

Wdr77 Cas9-CKO Strategy

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Project Overview

Project Name

Wdr77

Project type

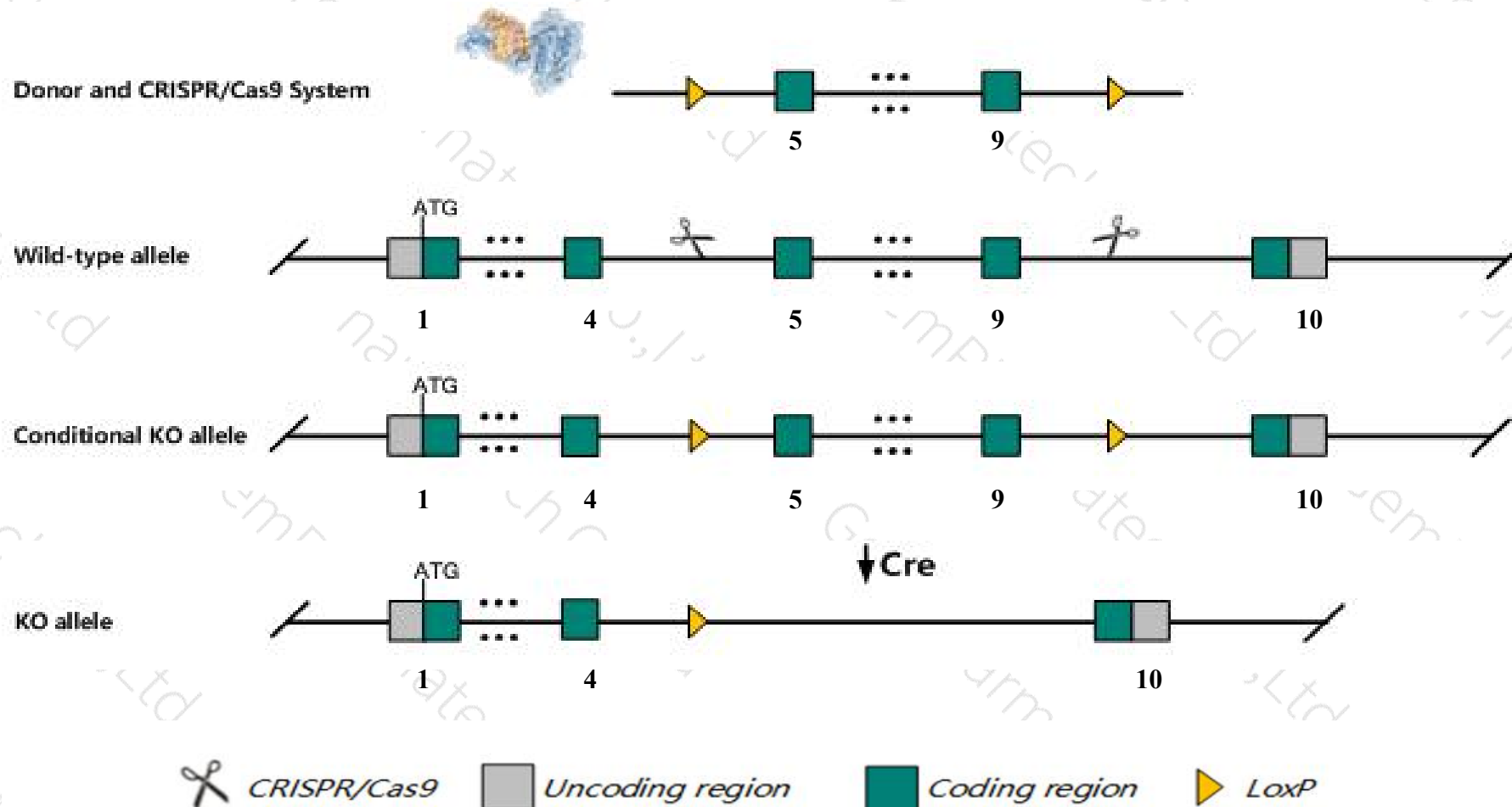
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wdr77* gene. The schematic diagram is as follows:



