

Wdr41 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Wdr41

Project type

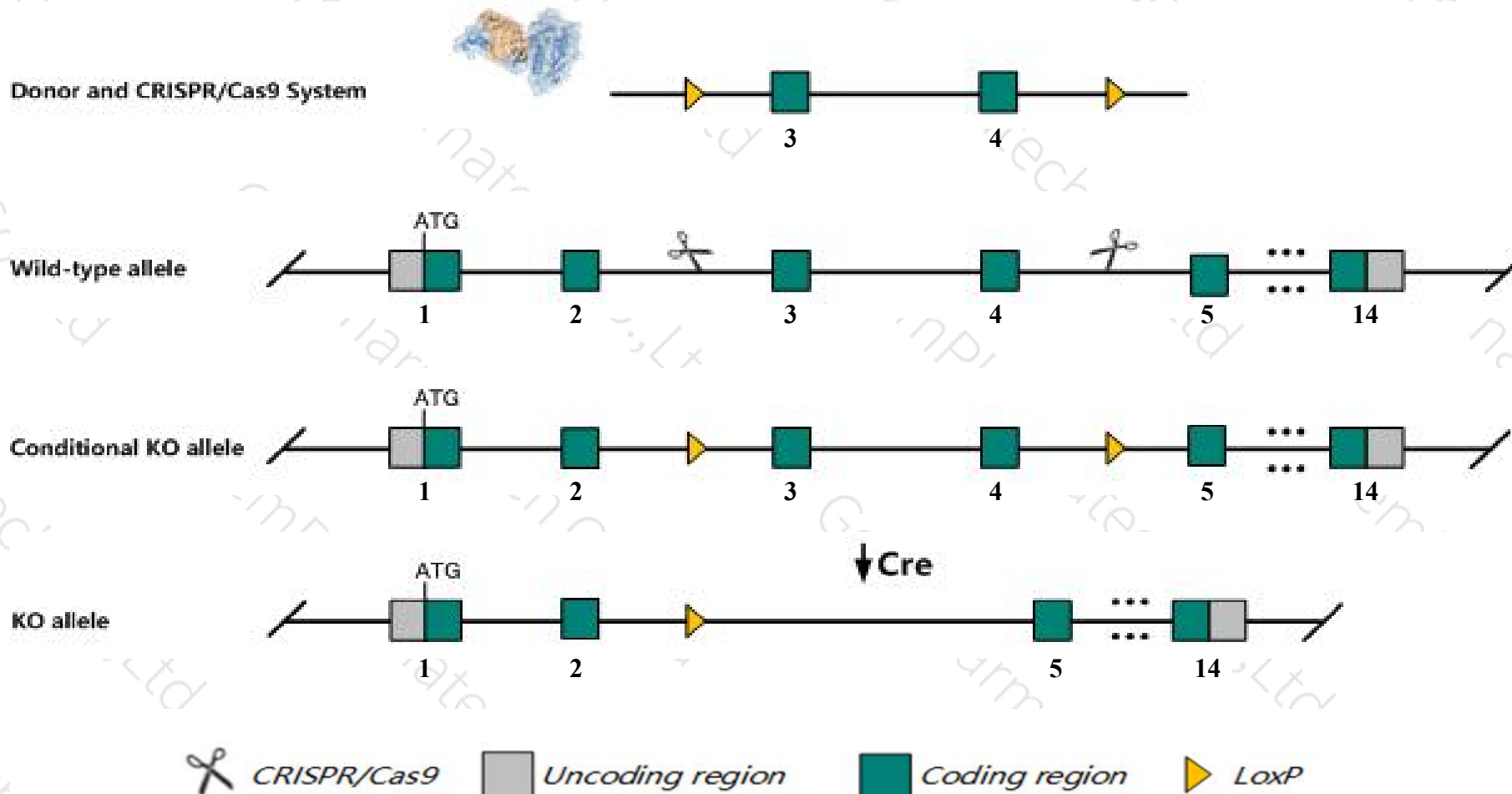
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wdr41* gene. The schematic diagram is as follows:



