Med8 Cas9-KO Strategy

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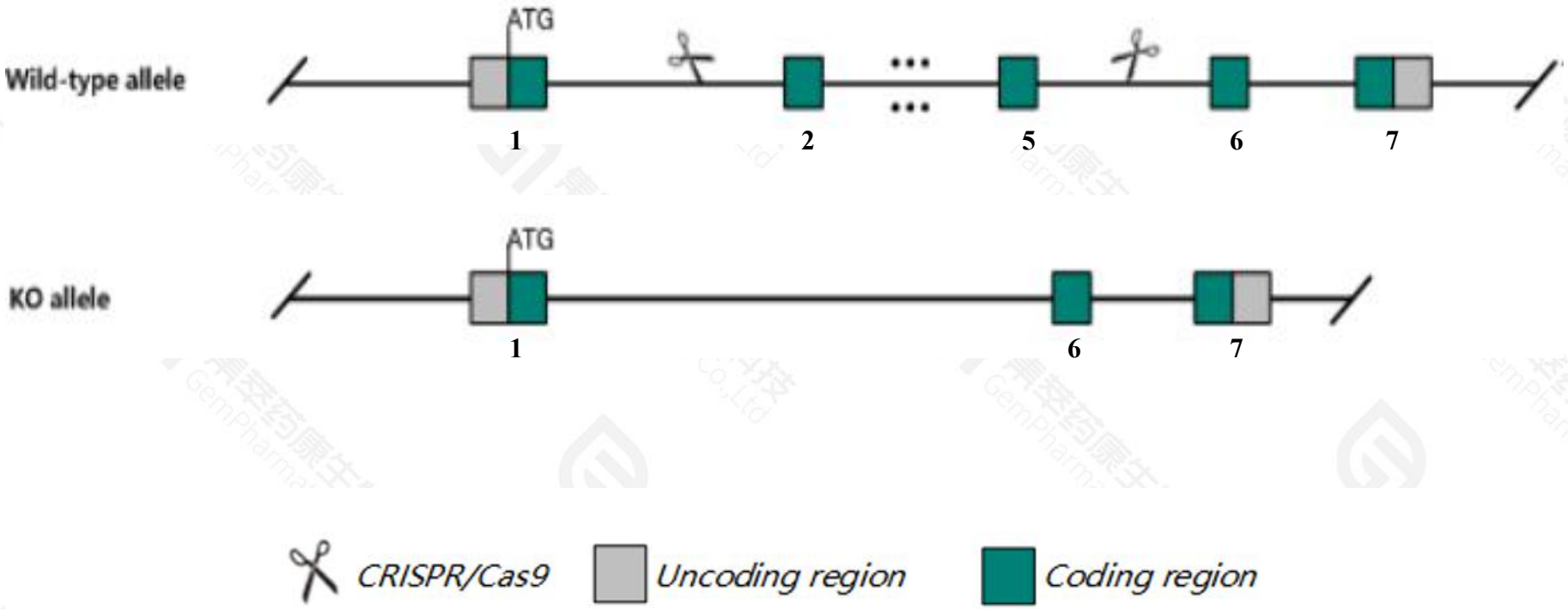
Project Overview

Project Name	***Med8***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Med8* gene. The schematic diagram is as follows:



Technical routes

➢ The *Med8* gene has 10 transcripts. According to the structure of *Med8* gene, exon2-exon5 of *Med8-201*(ENSMUST00000019229.15) transcript is recommended as the knockout region.The region contains 487bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Med8* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ The KO region is about 1.5kb away to the N-terminal of *Szt2* gene,this strategy may influence the regulatory function of the N-terminal of *Szt2* gene.

