Wdr17 Cas9-KO Strategy

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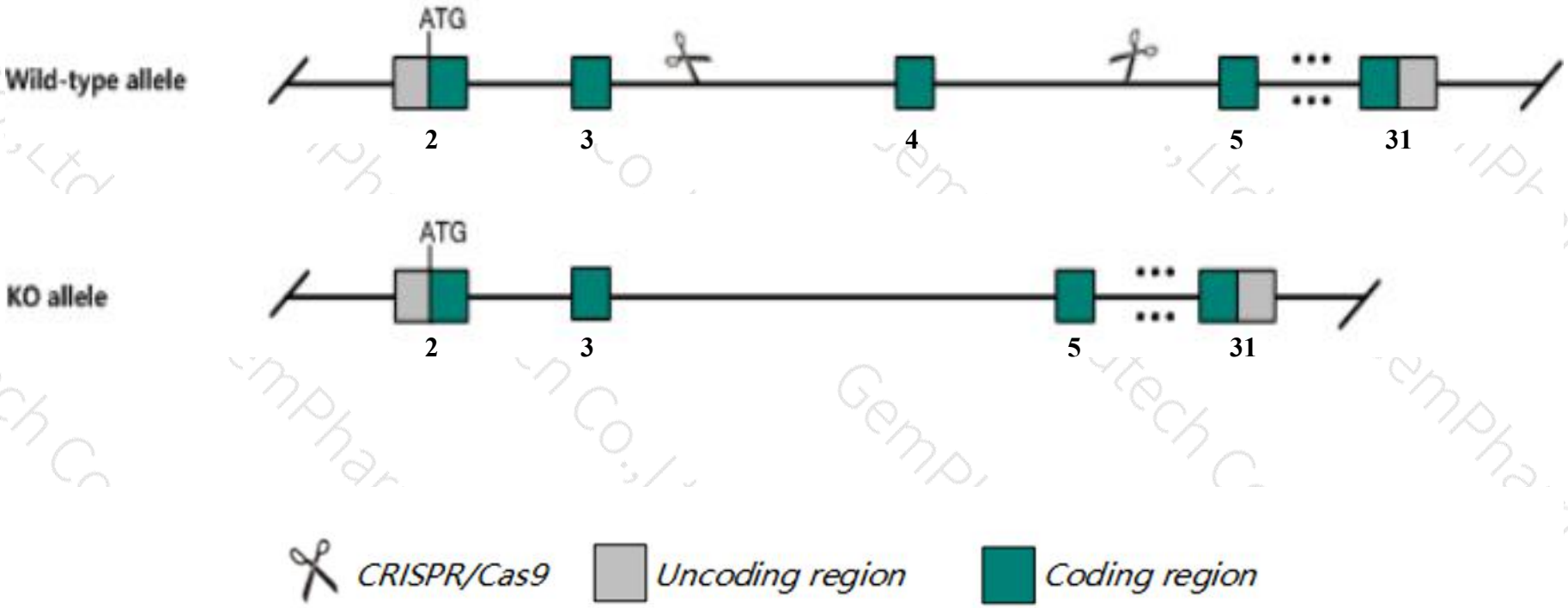
Project Overview

Project Name	***Wdr17***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wdr17* gene. The schematic diagram is as follows:



Technical routes

➢ The *Wdr17* gene has 13 transcripts. According to the structure of *Wdr17* gene, exon4 of *Wdr17-206*(ENSMUST00000144711.8) transcript is recommended as the knockout region.The region contains 184bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Wdr17* 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 *Wdr17* 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.

➢ Transcript *Wdr17*-203&210 may not be affected.

➢ The effect on transcript *Wdr17*-205&207&213 is unknown.

➢ 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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Wdr17 WD repeat domain 17 [Mus musculus (house mouse)]

Gene ID: 244484, updated on 13-Mar-2020

Summary

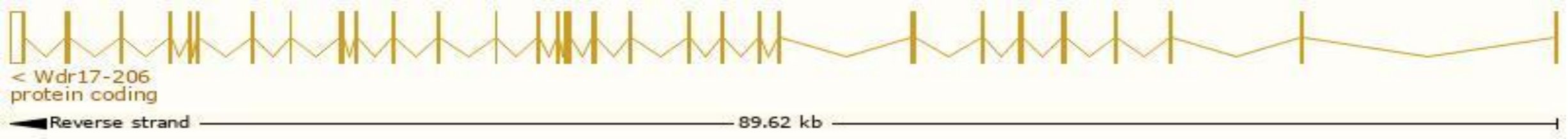
Official Symbol	Wdr17 provided by MGI
Official Full Name	WD repeat domain 17 provided byMGI
Primary source	MGI:MGI:1924662
See related	Ensembl:ENSMUSG00000039375
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3010002I12Rik, B230207L18Rik
Expression	Biased expression in CNS E18 (RPKM 3.3), cortex adult (RPKM 3.0) and 6 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

