

Med23 Cas9-CKO Strategy

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Design Date: 2021-5-11

Project Overview

Project Name

Med23

Project type

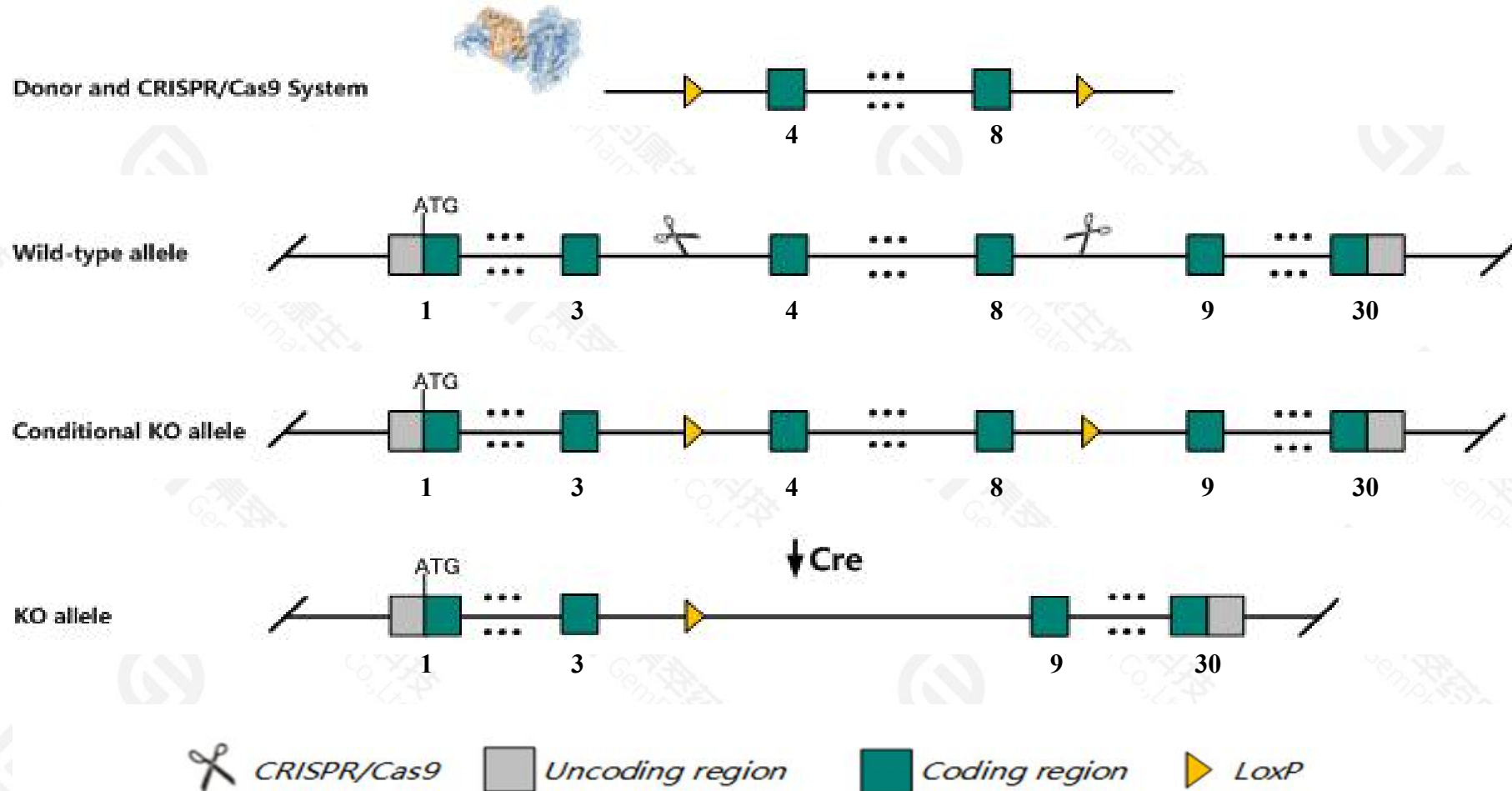
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Med23* gene. The schematic diagram is as follows:



- The *Med23* gene has 10 transcripts. According to the structure of *Med23* gene, exon4-exon8 of *Med23*-202(ENSMUST00000092646.13) transcript is recommended as the knockout region. The region contains 508bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Med23* 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 null mice display embryonic lethality during organogenesis with disorganization of the vasculature and peripheral nervous system.
- Transcript *Med23-204* may not be affected.
- The *Med23* gene is located on the Chr10. 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)

Med23 mediator complex subunit 23 [Mus musculus (house mouse)]

Gene ID: 70208, updated on 9-Feb-2021

Summary



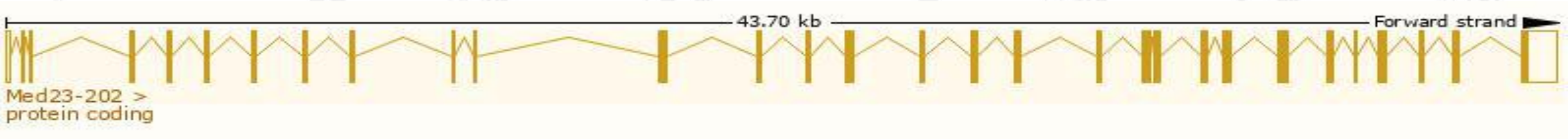
Official Symbol	Med23 provided by MGI
Official Full Name	mediator complex subunit 23 provided by MGI
Primary source	MGI:MGI:1917458
See related	Ensembl:ENSMUSG00000019984
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	130kDa, 3000002A17Rik, Cr, Crsp3, ESTM, ESTM7, Su, Sur2, X83317, mKIAA1216, sno, snouty
Expression	Ubiquitous expression in whole brain E14.5 (RPKM 13.8), CNS E14 (RPKM 13.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