- The *Wdr41* gene has 9 transcripts. According to the structure of *Wdr41* gene, exon3-exon4 of *Wdr41*-205 (ENSMUST00000160801.7) transcript is recommended as the knockout region. The region contains 179bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Wdr41* 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 an ENU-generated allele exhibit increased susceptibility to DDS-induced colitis with increased activated single positive T cells.
- The *Wdr41* gene is located on the Chr13. 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)

Wdr41 WD repeat domain 41 [Mus musculus (house mouse)]

Gene ID: 218460, updated on 31-Jan-2019

Summary



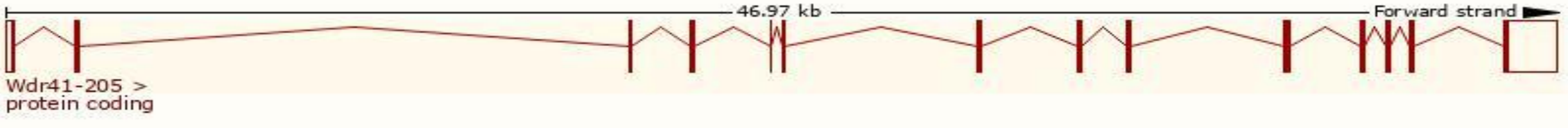
Official Symbol	Wdr41 provided by MGI
Official Full Name	WD repeat domain 41 provided by MGI
Primary source	MGI:MGI:2445123
See related	Ensembl:ENSMUSG00000042015
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B830029I03Rik, MSTP048
Summary	This gene encodes a protein of unknown function, but which contains a WD40 domain consisting of six WD40 repeats. The WD40 domain is one of the most abundant protein domains in eukaryotes, and is found in proteins with widely varying cellular functions. However, proteins with this domain often provide a rigid scaffold for protein-protein interactions. [provided by RefSeq, Aug 2012]
Expression	Ubiquitous expression in CNS E18 (RPKM 6.7), cerebellum adult (RPKM 6.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

