

Msn Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Msn

Project type

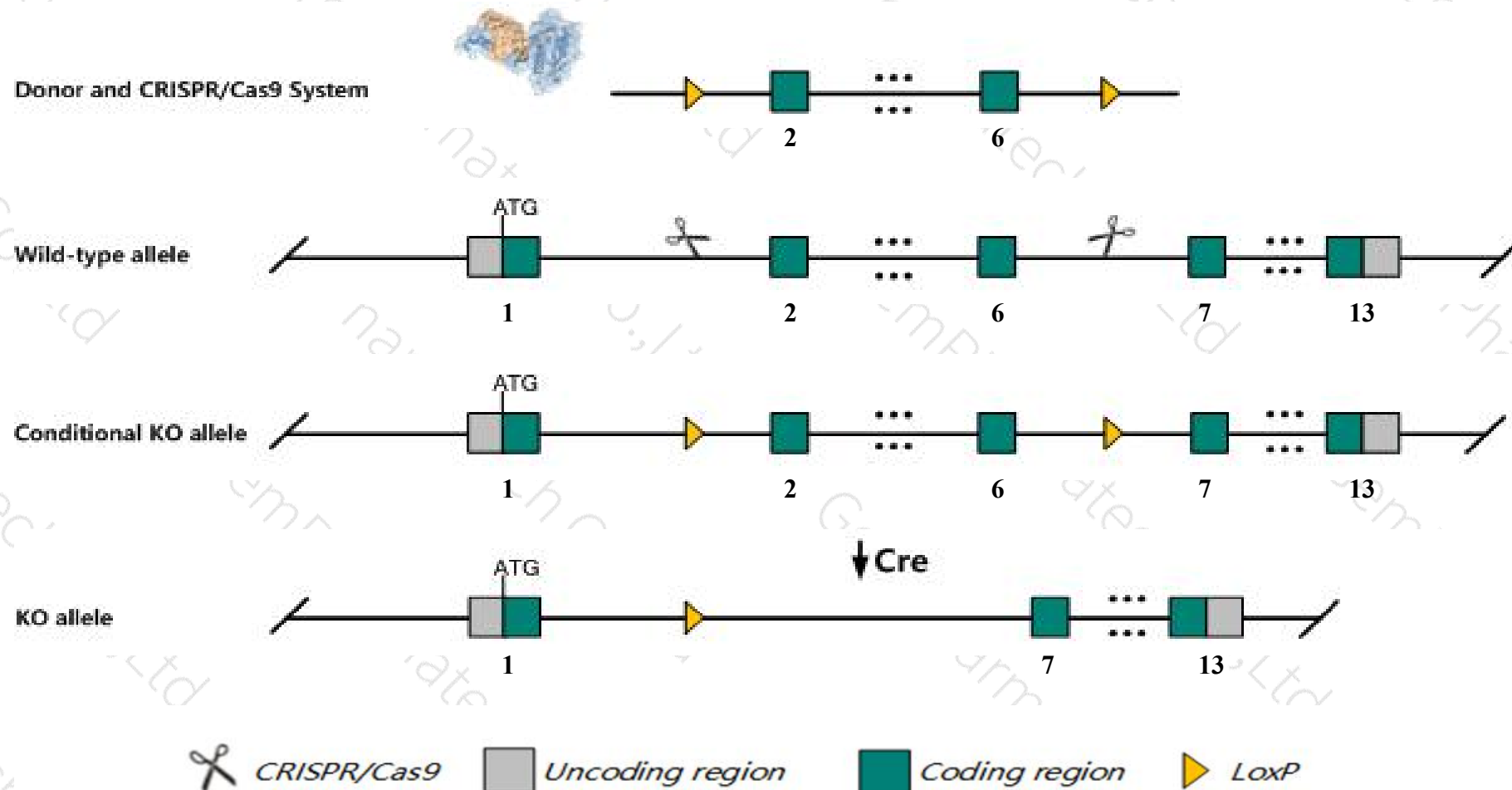
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Msn* gene has 3 transcripts. According to the structure of *Msn* gene, exon2-exon6 of *Msn-201* (ENSMUST00000117399.1) transcript is recommended as the knockout region. The region contains 686bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Msn* 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.

