

Med24 Cas9-CKO Strategy

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Reviewer:

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Design Date:

2019-9-16

Project Overview

Project Name

Med24

Project type

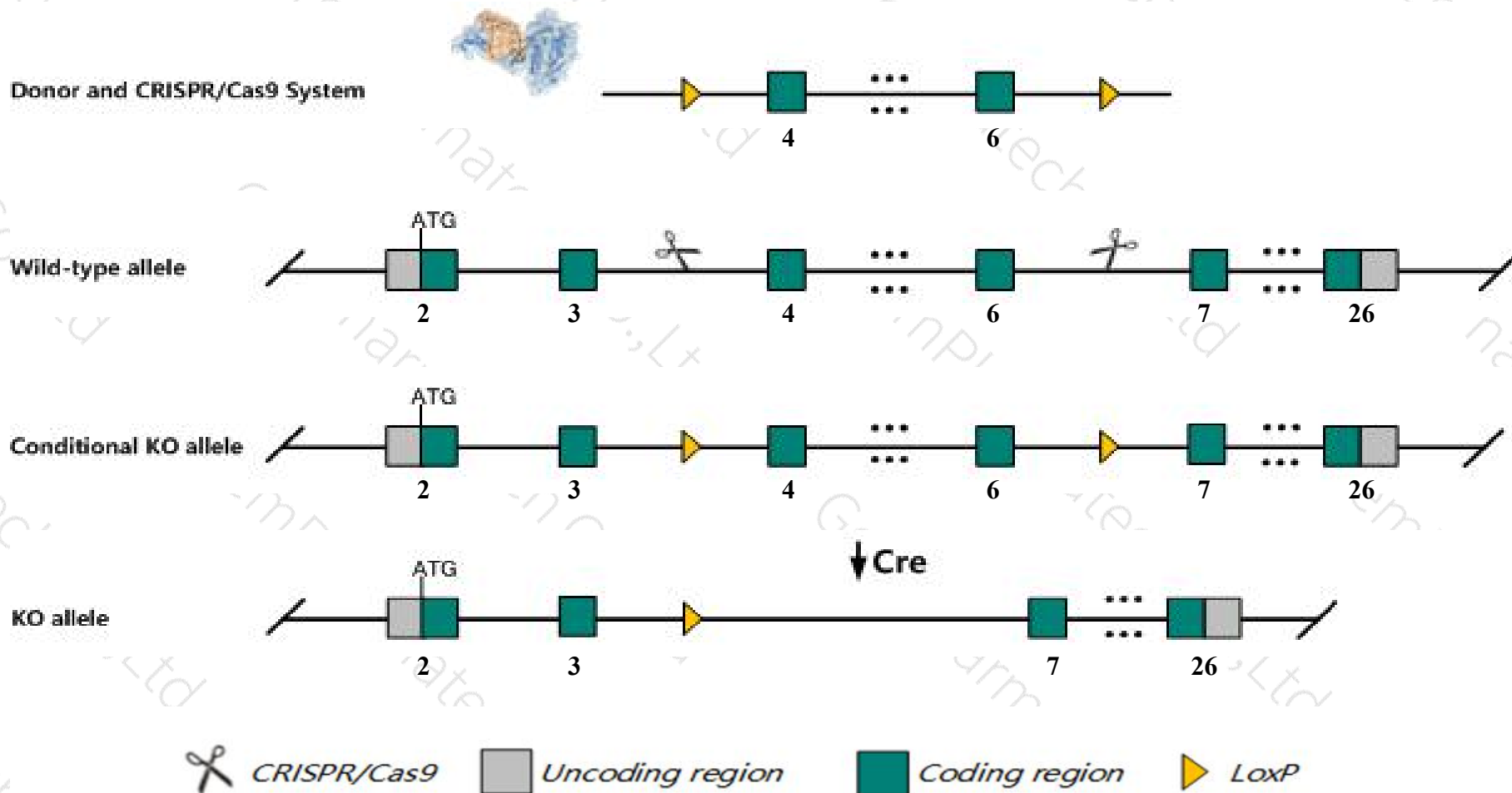
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Med24* gene. The schematic diagram is as follows:



- The *Med24* gene has 12 transcripts. According to the structure of *Med24* gene, exon4-exon6 of *Med24-201* (ENSMUST00000017354.12) transcript is recommended as the knockout region. The region contains 346bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Med24* 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, Homozygous mutant mice die prior to birth exhibiting abnormal heart development, neural tube defects, and anemia.
- The *Med24* 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)

Med24 mediator complex subunit 24 [Mus musculus (house mouse)]

Gene ID: 23989, updated on 3-Feb-2019

Summary



Official Symbol Med24 provided by [MGI](#)

Official Full Name mediator complex subunit 24 provided by [MGI](#)

Primary source [MGI:MGI:1344385](#)

See related [Ensembl:ENSMUSG00000017210](#)

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 911GSE, AU040102, AW547152, D11Ertd307e, DRIP100, Gse2, Pparbp2, Pparbp2, R75526, Thrap4, Trap100

Summary This gene encodes a component of the mediator complex (also known as TRAP, SMCC, DRIP, or ARC), a transcriptional coactivator complex thought to be required for the expression of almost all genes. The mediator complex is recruited by transcriptional activators or nuclear receptors to induce gene expression, possibly by interacting with RNA polymerase II and promoting the formation of a transcriptional pre-initiation complex. The product of this gene may form a submodule of the mediator complex that magnifies the effects of activators on the general transcription machinery. Alternatively spliced transcript variants of this gene have been described, but their full-length nature is not known. [provided by RefSeq, Jul 2008]

Expression Ubiquitous expression in thymus adult (RPKM 41.8), testis adult (RPKM 39.3) and 28 other tissues [See more](#)

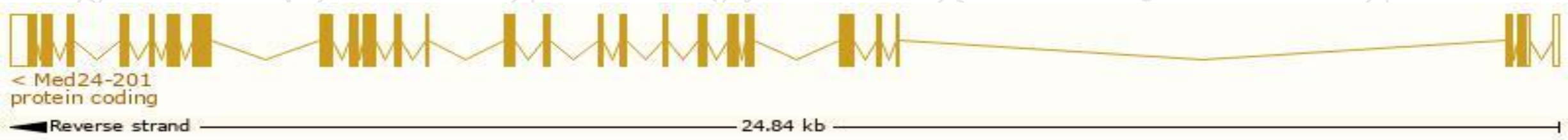
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

