

Dnaaf3 Cas9-KO Strategy

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Project Overview

Project Name

Dnaaf3

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnaaf3* gene. The schematic diagram is as follows:



- The *Dnaaf3* gene has 1 transcript. According to the structure of *Dnaaf3* gene, exon4 of *Dnaaf3-201* (ENSMUST00000094897.4) transcript is recommended as the knockout region. The region contains 94bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnaaf3* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, mice homozygous for an enu-induced mutation exhibit situs inversus totalis and complex congenital heart disease associated with heterotaxy, abdominal organ situs anomalies and immotile respiratory cilia.
- The *Dnaaf3* gene is located on the Chr7. 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)

Dnaaf3 dynein, axonemal assembly factor 3 [Mus musculus (house mouse)]

Gene ID: 436022, updated on 13-Mar-2020

Summary



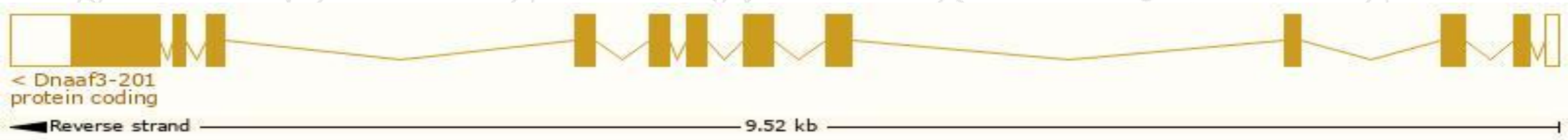
Official Symbol	Dnaaf3 provided by MGI
Official Full Name	dynein, axonemal assembly factor 3 provided by MGI
Primary source	MGI:MGI:3588207
See related	Ensembl:ENSMUSG00000055809
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	6030429G01Rik, b2b1739Clo
Expression	Biased expression in testis adult (RPKM 63.1), lung adult (RPKM 7.7) and 4 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

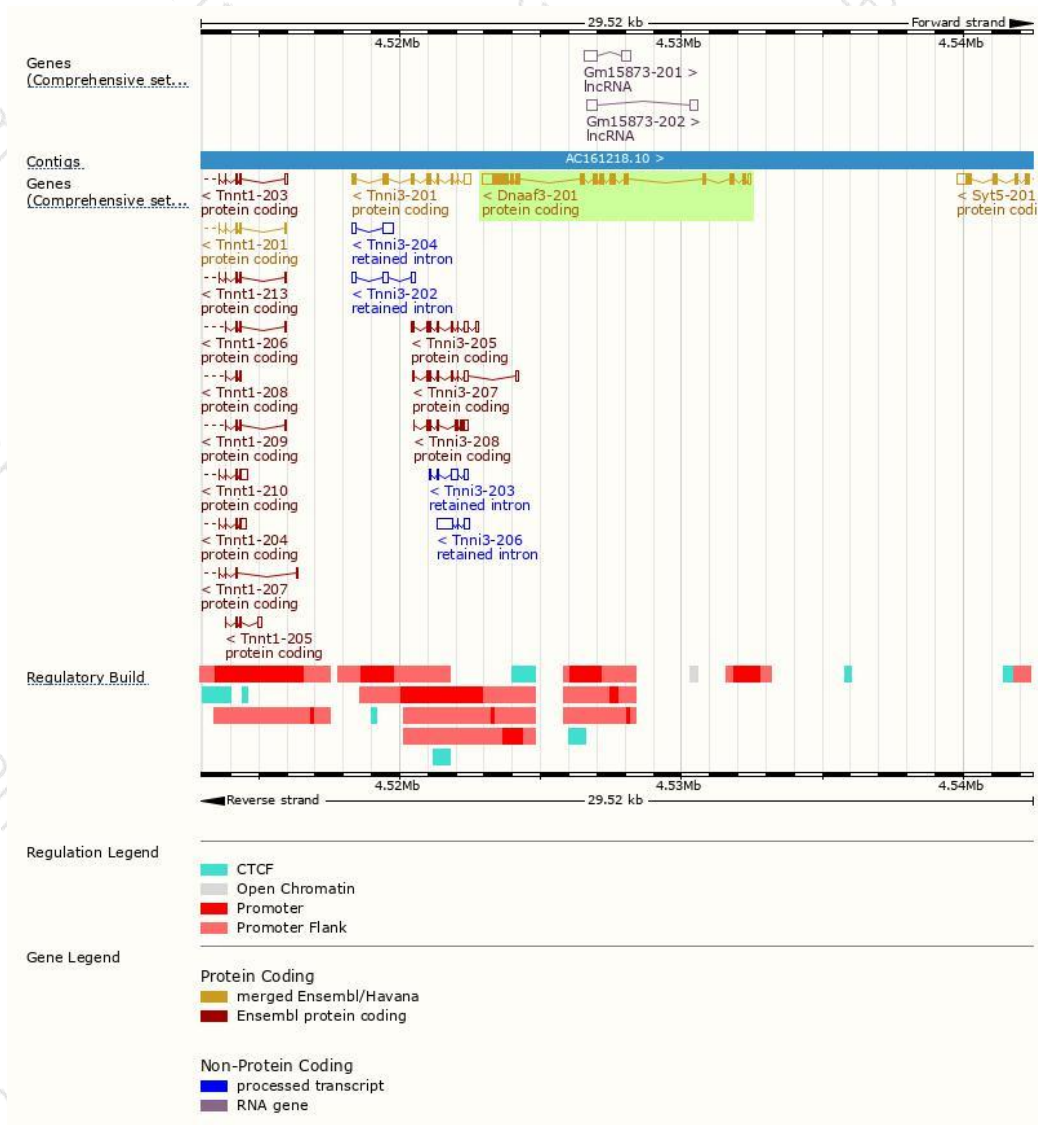
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnaaf3-201	ENSMUST00000094897.4	2224	586aa	Protein coding	CCDS20737	Q3UYV8	TSL:1 GENCODE basic APPRIS P1

