Cemip Cas9-KO Strategy

Designer: Huan Wang

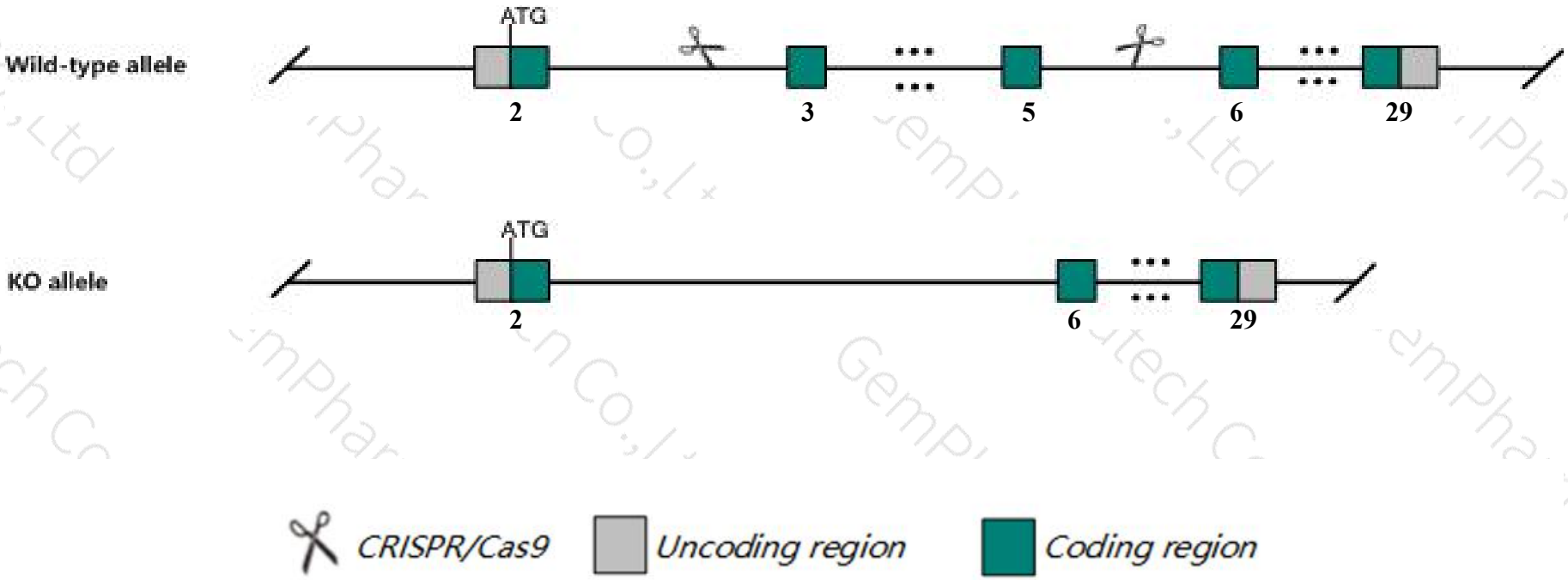
Design Date: 2019-7-24

Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Cemip* gene has 5 transcripts. According to the structure of *Cemip* gene, exon3-exon5 of *Cemip-201* (ENSMUST00000064174.11) transcript is recommended as the knockout region.The region contains 523bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

- According to the existing MGI data,Mice homozygous for a conditional allele activated in Schwann cells exhibit transient acceleration of postnatal myelination, reduced demyelination in culture, and reduced myelin degradation and increases remyelination following nerve axotomy or sciatic nerve crush.

- The *Cemip* gene is located on the Chr7. 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）

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Cemip cell migration inducing protein, hyaluronan binding [Mus musculus (house mouse)]

Gene ID: 80982, updated on 5-Mar-2019

Summary

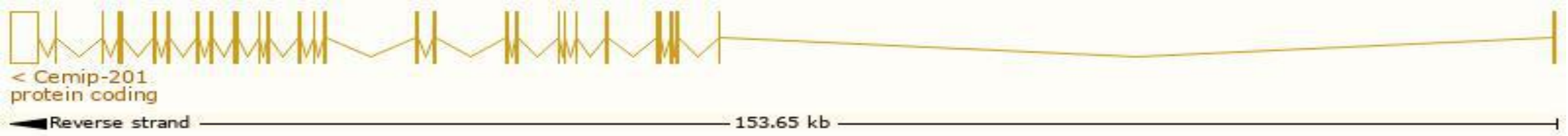
Official Symbol	Cemip provided by MGI
Official Full Name	cell migration inducing protein, hyaluronan binding provided by MGI
Primary source	MGI:MGI:2443629
See related	Ensembl:ENSMUSG00000052353
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	12H19.01.T7, 6330404C01Rik, 9930013L23Rik, AY007814, Kiaa1199
Expression	Biased expression in ovary adult (RPKM 4.8), testis adult (RPKM 1.2) and 11 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

