Marchf11 Cas9-KO Strategy

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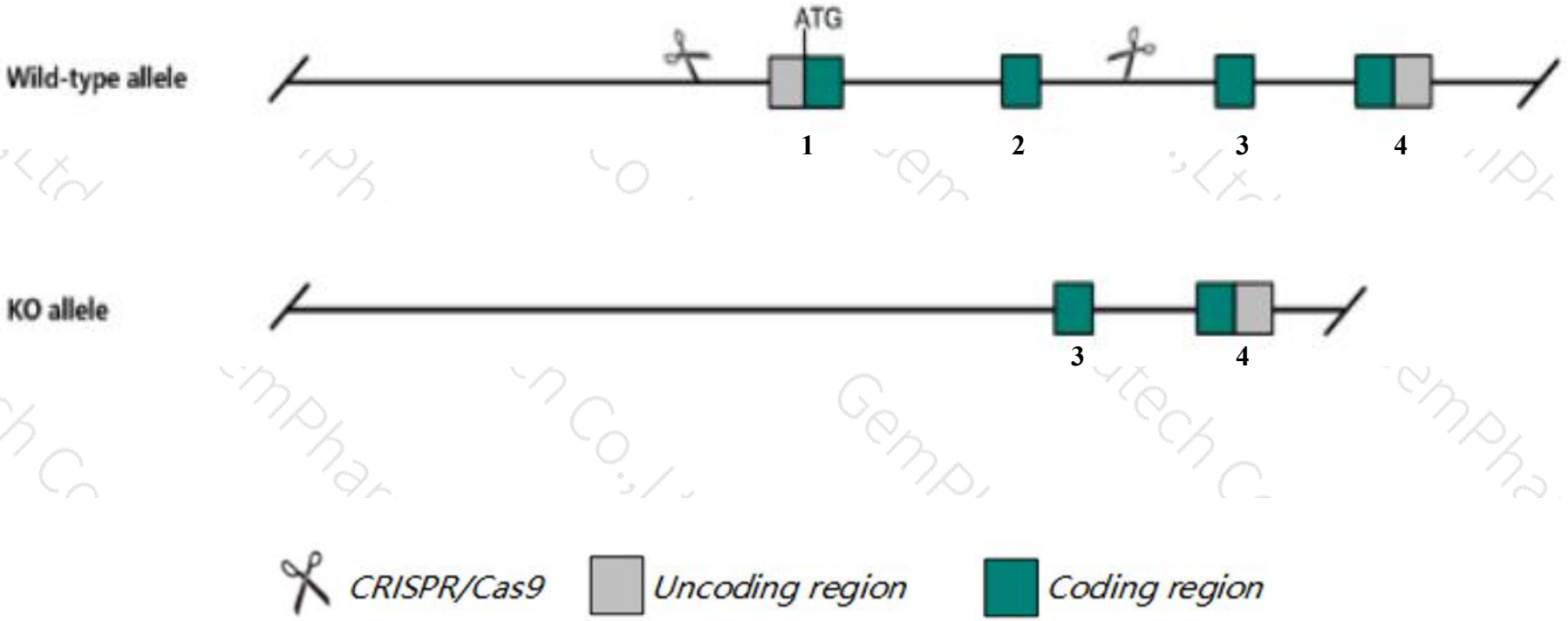
Project Overview

Project Name	***Marchf11***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Marchf11* gene. The schematic diagram is as follows:



Technical routes

➢ The *Marchf11* gene has 4 transcripts. According to the structure of *Marchf11* gene, exon1-exon2 of *March11-202*(ENSMUST00000140840.7) transcript is recommended as the knockout region.The region contains start codon ATG.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Marchf11* 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,male mice homozygous for a mutation are viable and show normal fertility.

