and worsened glucose intolerance when fed a high fat diet.
- The *Med13* gene is located on the Chr11. 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)

Med13 mediator complex subunit 13 [Mus musculus (house mouse)]

Gene ID: 327987, updated on 16-Feb-2019

Summary



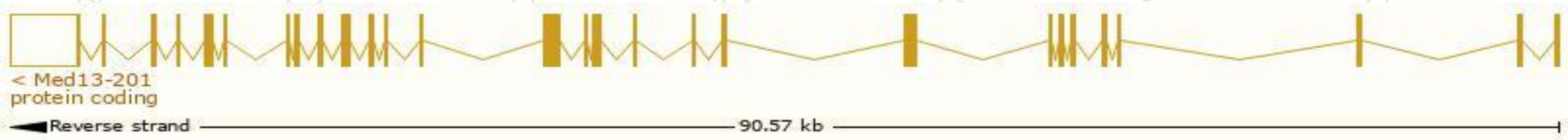
Official Symbol	Med13 provided by MGI
Official Full Name	mediator complex subunit 13 provided by MGI
Primary source	MGI:MGI:3029632
See related	Ensembl:ENSMUSG000000034297
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110067M05Rik, D030023K18, Thrap1, Trap240
Expression	Ubiquitous expression in thymus adult (RPKM 6.7), whole brain E14.5 (RPKM 6.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

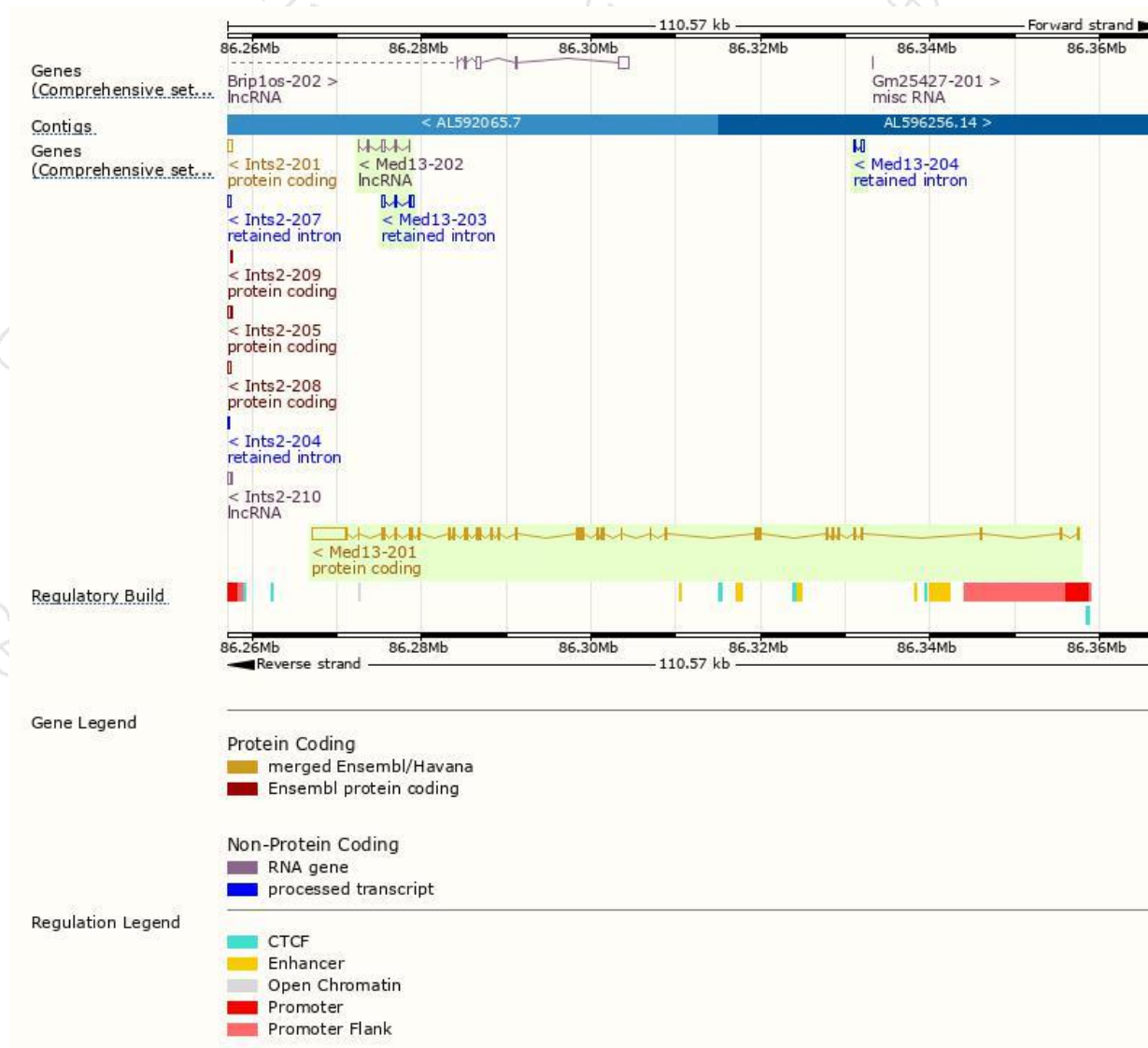
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Med13-201	ENSMUST00000043624.8	10546	2171aa	Protein coding	CCDS36267	Q5SWW4	TSL:2 GENCODE basic APPRIS P1
Med13-203	ENSMUST00000140514.1	738	No protein	Retained intron	-	-	TSL:3
Med13-204	ENSMUST00000144983.1	481	No protein	Retained intron	-	-	TSL:2
Med13-202	ENSMUST00000136622.7	540	No protein	lncRNA	-	-	TSL:5

