

***Dnah5* Cas9-KO Strategy**

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Project Overview

Project Name

Dnah5

Project type

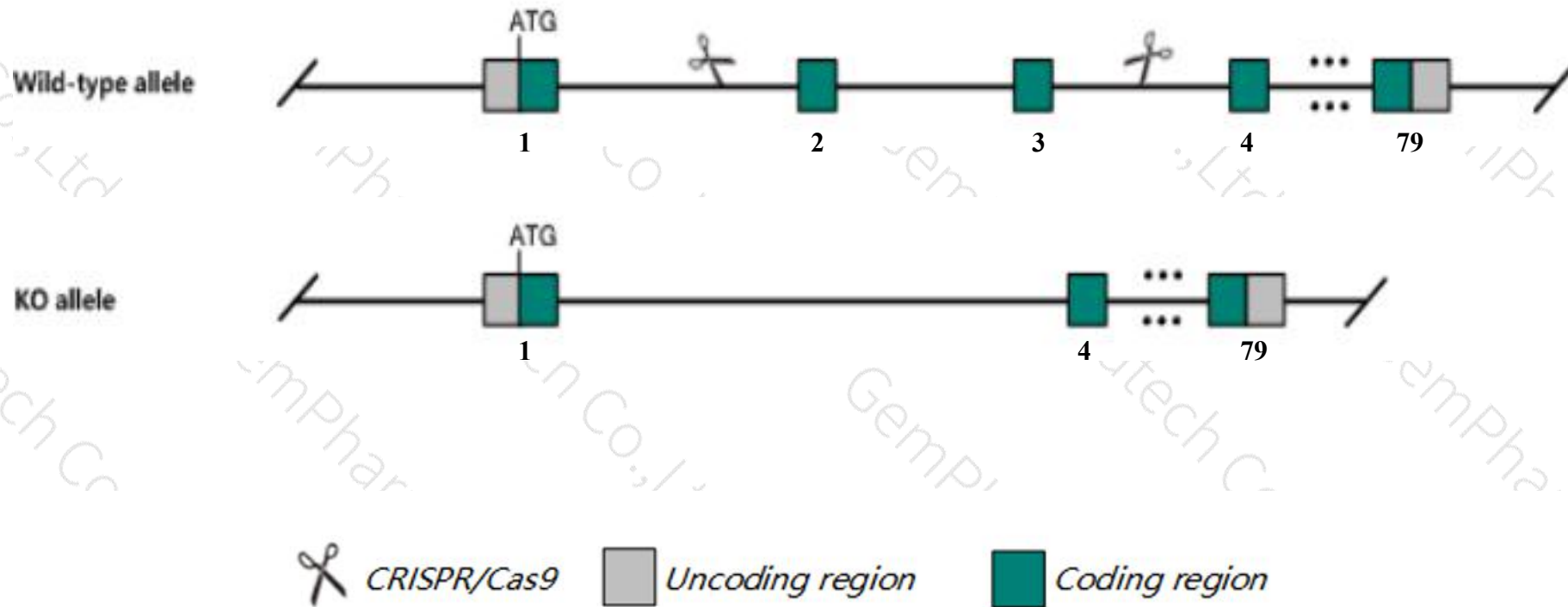
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnah5* gene. The schematic diagram is as follows:



- The *Dnah5* gene has 1 transcript. According to the structure of *Dnah5* gene, exon2-exon3 of *Dnah5-201* (ENSMUST00000067048.7) transcript is recommended as the knockout region. The region contains 220bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnah5* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, mice homozygous for a disruption in this gene display postnatal lethality, hydrocephalus, respiratory infections, situs inversus and ciliary immotility.
- The *Dnah5* gene is located on the Chr15. 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)

Dnah5 dynein, axonemal, heavy chain 5 [Mus musculus (house mouse)]

Gene ID: 110082, updated on 13-Mar-2020

Summary



Official Symbol Dnah5 provided by [MGI](#)

Official Full Name dynein, axonemal, heavy chain 5 provided by [MGI](#)

Primary source [MGI:MGI:107718](#)

See related [Ensembl:ENSMUSG00000022262](#)

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 AU022615, Dnahc5, Mdnah5, b2b1134Clo, b2b1154Clo, b2b1537Clo, b2b1565Clo, b2b3491Clo, b2b601Clo, mKIAA1603

Expression Low expression observed in reference dataset [See more](#)

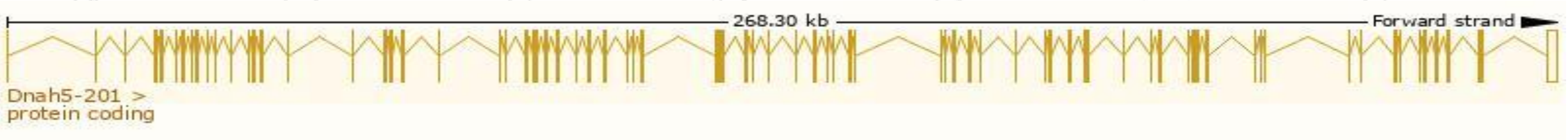
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