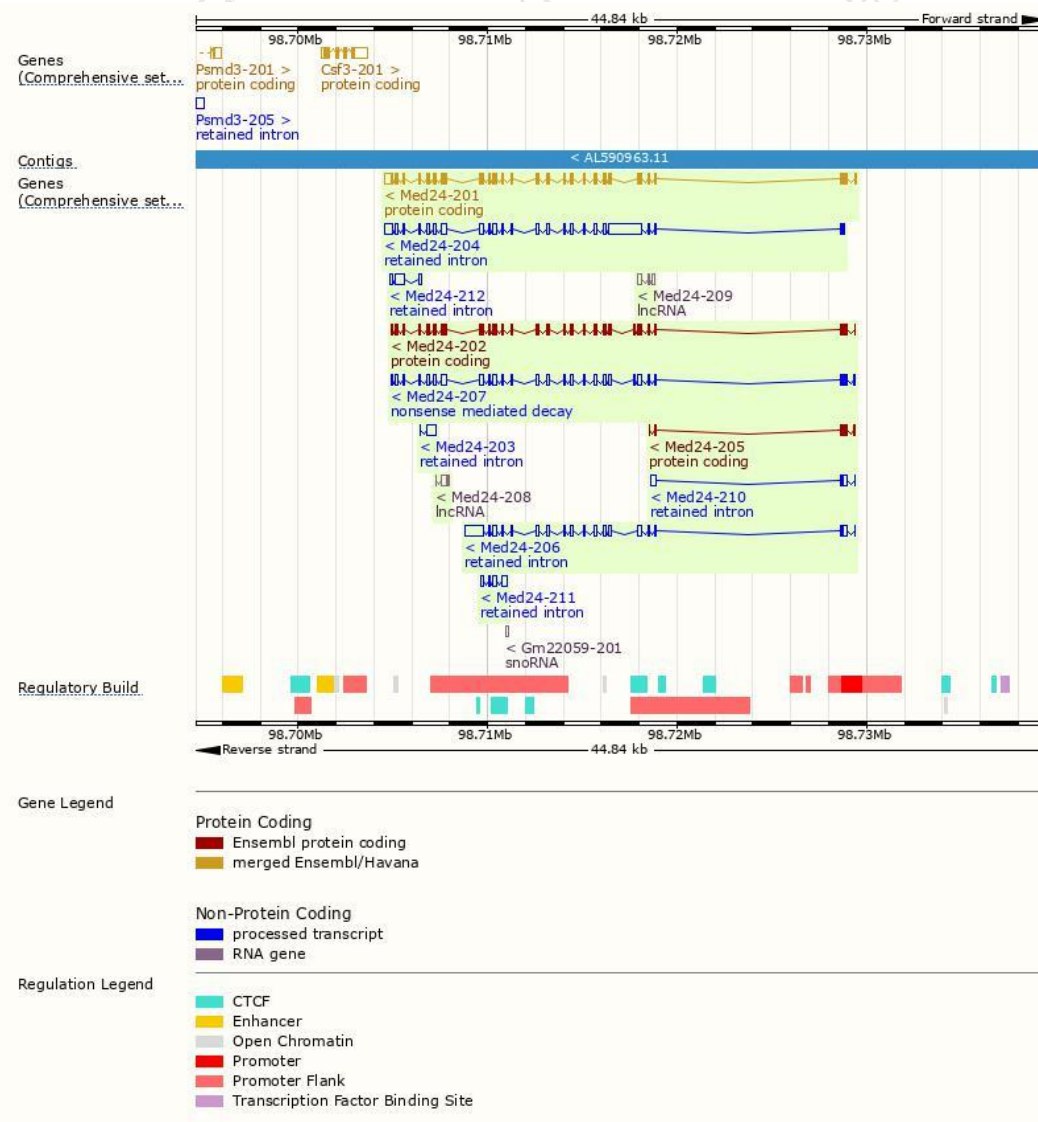
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Med24-201	ENSMUST00000017354.12	3410	987aa	Protein coding	CCDS25361	Q99K74	TSL:1 GENCODE basic APPRIS P2
Med24-202	ENSMUST00000100500.8	3133	1006aa	Protein coding	-	A6PW47	TSL:5 GENCODE basic APPRIS ALT2
Med24-205	ENSMUST00000126565.1	416	90aa	Protein coding	-	A6PW46	CDS 3' incomplete TSL:5
Med24-207	ENSMUST00000138750.7	3165	70aa	Nonsense mediated decay	-	F6XX22	TSL:1
Med24-204	ENSMUST00000125064.7	4577	No protein	Retained intron	-	-	TSL:1
Med24-206	ENSMUST00000137328.7	2830	No protein	Retained intron	-	-	TSL:1
Med24-212	ENSMUST00000156378.1	760	No protein	Retained intron	-	-	TSL:5
Med24-211	ENSMUST00000144720.1	685	No protein	Retained intron	-	-	TSL:2
Med24-210	ENSMUST00000144048.1	537	No protein	Retained intron	-	-	TSL:1
Med24-203	ENSMUST00000124371.1	478	No protein	Retained intron	-	-	TSL:3
Med24-209	ENSMUST00000141566.1	453	No protein	lncRNA	-	-	TSL:3
Med24-208	ENSMUST00000139849.1	370	No protein	lncRNA	-	-	TSL:3