➢ The *Med8* gene is located on the Chr4. 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）

集萃药康 GemPharmatech

Med8 mediator complex subunit 8 [Mus musculus (house mouse)]

Gene ID: 80509, updated on 17-Dec-2020

Summary

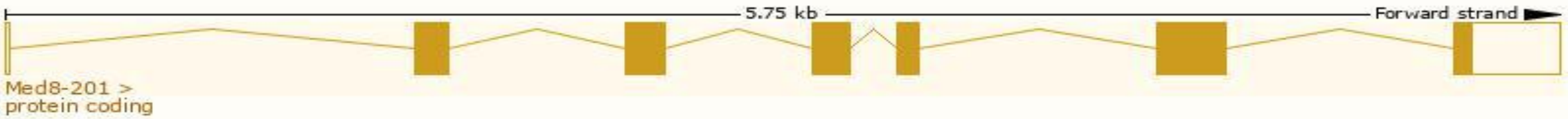
Official Symbol	Med8 provided by MGI
Official Full Name	mediator complex subunit 8 provided by MGI
Primary source	MGI:MGI:1915269
See related	Ensembl:ENSMUSG00000006392
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2210021A15Rik, AB041805, ARC, ARC32
Expression	Ubiquitous expression in CNS E11.5 (RPKM 17.5), liver E14 (RPKM 15.3) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

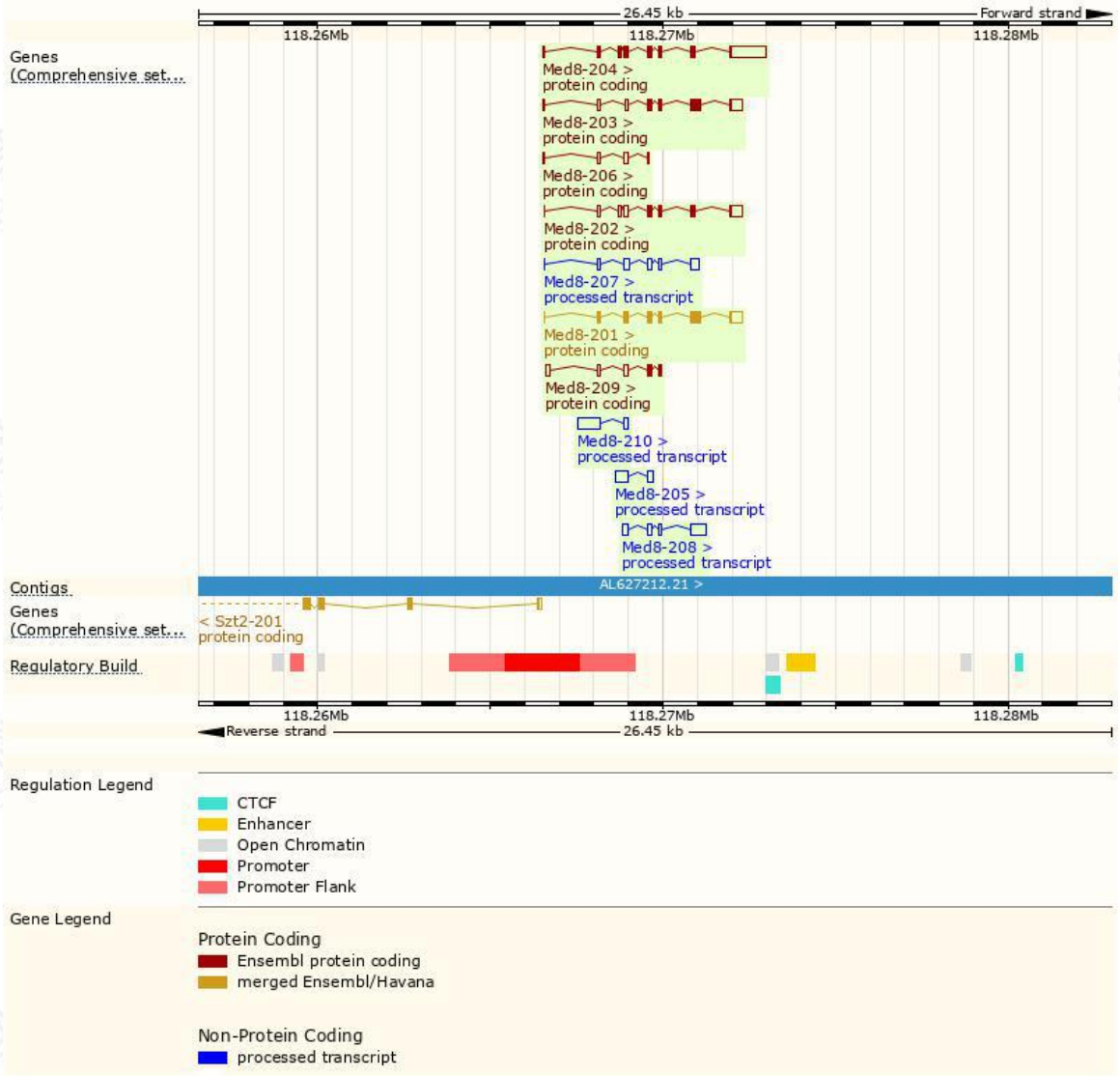
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Med8-204	ENSMUST00000106384.10	1743	234aa	Protein coding	CCDS18548		TSL:1 , GENCODE basic ,
Med8-201	ENSMUST00000019229.15	1145	268aa	Protein coding	CCDS38854		TSL:1 , GENCODE basic , APPRIS P1 ,
Med8-203	ENSMUST00000084319.11	1134	179aa	Protein coding	CCDS71459		TSL:1 , GENCODE basic ,
Med8-202	ENSMUST00000073881.8	1052	129aa	Protein coding	-		TSL:1 , GENCODE basic ,
Med8-209	ENSMUST00000144577.2	635	75aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Med8-206	ENSMUST00000126089.8	352	18aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Med8-208	ENSMUST00000135201.2	815	No protein	Processed transcript	-		TSL:2 ,
Med8-210	ENSMUST00000152633.2	795	No protein	Processed transcript	-		TSL:2 ,
Med8-207	ENSMUST00000130421.8	775	No protein	Processed transcript	-		TSL:3 ,
Med8-205	ENSMUST00000125235.2	538	No protein	Processed transcript	-		TSL:3 ,