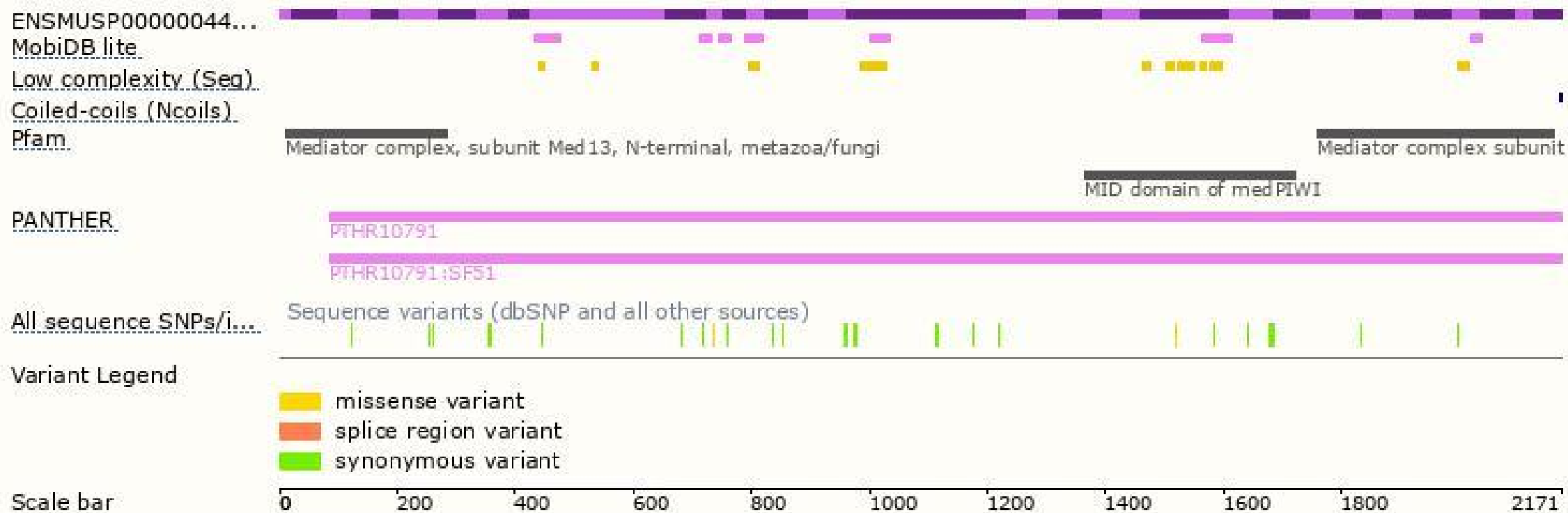
The strategy is based on the design of *Med13-201* transcript,The transcription is shown below



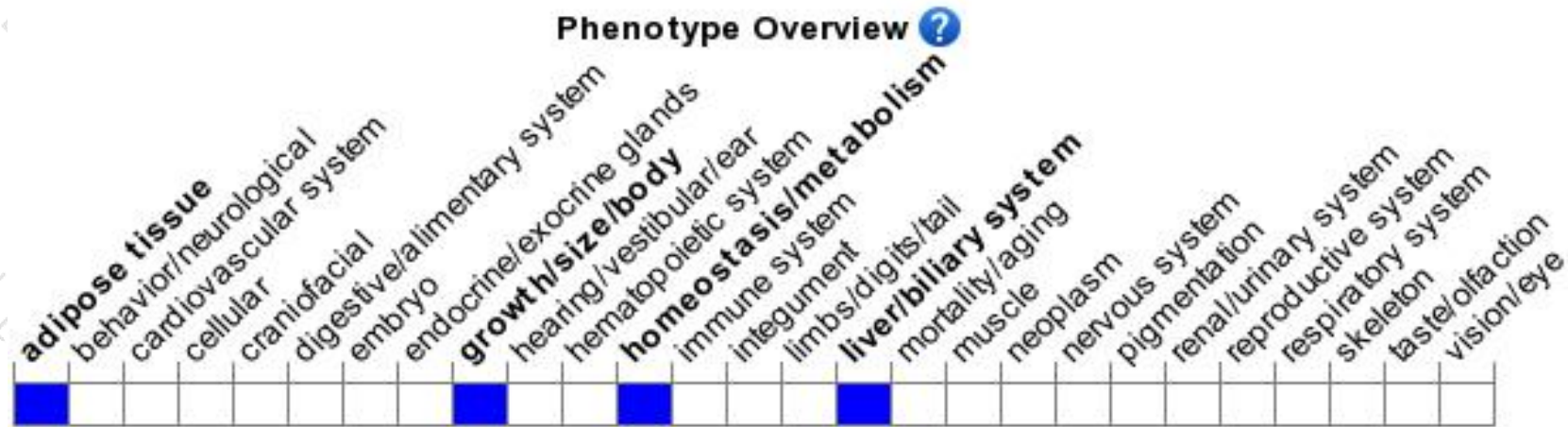
Genomic location distribution



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 conditional allele exhibited in the heart exhibit increased susceptibility to obesity and worsened glucose intolerance when fed a high fat diet.

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

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