

***CommD9* Cas9-KO Strategy**

Designer:

Huan Wang

Reviewer:

Huan Fan

Design Date:

2020-1-4

Project Overview

Project Name

Commd9

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Commd9* gene. The schematic diagram is as follows:



- The *Commd9* gene has 4 transcripts. According to the structure of *Commd9* gene, exon2-exon3 of *Commd9-201* (ENSMUST00000028584.7) transcript is recommended as the knockout region. The region contains 266bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Commd9* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit embryonic lethality, neural tube edema, and cardiovascular abnormalities including hemorrhages, heart hypoplasia, focal myocardial wall necrosis and narrowing of the dorsal aortas, and alterations in cranial blood vessels.
- The *Commd9* gene is located on the Chr2. 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)

Commd9 COMM domain containing 9 [Mus musculus (house mouse)]

Gene ID: 76501, updated on 31-Jan-2019

Summary



Official Symbol	Commd9 provided by MGI
Official Full Name	COMM domain containing 9 provided by MGI
Primary source	MGI:MGI:1923751
See related	Ensembl:ENSMUSG00000027163
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1810029F08Rik, AA409293
Expression	Ubiquitous expression in CNS E18 (RPKM 24.5), whole brain E14.5 (RPKM 24.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

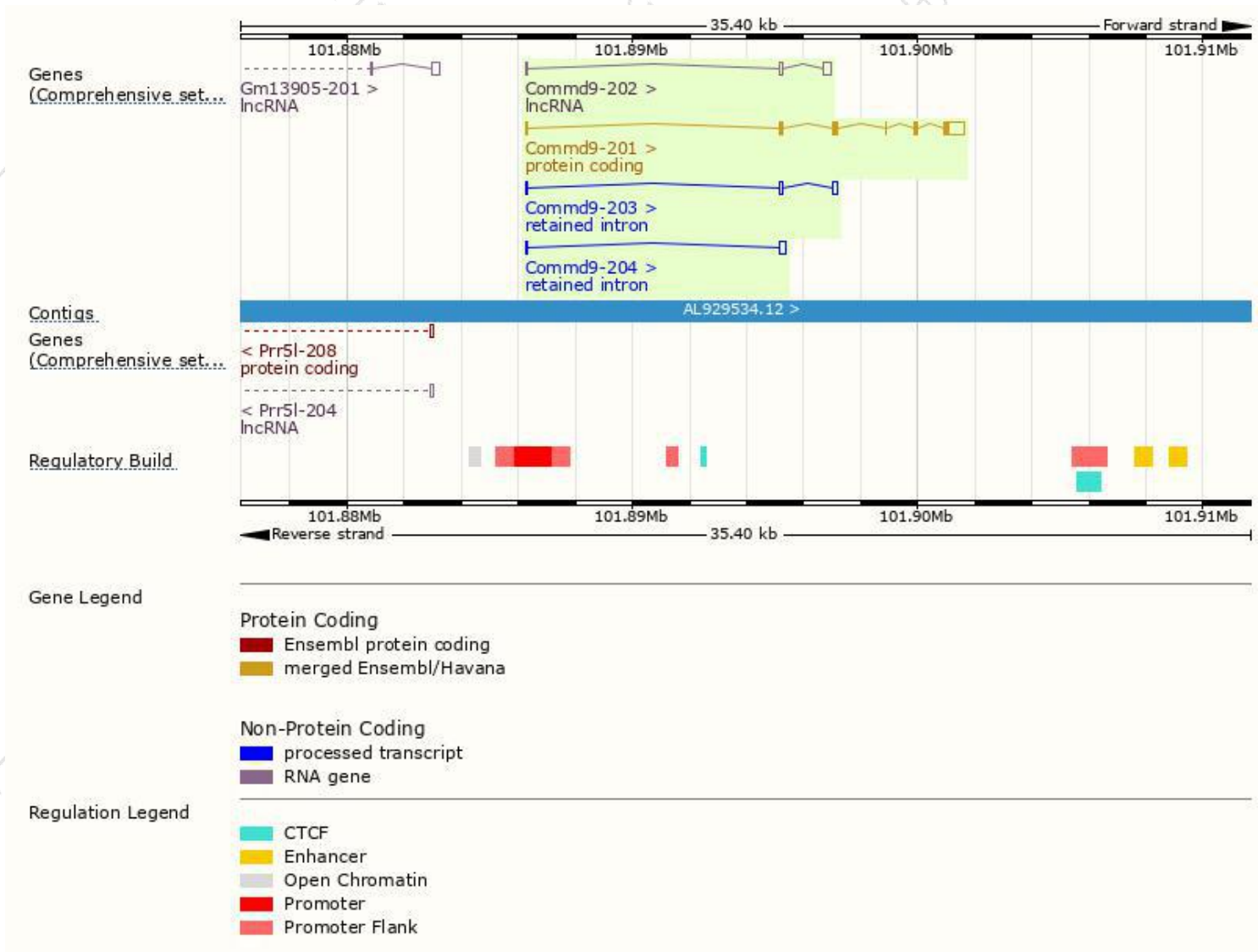
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Commd9-201	ENSMUST00000028584.7	1191	198aa	Protein coding	CCDS16465	Q8K2Q0	TSL:1 GENCODE basic APPRIS P1
Commd9-203	ENSMUST00000133576.1	353	No protein	Retained intron	-	-	TSL:2
Commd9-204	ENSMUST00000156799.1	322	No protein	Retained intron	-	-	TSL:2
Commd9-202	ENSMUST00000131287.7	438	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Commd9-201* transcript,The transcription is shown below



