Mib1 Cas9-KO Strategy

Designer: Huan Wang

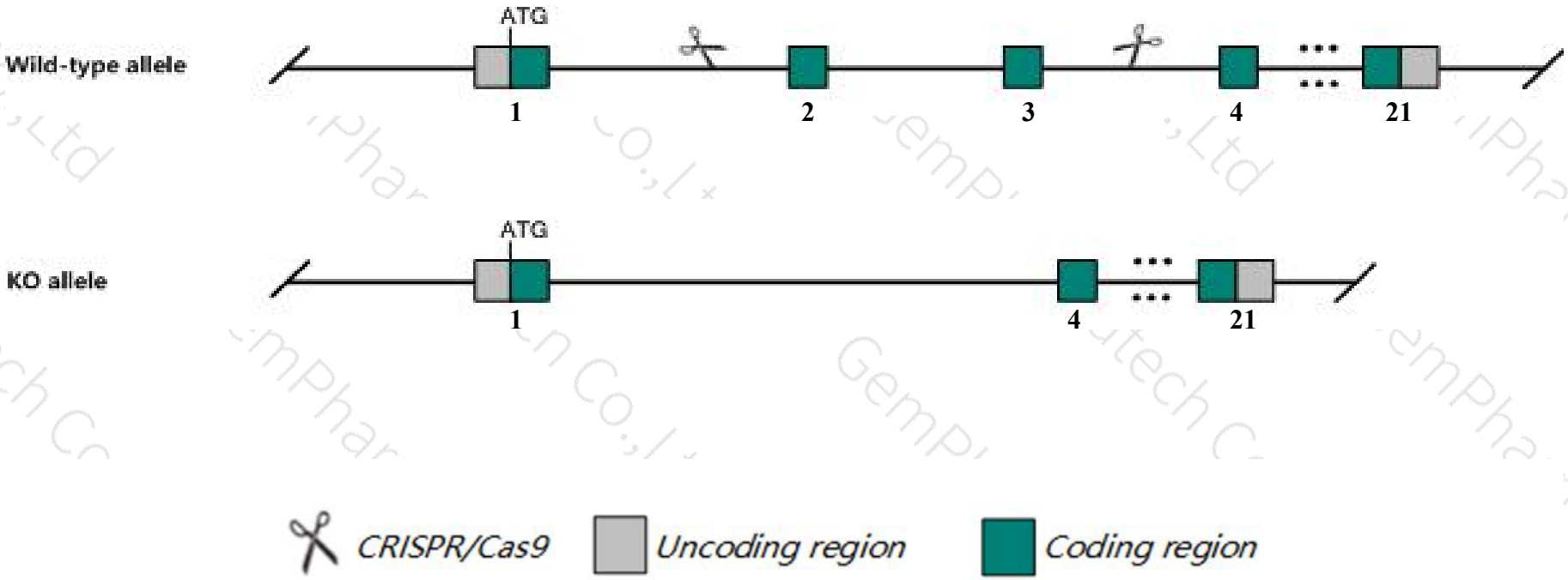
Design Date: 2019-7-25

Project Overview

Project Name	***Mib1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mib1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Mib1* gene has 6 transcripts. According to the structure of *Mib1* gene, exon2-exon3 of *Mib1-201* (ENSMUST00000052838.10) transcript is recommended as the knockout region.The region contains 302bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Mib1* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Homozygous null mice display embryonic lethality during organogenesis, failure of heart looping, impaired angiogenesis and arterial specification, premature neuronal precursor differentiation, posterior truncation, and abnormal somitogenesis with loss ofposterior markers.

- The *Mib1* gene is located on the Chr18. 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）

集萃药康 GemPharmatech

Mib1 mindbomb E3 ubiquitin protein ligase 1 [Mus musculus (house mouse)]

Gene ID: 225164, updated on 19-Mar-2019

Summary

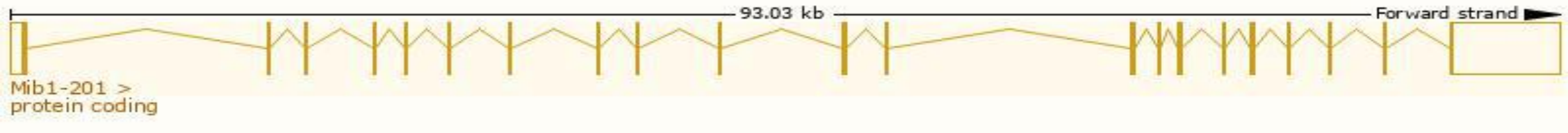
Official Symbol	Mib1 provided by MGI
Official Full Name	mindbomb E3 ubiquitin protein ligase 1 provided by MGI
Primary source	MGI:MGI:2443157
See related	Ensembl:ENSMUSG00000024294
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	DIP-1, E430019M12Rik, Mib
Expression	Ubiquitous expression in CNS E11.5 (RPKM 12.8), frontal lobe adult (RPKM 9.8) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

