Cd47 Cas9-KO Strategy

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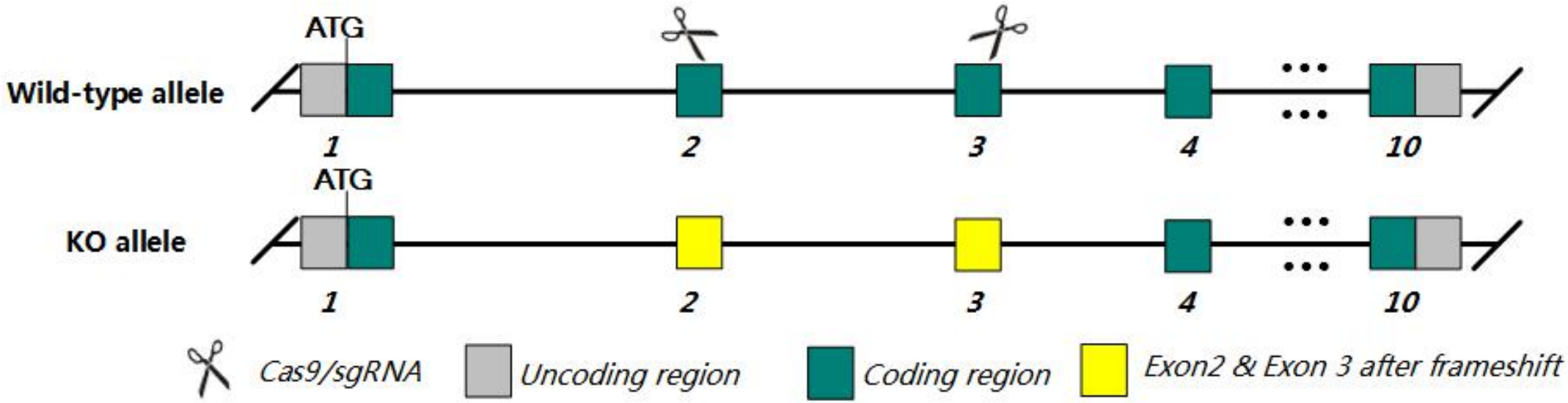
Project Overview

Project Name	***Cd47***
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cd47* gene. The schematic diagram is as follows:



Technical routes

- The *Cd47* gene has 10 transcripts. According to the structure of *Cd47* gene, partial sequence of exon2-exon3 of *Cd47-201* (ENSMUST00000084838.13) transcript is recommended as the knockout region.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Cd47* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

Notice

- According to the existing MGI data,Homozygous mutation of this gene results in a reduced CD3+ fraction of peripheral lymphocytes and inability to clear infection by E.coli. Mutant animals are otherwise normal in appearance, survival, and fertility.

- The *Cd47* gene is located on the Chr16. 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 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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Cd47 CD47 antigen (Rh-related antigen, integrin-associated signal transducer) [Mus musculus (house mouse)]

Gene ID: 16423, updated on 19-Mar-2019

Summary

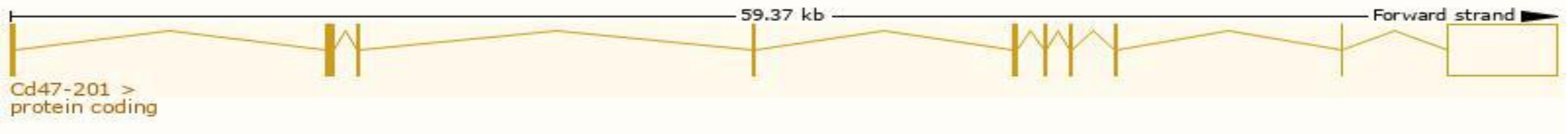
Official Symbol	Cd47 provided by MGI
Official Full Name	CD47 antigen (Rh-related antigen, integrin-associated signal transducer) provided by MGI
Primary source	MGI:MGI:96617
See related	Ensembl:ENSMUSG00000055447
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9130415E20Rik, AA407862, AI848868, AW108519, B430305P08Rik, IAP, Itgp
Expression	Ubiquitous expression in liver E14 (RPKM 39.9), liver E14.5 (RPKM 35.9) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

