

***Fndc7* Cas9-KO Strategy**

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Project Overview

Project Name

Fndc7

Project type

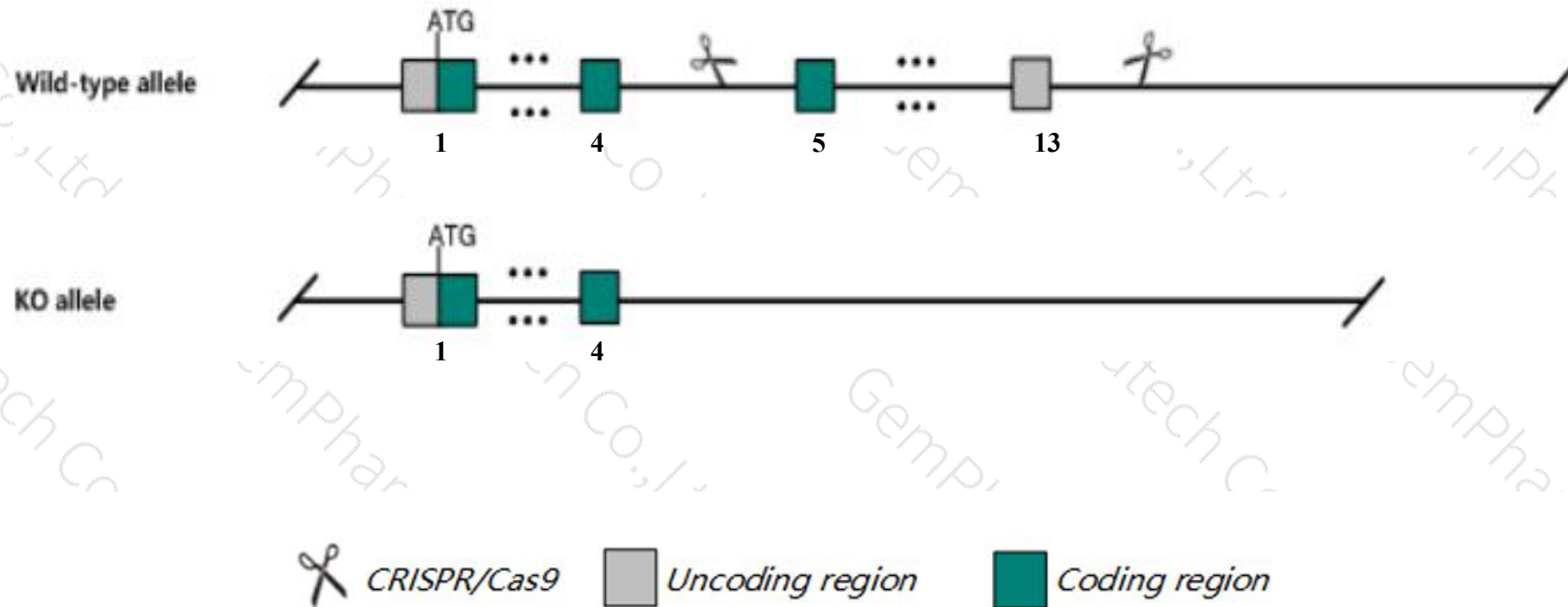
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fndc7* gene. The schematic diagram is as follows:



- The *Fndc7* gene has 7 transcripts. According to the structure of *Fndc7* gene, exon5-exon13 of *Fndc7*-202(ENSMUST00000102620.9) transcript is recommended as the knockout region. The region contains 1616bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fndc7* 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 *Fndc7* 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)

Fndc7 fibronectin type III domain containing 7 [Mus musculus (house mouse)]

Gene ID: 320181, updated on 13-Mar-2020

Summary



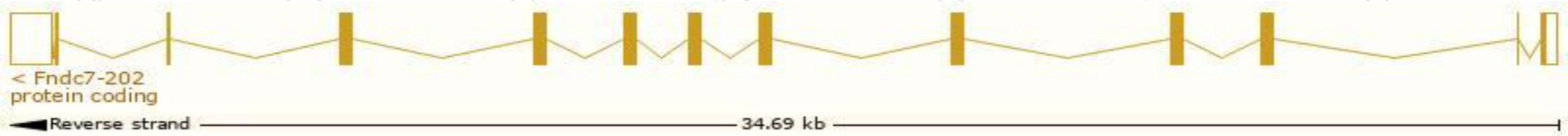
Official Symbol	Fndc7 provided by MGI
Official Full Name	fibronectin type III domain containing 7 provided by MGI
Primary source	MGI:MGI:2443535
See related	Ensembl:ENSMUSG00000045326
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	E230011A21Rik
Expression	Biased expression in ovary adult (RPKM 10.0), genital fat pad adult (RPKM 1.3) and 2 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