- According to the existing MGI data, Homozygous female and hemizygous male mutant mice develop normally and are fertile. No obvious histological abnormalities are reported.
- The KO region contains functional region of the *Gm24718* gene. Knockout the region may affect the function of *Gm24718* gene.
- The *Msn* gene is located on the ChrX. 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)

Msn moesin [Mus musculus (house mouse)]

Gene ID: 17698, updated on 31-Jan-2019

Summary



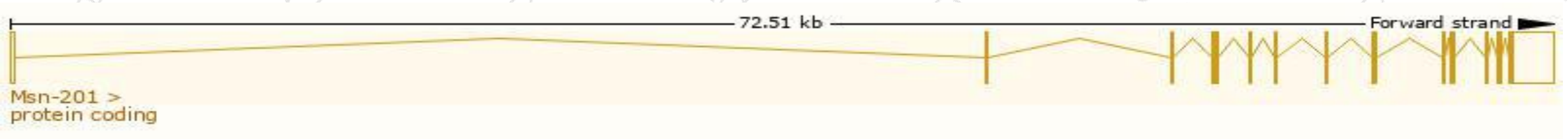
Official Symbol	Msn provided by MGI
Official Full Name	moesin provided by MGI
Primary source	MGI:MGI:97167
See related	Ensembl:ENSMUSG00000031207
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C78546
Expression	Broad expression in lung adult (RPKM 136.0), thymus adult (RPKM 65.5) and 22 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

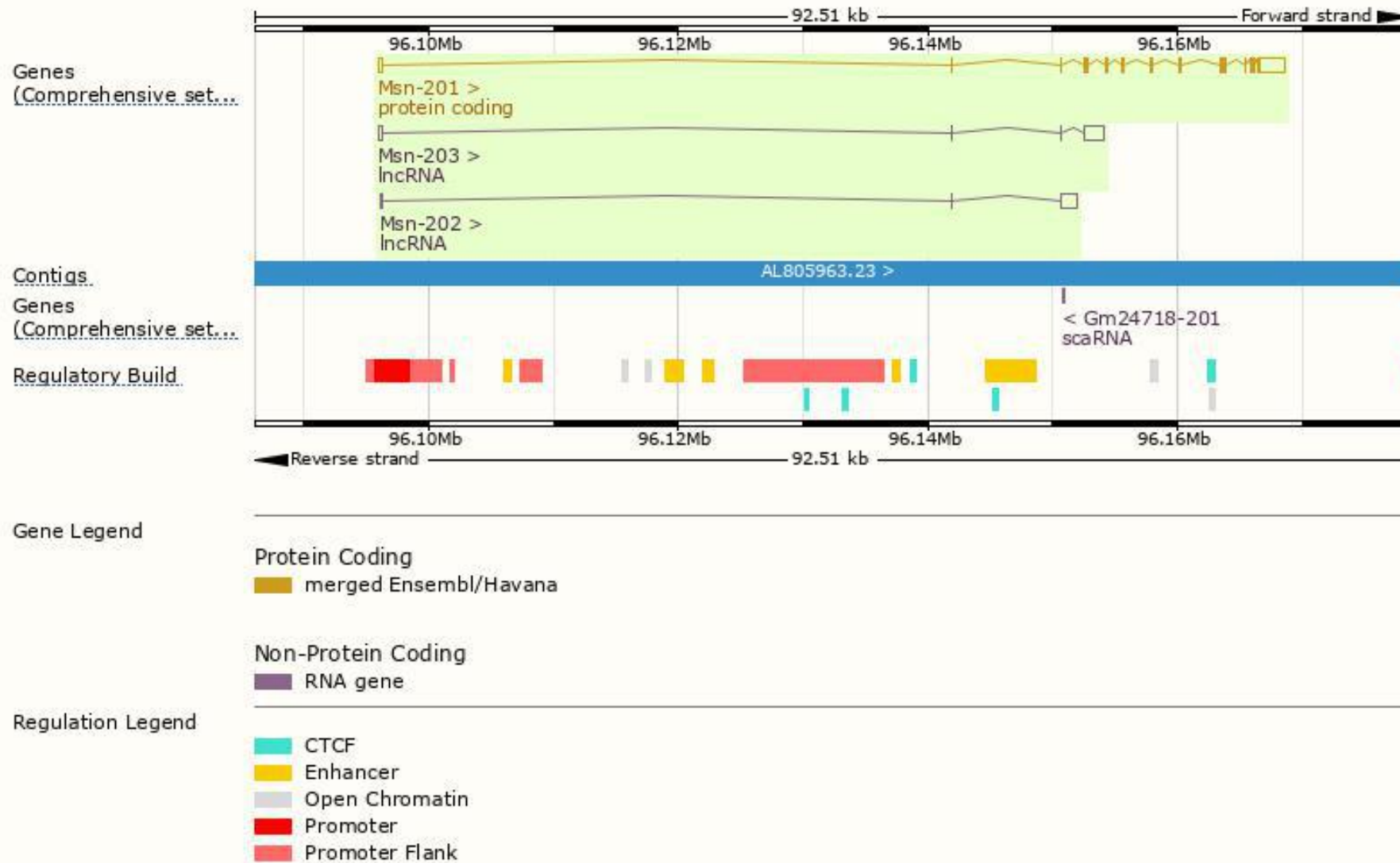
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Msn-201	ENSMUST00000117399.1	3842	577aa	Protein coding	CCDS53139	P26041	TSL:1 GENCODE basic APPRIS P1
Msn-203	ENSMUST00000149985.7	1883	No protein	lncRNA	-	-	TSL:1
Msn-202	ENSMUST00000135027.1	1571	No protein	lncRNA	-	-	TSL:1

