Wdr33 Cas9-CKO Strategy

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Project Overview

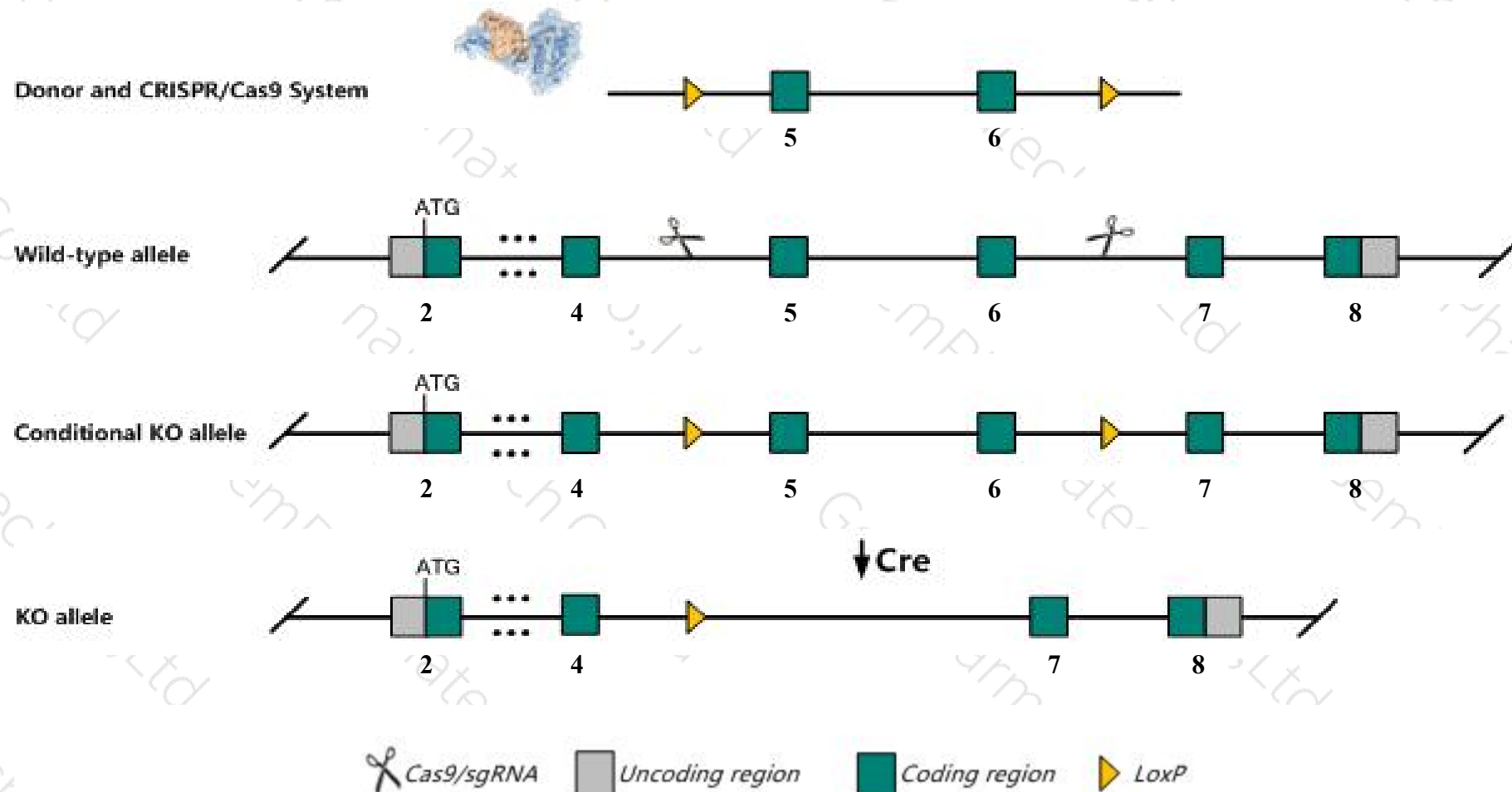|	
Project Name	*Wdr33*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wdr33* gene. The schematic diagram is as follows:

Technical routes

➤ The *Wdr33* gene has 7 transcripts. According to the structure of *Wdr33* gene, exon5-exon6 of *Wdr33-207*(ENSMUST00000234957.1) transcript is recommended as the knockout region.The region contains Ens 248bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Wdr33* gene. The brief process is as follows:sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA 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 was 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.

