

Myef2 Cas9-CKO Strategy

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Project Overview

Project Name

Myef2

Project type

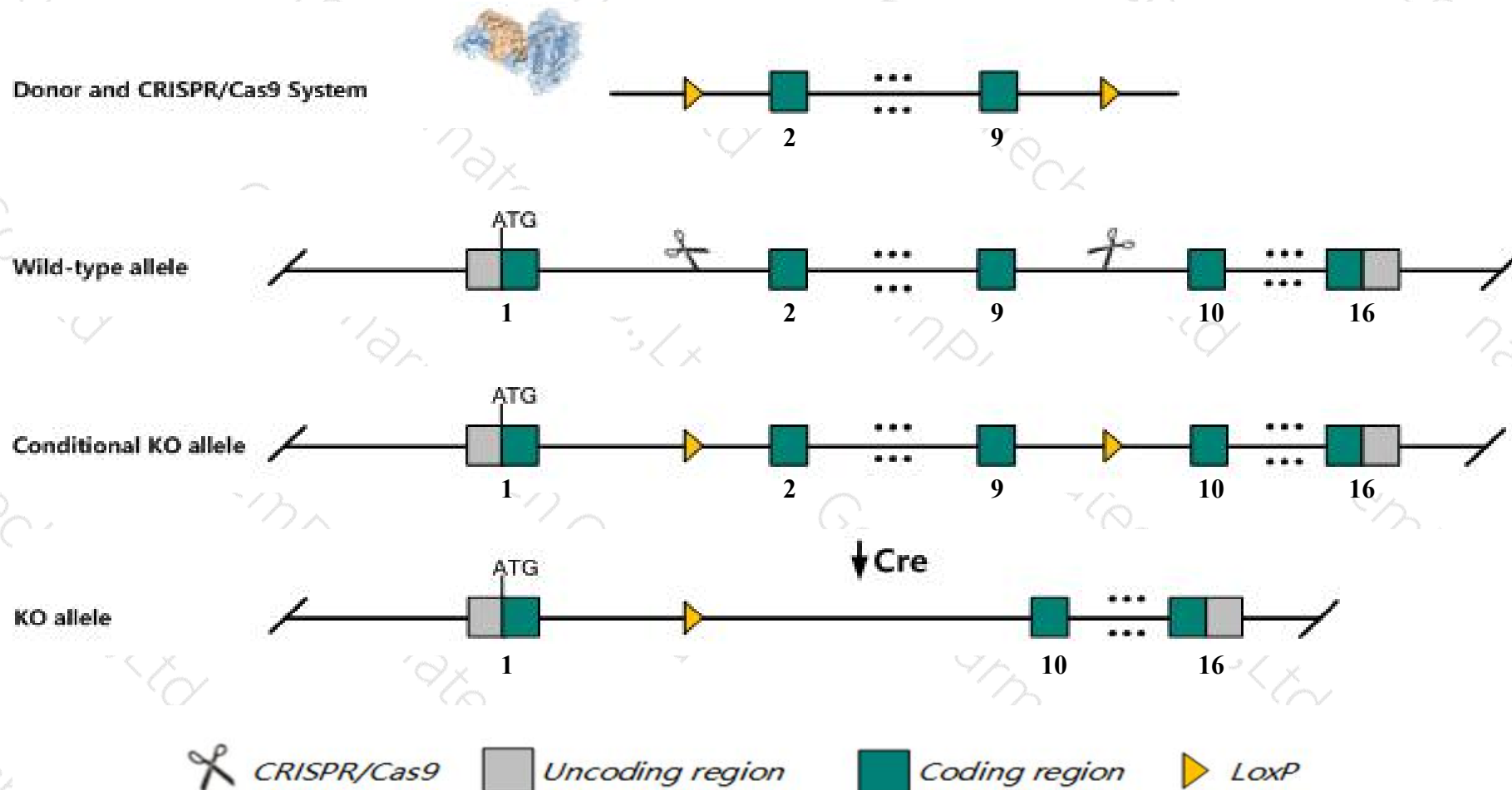
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Myef2* gene. The schematic diagram is as follows:



Technical routes

- The *Myef2* gene has 9 transcripts. According to the structure of *Myef2* gene, exon2-exon9 of *Myef2*-201 (ENSMUST00000067780.9) transcript is recommended as the knockout region. The region contains 824bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Myef2* 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 *Myef2*-204 may not be affected.
- The *Myef2* gene is located on the Chr2. 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)

Myef2 myelin basic protein expression factor 2, repressor [*Mus musculus* (house mouse)]

