Morf4l2 Cas9-KO Strategy

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Project Overview

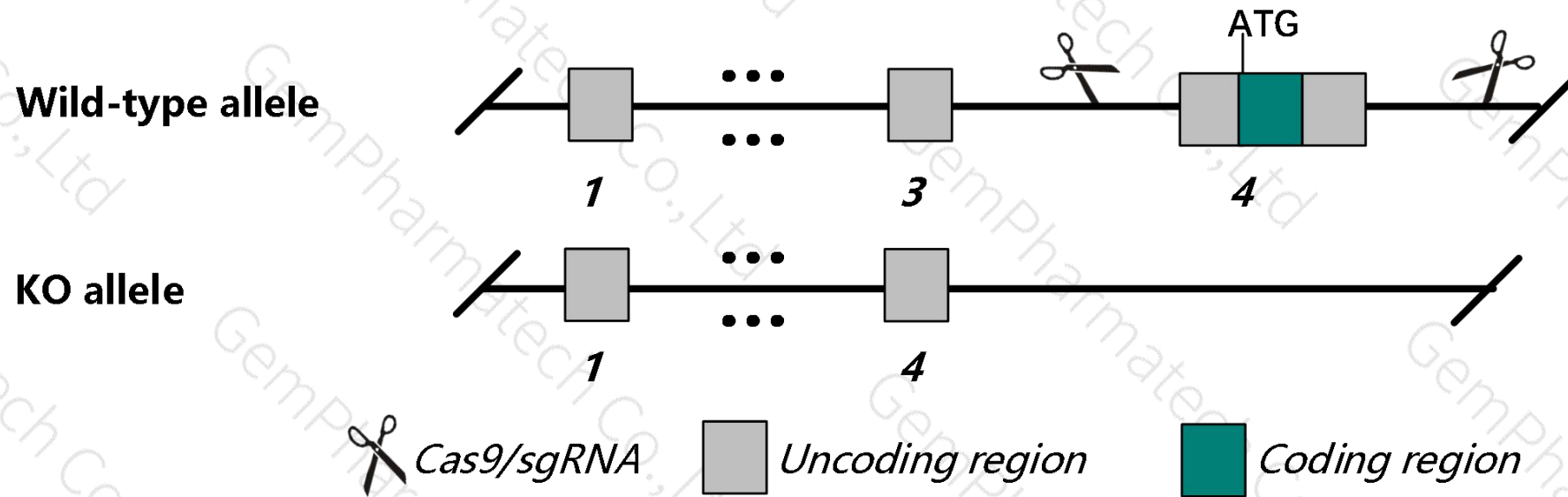|	
Project Name	*Morf4l2*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Morf4l2* gene. The schematic diagram is as follows:

Technical routes

➤ The *Morf4l2* gene has 15 transcripts. According to the structure of *Morf4l2* gene, exon4 of *Morf4l2-201*(ENSMUST00000033797.12) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Morf4l2* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ According to the existing MGI data,homozygous null females and hemizygous null males are healthy and fertile with no obvious abnormalities and null MEFs have normal growth rates.

➢ Transcript *Elmod1*-209 may not be affected.

➢ The *Morf4l2* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

Morf4l2 mortality factor 4 like 2 [Mus musculus (house mouse)]

Gene ID: 56397, updated on 13-Mar-2020

▲ Summary

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Official Symbol	Morf4l2 provided by MGI
Official Full Name	mortality factor 4 like 2 provided by MGI
Primary source	MGI:MGI:1927167
See related	Ensembl:ENSMUSG00000031422
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	2410017O14Rik, Mrgx, Sid393p, mKIAA0026
Expression	Biased expression in placenta adult (RPKM 441.2), CNS E11.5 (RPKM 149.5) and 12 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

