Wdr74 Cas9-KO Strategy

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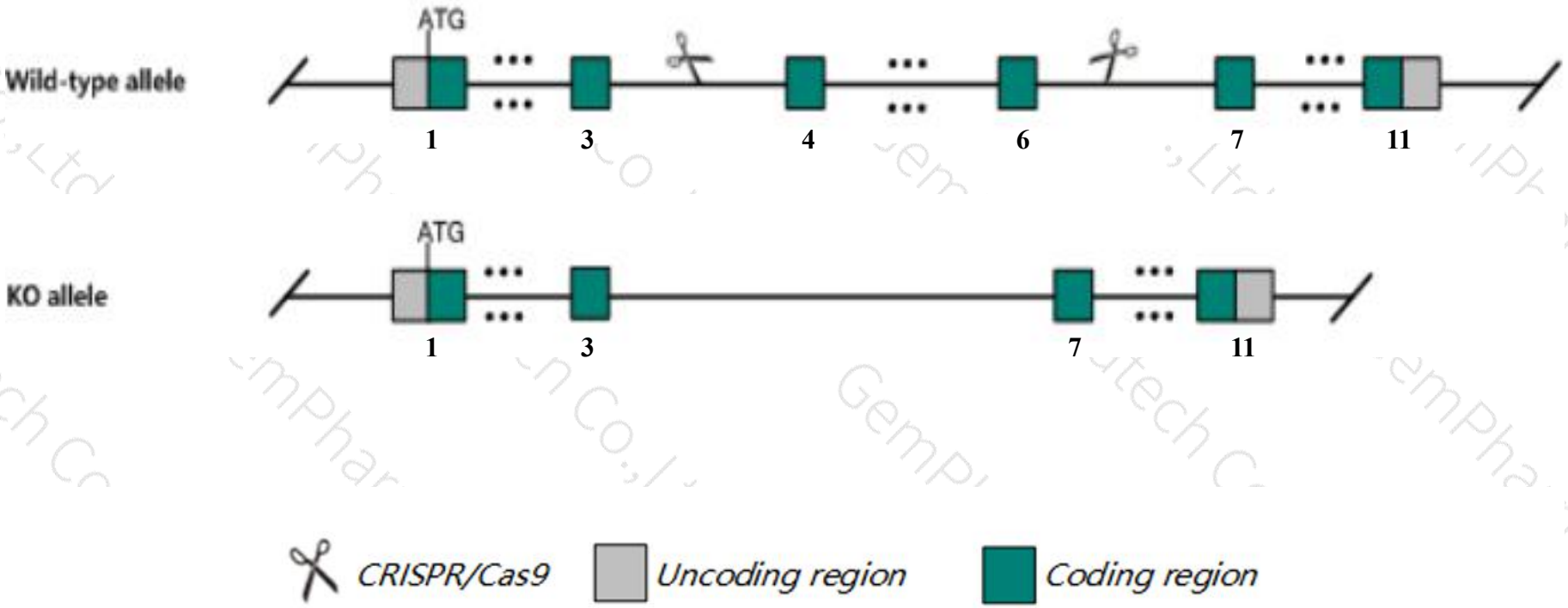
Design Date: 2020-8-12

Project Overview

Project Name	***Wdr74***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wdr74* gene. The schematic diagram is as follows:



Technical routes

➢ The *Wdr74* gene has 8 transcripts. According to the structure of *Wdr74* gene, exon4-exon6 of *Wdr74-201*(ENSMUST00000049424.10) transcript is recommended as the knockout region.The region contains 325bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Wdr74* 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 *Wdr74* gene is located on the Chr19. 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.

➢ The N-terminal of *Wdr74* gene will remain several amino acids ,it may remain the partial function of *Wdr74* gene.

➢ Transcript *Wdr74*-206&208 may not be affected.

➢ The knockout region is near to the N-terminal of *1700092M07Rik* gene and *Stx5a* gene *Mir6992* gene,this strategy may influence the regulatory function of the N-terminal of these gene.

➢ 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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Wdr74 WD repeat domain 74 [Mus musculus (house mouse)]

Gene ID: 107071, updated on 13-Mar-2020

Summary

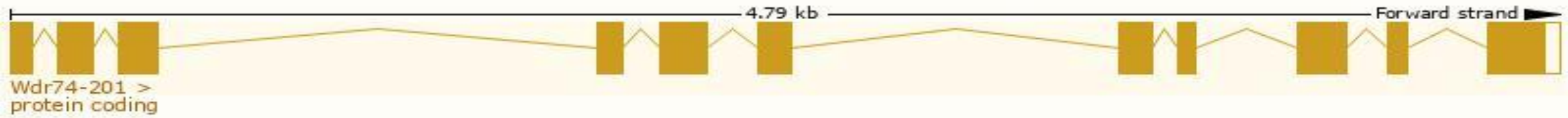
Official Symbol	Wdr74 provided by MGI
Official Full Name	WD repeat domain 74 provided byMGI
Primary source	MGI:MGI:2147427
See related	Ensembl:ENSMUSG00000042729
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5730436H21Rik, AA407588
Expression	Ubiquitous expression in liver E14 (RPKM 17.4), liver E14.5 (RPKM 16.6) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

