

Dnai3 Cas9-KO Strategy

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Project Overview

Project Name

Dnai3

Project type

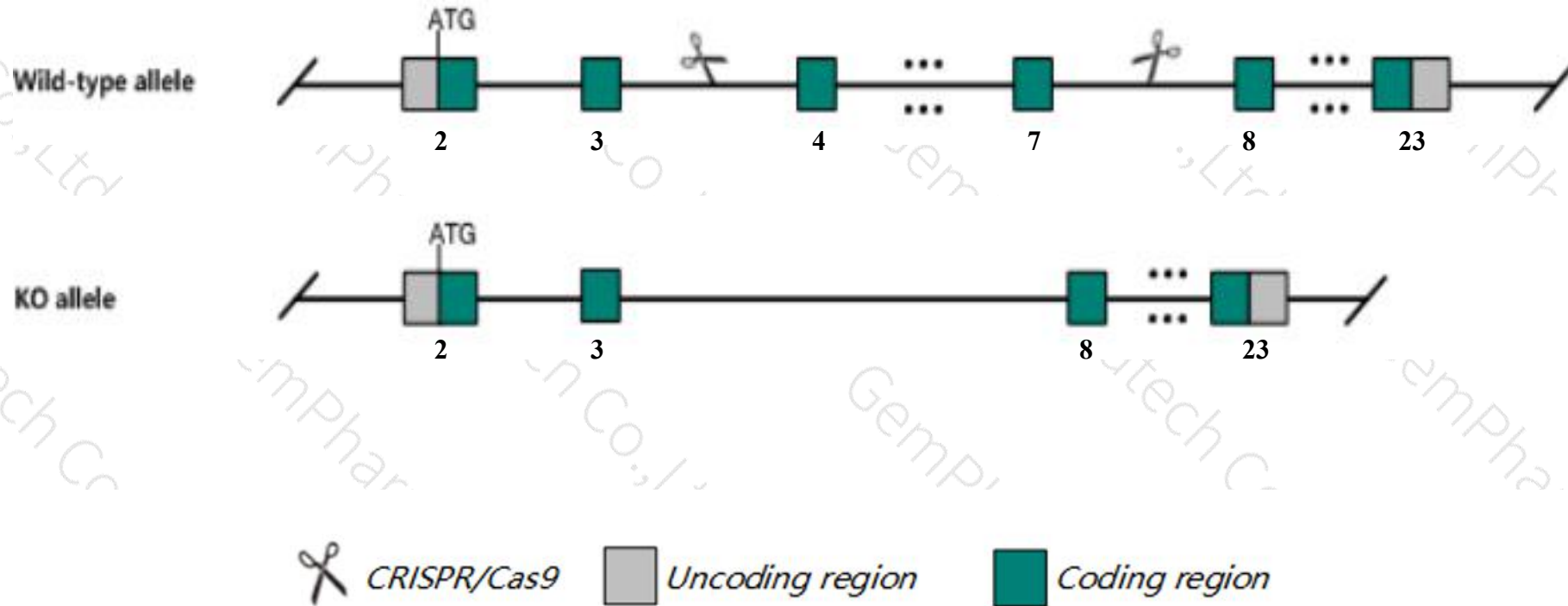
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnai3* gene. The schematic diagram is as follows:



- The *Dnai3* gene has 3 transcripts. According to the structure of *Dnai3* gene, exon4-exon7 of *Dnai3-201*(ENSMUST00000160285.1) transcript is recommended as the knockout region. The region contains 637bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnai3* 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.

- According to the existing MGI data, mice homozygous for a null allele exhibit no overt abnormalities in body size, development, behavior, or fertility.
- The *Dnai3* gene is located on the Chr3. 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)

Dnai3 dynein axonemal intermediate chain 3 [*Mus musculus* (house mouse)]

Gene ID: 242253, updated on 24-Oct-2020

Summary

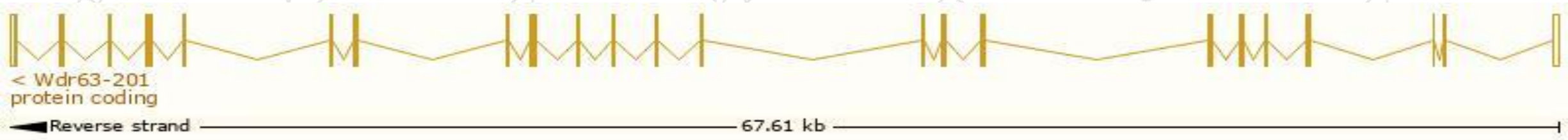
Official Symbol	Dnai3 provided by MGI
Official Full Name	dynein axonemal intermediate chain 3 provided by MGI
Primary source	MGI:MGI:3045269
See related	Ensembl:ENSMUSG00000043020
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae ; Murinae; Mus; Mus
Also known as	Id; IC14; Ida7; IC140; Wdr63 ; 4931433A13Rik
Expression	Biased expression in testis adult (RPKM 12.4), lung adult (RPKM 1.2) and 1 other tissue See more
Orthologs	human all