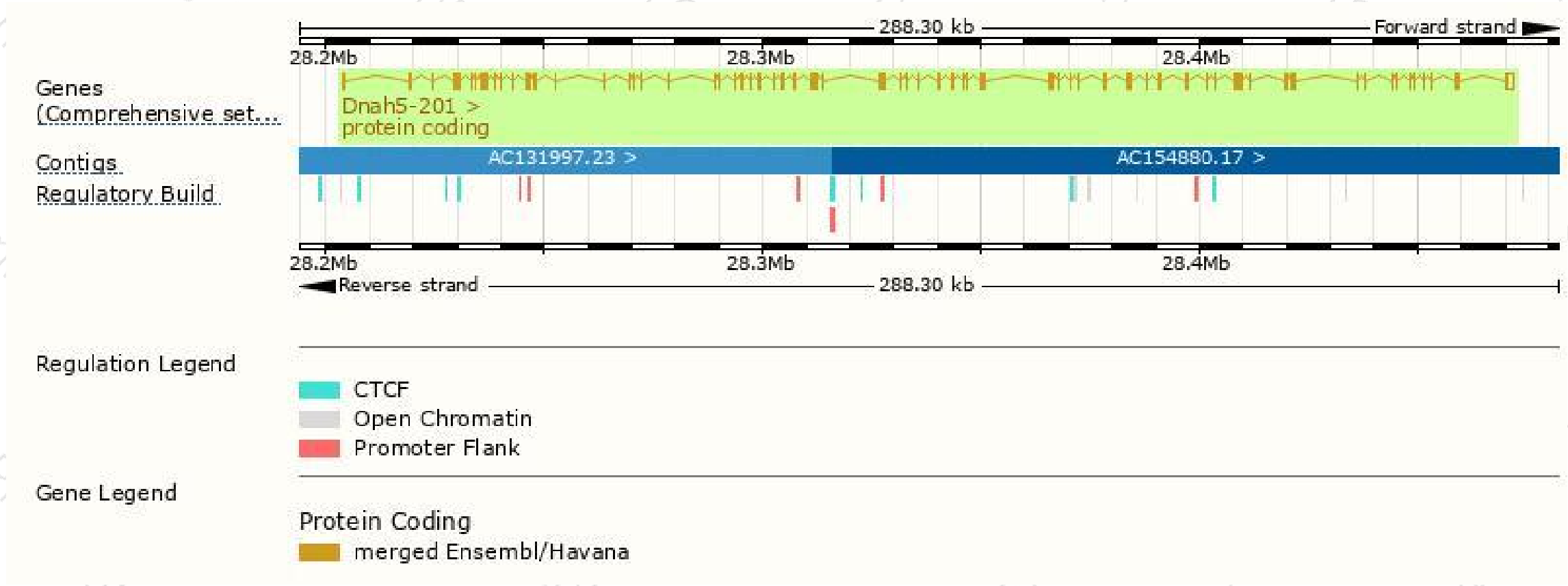
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnah5-201	ENSMUST00000067048.7	15637	4621aa	Protein coding	CCDS27404	Q8VHE6	TSL:5 GENCODE basic APPRIS P1