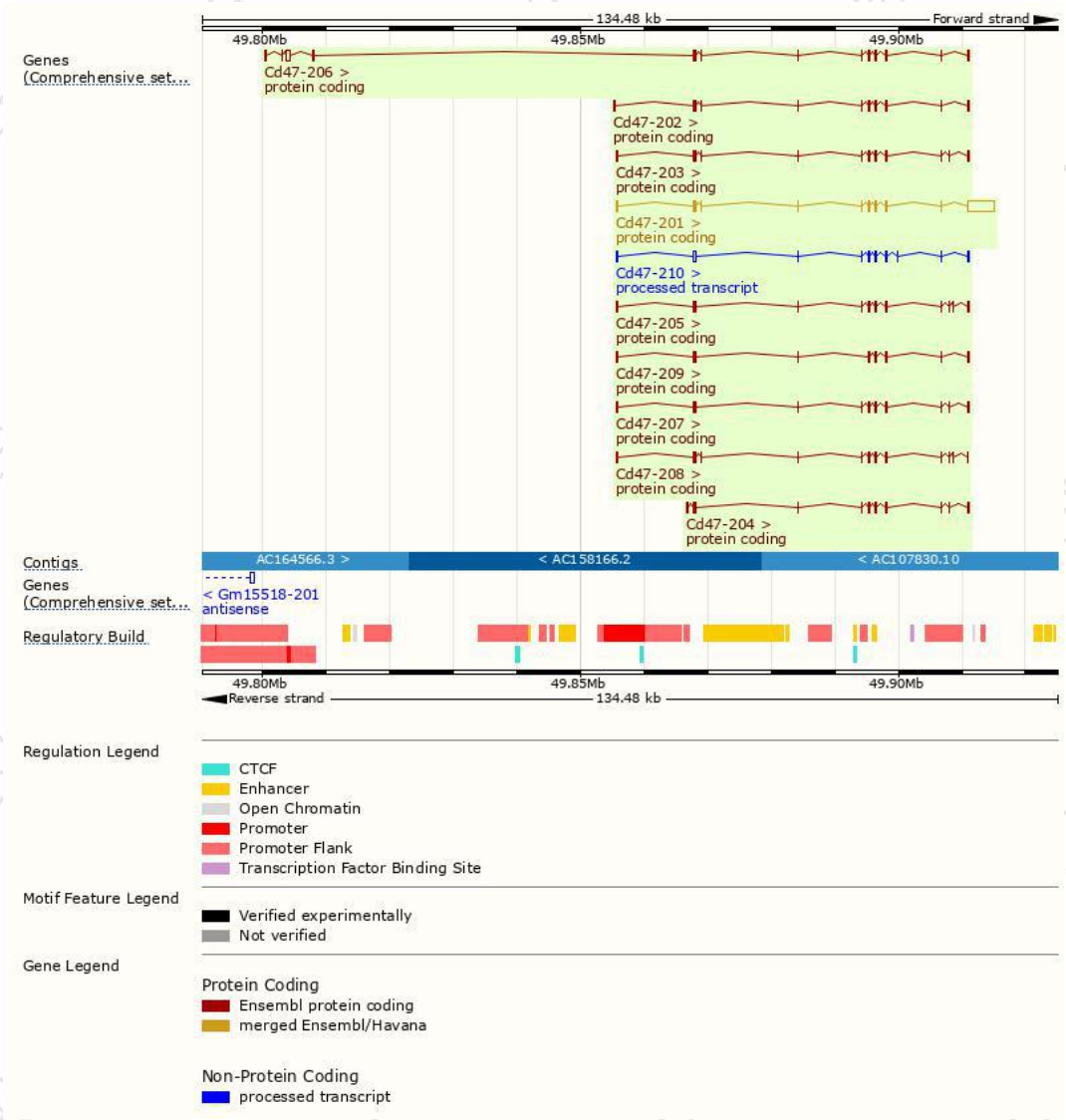
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cd47-201	ENSMUST00000084838.13	5250	324aa	Protein coding	CCDS28212	Q61735	TSL:1 GENCODE basic
Cd47-206	ENSMUST00000229640.1	1898	271aa	Protein coding	-	D3Z187	GENCODE basic
Cd47-203	ENSMUST00000229101.1	1358	278aa	Protein coding	-	A0A2R8VI94	GENCODE basic
Cd47-205	ENSMUST00000229206.1	1316	321aa	Protein coding	-	A0A2R8VK70	GENCODE basic APPRIS P1
Cd47-207	ENSMUST00000230281.1	1271	258aa	Protein coding	-	A0A2R8VJU9	GENCODE basic
Cd47-204	ENSMUST00000229104.1	1179	258aa	Protein coding	-	A0A2R8VJU9	GENCODE basic
Cd47-202	ENSMUST00000114496.2	1175	271aa	Protein coding	-	D3Z187	TSL:1 GENCODE basic
Cd47-209	ENSMUST00000230836.1	1150	267aa	Protein coding	-	A0A2R8VI30	GENCODE basic
Cd47-208	ENSMUST00000230641.1	1032	342aa	Protein coding	-	A0A2R8W6P0	GENCODE basic
Cd47-210	ENSMUST00000231187.1	1313	No protein	Processed transcript	-	-	

