Odad1 Cas9-KO Strategy

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Design Date: 2023-02-15

Overview

Target Gene Name

- Odad1
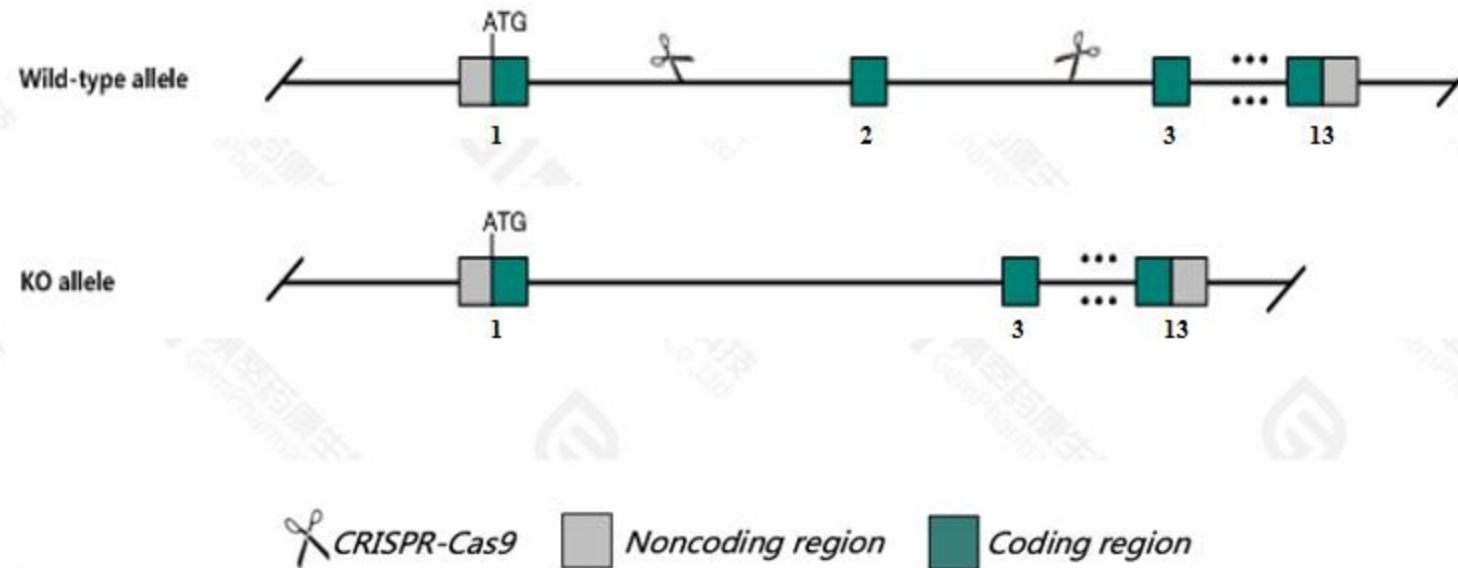
Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

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Strain Strategy

This model will use CRISPR-Cas9 technology to edit the *Odad1* gene. The schematic diagram is as follows:

Schematic representation of CRISPR-Cas9 engineering used to edit the *Odad1* gene.

Technical Information

- The *Odad1* gene has 7 transcripts. According to the structure of *Odad1* gene, exon2 of *Odad1-201*(ENSMUST00000038720.8) transcript is recommended as the knockout region.The region contains 190bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR-Cas9 technology to modify *Odad1* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

Gene Information

Odad1 outer dynein arm docking complex subunit 1 [Mus musculus (house mouse)]

Gene ID: 211535, updated on 28-Apr-2022

▲ Summary

|	
Official Symbol	Odad1 provided by MGI
Official Full Name	outer dynein arm docking complex subunit 1 provided by MGI
Primary source	MGI:MGI:2446120
See related	Ensembl:ENSMUSG00000040189
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	Ccdc114
Expression	Broad expression in testis adult (RPKM 7.8), adrenal adult (RPKM 6.5) and 24 other tissuesSee more
Orthologs	human all