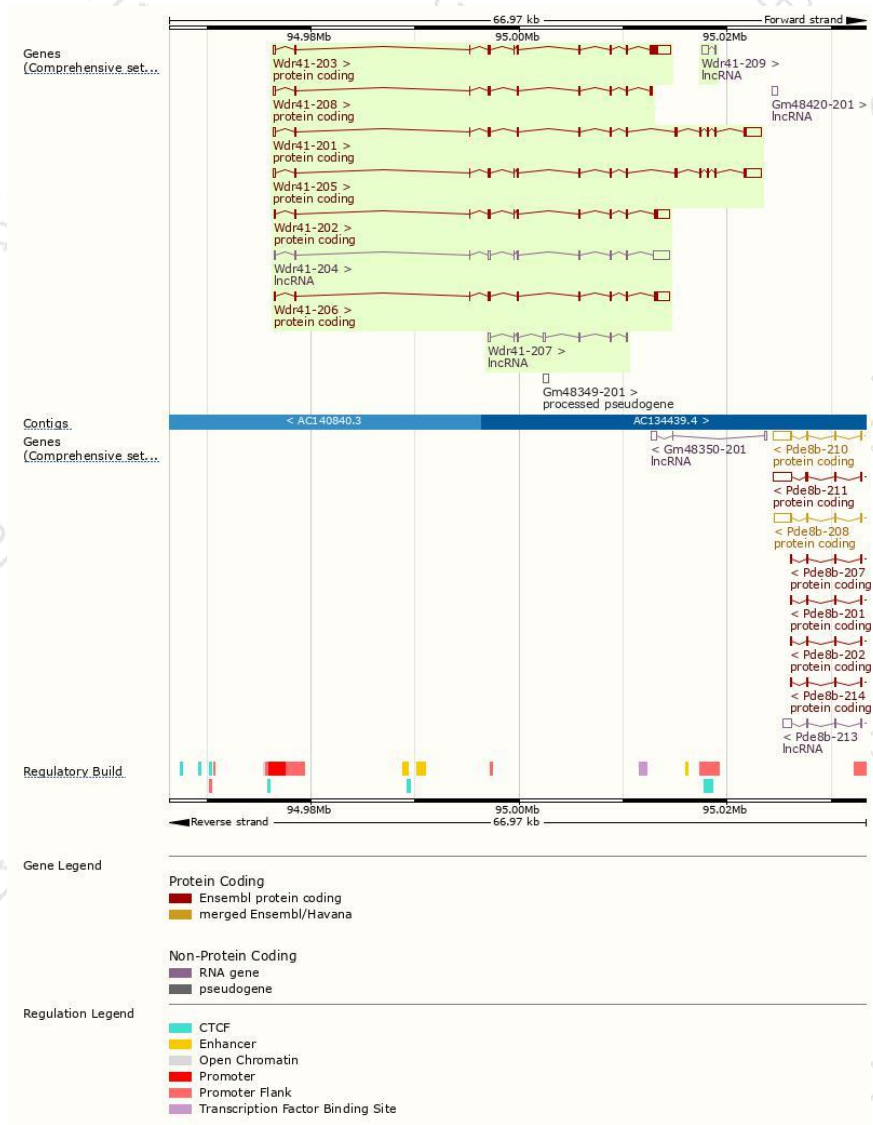
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wdr41-205	ENSMUST00000160801.7	3062	460aa	Protein coding	CCDS56896	Q3UDP0	TSL:5 GENCODE basic APPRIS P1
Wdr41-201	ENSMUST00000056512.13	3063	460aa	Protein coding	-	Q3UDP0	TSL:1 GENCODE basic APPRIS P1
Wdr41-203	ENSMUST00000160115.7	2851	467aa	Protein coding	-	S4R290	TSL:5 GENCODE basic
Wdr41-202	ENSMUST00000159647.7	2289	329aa	Protein coding	-	B2RQV3	TSL:5 GENCODE basic
Wdr41-206	ENSMUST00000167155.1	2289	329aa	Protein coding	-	B2RQV3	TSL:1 GENCODE basic
Wdr41-208	ENSMUST00000222995.1	1112	240aa	Protein coding	-	A0A1Y7VMD8	TSL:5 GENCODE basic
Wdr41-204	ENSMUST00000160409.1	2339	No protein	lncRNA	-	-	TSL:5
Wdr41-209	ENSMUST00000223422.1	756	No protein	lncRNA	-	-	TSL:5
Wdr41-207	ENSMUST00000222948.1	644	No protein	lncRNA	-	-	TSL:5

