

***Chd3* Cas9-KO Strategy**

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Project Overview

Project Name

Chd3

Project type

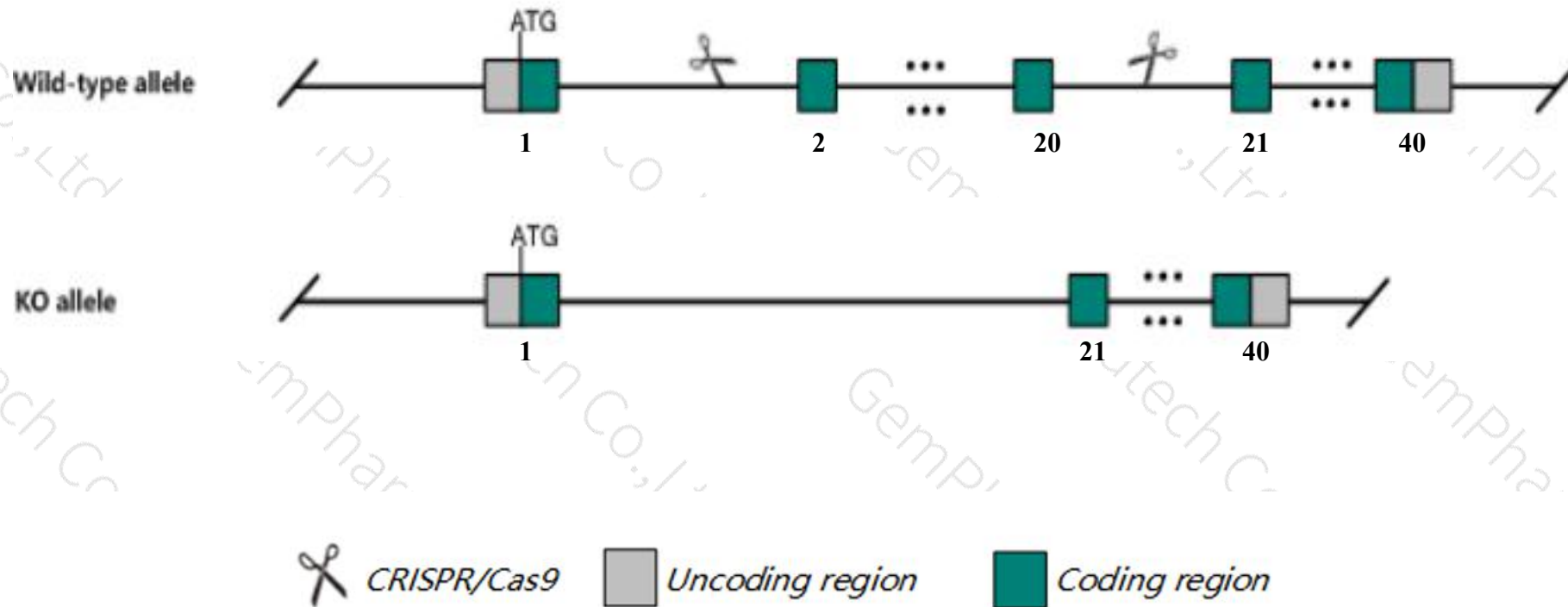
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Chd3* gene. The schematic diagram is as follows:



- The *Chd3* gene has 11 transcripts. According to the structure of *Chd3* gene, exon2-exon20 of *Chd3*-202(ENSMUST00000108661.7) transcript is recommended as the knockout region. The region contains 3152bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Chd3* 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.

- The *Chd3* 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)

Chd3 chromodomain helicase DNA binding protein 3 [Mus musculus (house mouse)]

