Med1 Cas9-KO Strategy

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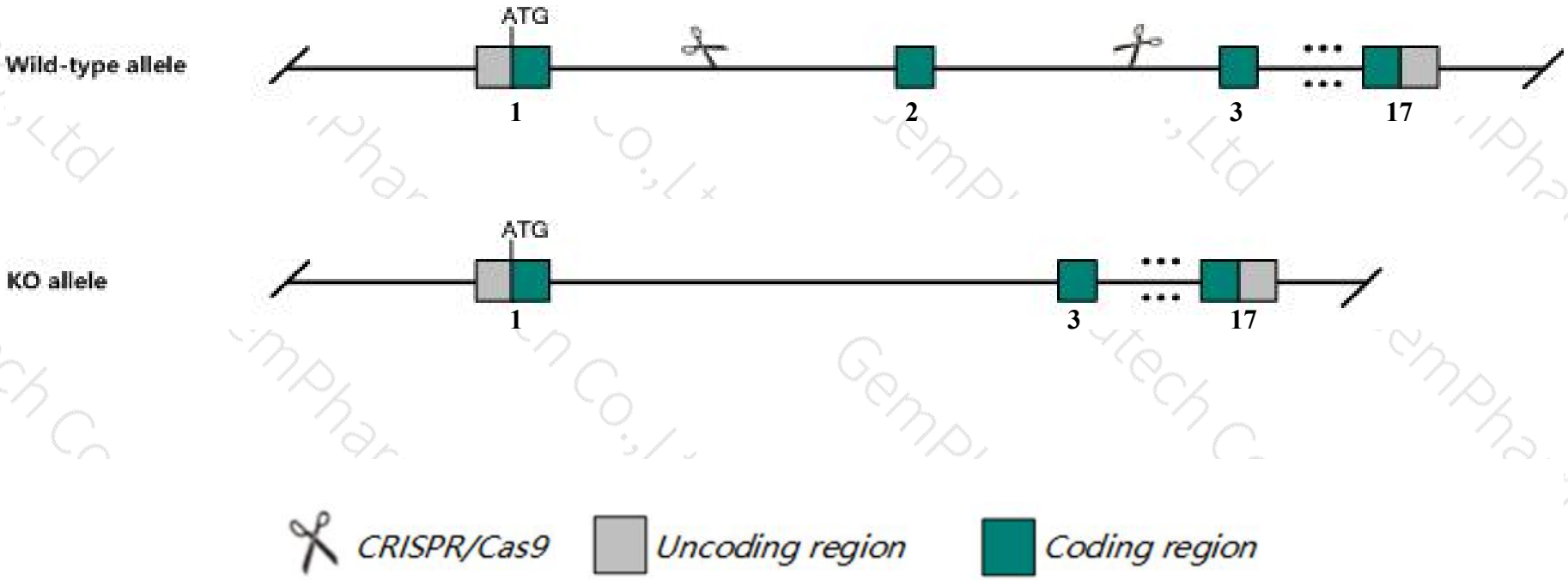
Project Overview

Project Name	***Med1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Med1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Med1* gene has 7 transcripts. According to the structure of *Med1* gene, exon2 of *Med1-203* (ENSMUST00000107545.8) transcript is recommended as the knockout region.The region contains 107bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Med1* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Homozygotes for targeted null mutations have defects of placental vasculature, heart, and lens, arrested erythrocytic differentiation, impaired neuronal development, and die by embryonic day 11.5.

- Transcript *Med1*-204&205&206&207 may not be affected.

- The *Med1* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Med1 mediator complex subunit 1 [Mus musculus (house mouse)]

Gene ID: 19014, updated on 19-Mar-2019

Summary

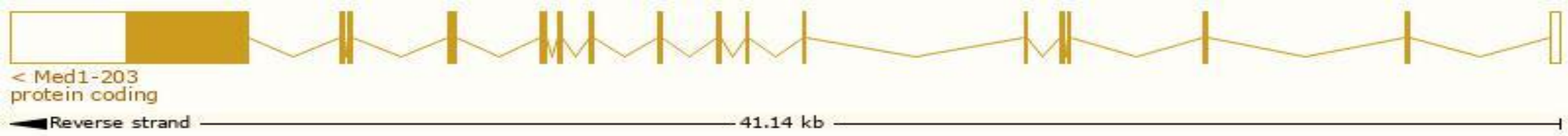
Official Symbol	Med1 provided by MGI
Official Full Name	mediator complex subunit 1 provided byMGI
Primary source	MGI:MGI:1100846
See related	Ensembl:ENSMUSG00000018160
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI480703, CRSP210, DRIP205, PBP, Pparbp, TRAP220, TRIP-2, I11Jus15
Expression	Ubiquitous expression in testis adult (RPKM 9.6), CNS E11.5 (RPKM 7.9) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

