

Wfdc1 Cas9-KO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Wfdc1

Project type

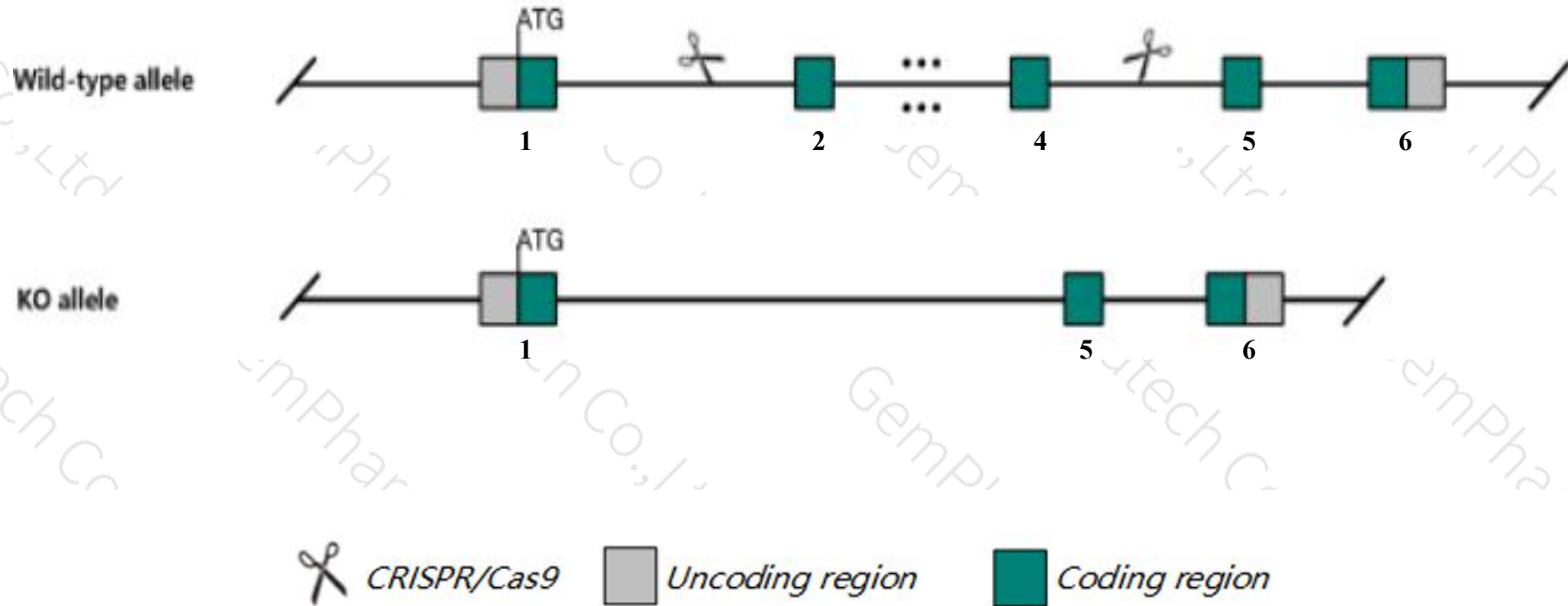
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wfdc1* gene. The schematic diagram is as follows:



- The *Wfdc1* gene has 2 transcripts. According to the structure of *Wfdc1* gene, exon2-exon4 of *Wfdc1-201* (ENSMUST00000024107.6) transcript is recommended as the knockout region. The region contains 415bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Wfdc1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous mice for a null allele exhibit decreased susceptibility to influenza A virus infection and enhanced wound healing.
- The *Wfdc1* gene is located on the Chr8. 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)

Wfdc1 WAP four-disulfide core domain 1 [*Mus musculus* (house mouse)]

Gene ID: 67866, updated on 13-Mar-2020

Summary

Official Symbol	Wfdc1 provided by MGI
Official Full Name	WAP four-disulfide core domain 1 provided by MGI
Primary source	MGI:MGI:1915116
See related	Ensembl:ENSMUSG00000023336
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	ps20; 2310058A03Rik
Expression	Broad expression in bladder adult (RPKM 63.2), colon adult (RPKM 55.9) and 18 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

