

Med28 Cas9-KO Strategy

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Project Overview

Project Name

Med28

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Med28* gene. The schematic diagram is as follows:



- The *Med28* gene has 5 transcripts. According to the structure of *Med28* gene, exon1-exon3 of *Med28-205* (ENSMUST00000156481.7) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Med28* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Embryos homozygous for a knock-out allele exhibit disorganized extraembryonic tissues, failure to form an egg cylinder, absent embryonic epiblast, and peri-implantation lethality resulting from the loss of pluripotency of the inner cell mass.
- The *Med28* gene is located on the Chr5. 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)

Med28 mediator complex subunit 28 [Mus musculus (house mouse)]

Gene ID: 66999, updated on 31-Jan-2019

Summary



Official Symbol	Med28 provided by MGI
Official Full Name	mediator complex subunit 28 provided by MGI
Primary source	MGI:MGI:1914249
See related	Ensembl:ENSMUSG00000015804
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	1500003D12Rik, AI451633, AU045690, Eg1, FKSG20, magicin
Expression	Ubiquitous expression in testis adult (RPKM 18.0), kidney adult (RPKM 11.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

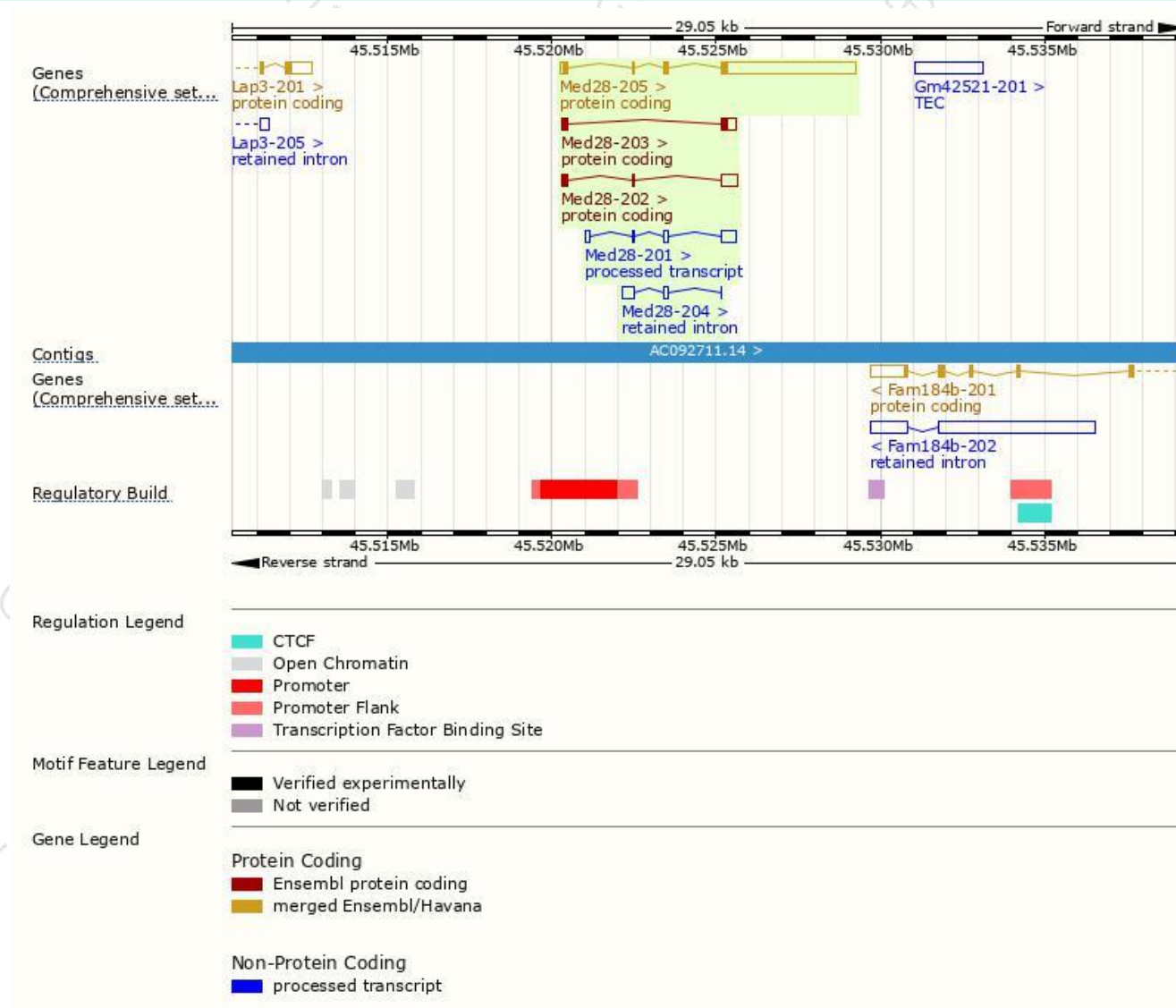
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Med28-205	ENSMUST00000156481.7	4560	178aa	Protein coding	CCDS19275	Q920D3	TSL:1 GENCODE basic APPRIS P1
Med28-202	ENSMUST00000118833.2	734	82aa	Protein coding	-	D3Z7D6	TSL:2 GENCODE basic
Med28-203	ENSMUST00000119579.2	636	118aa	Protein coding	-	D3YWT4	TSL:3 GENCODE basic
Med28-201	ENSMUST00000015948.13	778	No protein	Processed transcript	-	-	TSL:2
Med28-204	ENSMUST00000139586.2	512	No protein	Retained intron	-	-	TSL:2