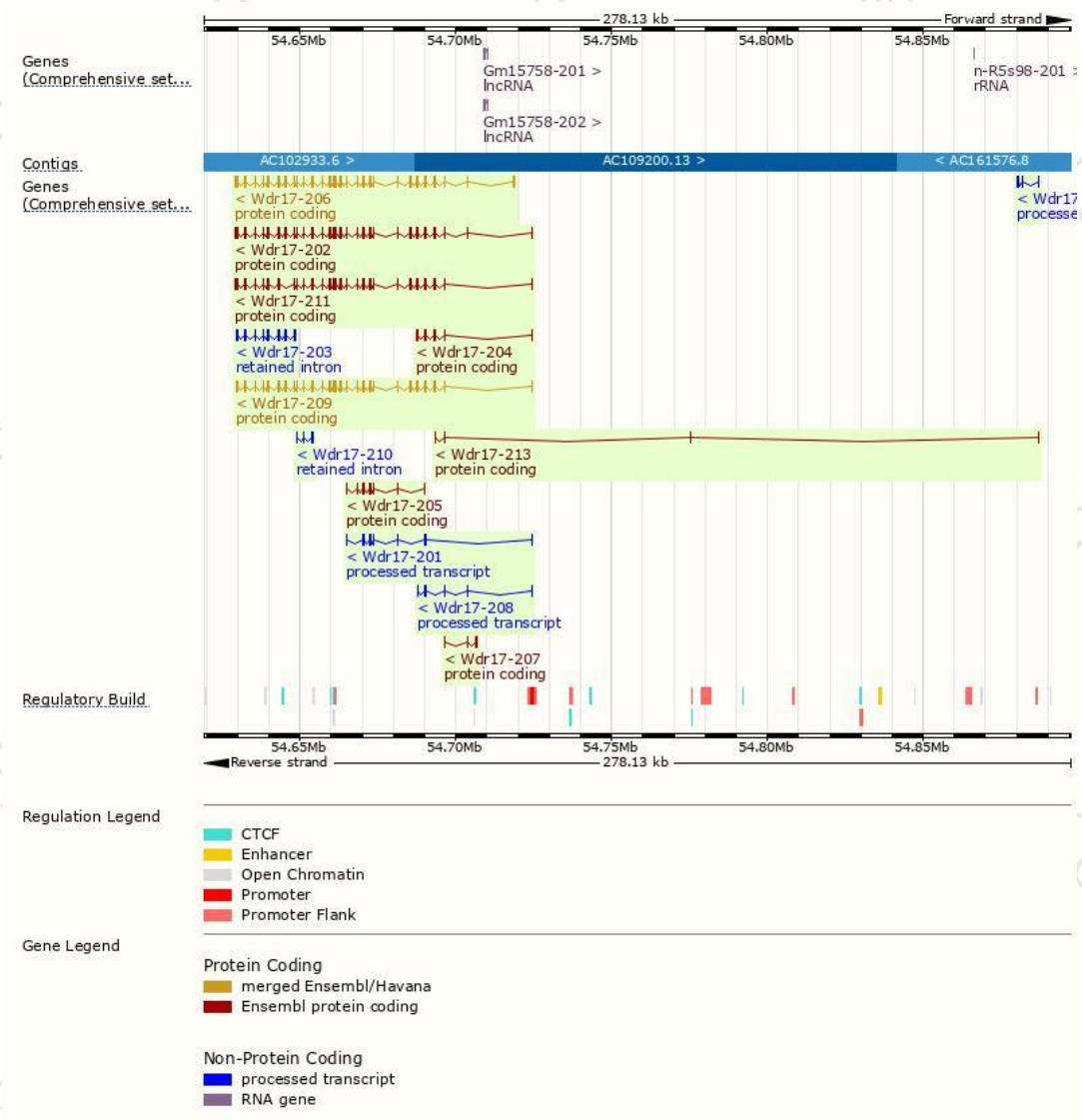
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wdr17-206	ENSMUST00000144711.8	4720	1297aa	Protein coding	CCDS22309	G3UVU7	TSL:1 GENCODE basic APPRIS P3
Wdr17-209	ENSMUST00000150488.7	4129	1290aa	Protein coding	CCDS52551	Q8C8Y2	TSL:1 GENCODE basic APPRIS ALT2
Wdr17-202	ENSMUST00000127511.8	4668	1322aa	Protein coding	-	E9Q271	TSL:5 GENCODE basic APPRIS ALT2
Wdr17-211	ENSMUST00000175915.7	4619	1283aa	Protein coding	-	H3BLI8	TSL:5 GENCODE basic APPRIS ALT2
Wdr17-204	ENSMUST00000129132.2	1043	279aa	Protein coding	-	Q9CXX5	TSL:1 GENCODE basic
Wdr17-207	ENSMUST00000148408.3	764	65aa	Protein coding	-	H3BKT9	CDS 3' incomplete TSL:5
Wdr17-205	ENSMUST00000144482.1	738	246aa	Protein coding	-	H3BJE2	CDS 5' and 3' incomplete TSL:3
Wdr17-213	ENSMUST00000176866.7	342	51aa	Protein coding	-	H3BJG5	CDS 3' incomplete TSL:5
Wdr17-201	ENSMUST00000126316.7	855	No protein	Processed transcript	-	-	TSL:5
Wdr17-208	ENSMUST00000148806.1	759	No protein	Processed transcript	-	-	TSL:5
Wdr17-212	ENSMUST00000176180.1	550	No protein	Processed transcript	-	-	TSL:3
Wdr17-203	ENSMUST00000128850.1	1271	No protein	Retained intron	-	-	TSL:1
Wdr17-210	ENSMUST00000153074.1	405	No protein	Retained intron	-	-	TSL:3