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



Genomic location distribution

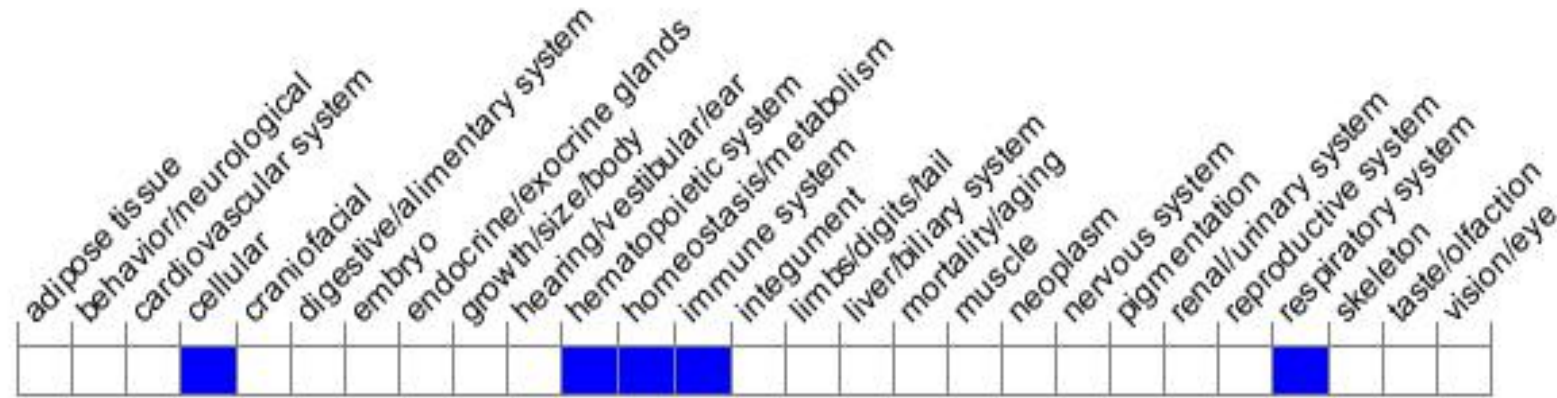


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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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