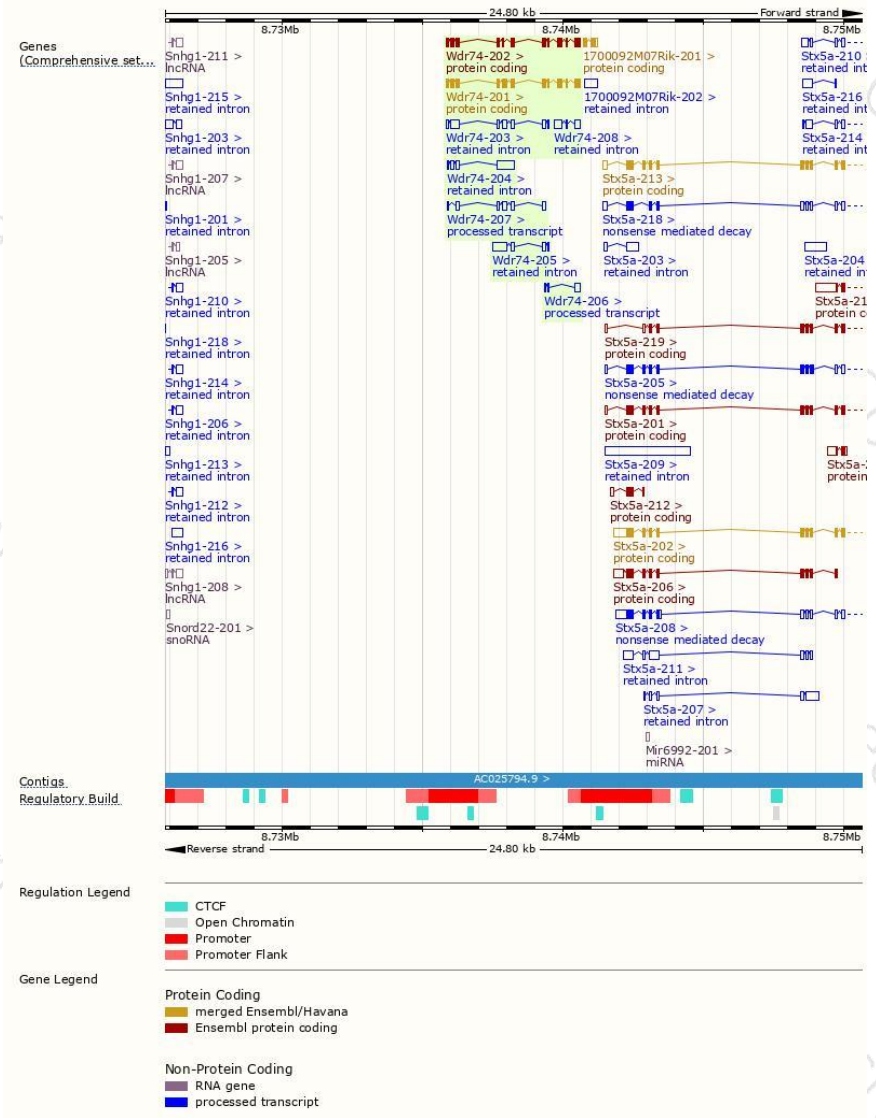
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wdr74-201	ENSMUST00000049424.10	1204	384aa	Protein coding	CCDS29541	Q8VCG3	TSL:1 GENCODE basic APPRIS P1
Wdr74-202	ENSMUST00000210512.1	1078	340aa	Protein coding	-	Q3UL50	TSL:1 GENCODE basic
Wdr74-207	ENSMUST00000237673.1	572	No protein	Processed transcript	-	-	
Wdr74-206	ENSMUST00000237531.1	298	No protein	Processed transcript	-	-	
Wdr74-204	ENSMUST00000236946.1	855	No protein	Retained intron	-	-	
Wdr74-203	ENSMUST00000210592.2	846	No protein	Retained intron	-	-	TSL:5
Wdr74-205	ENSMUST00000237017.1	742	No protein	Retained intron	-	-	
Wdr74-208	ENSMUST00000238116.1	577	No protein	Retained intron	-	-	

The strategy is based on the design of *Wdr74-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain

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

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