Technical routes

- The *Wdr77* gene has 5 transcripts. According to the structure of *Wdr77* gene, exon5-exon9 of *Wdr77*-201(ENSMUST00000010278.11) transcript is recommended as the knockout region. The region contains 376bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Wdr77* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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 flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, mice homozygous for a knock-out allele die prior to E8.5 for unknown reasons. Heterozygotes develop multifocal hyperplasia in the dorsal prostate; however, no prostate tumors are detected up to 12 months of age.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- The *Wdr77* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Wdr77 WD repeat domain 77 [Mus musculus (house mouse)]

Gene ID: 70465, updated on 13-Mar-2020

Summary



Official Symbol Wdr77 provided by [MGI](#)

Official Full Name WD repeat domain 77 provided by [MGI](#)

Primary source [MGI:MGI:1917715](#)

See related [Ensembl:ENSMUSG00000000561](#)

Gene type protein coding

RefSeq status PROVISIONAL

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as 2610003I18Rik, 2610312E17Rik, C79984, p44/MEP50

Expression Ubiquitous expression in duodenum adult (RPKM 34.7), liver adult (RPKM 22.0) and 28 other tissues [See more](#)

Orthologs [human all](#)

Transcript information (Ensembl)

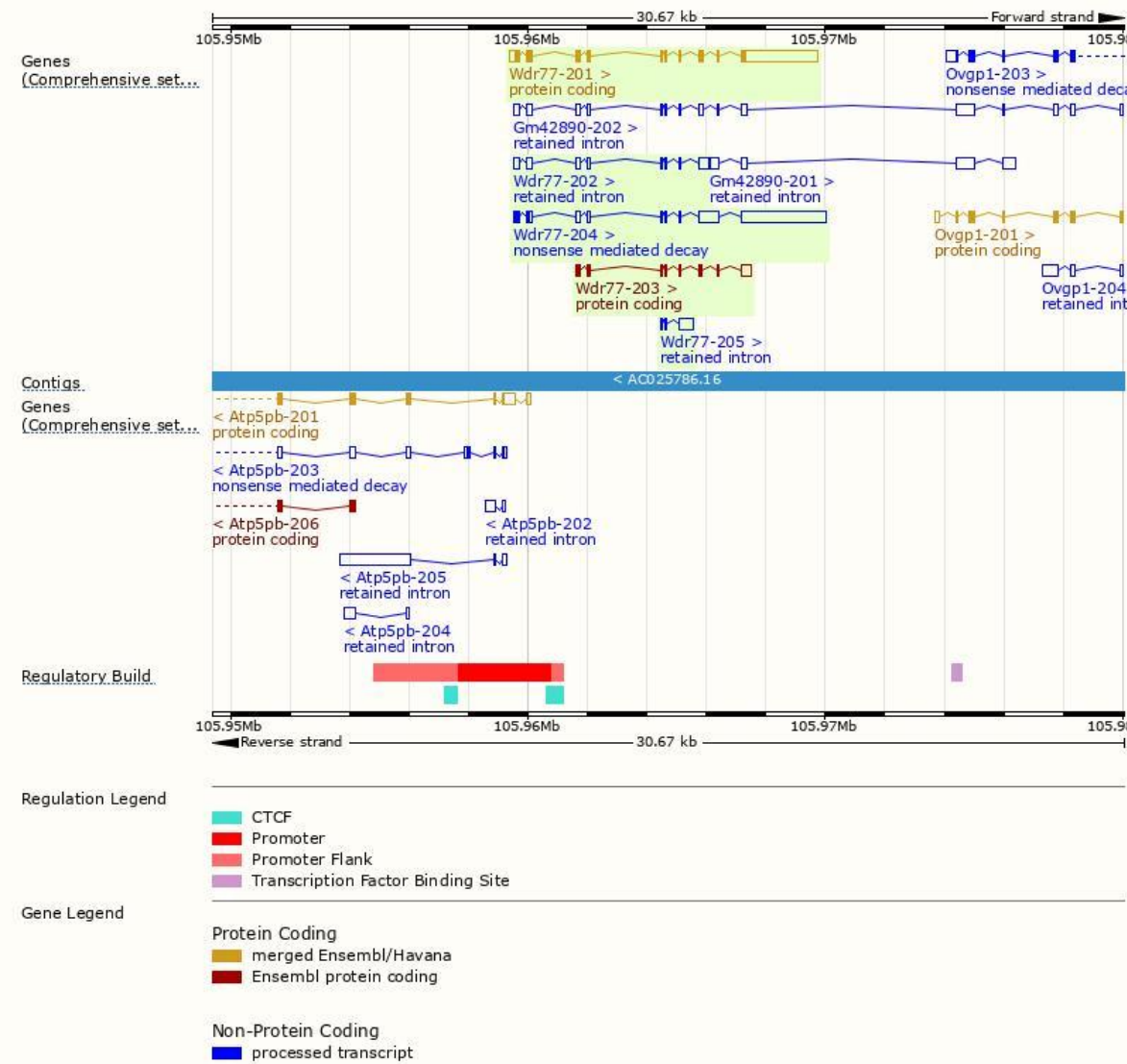
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wdr77-201	ENSMUST00000010278.11	3682	342aa	Protein coding	CCDS17715	Q99J09	TSL:1 GENCODE basic APPRIS P1
Wdr77-203	ENSMUST00000128005.1	911	167aa	Protein coding	-	F7D5L2	CDS 5' incomplete TSL:3
Wdr77-204	ENSMUST00000130994.7	4286	60aa	Nonsense mediated decay	-	D6RIL4	TSL:1
Wdr77-202	ENSMUST00000127464.7	1095	No protein	Retained intron	-	-	TSL:1
Wdr77-205	ENSMUST00000151263.2	590	No protein	Retained intron	-	-	TSL:2