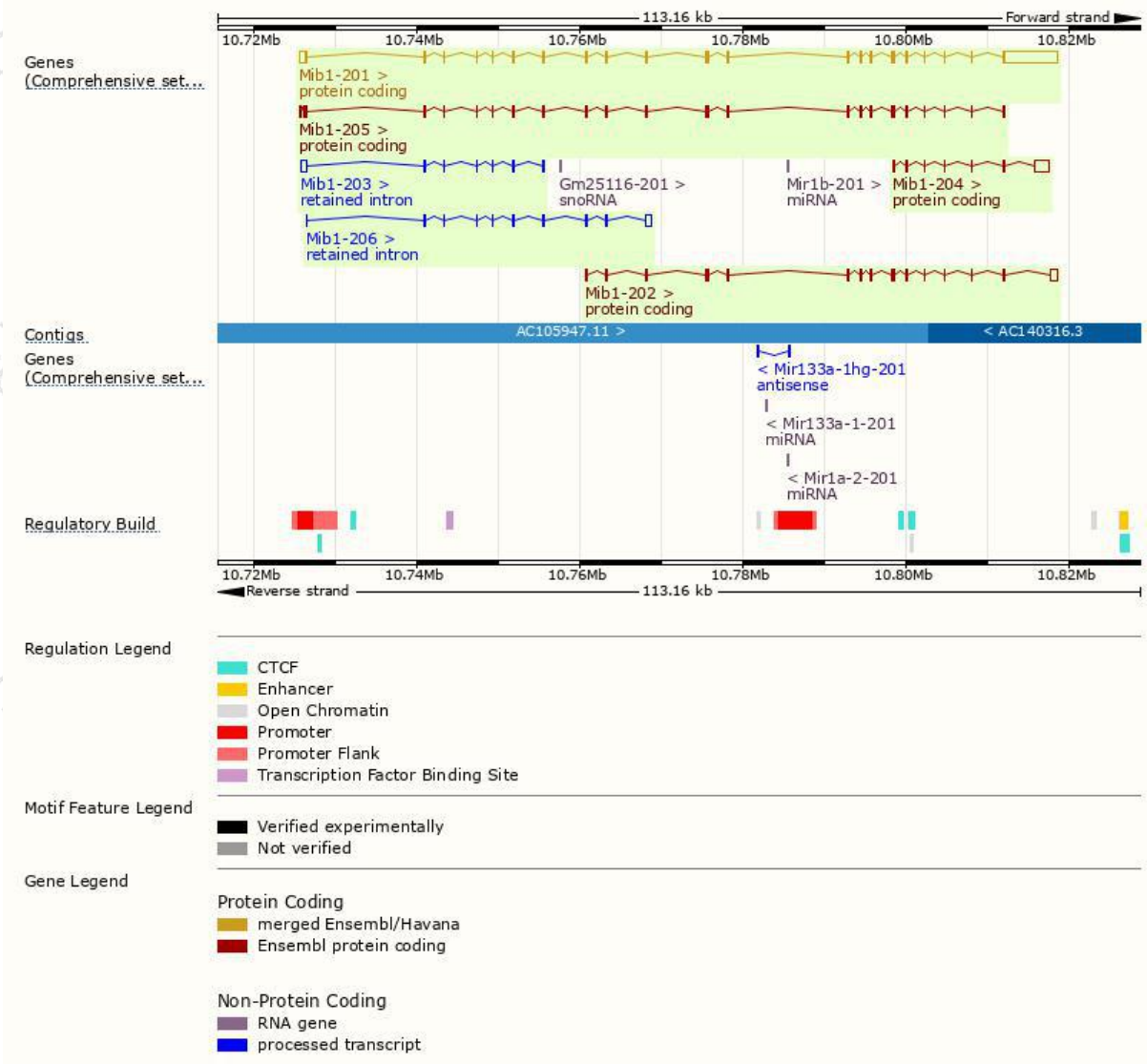
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mib1-201	ENSMUST00000052838.10	10231	1006aa	Protein coding	CCDS29058	Q80SY4	TSL:1 GENCODE basic APPRIS P1
Mib1-205	ENSMUST00000165555.7	3216	1006aa	Protein coding	CCDS29058	Q80SY4	TSL:1 GENCODE basic APPRIS P1
Mib1-202	ENSMUST00000124288.7	2841	641aa	Protein coding	-	F6ZBL2	CDS 5' incomplete TSL:1
Mib1-204	ENSMUST00000150000.1	2721	265aa	Protein coding	-	F6YFW9	CDS 5' incomplete TSL:1
Mib1-206	ENSMUST00000234047.1	1828	No protein	Retained intron	-	-	
Mib1-203	ENSMUST00000131073.1	1665	No protein	Retained intron	-	-	TSL:1