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Transcript Information

The gene has 7 transcripts, all transcripts are shown below:

| Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Odad1-201	ENSMUST00000038720.8	2453	658aa	Protein coding	CCDS21271		TSL:1 , GENCODE basic , APPRIS P2 ,
Odad1-203	ENSMUST00000210602.2	2928	136aa	Protein coding	-		TSL:1 , GENCODE basic , APPRIS ALT2 ,
Odad1-202	ENSMUST00000210039.3	2598	697aa	Protein coding	-		TSL:5 , GENCODE basic , APPRIS ALT2 ,
Odad1-205	ENSMUST00000211367.2	1078	134aa	Protein coding	-		TSL:1 , GENCODE basic , APPRIS ALT2 ,
Odad1-204	ENSMUST00000210867.2	2677	No protein	Retained intron	-		TSL:1 ,
Odad1-207	ENSMUST00000236631.2	2460	No protein	Retained intron	-		
Odad1-206	ENSMUST00000211628.2	741	No protein	Retained intron	-		TSL:1 ,

The strategy is based on the design of *Odad1*-201 transcript, the transcription is shown below:

ol.org

Genomic Information

Source: : https://www.ensembl.org

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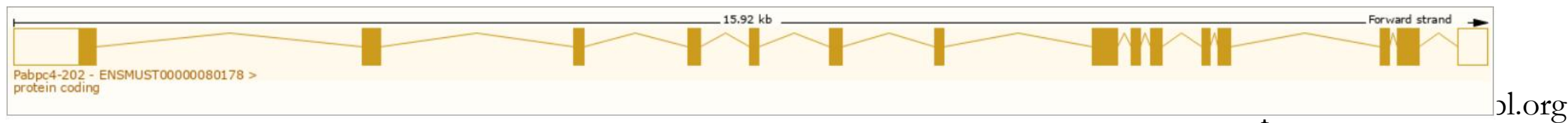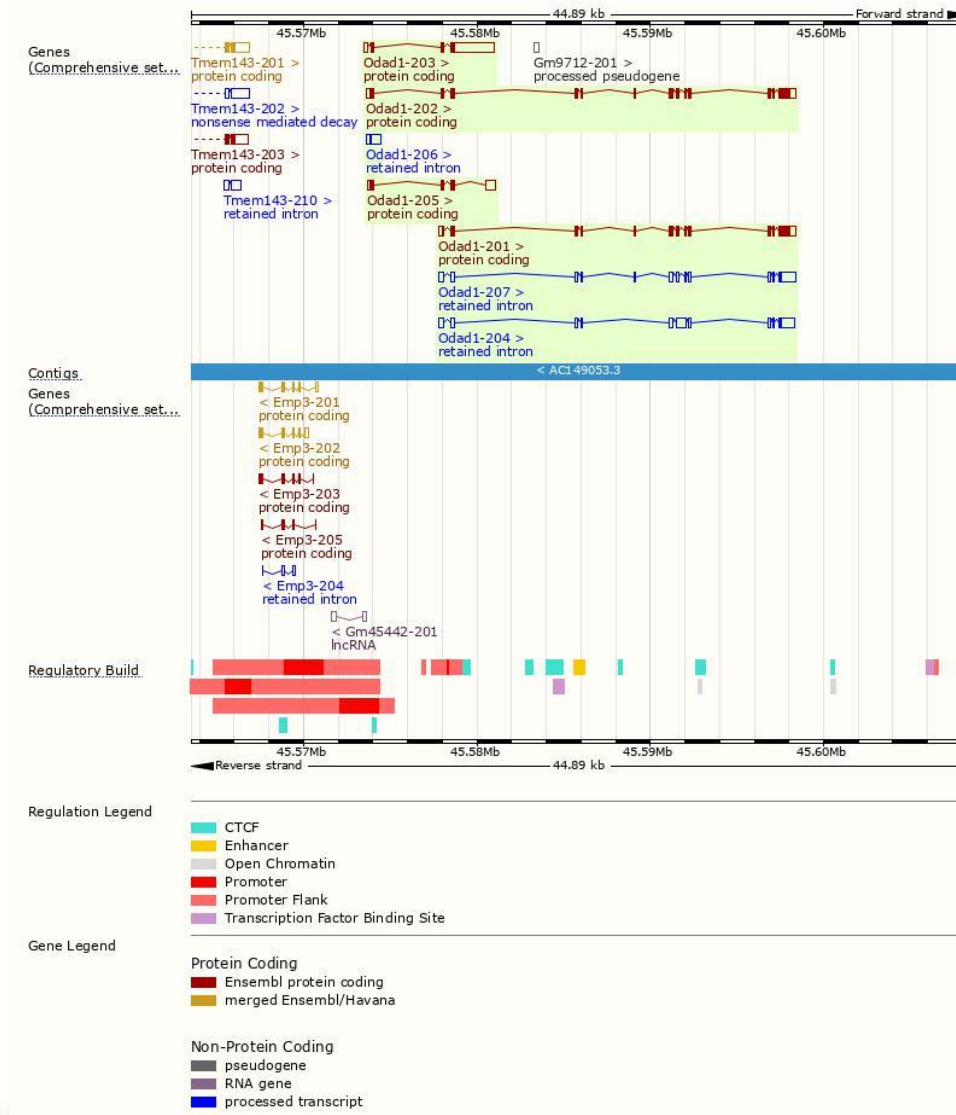
Protein Information