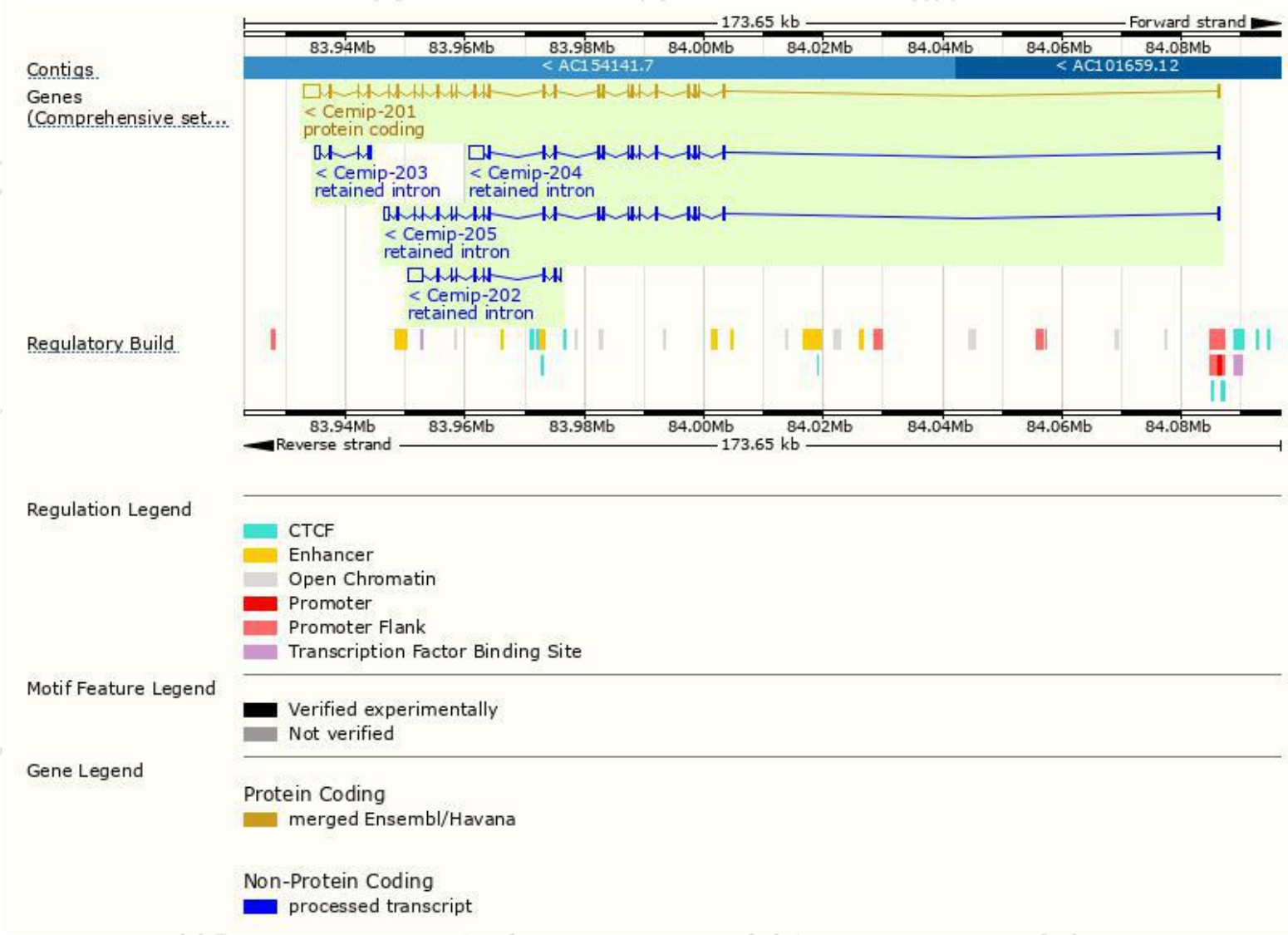
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cemip-201	ENSMUST00000064174.11	7111	1361aa	Protein coding	CCDS21416	Q8BI06	TSL:1 GENCODE basic APPRIS P1
Cemip-204	ENSMUST00000147578.1	4580	No protein	Retained intron	-	-	TSL:1
Cemip-205	ENSMUST00000150495.7	4287	No protein	Retained intron	-	-	TSL:2
Cemip-202	ENSMUST00000142518.7	3729	No protein	Retained intron	-	-	TSL:1
Cemip-203	ENSMUST00000145171.1	1771	No protein	Retained intron	-	-	TSL:1