➢ The *Marchf11* gene is located on the Chr15. 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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Marchf11 membrane associated ring-CH-type finger 11 [Mus musculus (house mouse)]

Gene ID: 211147, updated on 13-Mar-2020

Summary

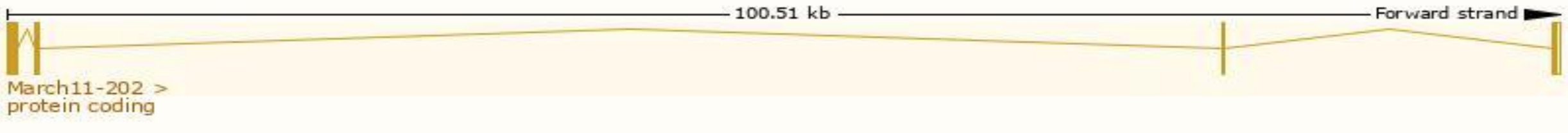
Official Symbol	Marchf11 provided by MGI
Official Full Name	membrane associated ring-CH-type finger 11 provided by MGI
Primary source	MGI:MGI:3608327
See related	Ensembl:ENSMUSG00000022269
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9630025C22, March11
Expression	Restricted expression toward testis adult (RPKM 147.5)See more
Orthologs	human all

Transcript information（Ensembl）

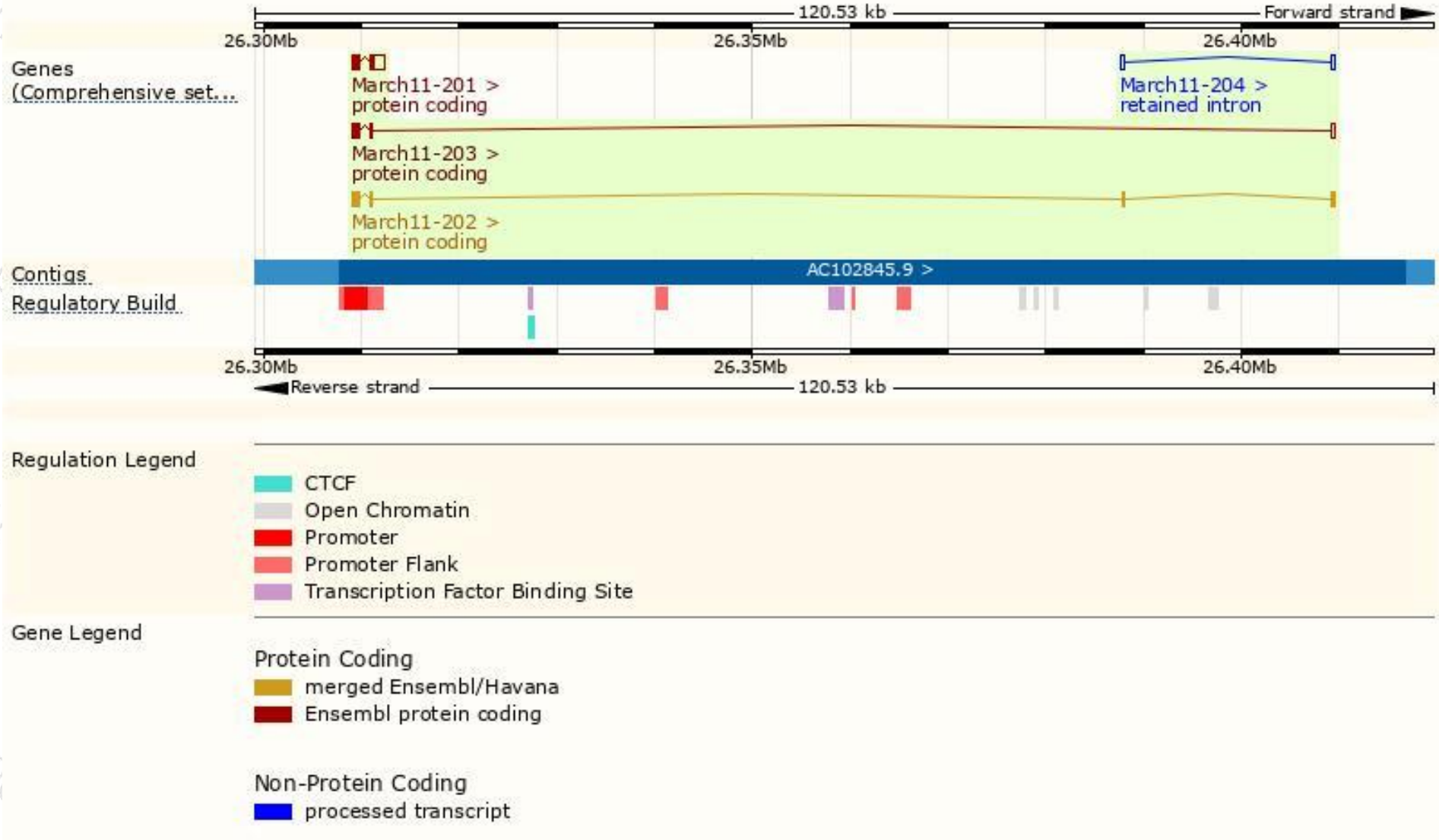
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
March11-202	ENSMUST00000140840.7	1558	400aa	Protein coding	CCDS27401	Q8CBH7	TSL:2 GENCODE basic APPRIS P3
March11-203	ENSMUST00000152841.1	1365	255aa	Protein coding	CCDS79365	D3YXE6	TSL:1 GENCODE basic APPRIS ALT2
March11-201	ENSMUST00000126304.1	2146	252aa	Protein coding	-	Q8CBH7	TSL:1 GENCODE basic APPRIS ALT2
March11-204	ENSMUST00000155819.1	702	No protein	Retained intron	-	-	TSL:2

