Wdr90 Cas9-KO Strategy

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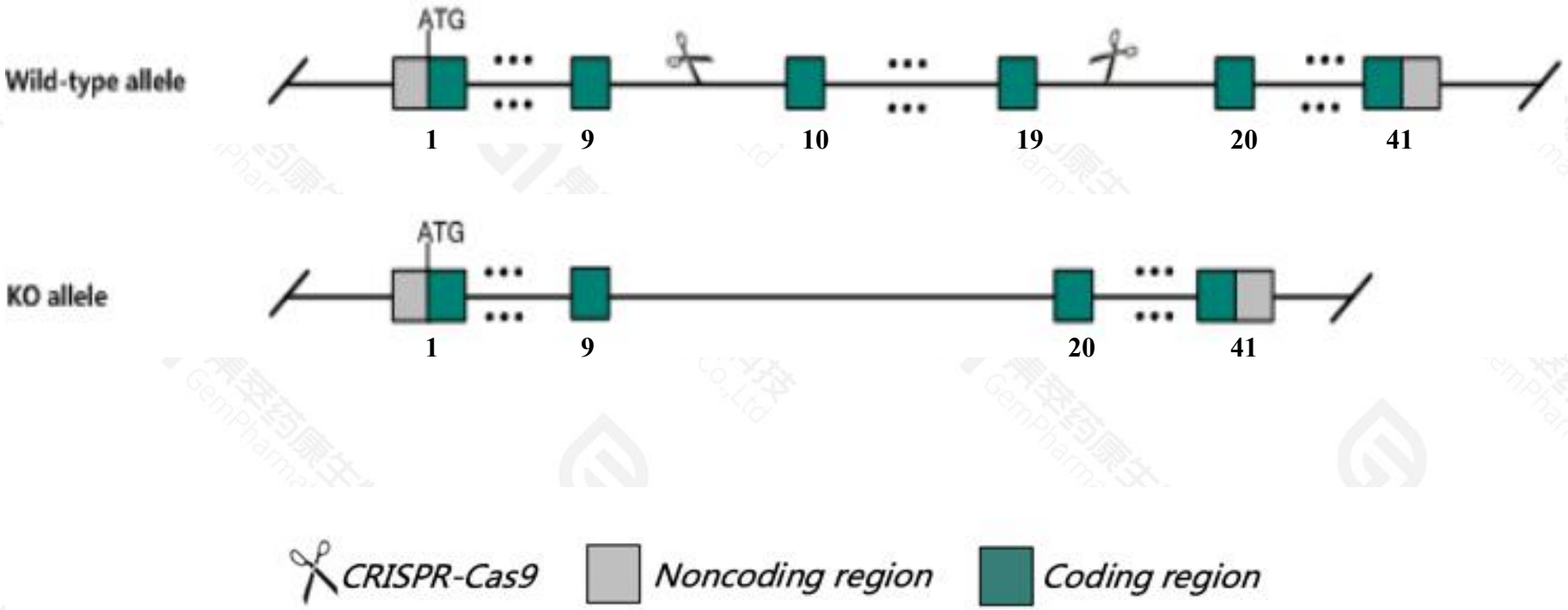
Project Overview

Project Name	***Wdr90***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR-Cas9 technology to edit the *Wdr90* gene. The schematic diagram is as follows:



Technical routes

➢ The *Wdr90* gene has 12 transcripts. According to the structure of *Wdr90* gene, exon10-exon19 of *Wdr90-201*(ENSMUST00000079461.15) transcript is recommended as the knockout region.The region contains 1351bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR-Cas9 technology to modify *Wdr90* 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.

Notice

➢ The *Wdr90* gene is located on the Chr17. 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.

➢ Some amino acids will remain at the N-terminus and some functions may be retained.

➢Transcript *Wdr90*-212 may not be affected.

➢ 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）

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Wdr90 WD repeat domain 90 [Mus musculus (house mouse)]

Gene ID: 106618, updated on 25-Sep-2020

Summary

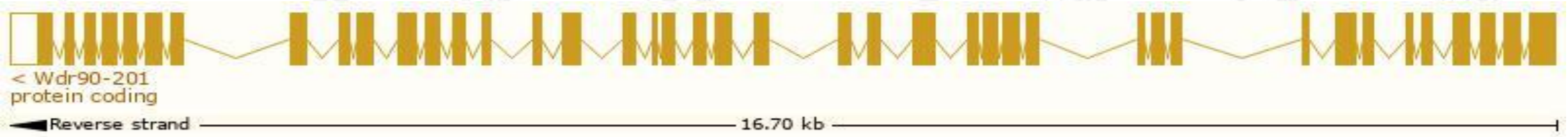
Official Symbol	Wdr90 provided by MGI
Official Full Name	WD repeat domain 90 provided byMGI
Primary source	MGI:MGI:1921267
See related	Ensembl:ENSMUSG00000073434
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3230401M21Rik, AI551153, mKIAA1924
Expression	Ubiquitous expression in ovary adult (RPKM 17.6), thymus adult (RPKM 16.0) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