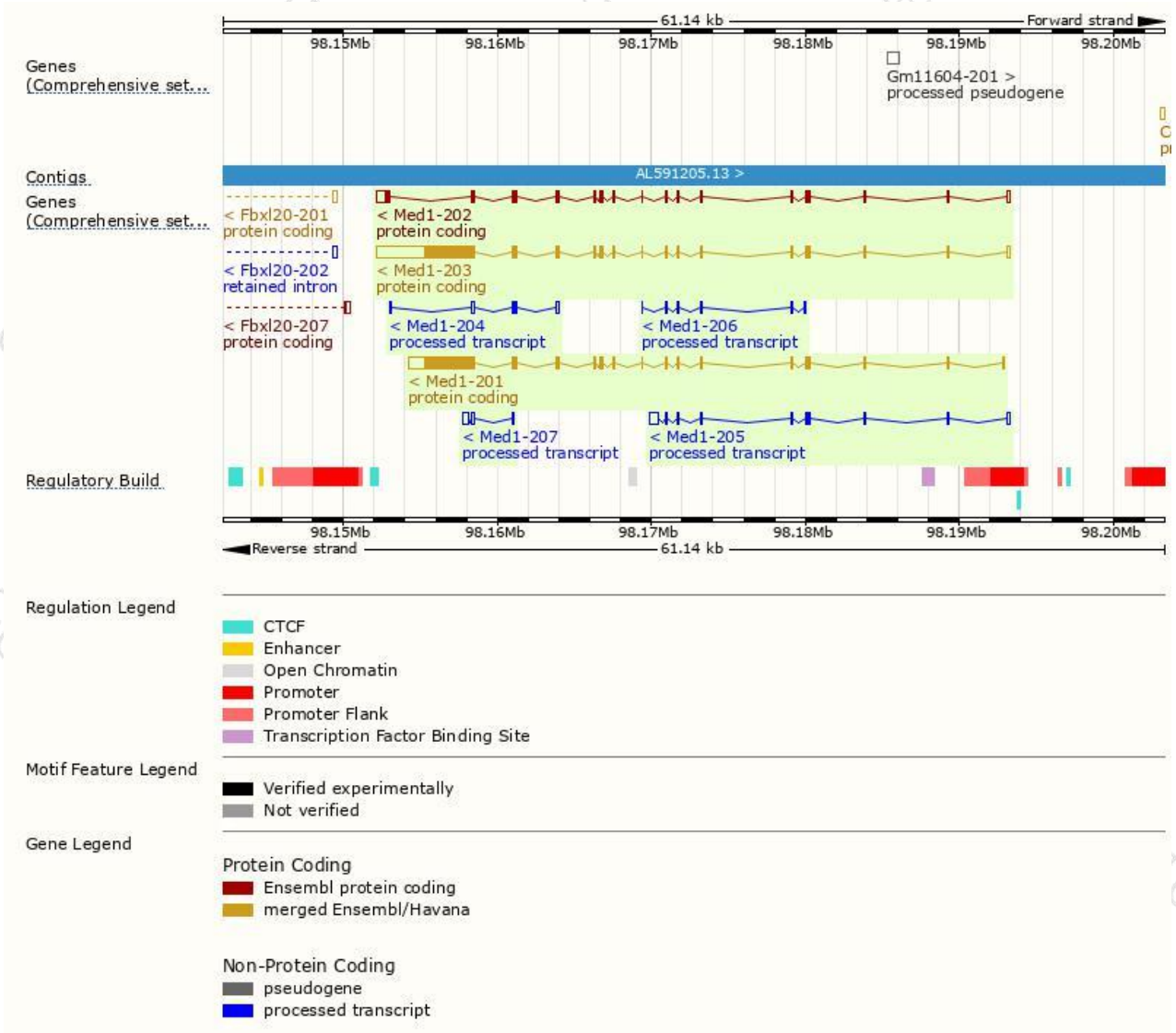
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Med1-203	ENSMUST00000107545.8	8024	1575aa	Protein coding	CCDS36300	Q925J9	TSL:1 GENCODE basic APPRIS ALT2
Med1-201	ENSMUST00000018304.6	5845	1560aa	Protein coding	CCDS25341	Q925J9	TSL:1 GENCODE basic APPRIS P3
Med1-202	ENSMUST00000092735.11	2627	629aa	Protein coding	-	B1AQH6	TSL:1 GENCODE basic APPRIS ALT2
Med1-205	ENSMUST00000129557.1	1372	No protein	Processed transcript	-	-	TSL:1
Med1-204	ENSMUST00000126483.7	616	No protein	Processed transcript	-	-	TSL:3
Med1-207	ENSMUST00000147933.1	609	No protein	Processed transcript	-	-	TSL:2
Med1-206	ENSMUST00000135479.7	389	No protein	Processed transcript	-	-	TSL:3