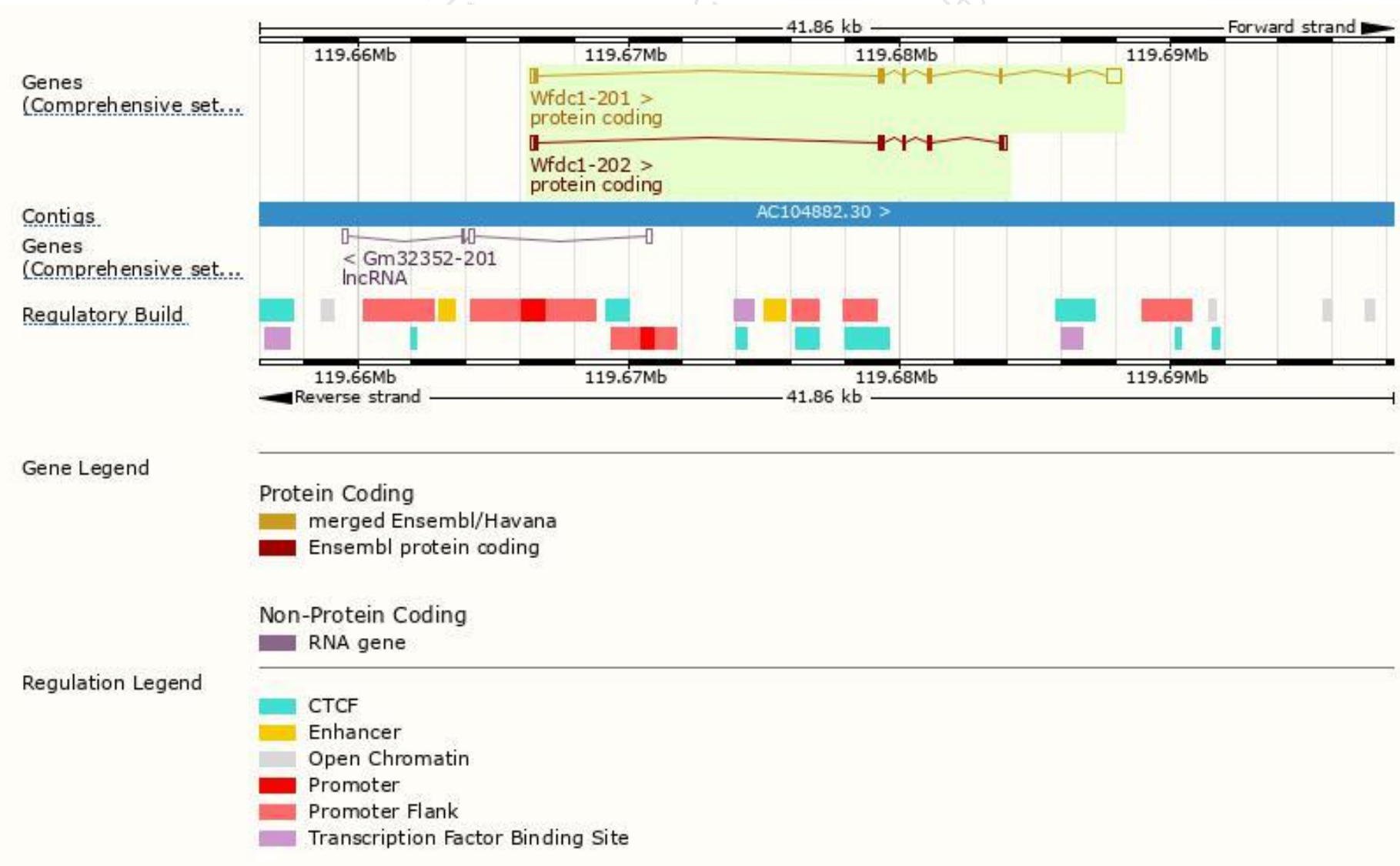
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wfdc1-201	ENSMUST00000024107.6	1371	211aa	Protein coding	CCDS22711	Q3UQ76 Q9ESH5	TSL:1 GENCODE basic APPRIS P2
Wfdc1-202	ENSMUST000000212901.1	921	201aa	Protein coding	-	Q9CQZ8	TSL:1 GENCODE basic APPRIS ALT2