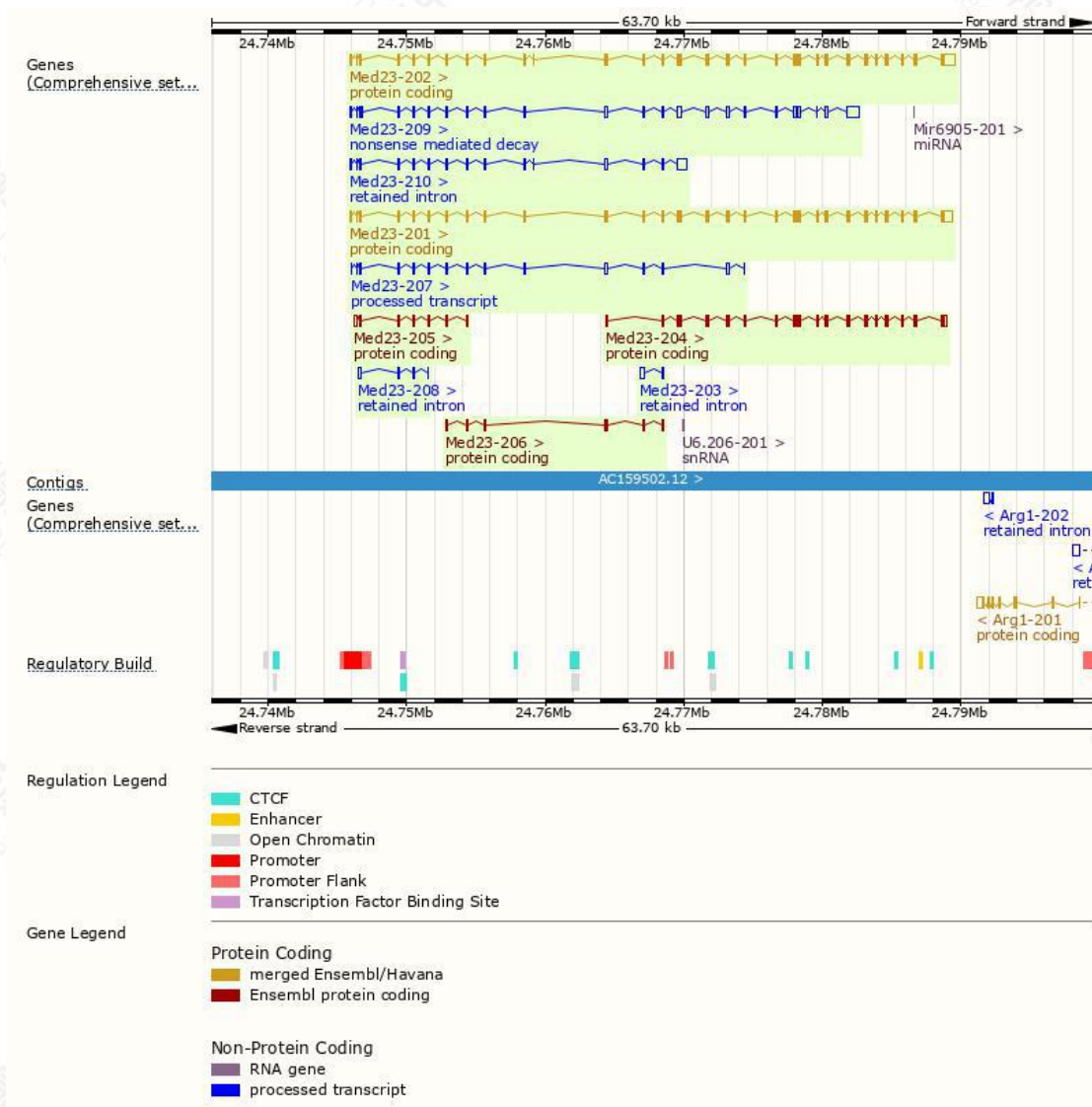
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Med23-202	ENSMUST00000092646.13	5098	1376aa	Protein coding	CCDS48522		TSL:1 , GENCODE basic , APPRIS ALT1 ,
Med23-201	ENSMUST00000020159.15	4798	1370aa	Protein coding	CCDS35871		TSL:1 , GENCODE basic , APPRIS P3 ,
Med23-204	ENSMUST00000176285.2	3226	1010aa	Protein coding	-		CDS 5' incomplete , TSL:5 ,
Med23-205	ENSMUST00000176313.2	770	197aa	Protein coding	-		CDS 3' incomplete , TSL:2 ,
Med23-206	ENSMUST00000176502.2	704	234aa	Protein coding	-		CDS 5' and 3' incomplete , TSL:3 ,
Med23-209	ENSMUST00000177232.8	3953	58aa	Nonsense mediated decay	-		TSL:1 ,
Med23-207	ENSMUST00000176827.8	1635	No protein	Processed transcript	-		TSL:5 ,
Med23-210	ENSMUST00000177522.8	2192	No protein	Retained intron	-		TSL:1 ,
Med23-208	ENSMUST00000177175.2	419	No protein	Retained intron	-		TSL:3 ,
Med23-203	ENSMUST00000175786.2	368	No protein	Retained intron	-		TSL:2 ,