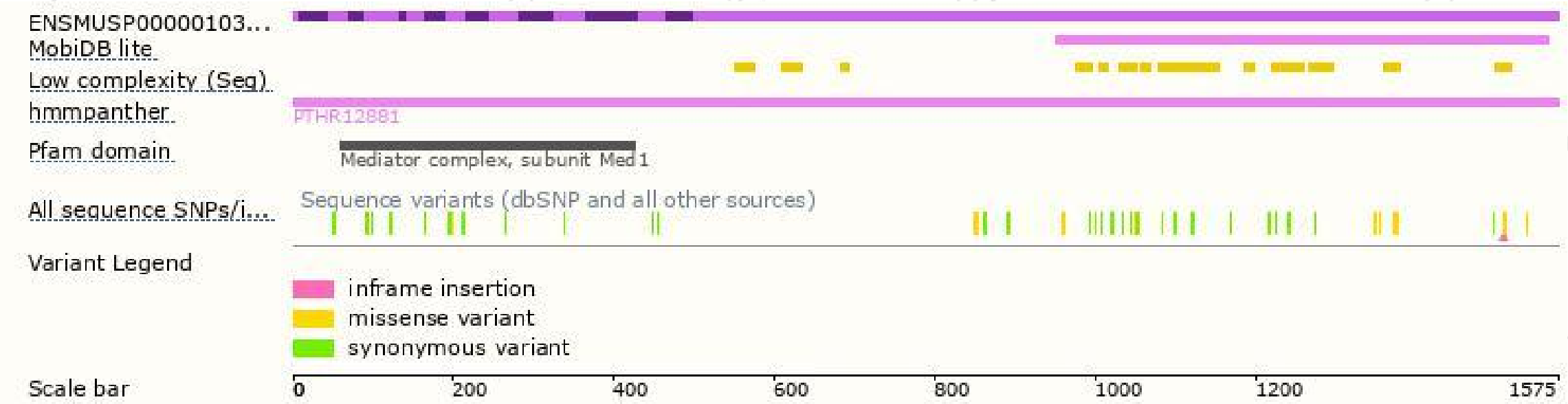
The strategy is based on the design of *Med1-203* transcript,The transcription is shown below



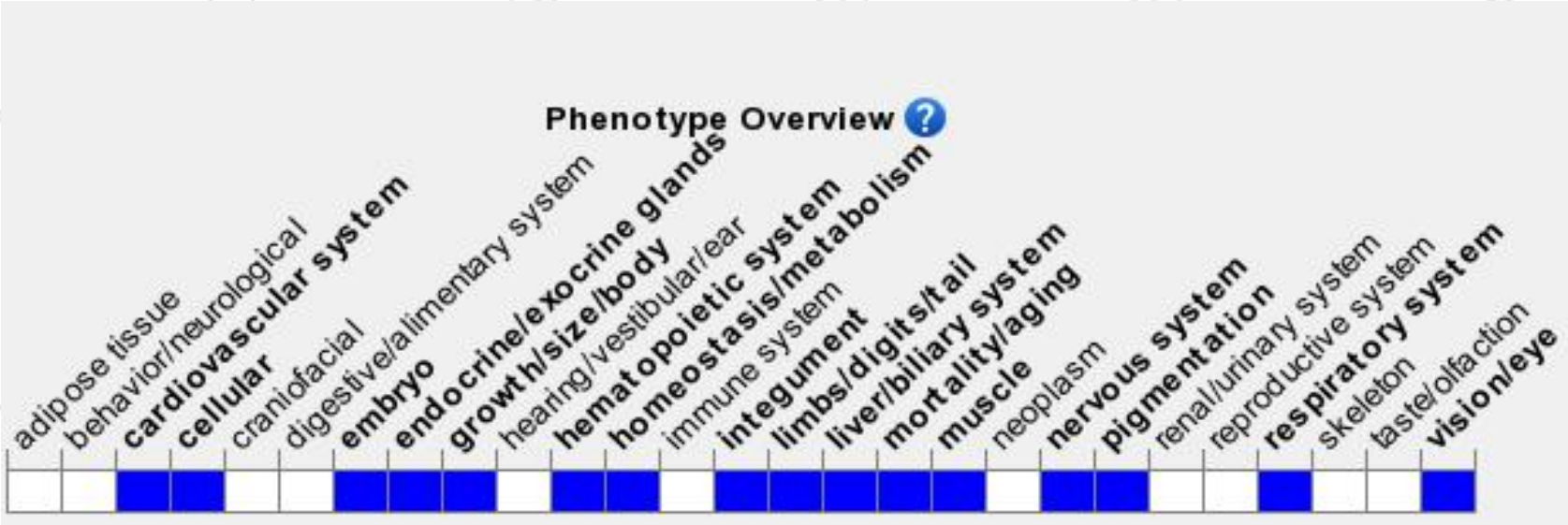
Genomic location distribution



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/).

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

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