Gene ID: 17876, updated on 12-Aug-2019

Summary

- Official Symbol** Myef2 provided by [MGI](#)
- Official Full Name** myelin basic protein expression factor 2, repressor provided by [MGI](#)
- Primary source** [MGI:MGI:104592](#)
- See related** [Ensembl:ENSMUSG00000027201](#)
- 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** mKIAA1341; 9430071B01
- Expression** Broad expression in CNS E11.5 (RPKM 22.6), CNS E14 (RPKM 21.9) and 18 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 2 F1; 2 61.16 cM

See Myef2 in [Genome Data Viewer](#)

Exon count: 18

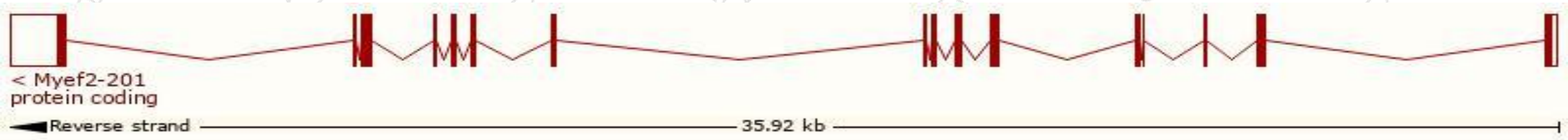
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (125080975..125123660, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (124912007..124949396, complement)

Transcript information (Ensembl)

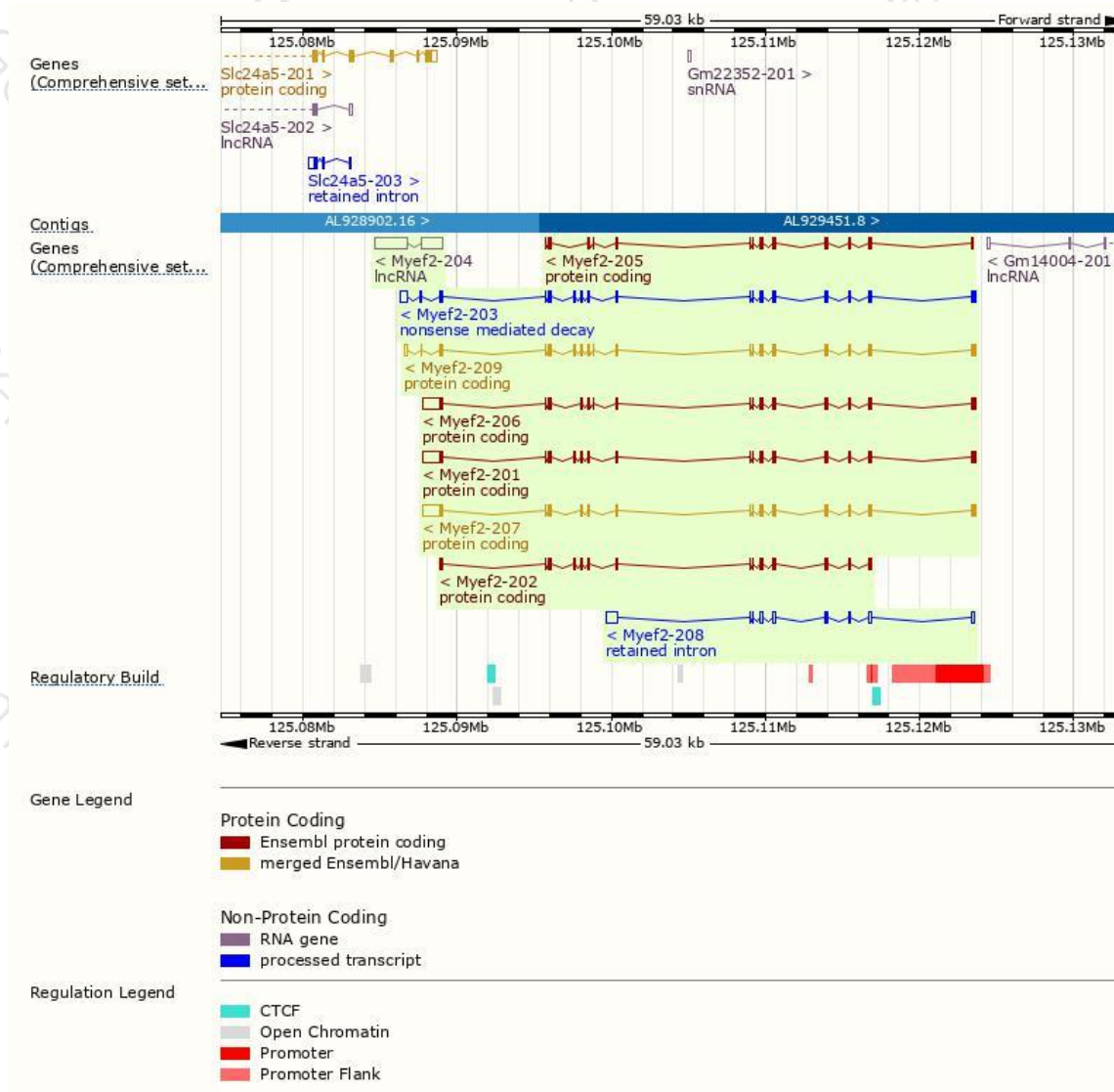
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Myef2-201	ENSMUST00000067780.9	2999	574aa	Protein coding	CCDS50690	Q8C854	TSL:5 GENCODE basic APPRIS ALT2
Myef2-207	ENSMUST00000147105.7	2928	550aa	Protein coding	CCDS50689	A2ATP5	TSL:1 GENCODE basic APPRIS ALT2
Myef2-209	ENSMUST00000152367.7	2071	591aa	Protein coding	CCDS50691	Q8C854	TSL:1 GENCODE basic APPRIS P4
Myef2-206	ENSMUST00000142718.7	2942	567aa	Protein coding	-	A2ATP6	TSL:5 GENCODE basic APPRIS ALT2
Myef2-202	ENSMUST00000089825.12	1631	530aa	Protein coding	-	G8JL68	CDS 5' incomplete TSL:1
Myef2-205	ENSMUST00000137091.2	1337	446aa	Protein coding	-	F6XJA1	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:1
Myef2-203	ENSMUST00000110501.7	2333	574aa	Nonsense mediated decay	CCDS50690	Q8C854	TSL:1
Myef2-208	ENSMUST00000149911.1	1801	No protein	Retained intron	-	-	TSL:1
Myef2-204	ENSMUST00000129945.1	3424	No protein	lncRNA	-	-	TSL:1