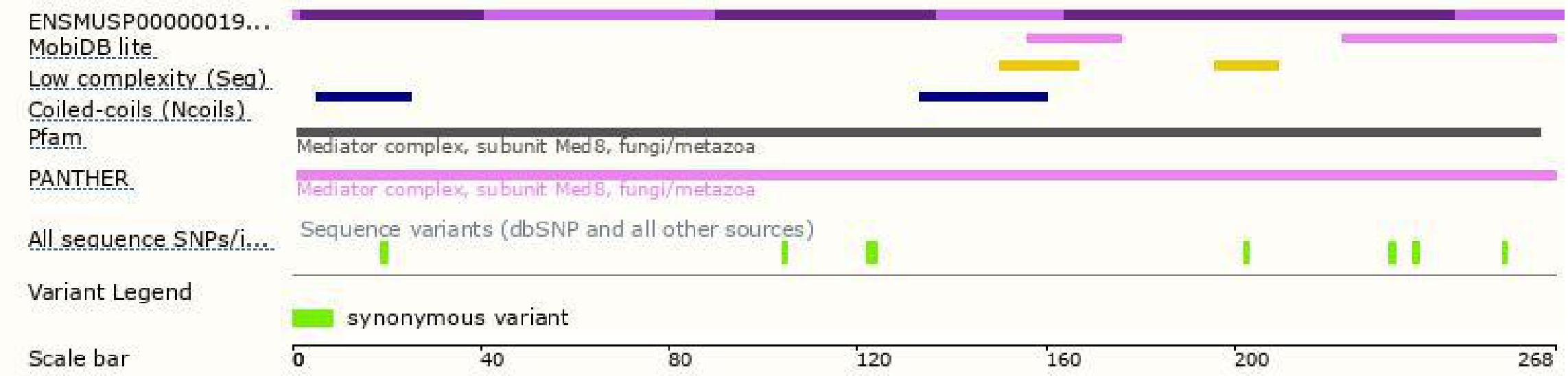
The strategy is based on the design of *Med8-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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