

March 7 Cas9-KO Strategy

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Project Overview

Project Name

March7

Project type

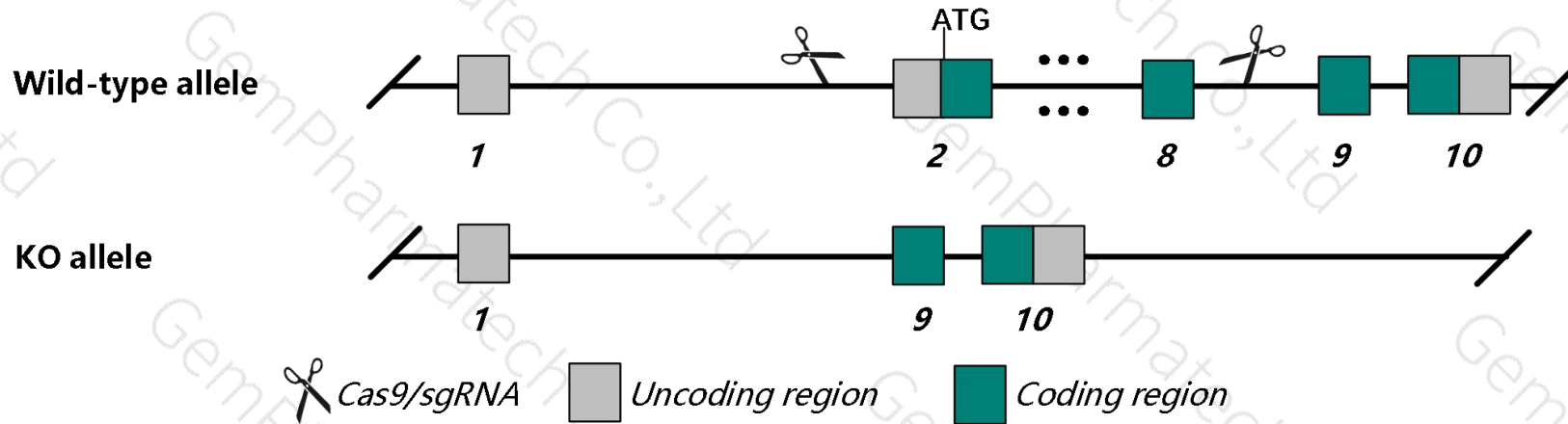
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *March7* gene. The schematic diagram is as follows:



- The *March7* gene has 9 transcripts. According to the structure of *March7* gene, exon2-exon8 of *March7-203* (ENSMUST00000102748.10) 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 *March7* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mice show premature neural degeneration and defective development of the corpus callosum. Both T cell proliferation and T cell-derived leukaemia inhibitory factor are increased.
- Transcript *March7-207* may not be affected.
- The *March7* gene is located on the Chr2. 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)

Marchf7 membrane associated ring-CH-type finger 7 [*Mus musculus* (house mouse)]

Gene ID: 57438, updated on 12-Nov-2019

Summary

- Official Symbol** Marchf7 provided by [MGI](#)
- Official Full Name** membrane associated ring-CH-type finger 7 provided by [MGI](#)
- Primary source** [MGI:MGI:1931053](#)
- See related** [Ensembl:ENSMUSG00000026977](#)
- Gene type** protein coding
- RefSeq status** PROVISIONAL
- Organism** [Mus musculus](#)
- Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as** Axo; Axot; March7; Gtrgeo17
- Expression** Ubiquitous expression in CNS E11.5 (RPKM 13.5), CNS E18 (RPKM 13.4) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 2; 2 C1.1

Exon count: 10

See Marchf7 in [Genome Data Viewer](#)

