

***Radil* Cas9-CKO Strategy**

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Project Overview

Project Name

Radil

Project type

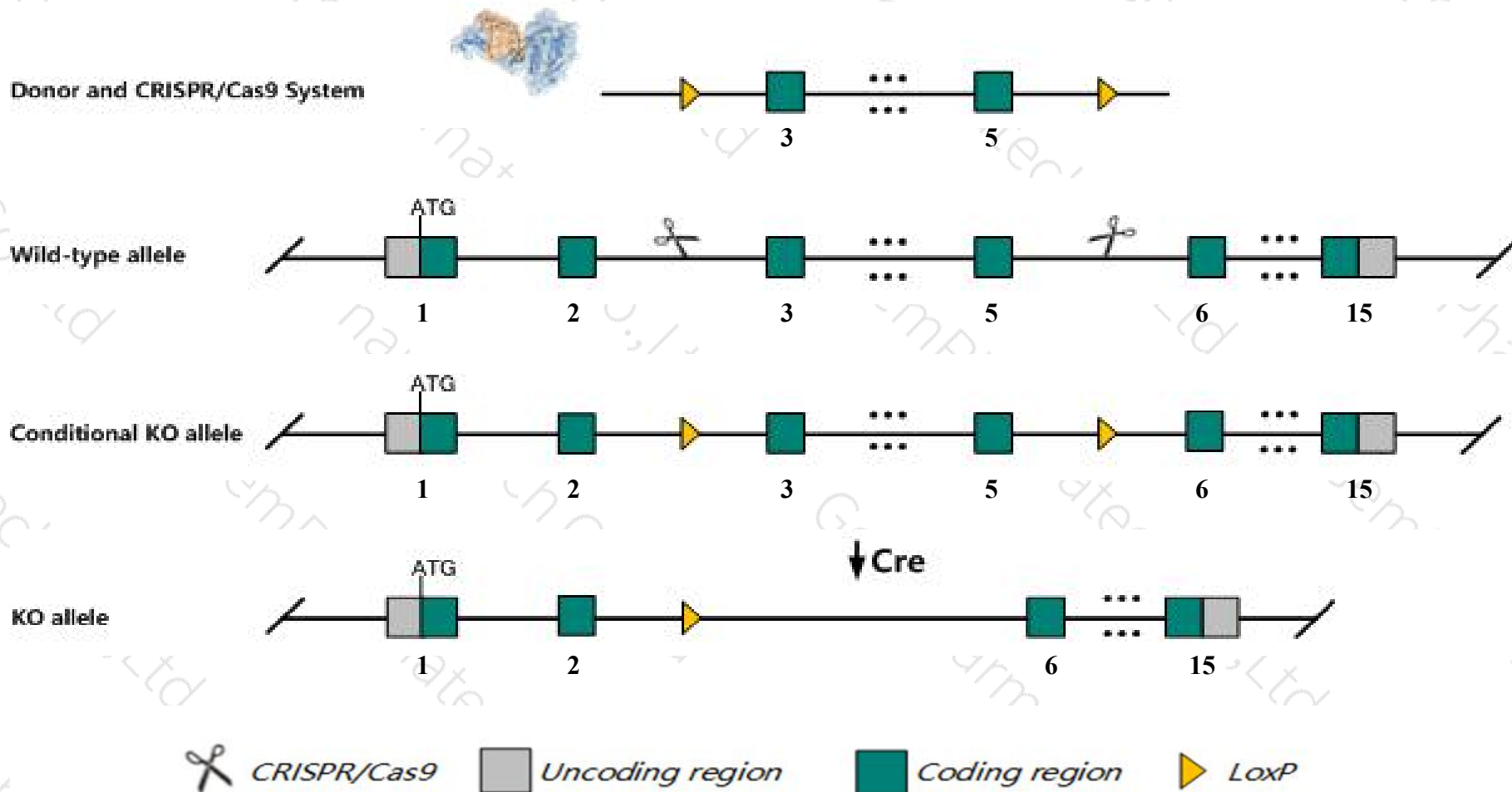
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Radil* gene has 8 transcripts. According to the structure of *Radil* gene, exon3-exon5 of *Radil*-202 (ENSMUST00000085758.9) transcript is recommended as the knockout region. The region contains 916bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Radil* 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.