Notice

➢ The *Wdr33* gene is located on the Chr18. 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）

Wdr33 WD repeat domain 33 [Mus musculus (house mouse)]

Gene ID: 74320, updated on 13-Mar-2020

Summary

Official Symbol	Wdr33 provided by MGI
Official Full Name	WD repeat domain 33 provided byMGI
Primary source	MGI:MGI:1921570
See related	Ensembl:ENSMUSG00000024400
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	1110001N06Rik, 2310011G05Rik, 2810021O11Rik, 8430413N20Rik, WDC146
Expression	Ubiquitous expression in CNS E11.5 (RPKM 5.8), limb E14.5 (RPKM 5.4) and 28 other tissuesSee 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
Wdr33-201	ENSMUST00000025264.7	4575	1330aa	Protein coding	CCDS29112	Q8K4P0	TSL:5 GENCODE basic APPRIS P1
Wdr33-207	ENSMUST00000234957.1	1415	271aa	Protein coding	CCDS50242	A0A3Q4EGD8	GENCODE basic
Wdr33-205	ENSMUST00000234344.1	2416	312aa	Protein coding	-	Q9D1P6	GENCODE basic
Wdr33-202	ENSMUST00000082319.14	1115	255aa	Protein coding	-	Q8K1G7	TSL:1 GENCODE basic
Wdr33-203	ENSMUST00000234137.1	3683	No protein	Retained intron	-	-	
Wdr33-204	ENSMUST00000234302.1	1756	No protein	Retained intron	-	-	
Wdr33-206	ENSMUST00000234937.1	608	No protein	Retained intron	-	-	

The strategy is based on the design of *Wdr33-207* transcript,the transcription is shown below:

37.85 kb — Forward strand

Wdr33-207 >
protein coding
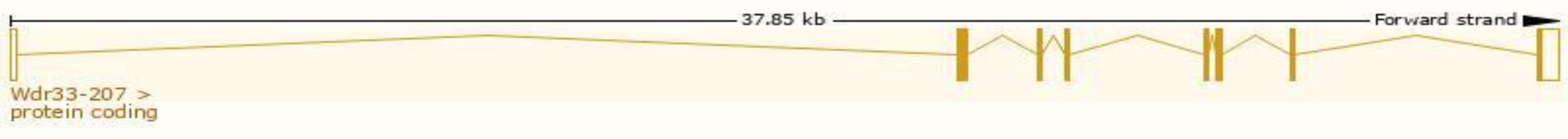
Genomic location distribution

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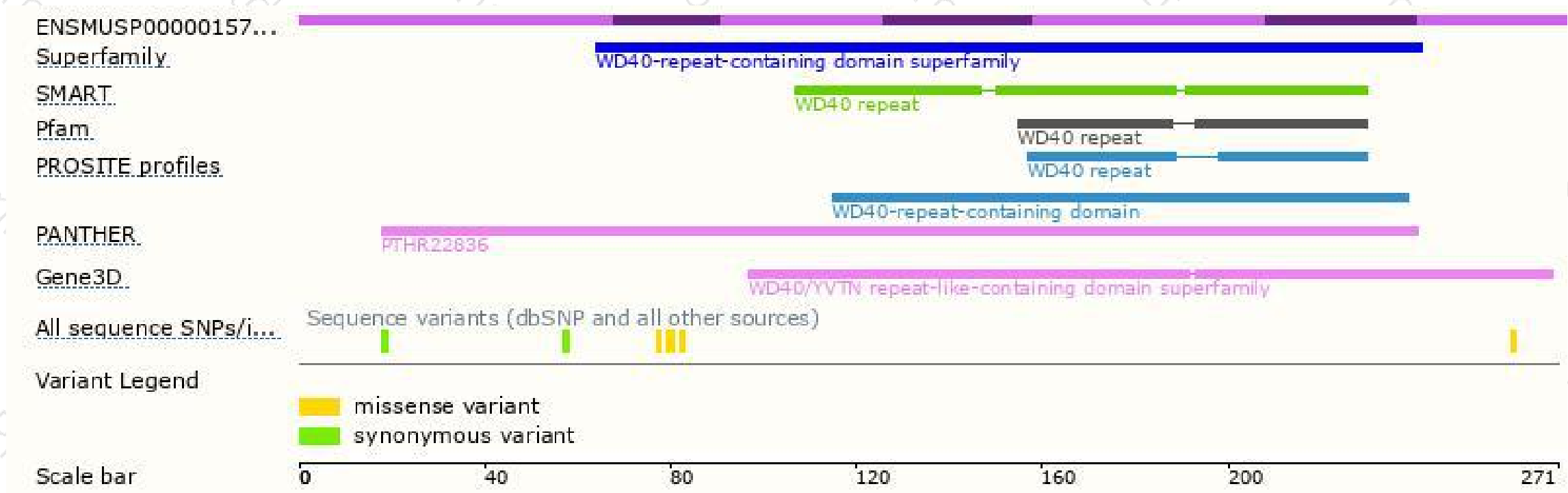
If you have any questions, you are welcome to inquire.
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