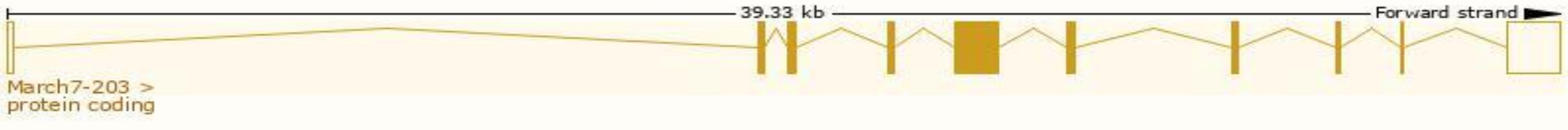
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (60209936..60248385)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (60047993..60086442)

Transcript information (Ensembl)

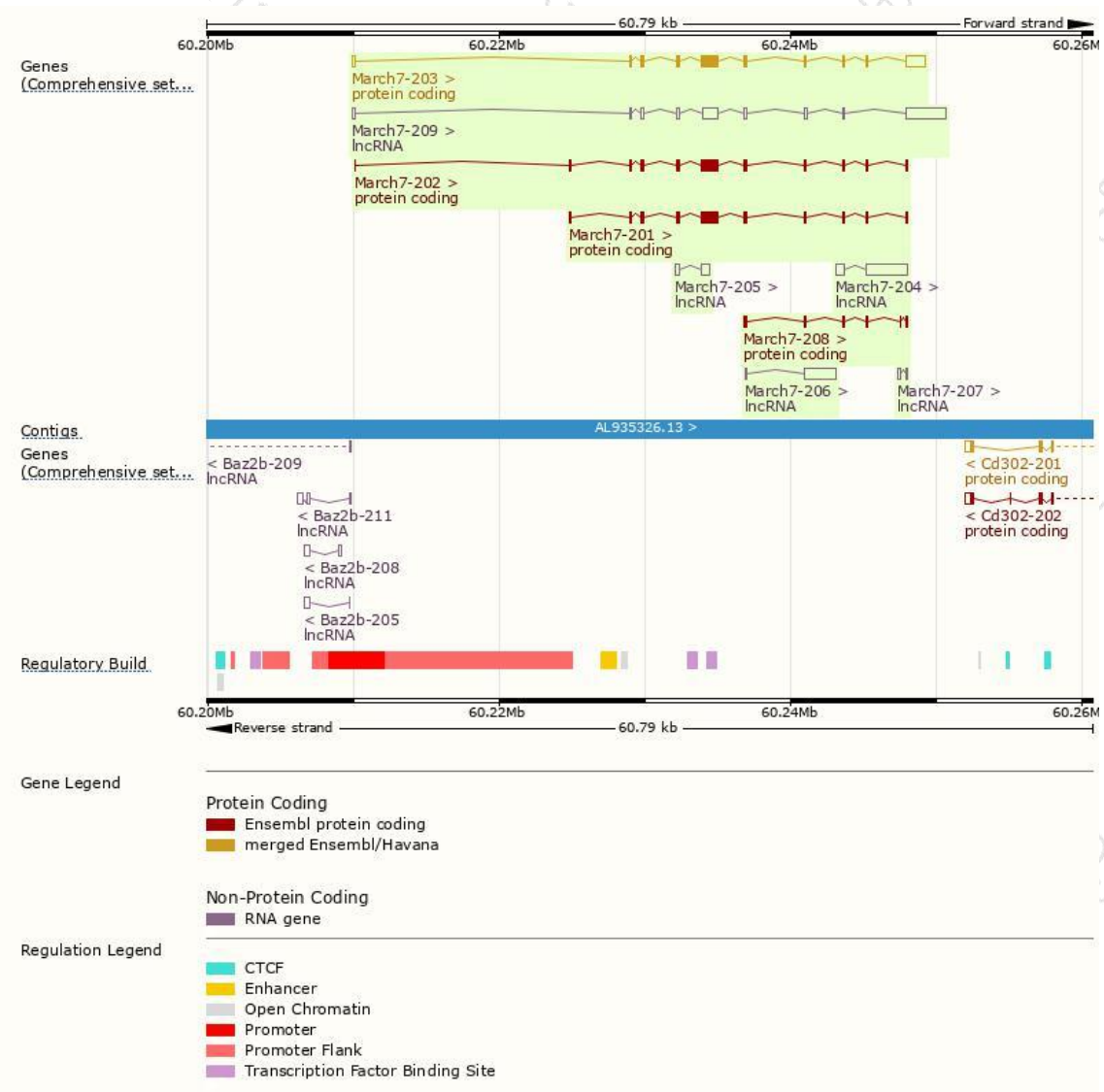
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
March7-203	ENSMUST00000102748.10	3594	693aa	Protein coding	CCDS16057	Q9WV66	TSL:1 GENCODE basic APPRIS P1
March7-202	ENSMUST00000102747.7	2271	693aa	Protein coding	CCDS16057	Q9WV66	TSL:1 GENCODE basic APPRIS P1
March7-201	ENSMUST00000067542.14	2244	693aa	Protein coding	CCDS16057	Q9WV66	TSL:1 GENCODE basic APPRIS P1
March7-208	ENSMUST00000142485.1	539	161aa	Protein coding	-	F7B2M7	CDS 5' incomplete TSL:2
March7-209	ENSMUST00000143806.1	4972	No protein	lncRNA	-	-	TSL:1
March7-204	ENSMUST00000126986.1	3346	No protein	lncRNA	-	-	TSL:1
March7-206	ENSMUST00000134905.1	2233	No protein	lncRNA	-	-	TSL:1
March7-205	ENSMUST00000131813.1	760	No protein	lncRNA	-	-	TSL:2
March7-207	ENSMUST00000136367.1	238	No protein	lncRNA	-	-	TSL:2