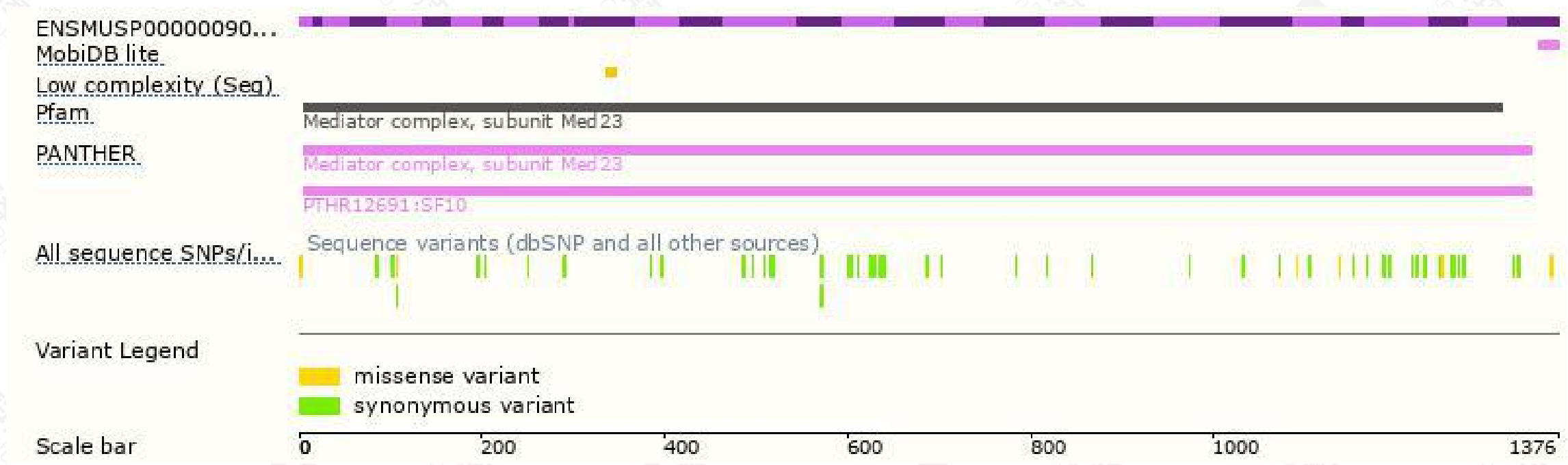
The strategy is based on the design of *Med23-202* transcript,the transcription is shown below:



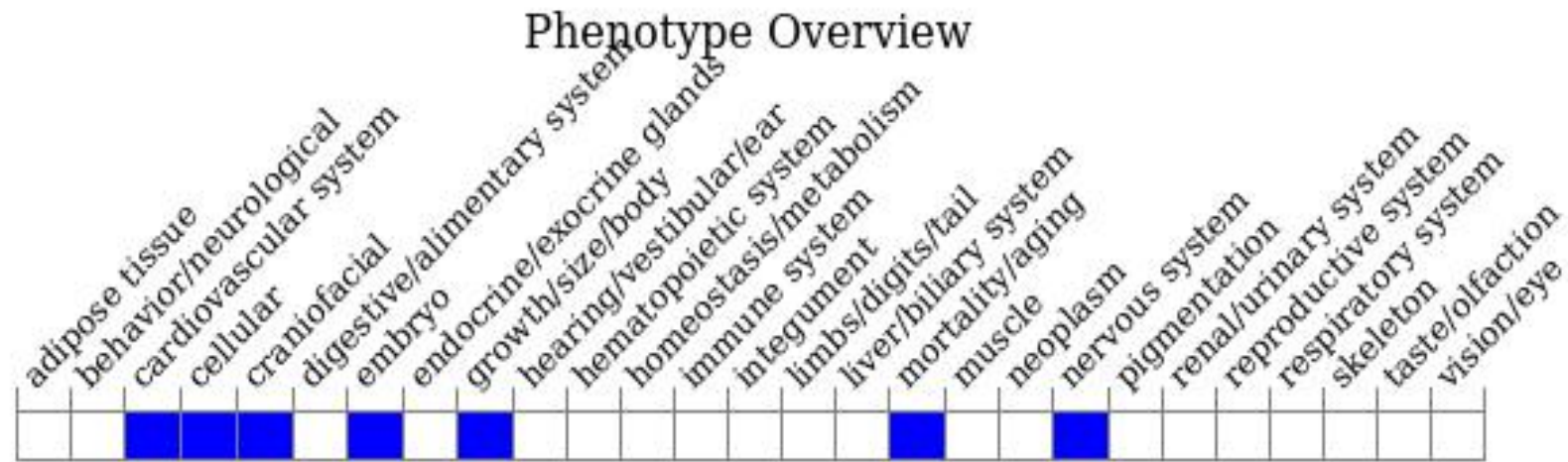
Genomic location distribution



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 null mice display embryonic lethality during organogenesis with disorganization of the vasculature and peripheral nervous system.

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

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