Notice

- Transcript *Radil-205* may not be affected.
- The *Radil* gene is located on the Chr5. 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)

Radil Ras association and DIL domains [Mus musculus (house mouse)]

Gene ID: 231858, updated on 13-Mar-2020

Summary



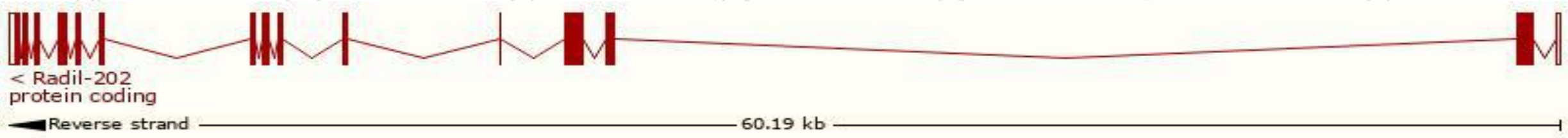
Official Symbol	Radil provided by MGI
Official Full Name	Ras association and DIL domains provided by MGI
Primary source	MGI:MGI:2443088
See related	Ensembl:ENSMUSG00000029576
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI536456, D930005D10Rik
Expression	Broad expression in testis adult (RPKM 12.8), lung adult (RPKM 12.5) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

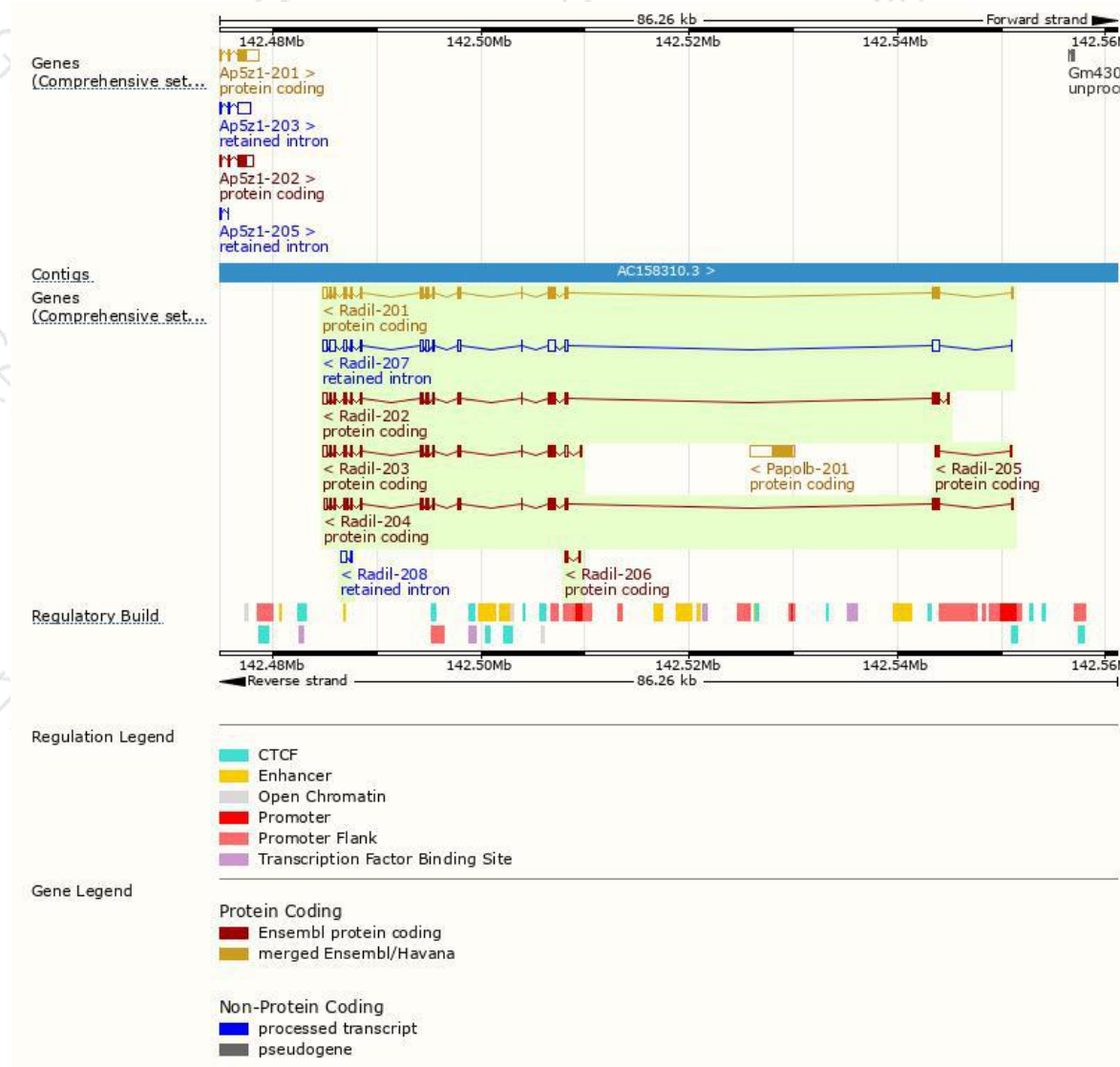
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Radil-202	ENSMUST00000085758.9	3714	1099aa	Protein coding	CCDS80453	Q69Z89	TSL:2 GENCODE basic APPRIS ALT2
Radil-204	ENSMUST00000110785.1	3708	1093aa	Protein coding	CCDS71698	D3YWJ9	TSL:1 GENCODE basic APPRIS ALT2
Radil-201	ENSMUST00000063635.14	3700	1070aa	Protein coding	CCDS19827	Q69Z89	TSL:1 GENCODE basic APPRIS P3
Radil-203	ENSMUST00000110784.7	3106	830aa	Protein coding	-	Q69Z89	TSL:1 GENCODE basic
Radil-205	ENSMUST00000129212.1	426	107aa	Protein coding	-	D3YYI1	CDS 3' incomplete TSL:3
Radil-206	ENSMUST00000139278.1	330	80aa	Protein coding	-	D3YUE9	CDS 3' incomplete TSL:3
Radil-207	ENSMUST00000139824.1	3963	No protein	Retained intron	-	-	TSL:2
Radil-208	ENSMUST00000150380.1	747	No protein	Retained intron	-	-	TSL:3