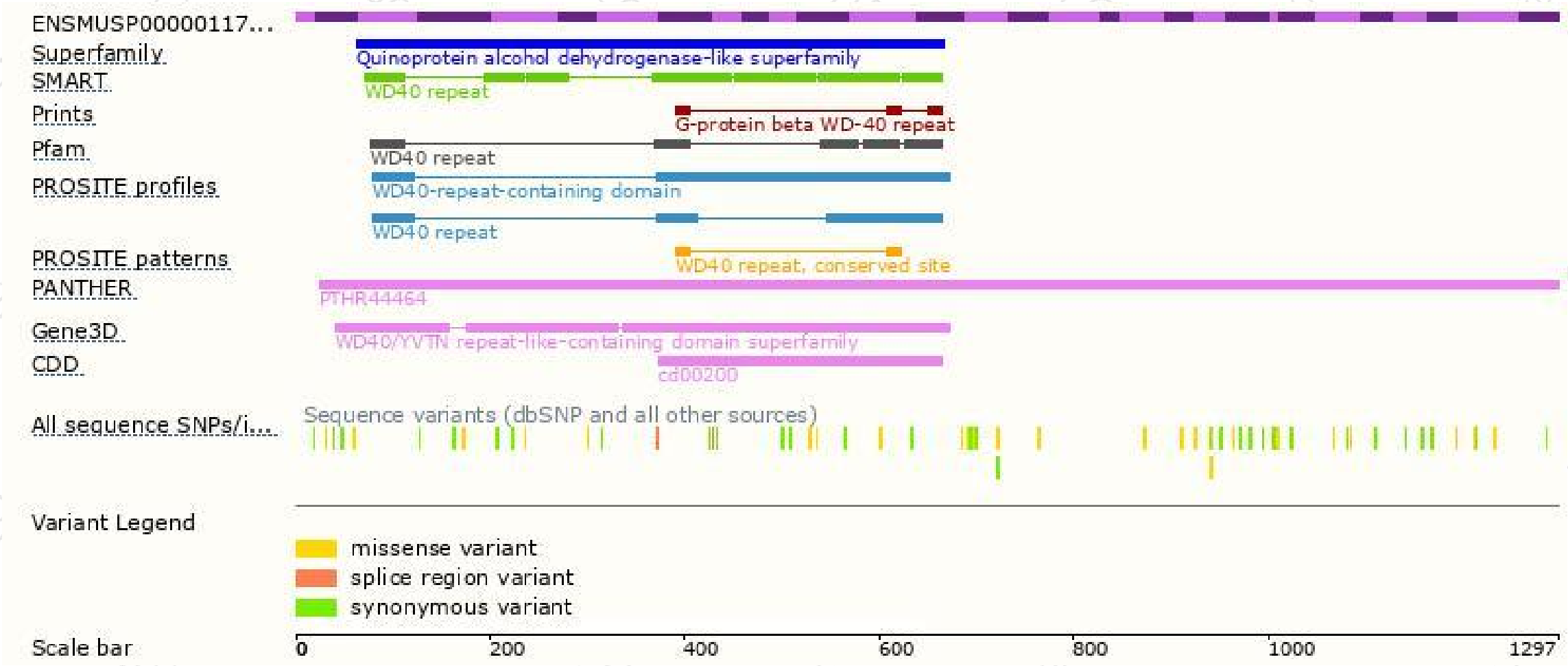
The strategy is based on the design of *Wdr17-206* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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