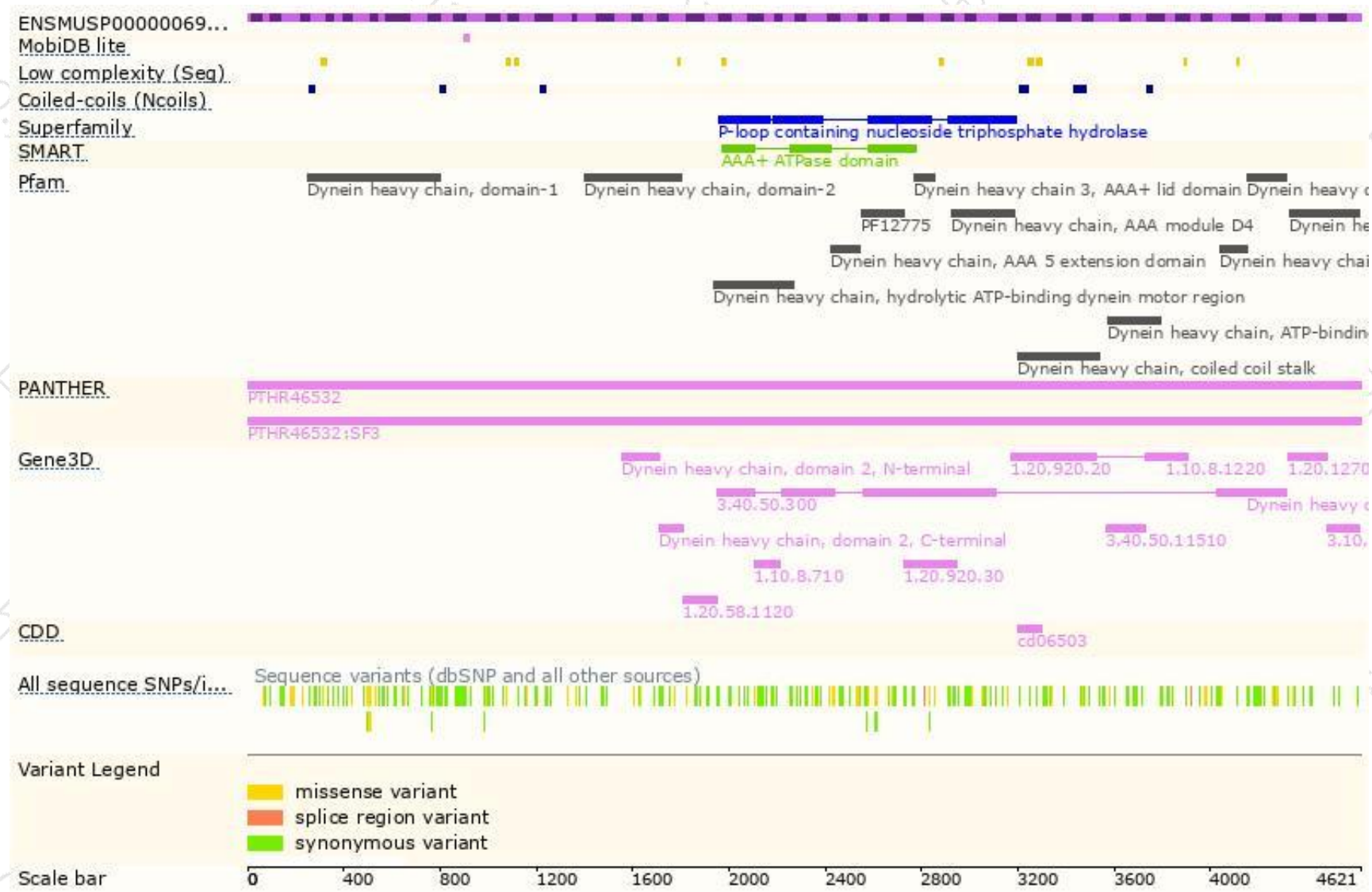
The strategy is based on the design of *Dnah5-201* transcript, the transcription is shown below:



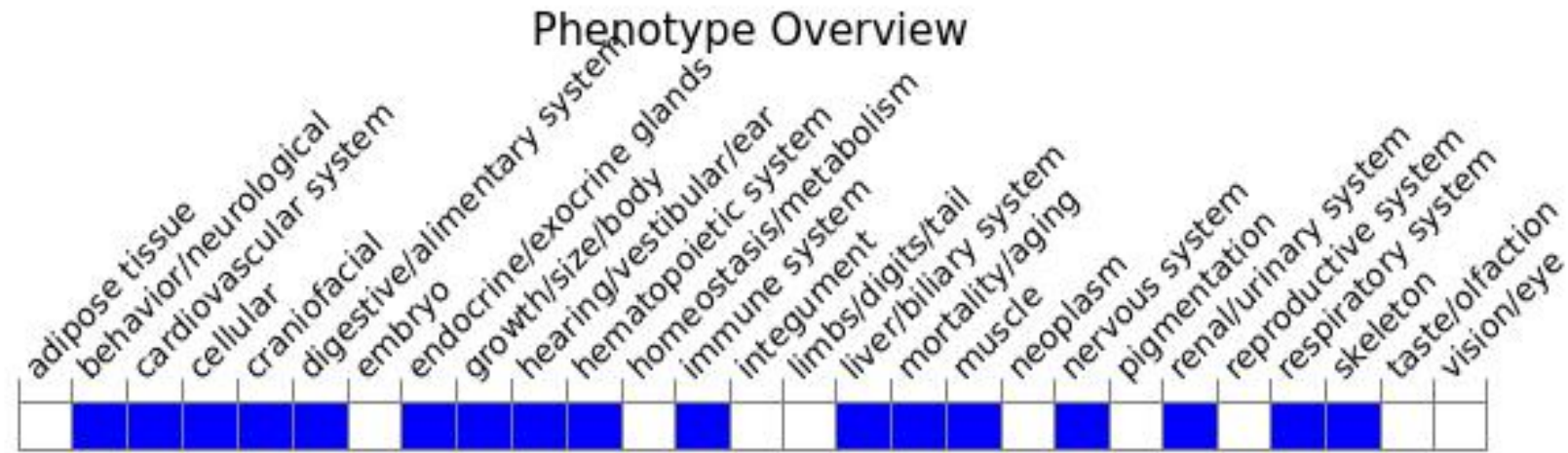
Genomic location distribution



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 disruption in this gene display postnatal lethality, hydrocephalus, respiratory infections, situs inversus and ciliary immotility.

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

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