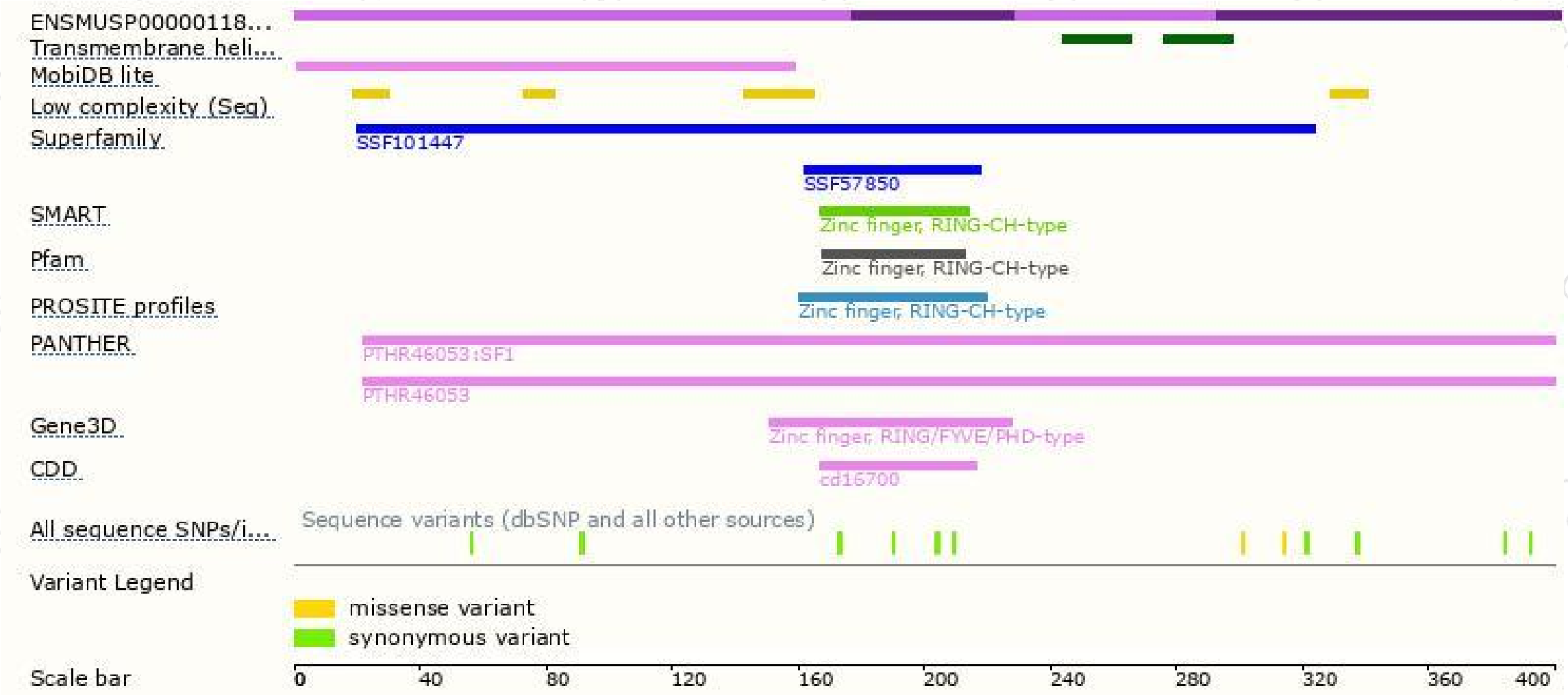
The strategy is based on the design of *March11-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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