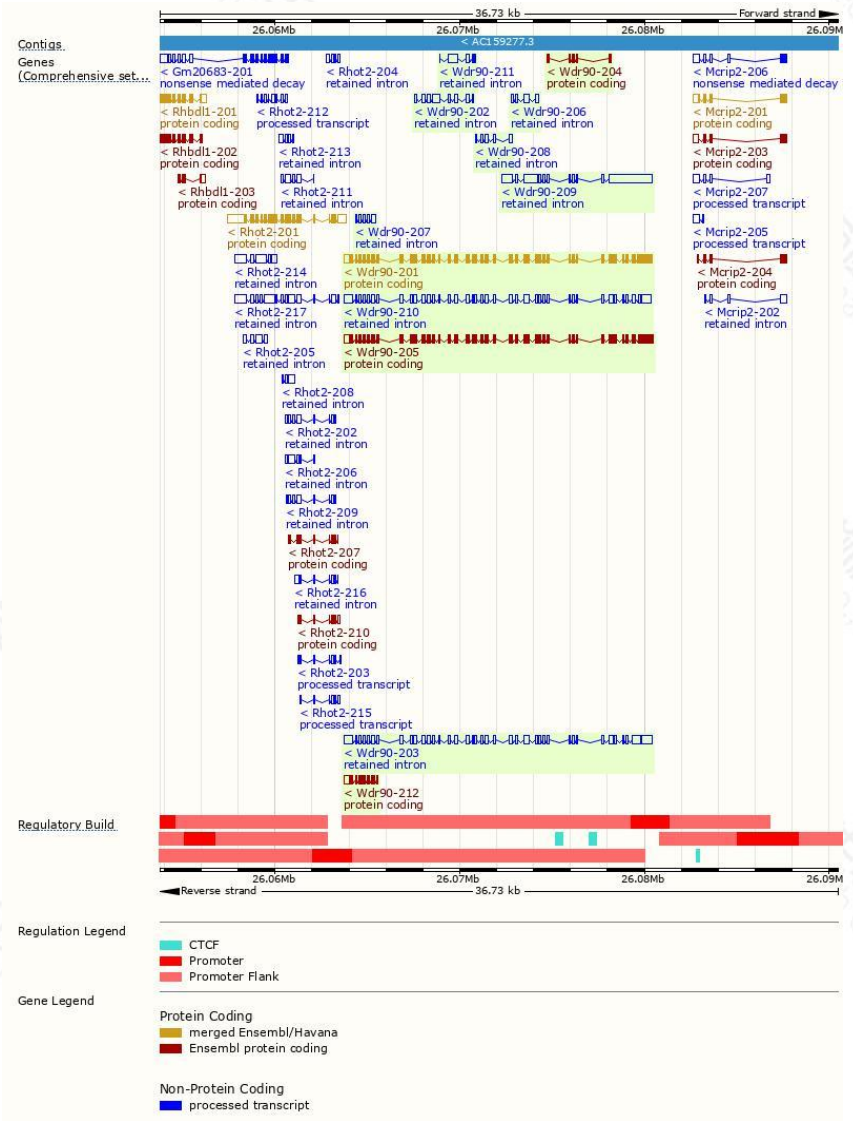
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wdr90-201	ENSMUST00000079461.15	5991	1892aa	Protein coding	CCDS50037		TSL:5 , GENCODE basic , APPRIS P2 ,
Wdr90-205	ENSMUST00000176923.9	5962	1874aa	Protein coding	-		TSL:5 , GENCODE basic , APPRIS ALT2 ,
Wdr90-212	ENSMUST00000235437.2	1237	314aa	Protein coding	-		CDS 5' incomplete ,
Wdr90-204	ENSMUST00000176678.2	541	181aa	Protein coding	-		CDS 5' and 3' incomplete , TSL:3 ,
Wdr90-203	ENSMUST00000176575.8	6195	No protein	Retained intron	-		TSL:1 ,
Wdr90-210	ENSMUST00000177170.8	5946	No protein	Retained intron	-		TSL:1 ,
Wdr90-209	ENSMUST00000177031.8	4535	No protein	Retained intron	-		TSL:2 ,
Wdr90-202	ENSMUST00000176170.8	1352	No protein	Retained intron	-		TSL:5 ,
Wdr90-211	ENSMUST00000177340.2	748	No protein	Retained intron	-		TSL:5 ,
Wdr90-207	ENSMUST00000176983.2	722	No protein	Retained intron	-		TSL:3 ,
Wdr90-206	ENSMUST00000176963.2	667	No protein	Retained intron	-		TSL:3 ,
Wdr90-208	ENSMUST00000177017.2	628	No protein	Retained intron	-		TSL:5 ,