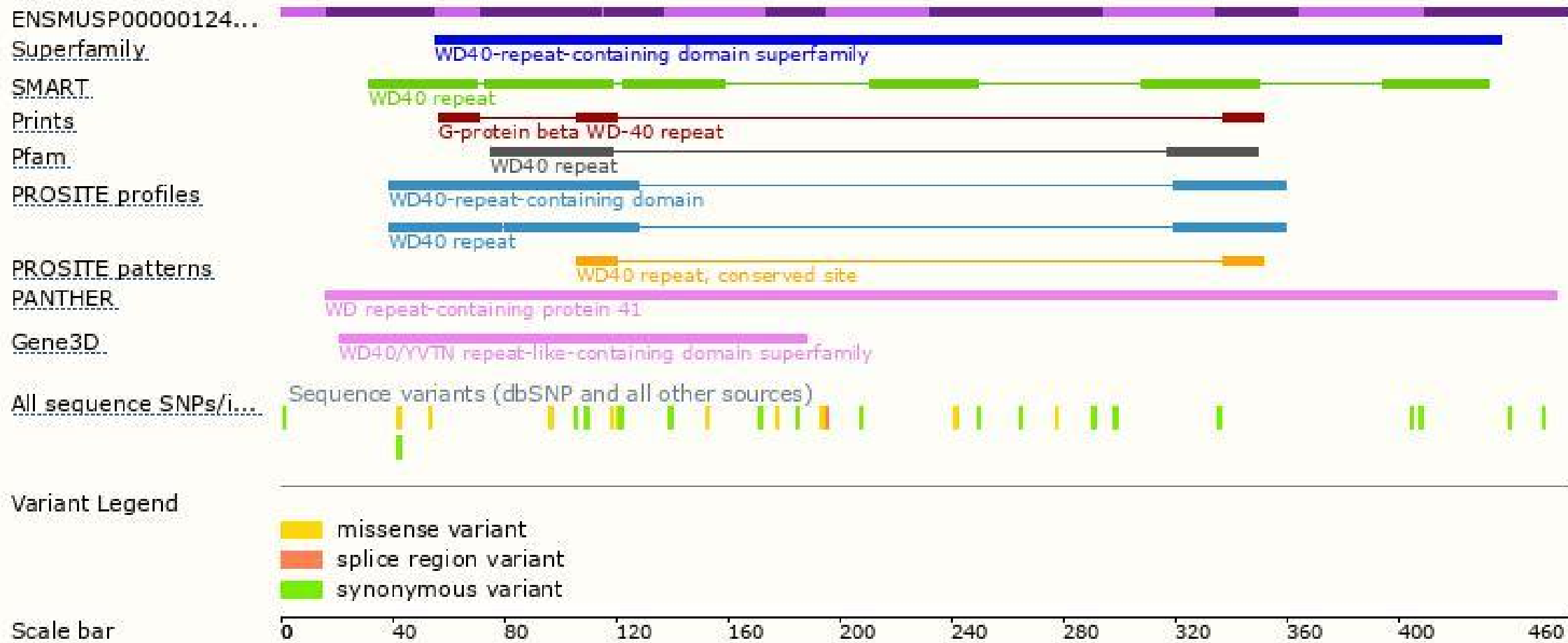
The strategy is based on the design of *Wdr41-205* transcript,The transcription is shown below



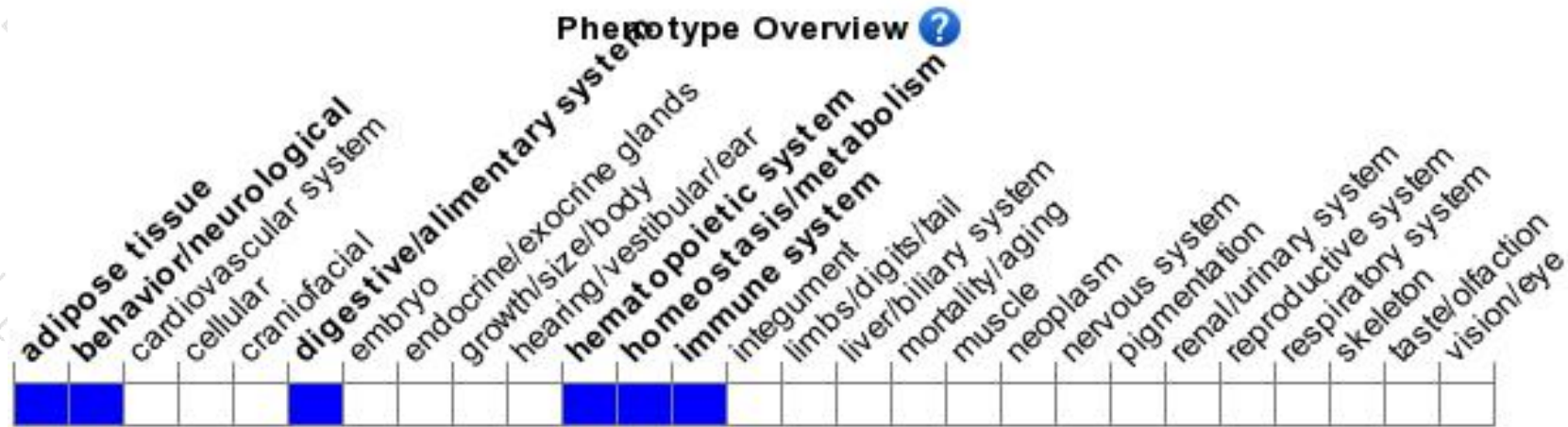
Genomic location distribution



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 an ENU-generated allele exhibit increased susceptibility to DDS-induced colitis with increased activated single positive T cells.

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

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