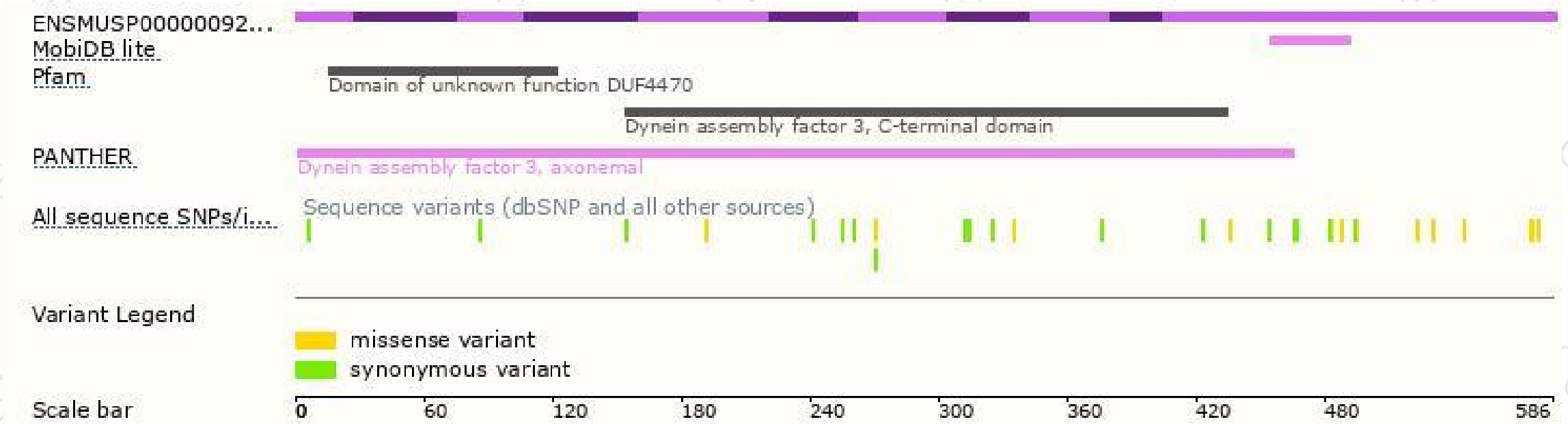
The strategy is based on the design of *Dnaaf3-201* transcript, The transcription is shown below



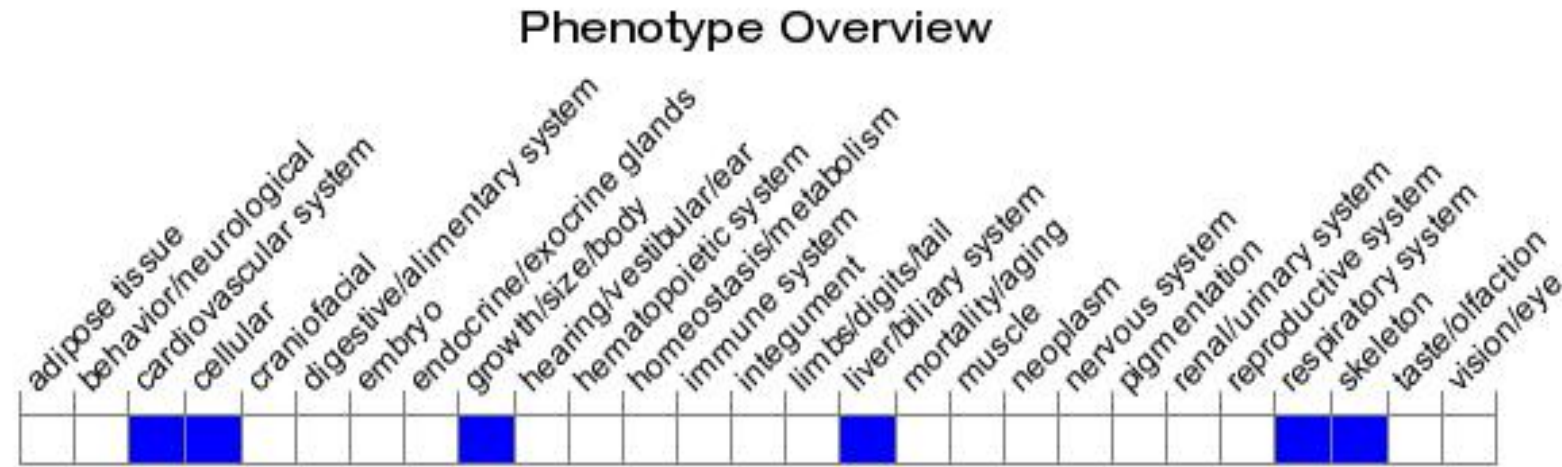
Genomic location distribution



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 an ENU-induced mutation exhibit situs inversus totalis and complex congenital heart disease associated with heterotaxy, abdominal organ situs anomalies and immotile respiratory cilia.

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

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