

Vcp Cas9-KO Strategy

Designer:

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Project Overview

Project Name

Vcp

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Vcp* gene has 5 transcripts. According to the structure of *Vcp* gene, exon2-exon5 of *Vcp-201* (ENSMUST00000030164.7) transcript is recommended as the knockout region. The region contains 559bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Vcp* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Homozygous mutation of this gene results in lethality before weaning. Mice homozygous for a knock-in allele exhibit progressive muscle weakness, myopathy, decreased bone density, increased osteoclast genesis, and seizures.
- The *Vcp* gene is located on the Chr4. 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)

Vcp valosin containing protein [Mus musculus (house mouse)]

Gene ID: 269523, updated on 7-Apr-2019

Summary



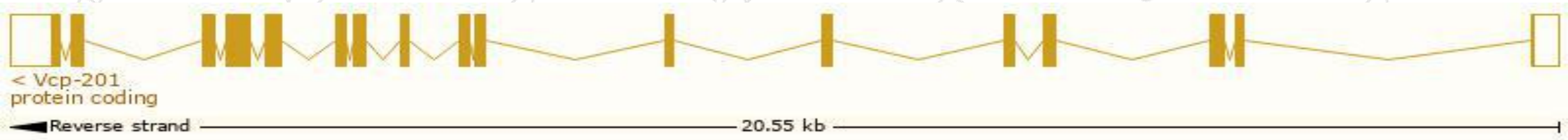
Official Symbol	Vcp provided by MGI
Official Full Name	valosin containing protein provided by MGI
Primary source	MGI:MGI:99919
See related	Ensembl:ENSMUSG00000028452
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3110001E05, CDC48, p97, p97/VCP
Expression	Ubiquitous expression in placenta adult (RPKM 109.8), adrenal adult (RPKM 109.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

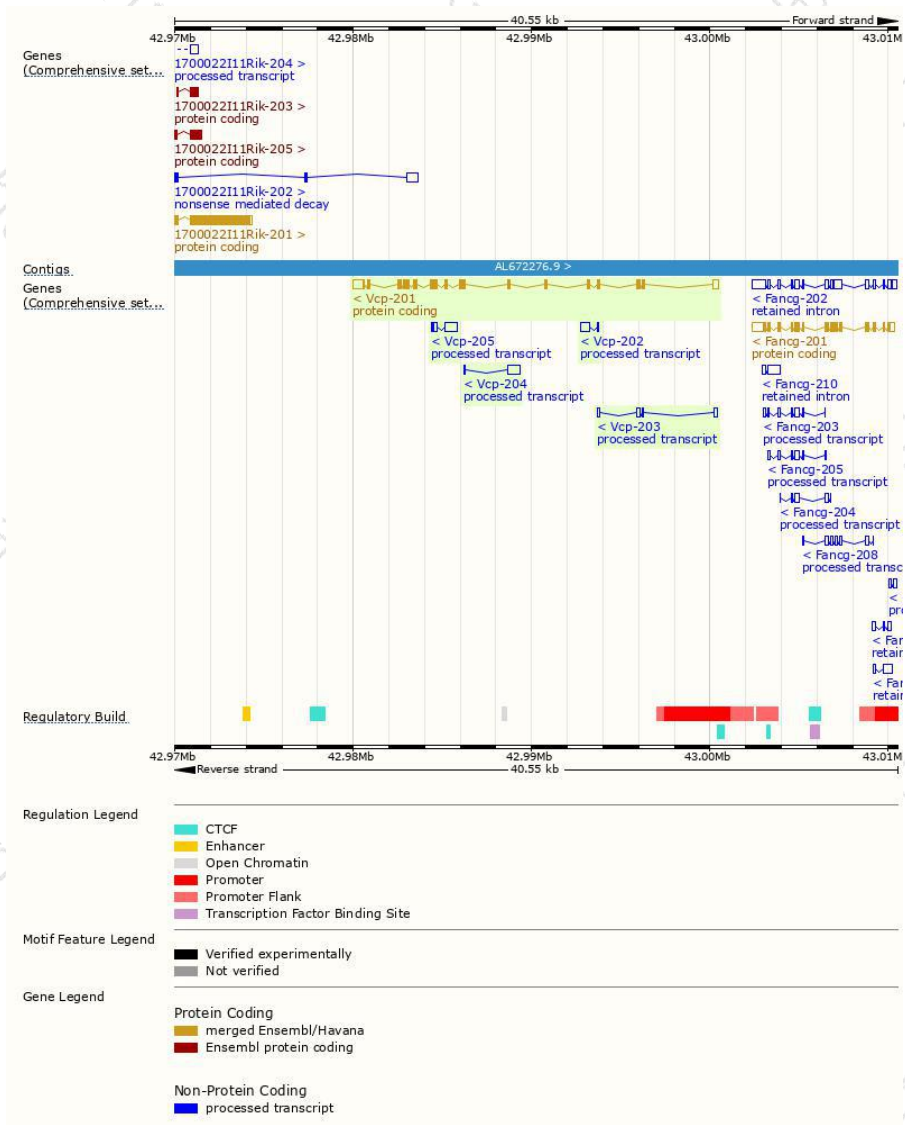
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Vcp-201	ENSMUST00000030164.7	3316	806aa	Protein coding	CCDS18086	Q01853	TSL:1 GENCODE basic APPRIS P1
Vcp-205	ENSMUST00000154541.1	894	No protein	Processed transcript	-	-	TSL:1
Vcp-204	ENSMUST00000154423.1	707	No protein	Processed transcript	-	-	TSL:2
Vcp-202	ENSMUST00000139843.1	618	No protein	Processed transcript	-	-	TSL:1
Vcp-203	ENSMUST00000148182.1	539	No protein	Processed transcript	-	-	TSL:3