The gene has 15 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Morf4l2-201	ENSMUST00000033797.12	1996	288aa	Protein coding	CCDS30422	Q9R0Q4	TSL:1 GENCODE basic APPRIS P1
Morf4l2-214	ENSMUST00000166930.7	1926	288aa	Protein coding	CCDS30422	Q9R0Q4	TSL:3 GENCODE basic APPRIS P1
Morf4l2-202	ENSMUST00000080411.12	1859	288aa	Protein coding	CCDS30422	Q9R0Q4	TSL:1 GENCODE basic APPRIS P1
Morf4l2-204	ENSMUST00000113097.7	1825	288aa	Protein coding	CCDS30422	Q9R0Q4	TSL:1 GENCODE basic APPRIS P1
Morf4l2-212	ENSMUST00000164609.7	1811	288aa	Protein coding	CCDS30422	Q9R0Q4	TSL:2 GENCODE basic APPRIS P1
Morf4l2-215	ENSMUST00000169418.7	1782	288aa	Protein coding	CCDS30422	Q9R0Q4	TSL:2 GENCODE basic APPRIS P1
Morf4l2-213	ENSMUST00000166478.7	1720	288aa	Protein coding	CCDS30422	Q9R0Q4	TSL:2 GENCODE basic APPRIS P1
Morf4l2-211	ENSMUST00000155207.7	897	214aa	Protein coding	-	A2AEB3	CDS 3' incomplete TSL:2
Morf4l2-206	ENSMUST00000135731.1	885	59aa	Protein coding	-	A2AEB7	CDS 3' incomplete TSL:1
Morf4l2-203	ENSMUST00000113095.7	848	174aa	Protein coding	-	A2AEB5	CDS 3' incomplete TSL:3
Morf4l2-205	ENSMUST00000131923.1	828	16aa	Protein coding	-	A2AEB9	CDS 3' incomplete TSL:2
Morf4l2-208	ENSMUST00000137605.1	676	204aa	Protein coding	-	A2AEB4	CDS 3' incomplete TSL:3
Morf4l2-210	ENSMUST00000152150.7	462	58aa	Protein coding	-	A2AEB8	CDS 3' incomplete TSL:2
Morf4l2-207	ENSMUST00000136650.7	384	68aa	Protein coding	-	A2AEB6	CDS 3' incomplete TSL:3
Morf4l2-209	ENSMUST00000137979.1	356	No protein	Processed transcript	-	-	TSL:3

The strategy is based on the design of *Morf4l2-201* transcript,the transcription is shown below:

< Morf4l2-201
protein coding

◄━ Reverse strand ━━━━━━━━━━━━━ 8.72 kb ━━━━━━━━━━━
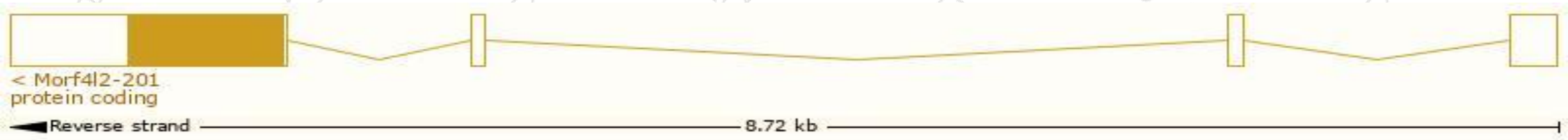
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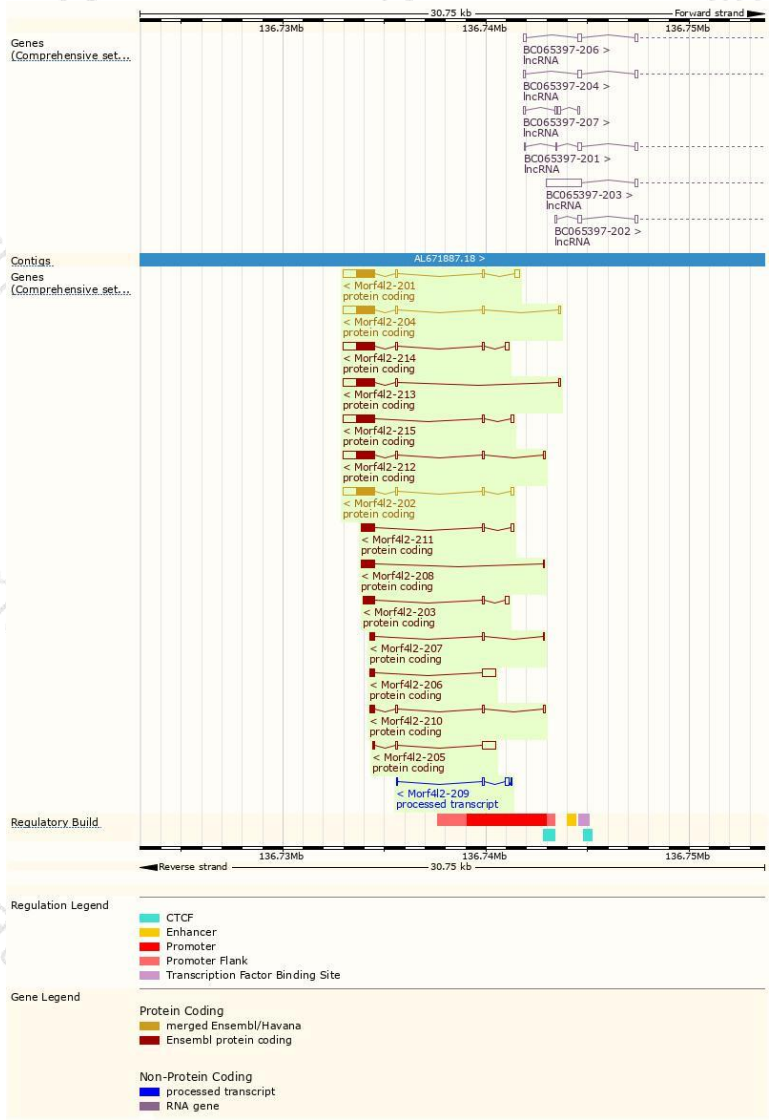
Protein domain
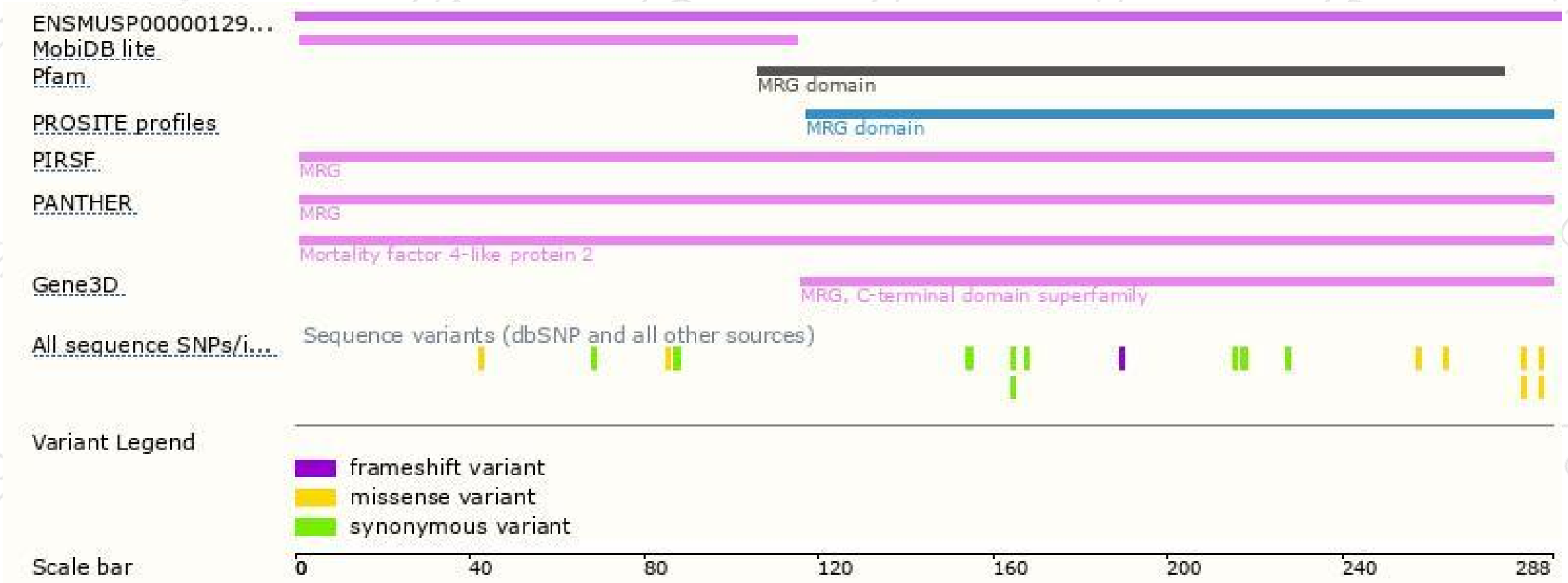
If you have any questions, you are welcome to inquire.
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