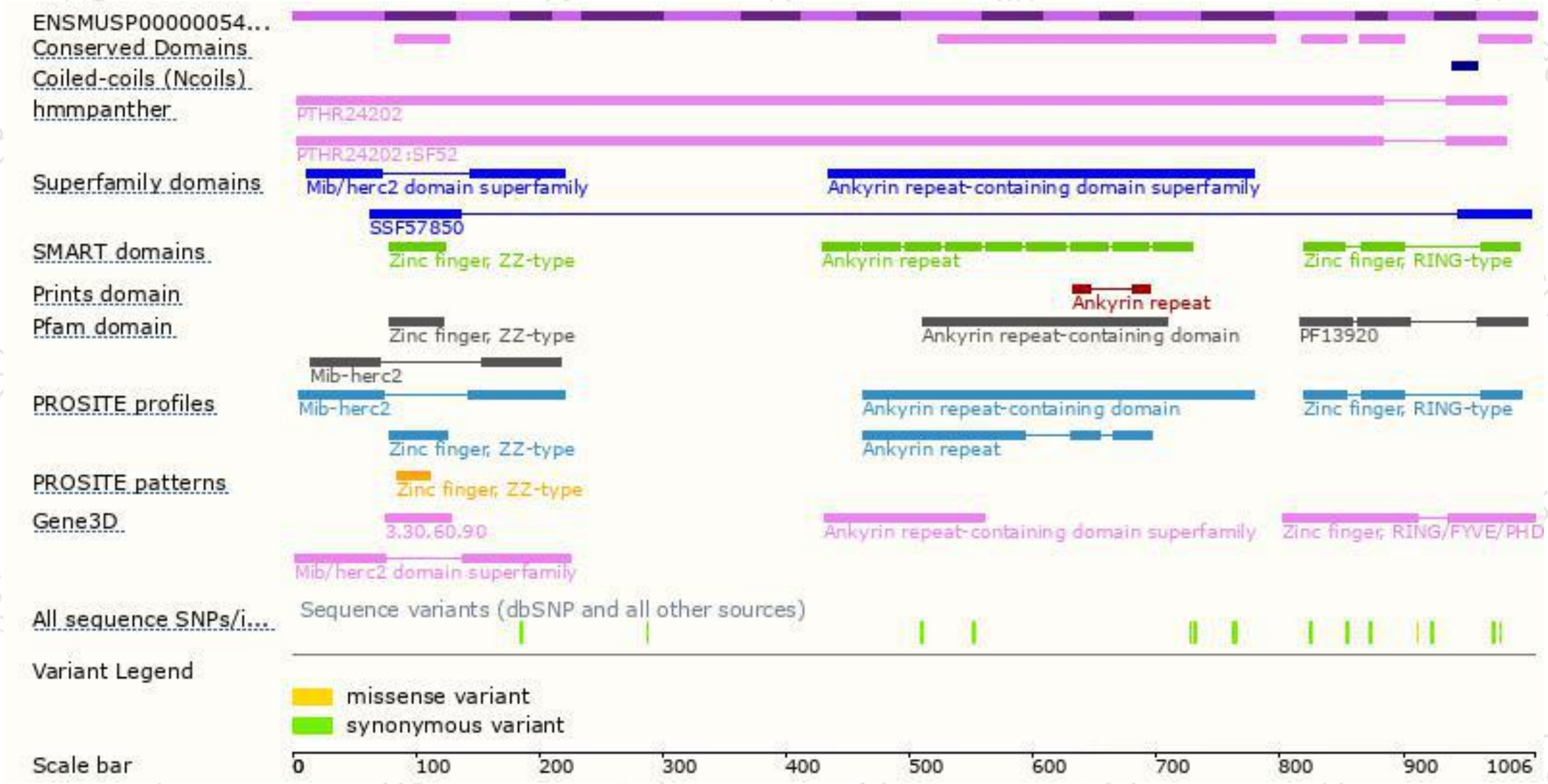
The strategy is based on the design of *Mib1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



Mouse phenotype description(MGI)

Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

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集萃药康
GemPharmatech

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

Tel: 400-9660890

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