Gene ID: 216848, updated on 13-Mar-2020

Summary



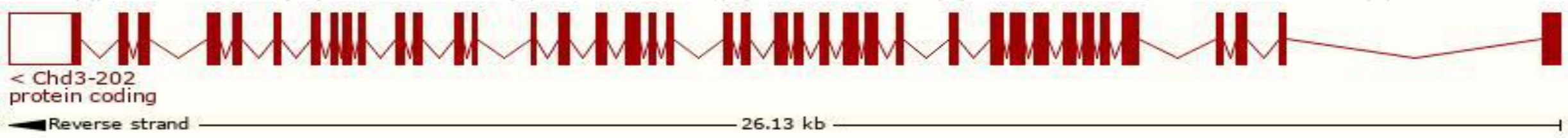
Official Symbol	Chd3 provided by MGI
Official Full Name	chromodomain helicase DNA binding protein 3 provided by MGI
Primary source	MGI:MGI:1344395
See related	Ensembl:ENSMUSG00000018474
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2600010P09Rik, AF020312, Chd7, Prp7, Prp9-1
Expression	Ubiquitous expression in frontal lobe adult (RPKM 53.4), limb E14.5 (RPKM 46.3) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

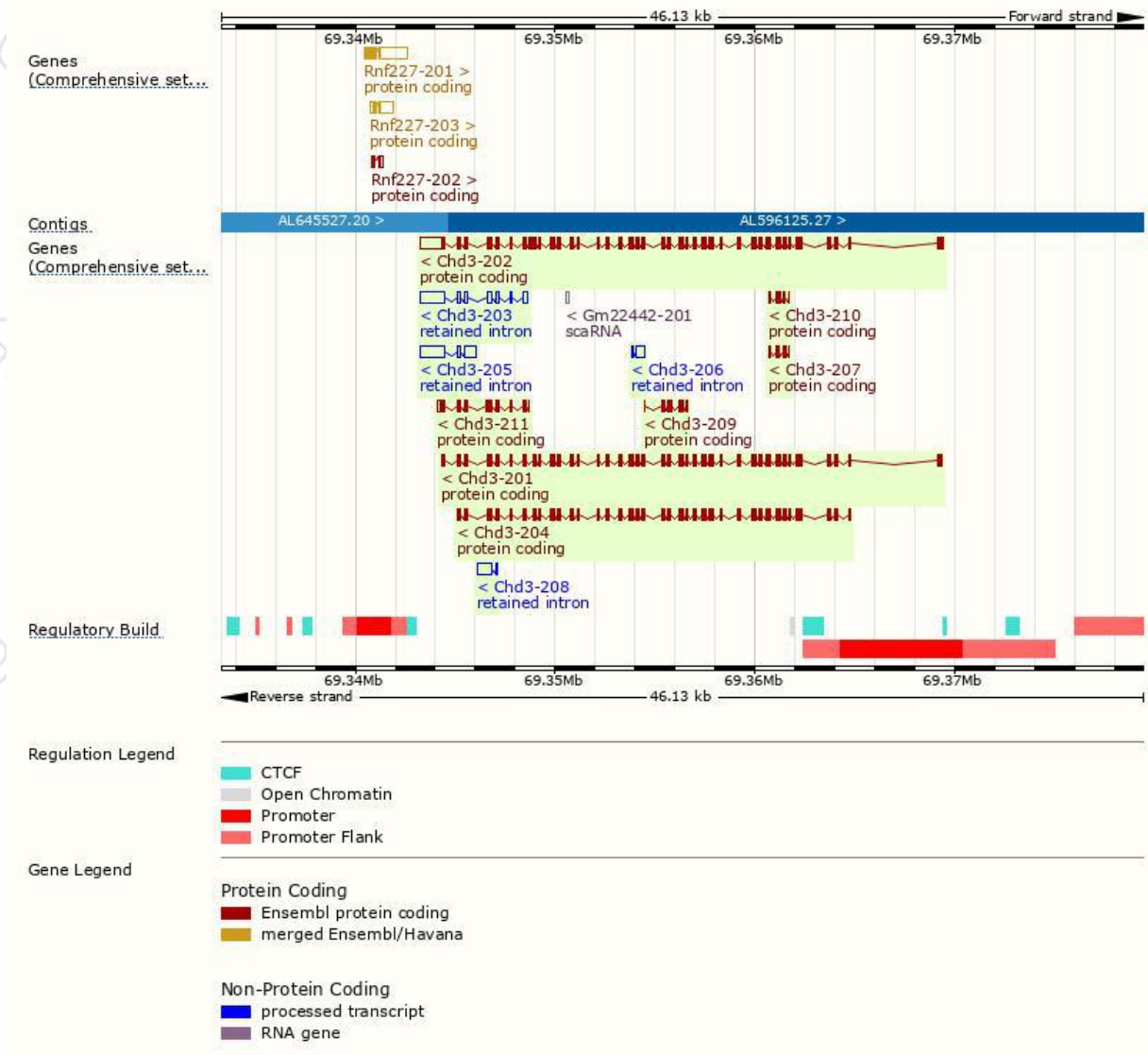
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Chd3-202	ENSMUST00000108661.7	7261	2055aa	Protein coding	CCDS48825	B1AR17	TSL:5 GENCODE basic APPRIS P2
Chd3-201	ENSMUST00000092971.12	6066	2021aa	Protein coding	-	E9Q614	TSL:5 GENCODE basic APPRIS ALT2
Chd3-204	ENSMUST00000128981.7	5657	1886aa	Protein coding	-	F7C528	CDS 5' and 3' incomplete TSL:5 APPRIS ALT2
Chd3-211	ENSMUST00000238797.1	1264	385aa	Protein coding	-	-	CDS 5' incomplete
Chd3-209	ENSMUST00000151436.1	591	197aa	Protein coding	-	F6V4V3	CDS 5' and 3' incomplete TSL:5
Chd3-210	ENSMUST00000154046.7	453	151aa	Protein coding	-	B0QZH7	CDS 5' and 3' incomplete TSL:2
Chd3-207	ENSMUST00000144701.1	430	143aa	Protein coding	-	B0QZH8	CDS 5' and 3' incomplete TSL:3
Chd3-203	ENSMUST00000122992.1	2153	No protein	Retained intron	-	-	TSL:2
Chd3-205	ENSMUST00000135909.7	1882	No protein	Retained intron	-	-	TSL:1
Chd3-208	ENSMUST00000146930.1	747	No protein	Retained intron	-	-	TSL:3
Chd3-206	ENSMUST00000144332.1	432	No protein	Retained intron	-	-	TSL:3