The strategy is based on the design of *Cd47-201* transcript,The transcription is shown below

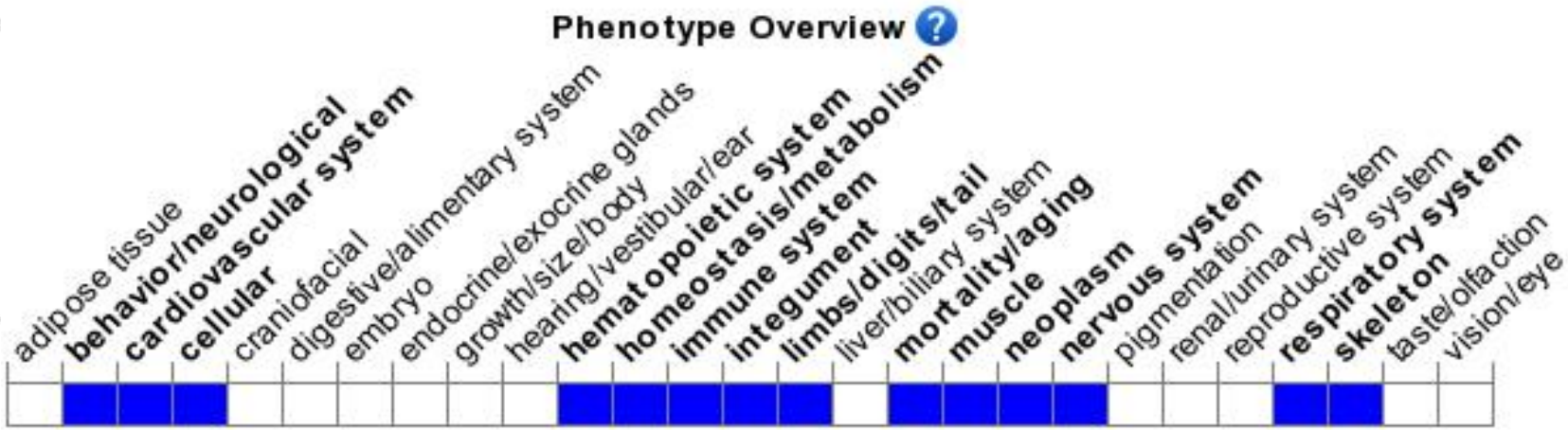


Genomic location distribution



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/).

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

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