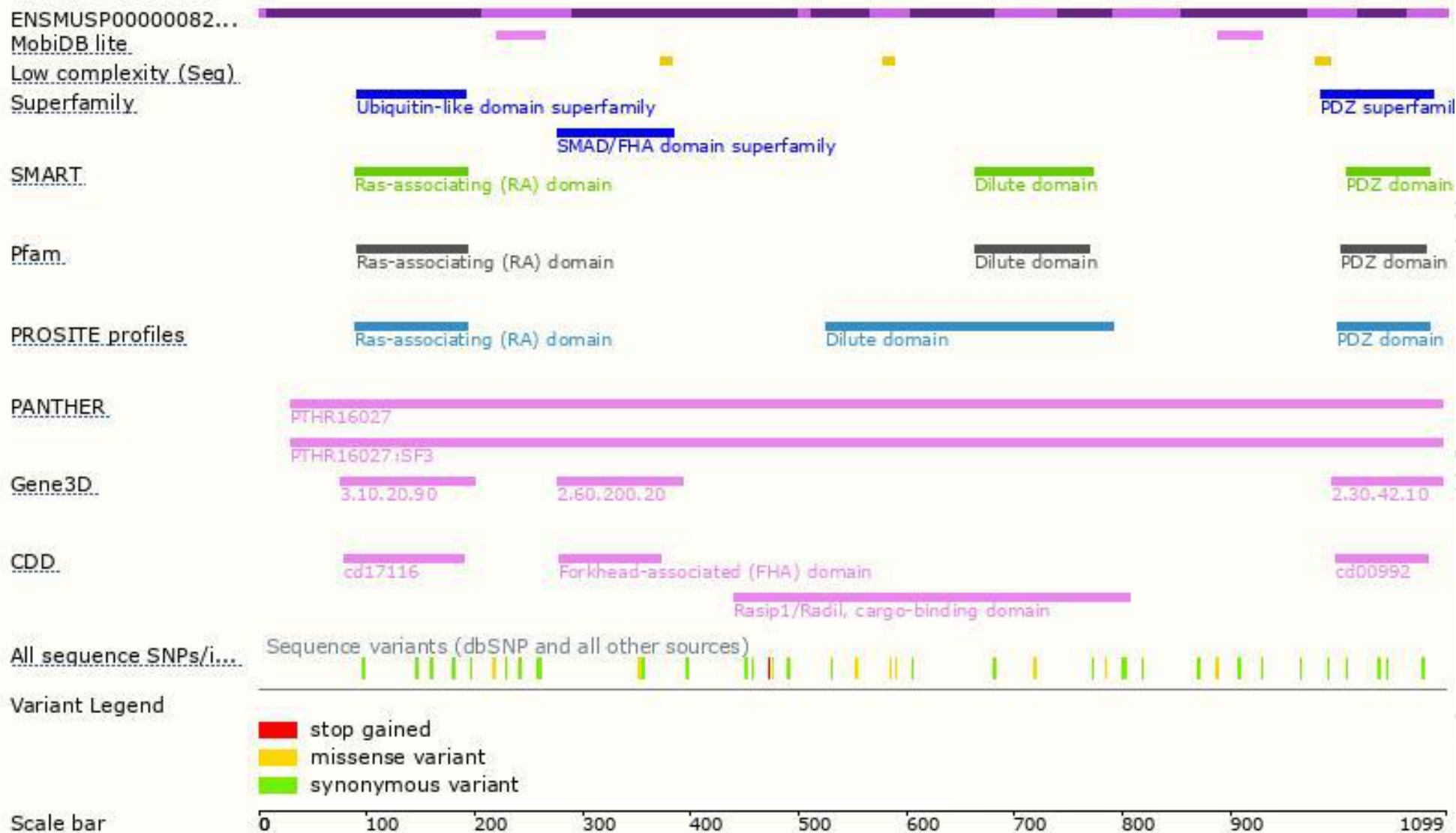
The strategy is based on the design of *Radil-202* transcript,the transcription is shown below:



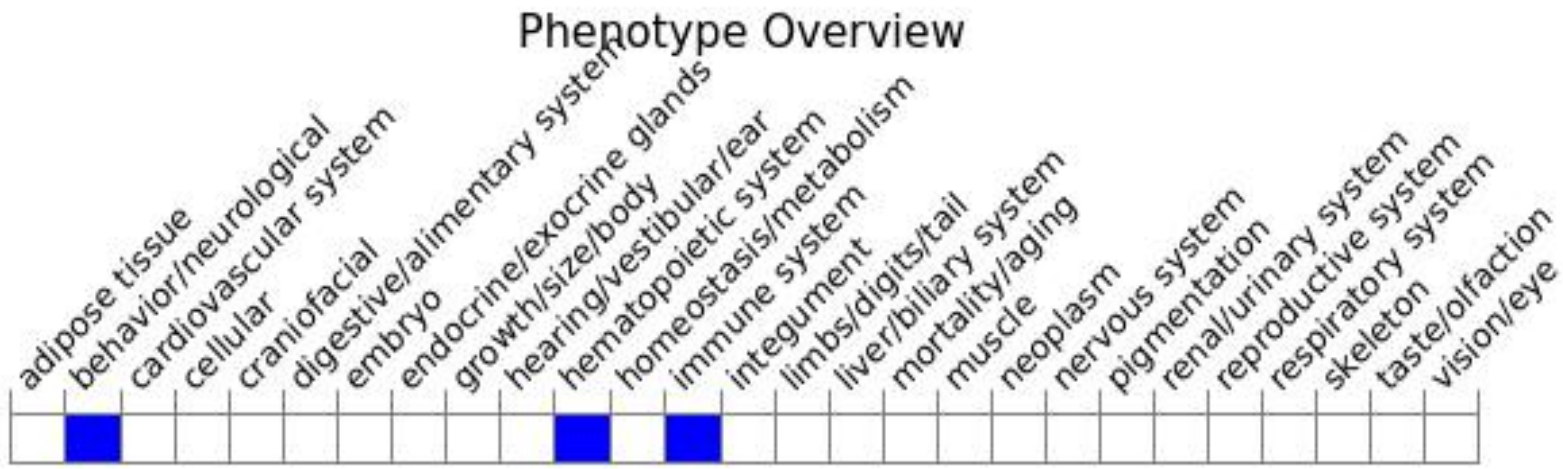
Genomic location distribution



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/>).

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

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