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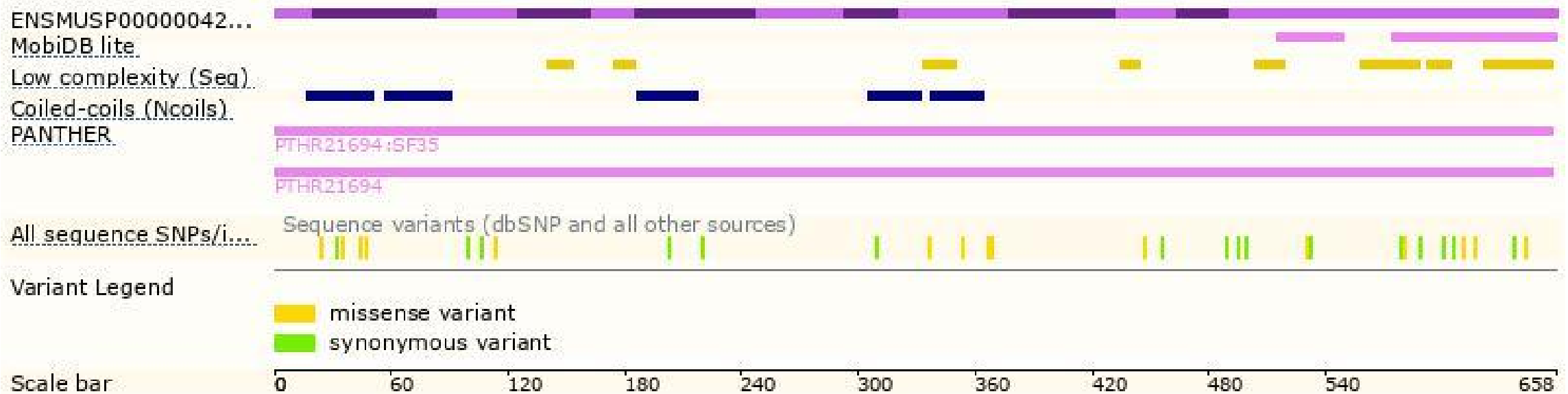
Important Information

- *Odad1* is located on Chr7. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.

- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

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