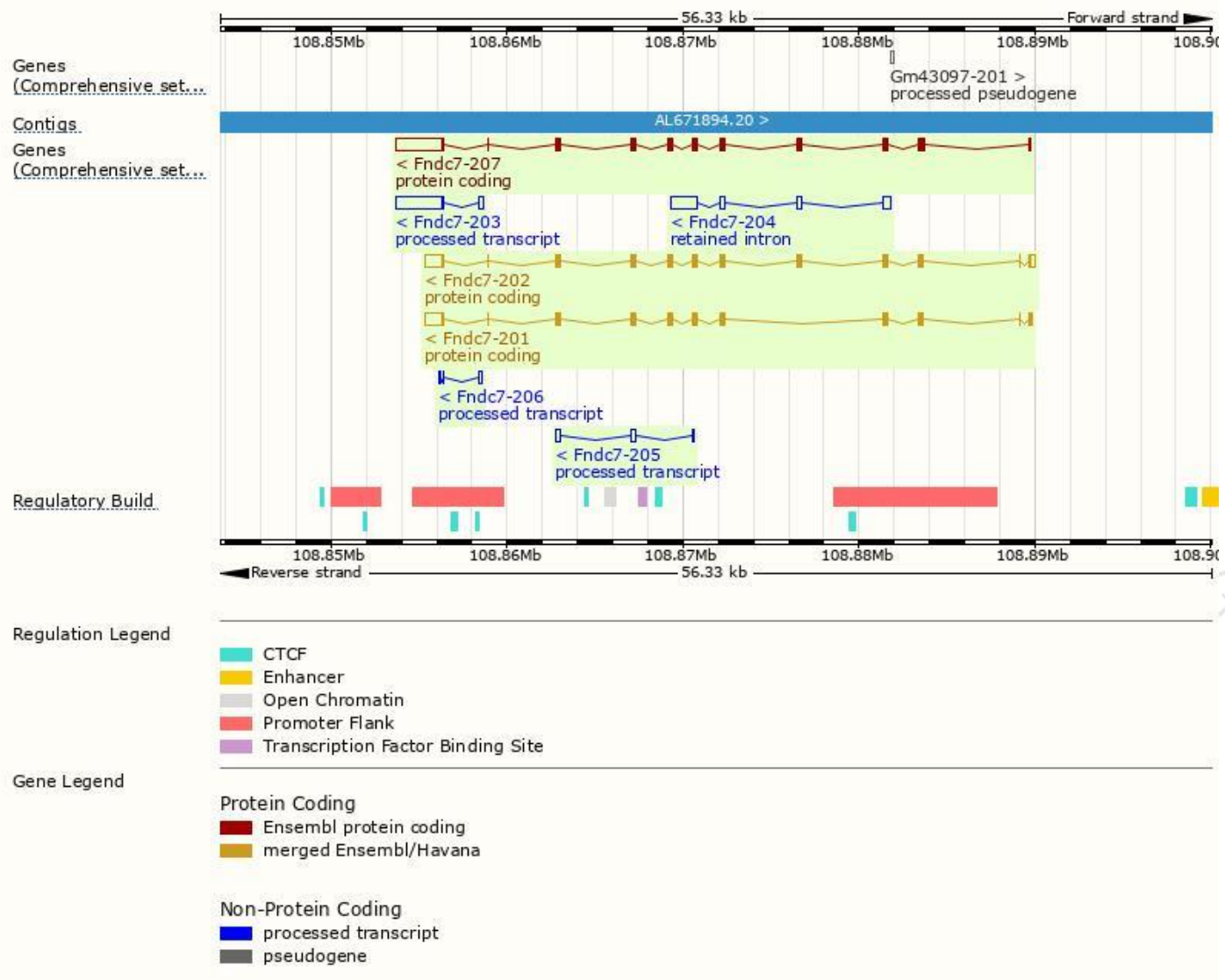
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fndc7-202	ENSMUST00000102620.9	3477	737aa	Protein coding	CCDS17769	A2AED3	TSL:1 GENCODE basic APPRIS P2
Fndc7-201	ENSMUST00000053065.7	3009	651aa	Protein coding	CCDS51050	A2AED3	TSL:1 GENCODE basic
Fndc7-207	ENSMUST00000180063.7	4820	737aa	Protein coding	-	J3QMB8	TSL:5 GENCODE basic APPRIS ALT2
Fndc7-203	ENSMUST00000123018.7	2831	No protein	Processed transcript	-	-	TSL:1
Fndc7-205	ENSMUST00000147002.2	550	No protein	Processed transcript	-	-	TSL:3
Fndc7-206	ENSMUST00000151713.1	405	No protein	Processed transcript	-	-	TSL:3
Fndc7-204	ENSMUST00000139137.2	2433	No protein	Retained intron	-	-	TSL:1

