

MacroD1 Cas9-KO Strategy

Designer:

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Project Overview

Project Name

Macrodl

Project type

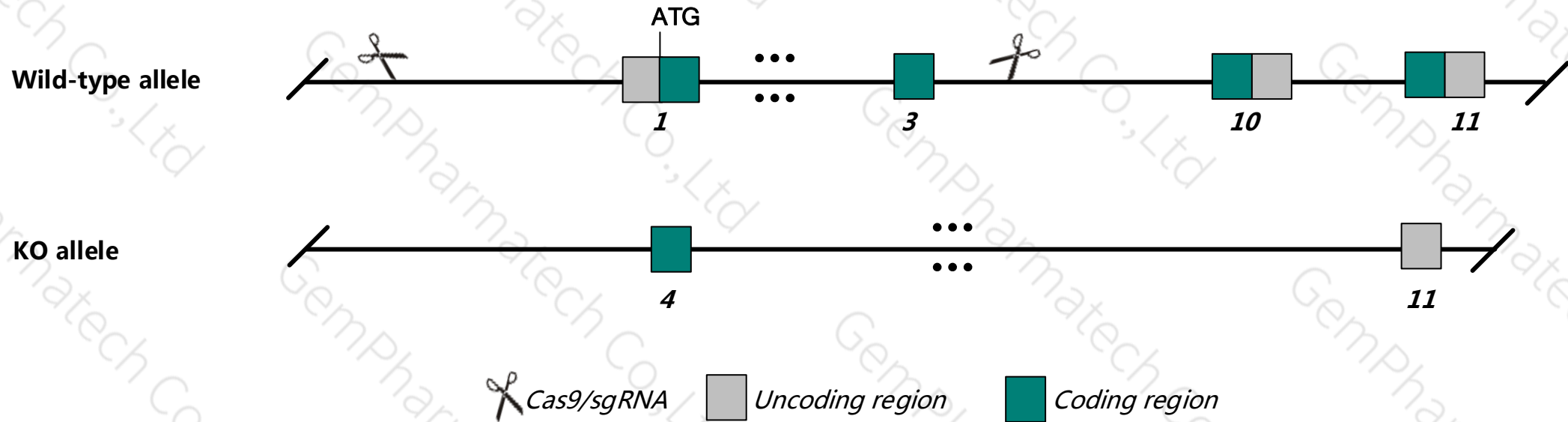
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *MacroD1* gene. The schematic diagram is as follows:



Technical routes

- The *MacroD1* gene has 1 transcript. According to the structure of *MacroD1* gene, exon 1-exon 3 of *MacroD1*-201 (ENSMUST00000040261.6) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *MacroD1* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9, sgRNA 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 *MacroD1* 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.
- 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)

MacroD1 MACRO domain containing 1 [*Mus musculus* (house mouse)]

Gene ID: 107227, updated on 15-Apr-2019

Summary

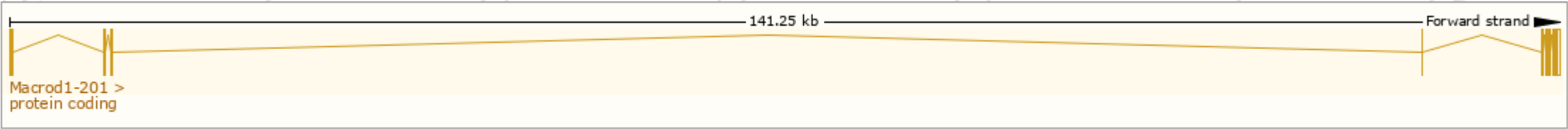
Official Symbol	MacroD1 provided by MGI
Official Full Name	MACRO domain containing 1 provided by MGI
Primary source	MGI:MG1:2147583
See related	Ensembl:ENSMUSG000000036278
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Lrp16; AI604841; AW743046; D930010J01Rik
Expression	Broad expression in heart adult (RPKM 26.0), adrenal adult (RPKM 22.0) and 21 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

The gene has 1 transcript, and the transcript is shown below:

Show/hide columns (1 hidden)							Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Macro ^d 1-201	ENSMUST00000040261.6	1228	323aa	Protein coding	CCDS50376	Q922B1	TSL:1	GENCODE basic APPRIS P1

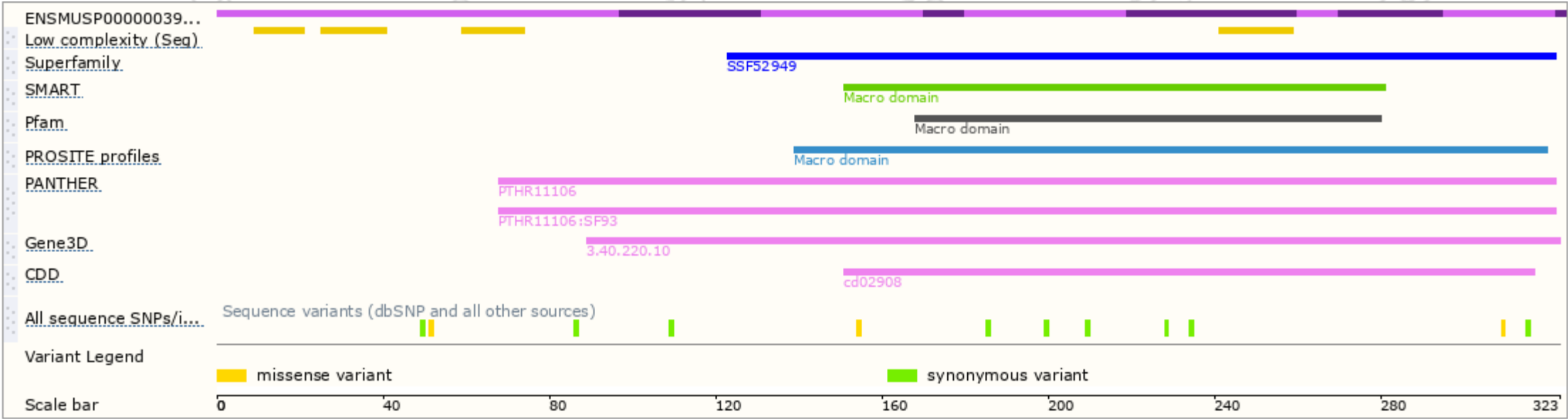
The strategy is based on the design of *Macro^d1-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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