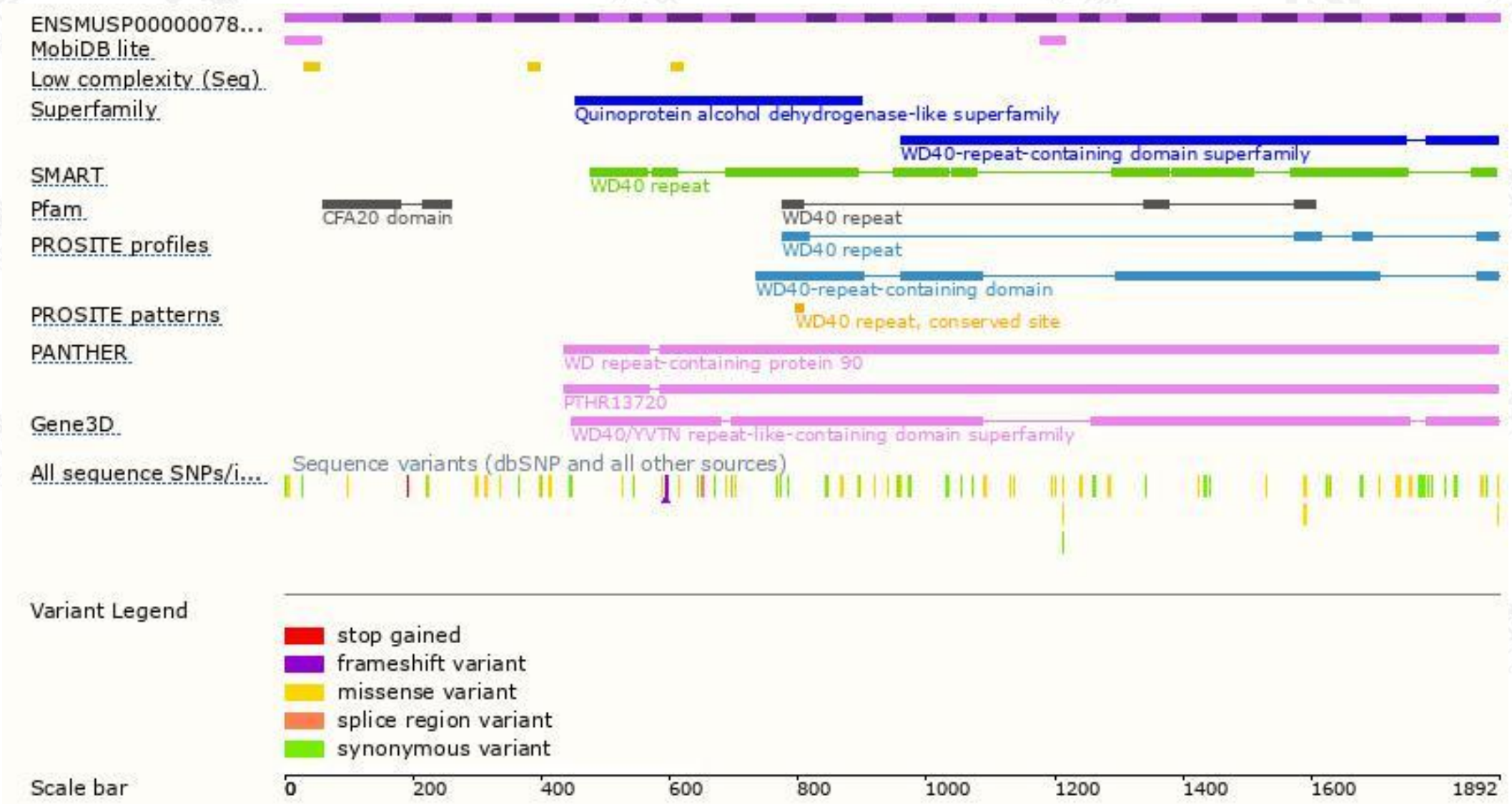
The strategy is based on the design of *Wdr90-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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