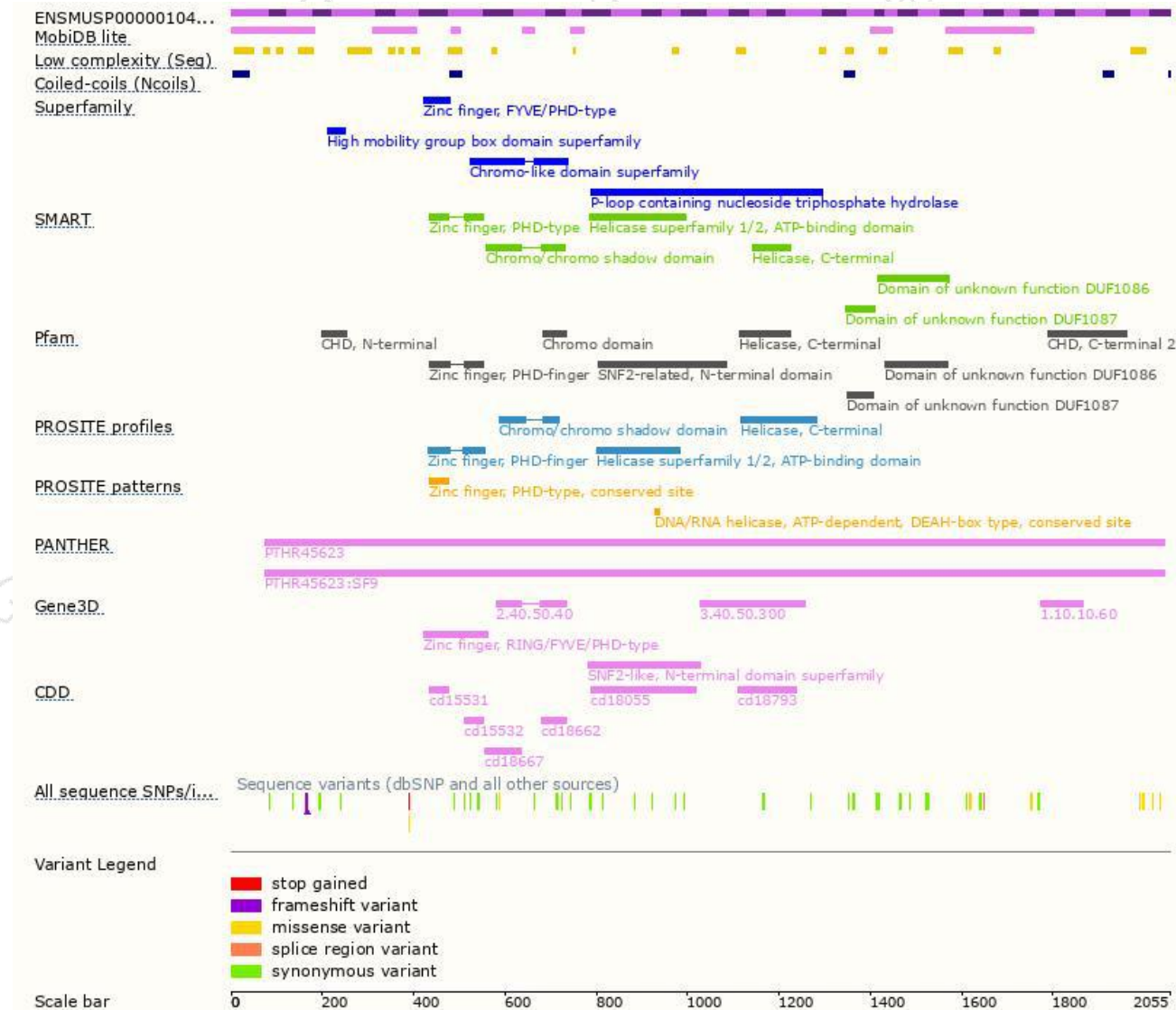
The strategy is based on the design of *Chd3-202* transcript,the transcription is shown below:



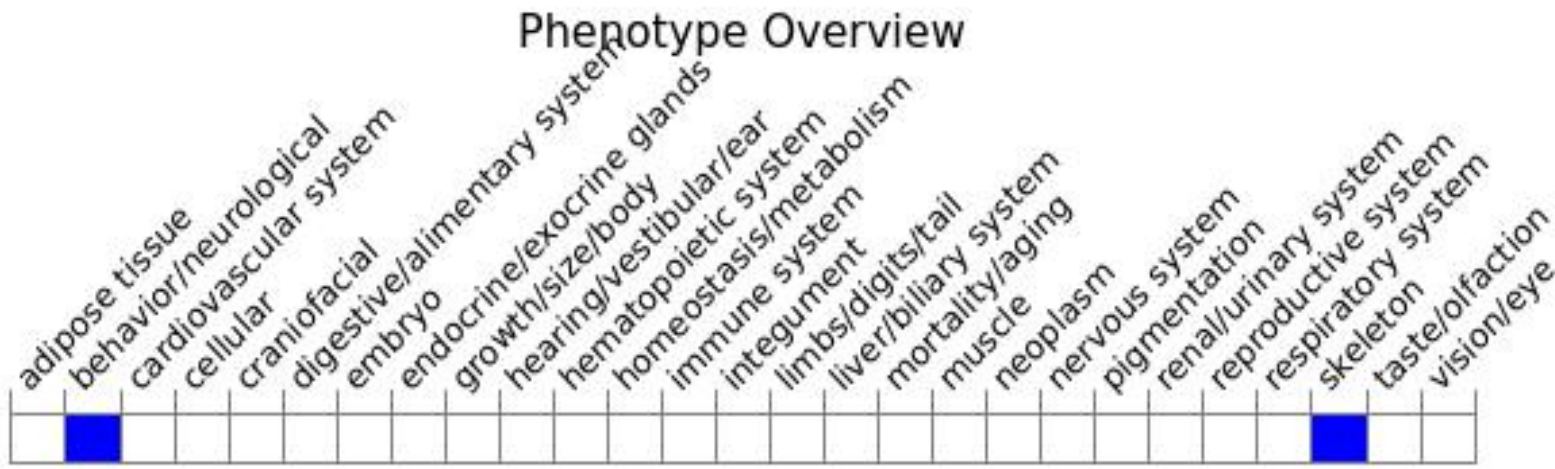
Genomic location distribution



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/>).

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

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