The strategy is based on the design of *March7-203* transcript,The transcription is shown below



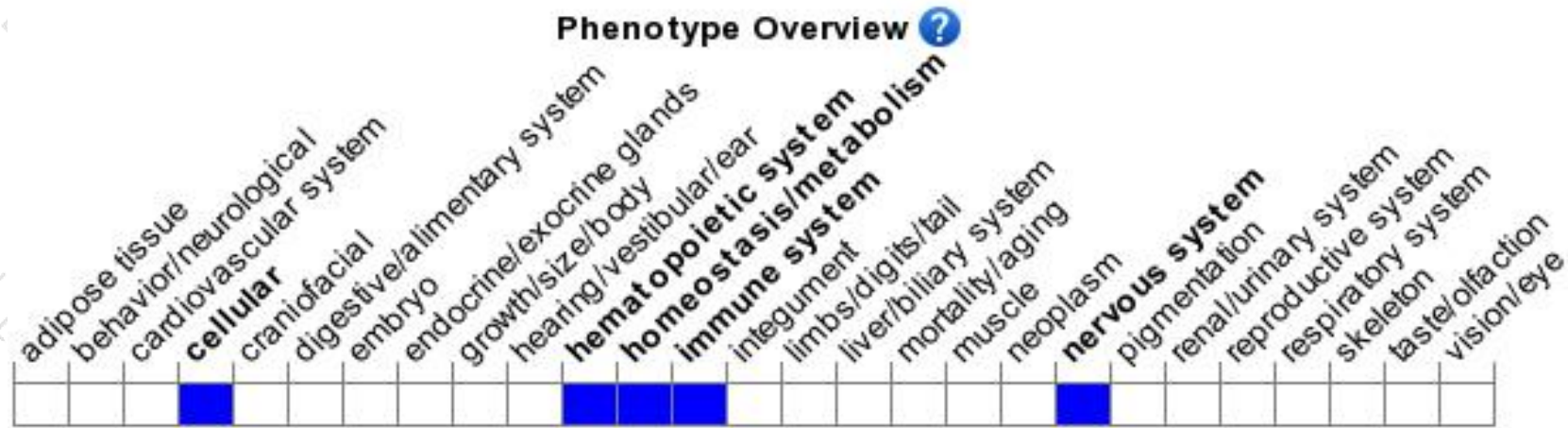
Genomic location distribution



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/>).

According to the existing MGI data, Homozygous null mice show premature neural degeneration and defective development of the corpus callosum. Both T cell proliferation and T cell-derived leukaemia inhibitory factor are increased.

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

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