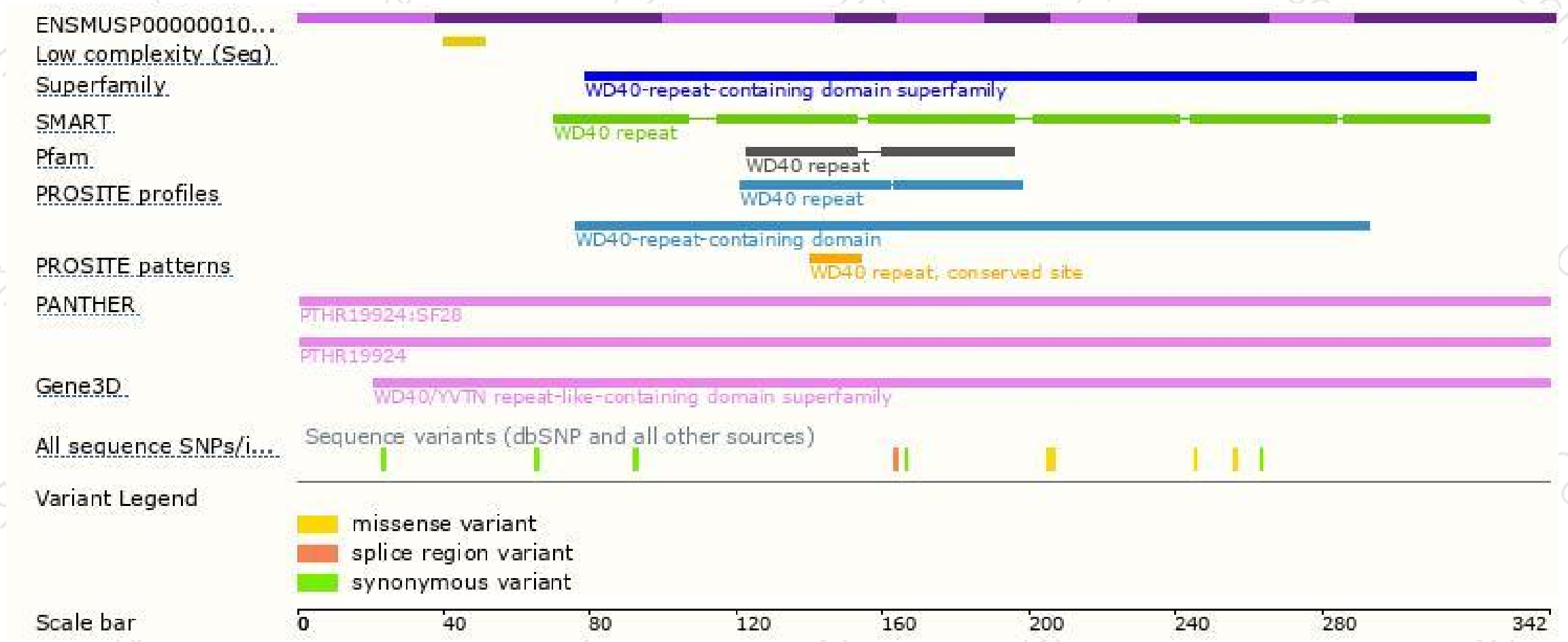
The strategy is based on the design of *Wdr77-201* transcript,the transcription is shown below:



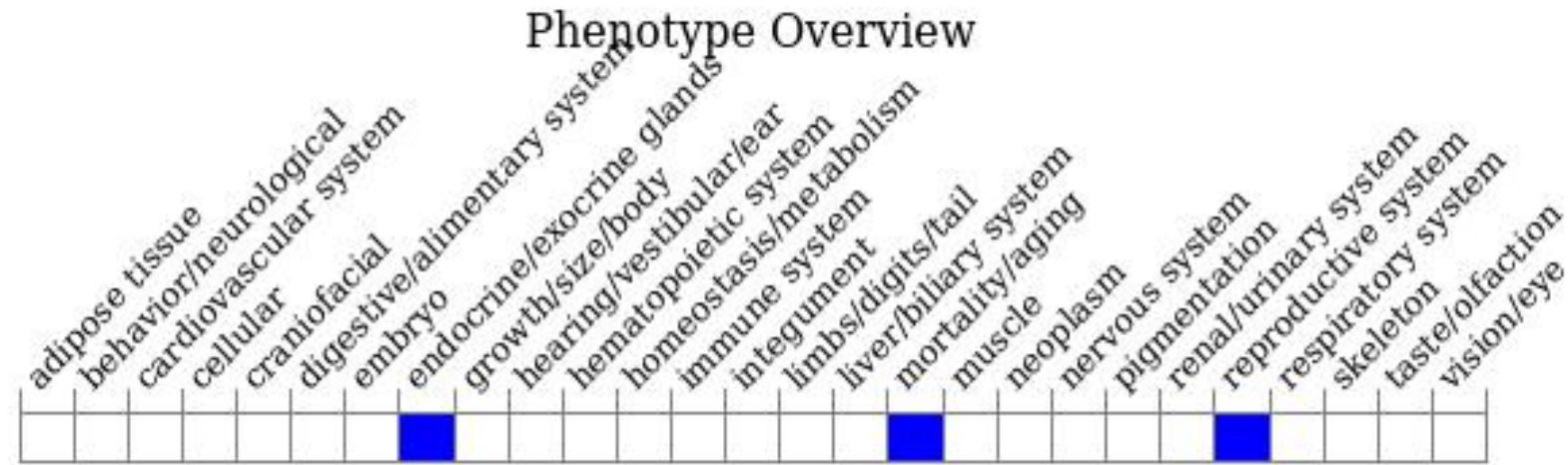
Genomic location distribution



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, mice homozygous for a knock-out allele die prior to E8.5 for unknown reasons.

Heterozygotes develop multifocal hyperplasia in the dorsal prostate; however, no prostate tumors are detected up to 12 months of age.

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

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