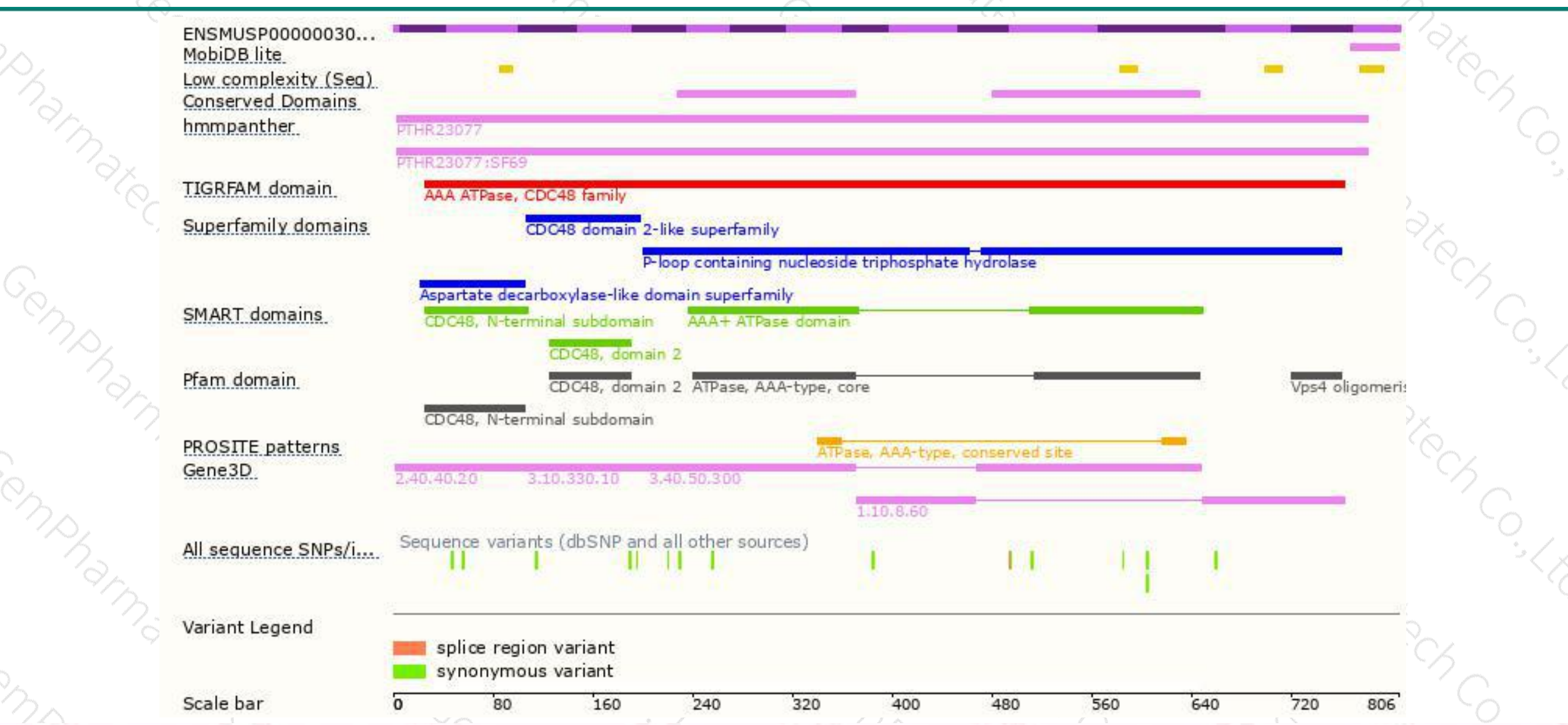
The strategy is based on the design of *Vcp-201* transcript,The transcription is shown below