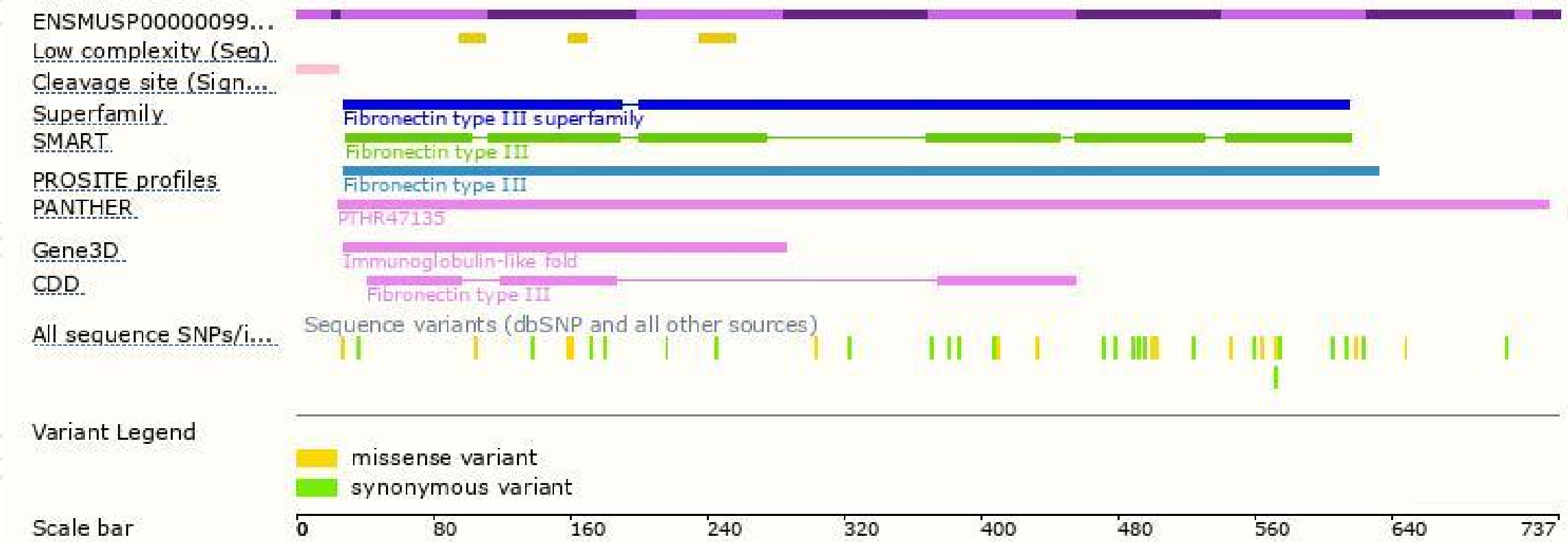
The strategy is based on the design of *Fndc7-202* transcript,the transcription is shown below:



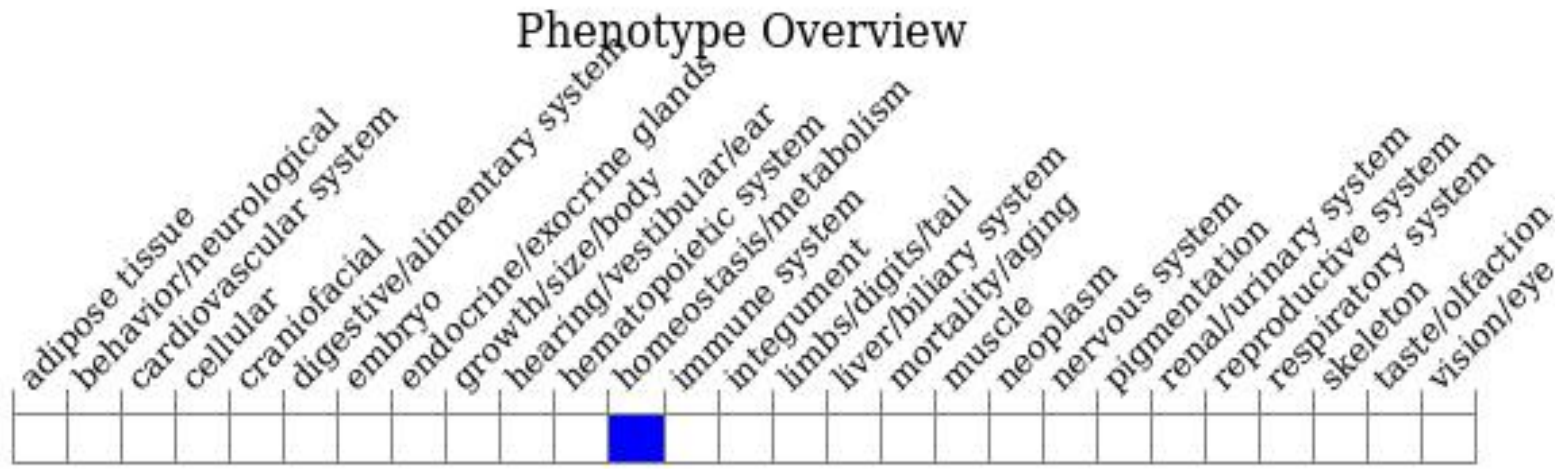
Genomic location distribution



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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