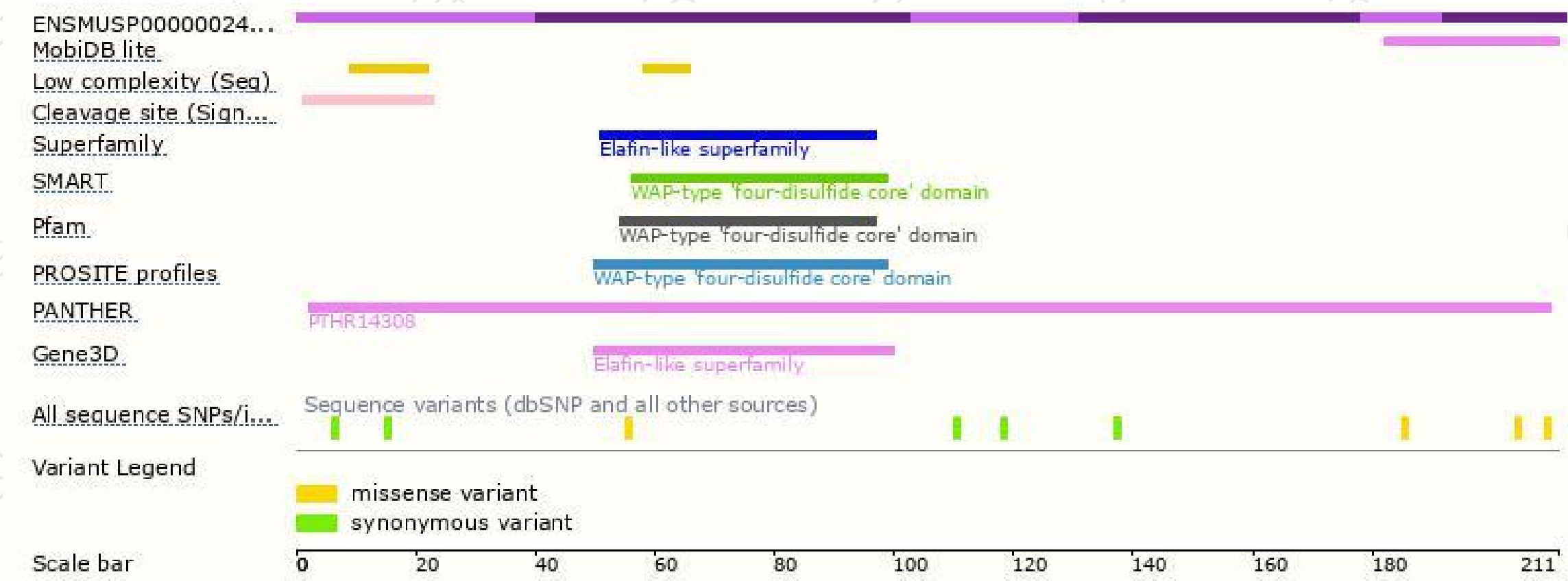
The strategy is based on the design of *Wfdc1-201* transcript,The transcription is shown below



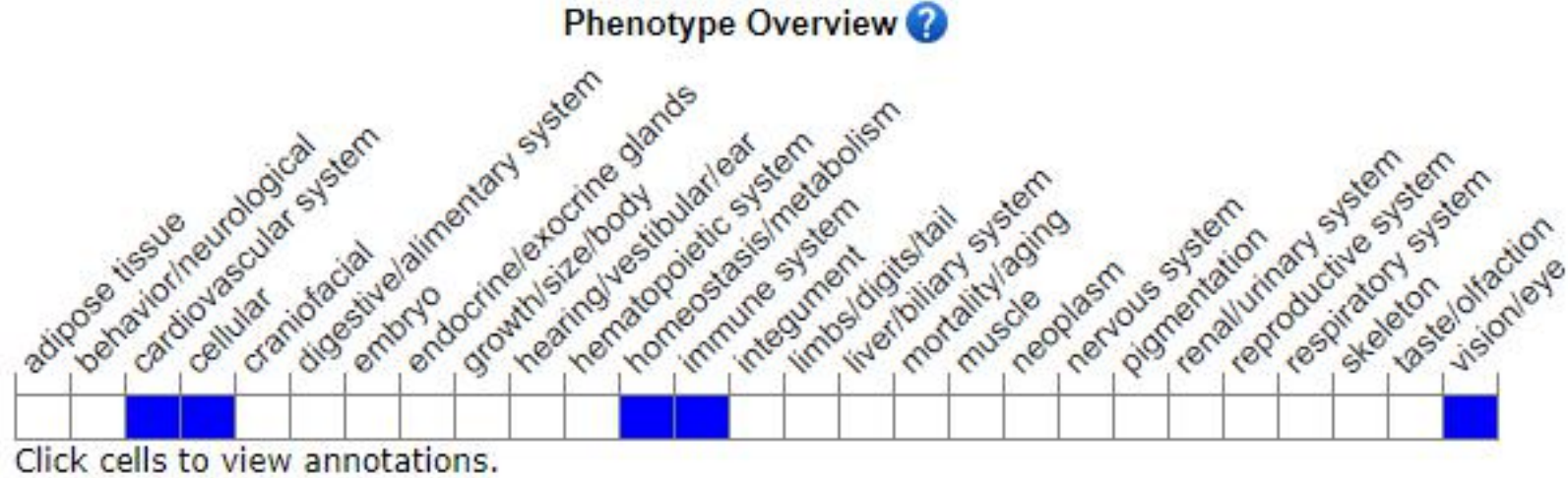
Genomic location distribution



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, Homozygous mice for a null allele exhibit decreased susceptibility to influenza A virus infection and enhanced wound healing.

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

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