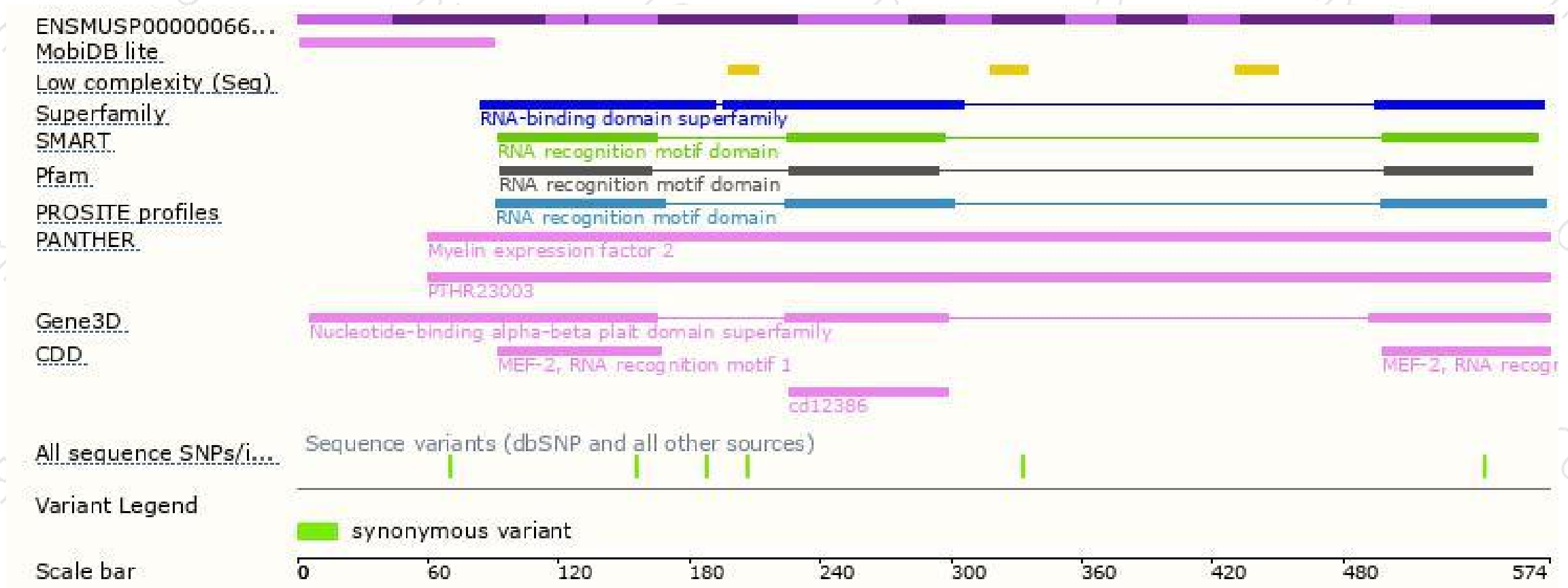
The strategy is based on the design of *Myef2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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