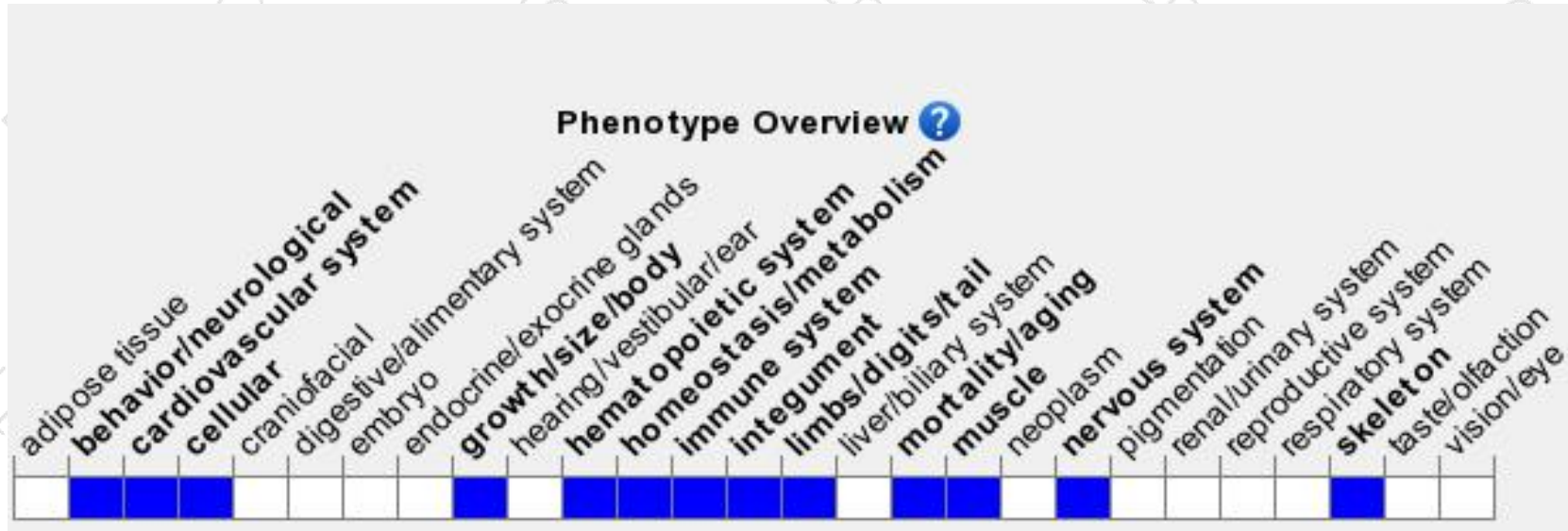
Genomic location distribution



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/>).

According to the existing MGI data, Homozygous mutation of this gene results in lethality before weaning. Mice homozygous for a knock-in allele exhibit progressive muscle weakness, myopathy, decreased bone density, increased osteoclastogenesis, and seizures.

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

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