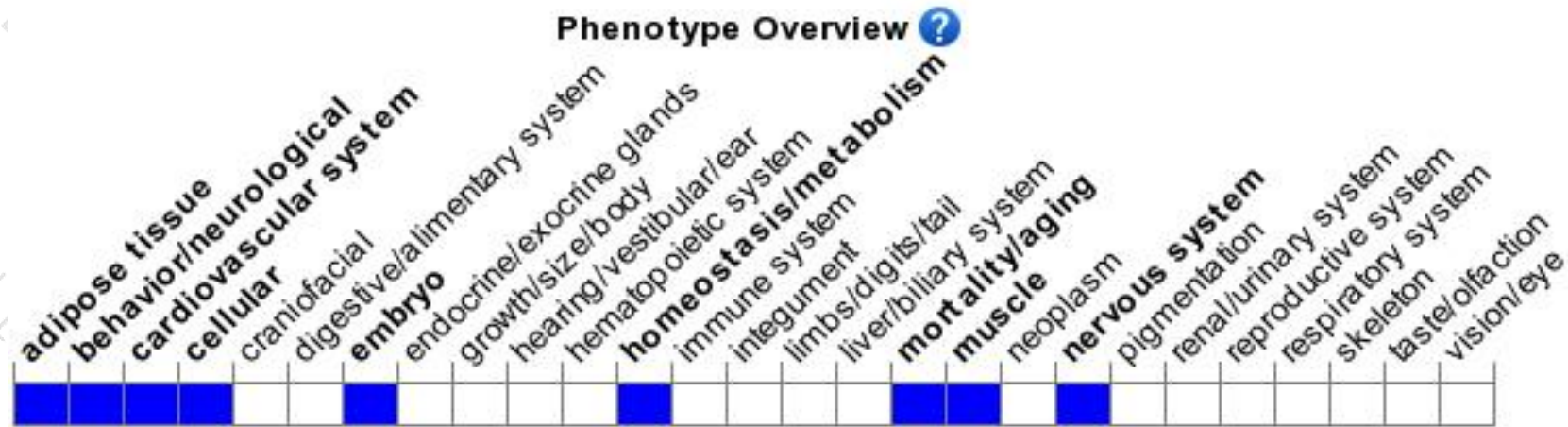
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit embryonic lethality, neural tube edema, and cardiovascular abnormalities including hemorrhages, heart hypoplasia, focal myocardial wall necrosis and narrowing of the dorsal aortas, and alterations in cranial blood vessels.

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

Tel: 400-9660890