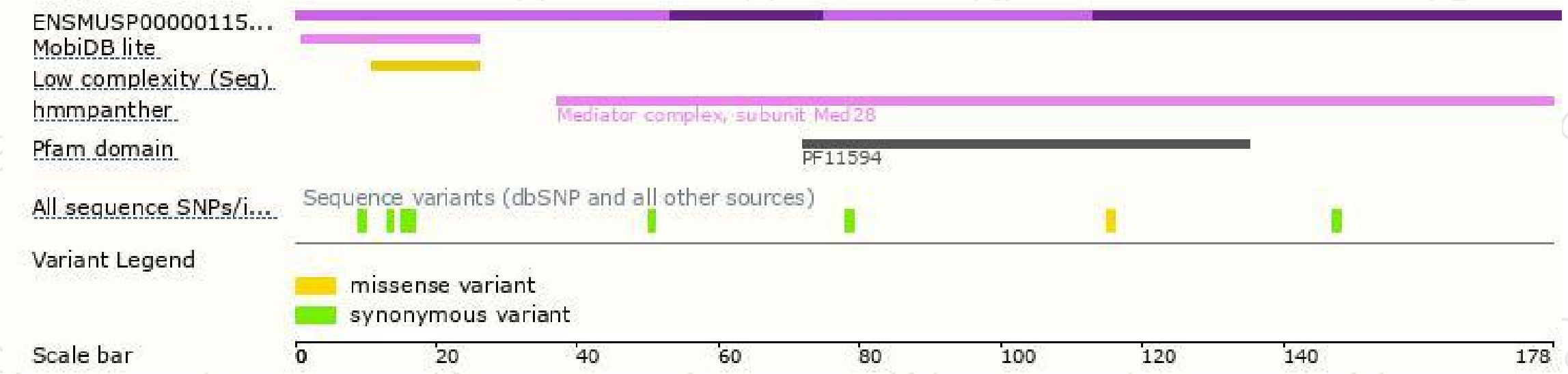
The strategy is based on the design of *Med28-205* transcript,The transcription is shown below



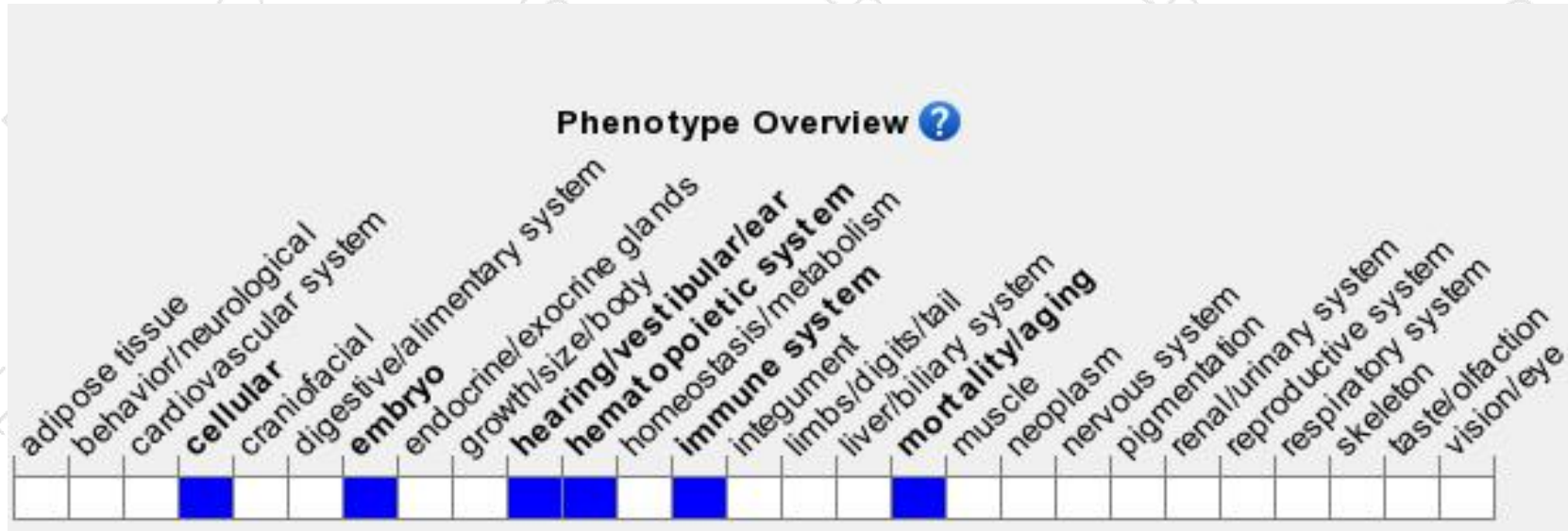
Genomic location distribution



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, Embryos homozygous for a knock-out allele exhibit disorganized extraembryonic tissues, failure to form an egg cylinder, absent embryonic epiblast, and peri-implantation lethality resulting from the loss of pluripotency of the inner cell mass.

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

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