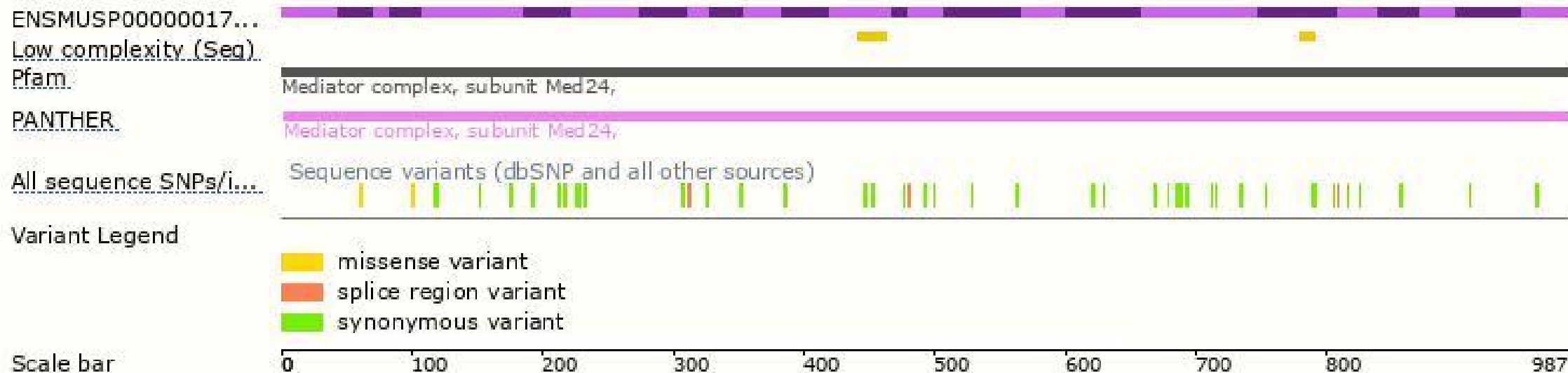
The strategy is based on the design of *Med24-201* transcript,The transcription is shown below



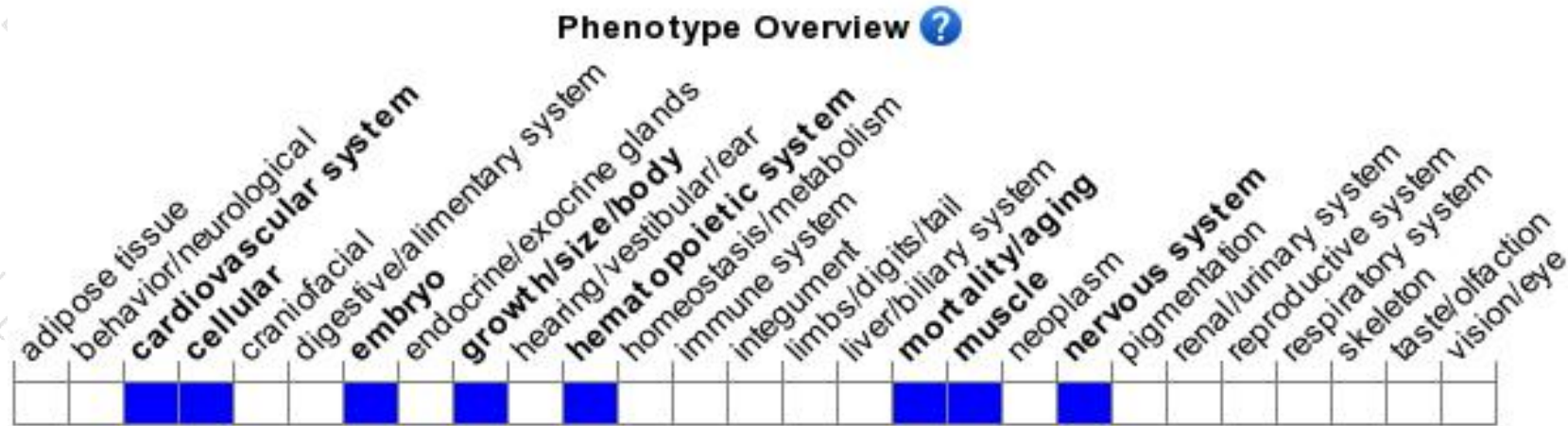
Genomic location distribution



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, Homozygous mutant mice die prior to birth exhibiting abnormal heart development, neural tube defects, and anemia.

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

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