Transcript information (Ensembl)

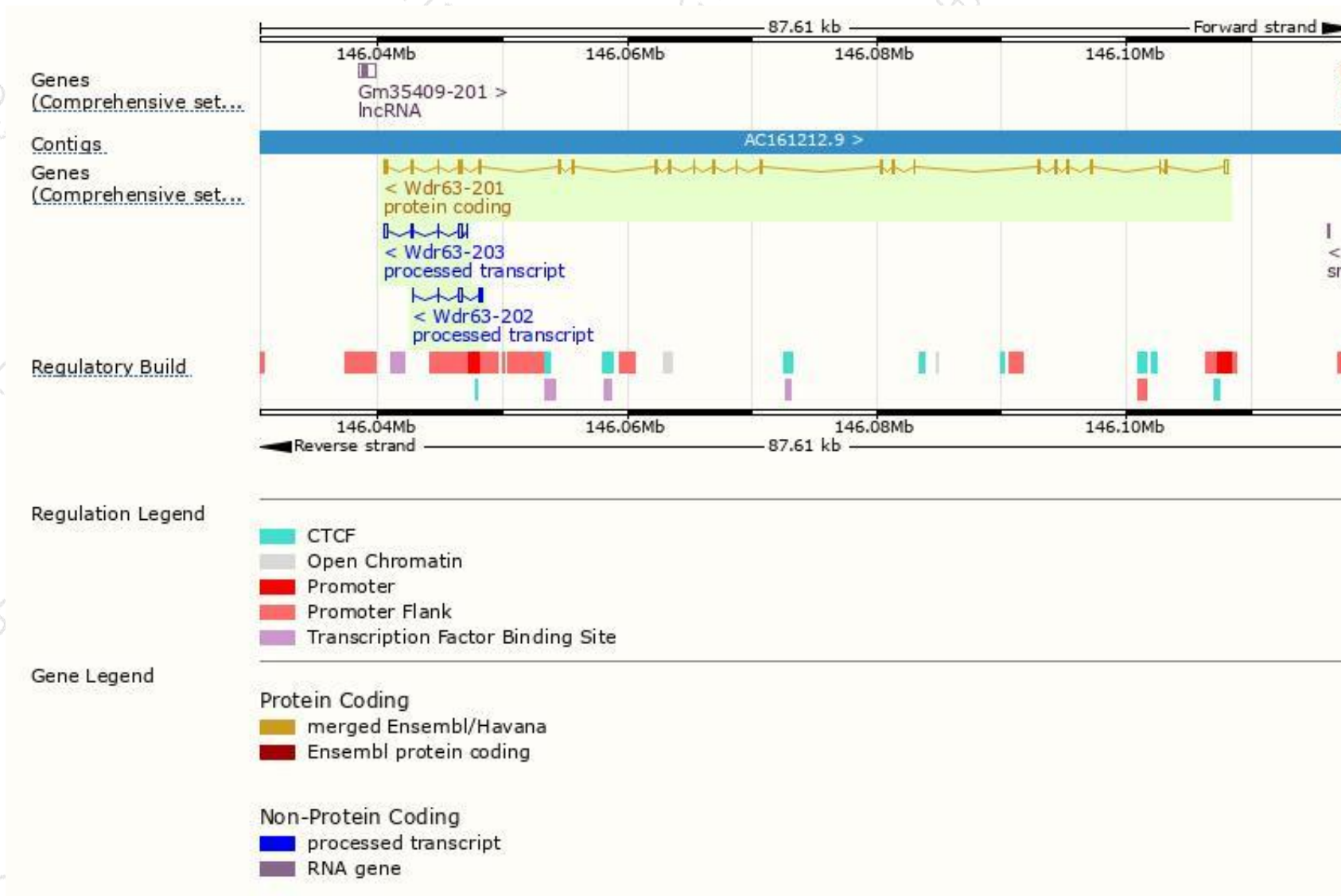
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wdr63-201	ENSMUST00000160285.1	3176	923aa	Protein coding	CCDS17899	B2RY71	TSL:1 GENCODE basic APPRIS P1
Wdr63-203	ENSMUST00000162572.7	770	No protein	Processed transcript	-	-	TSL:3
Wdr63-202	ENSMUST00000161104.1	599	No protein	Processed transcript	-	-	TSL:5

The strategy is based on the design of *Dnai3-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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