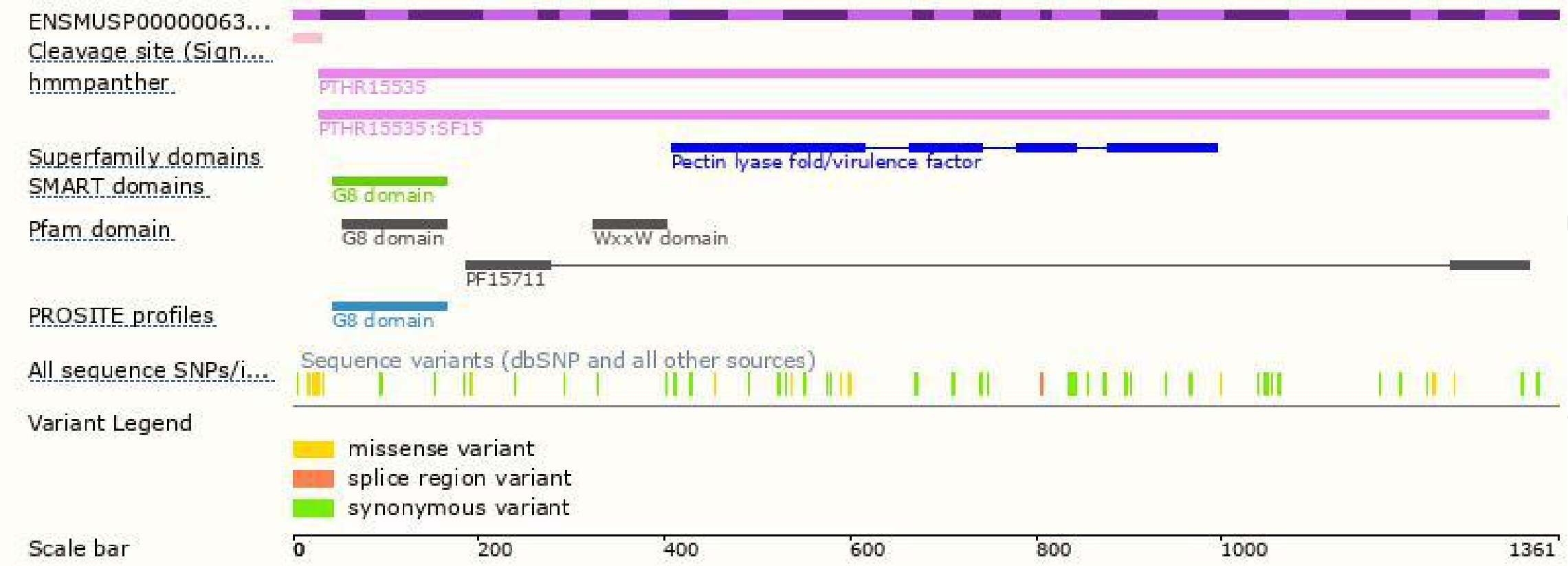
The strategy is based on the design of *Cemip-201* transcript,The transcription is shown below



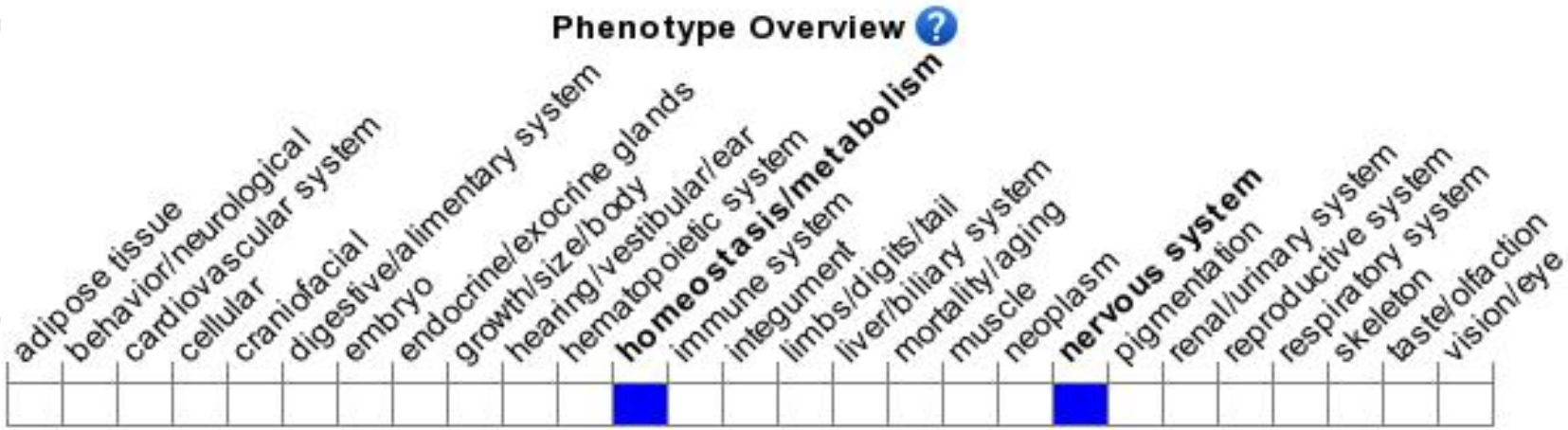
Genomic location distribution



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

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