

Capn9 Cas9-KO Strategy

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Project Overview

Project Name

Capn9

Project type

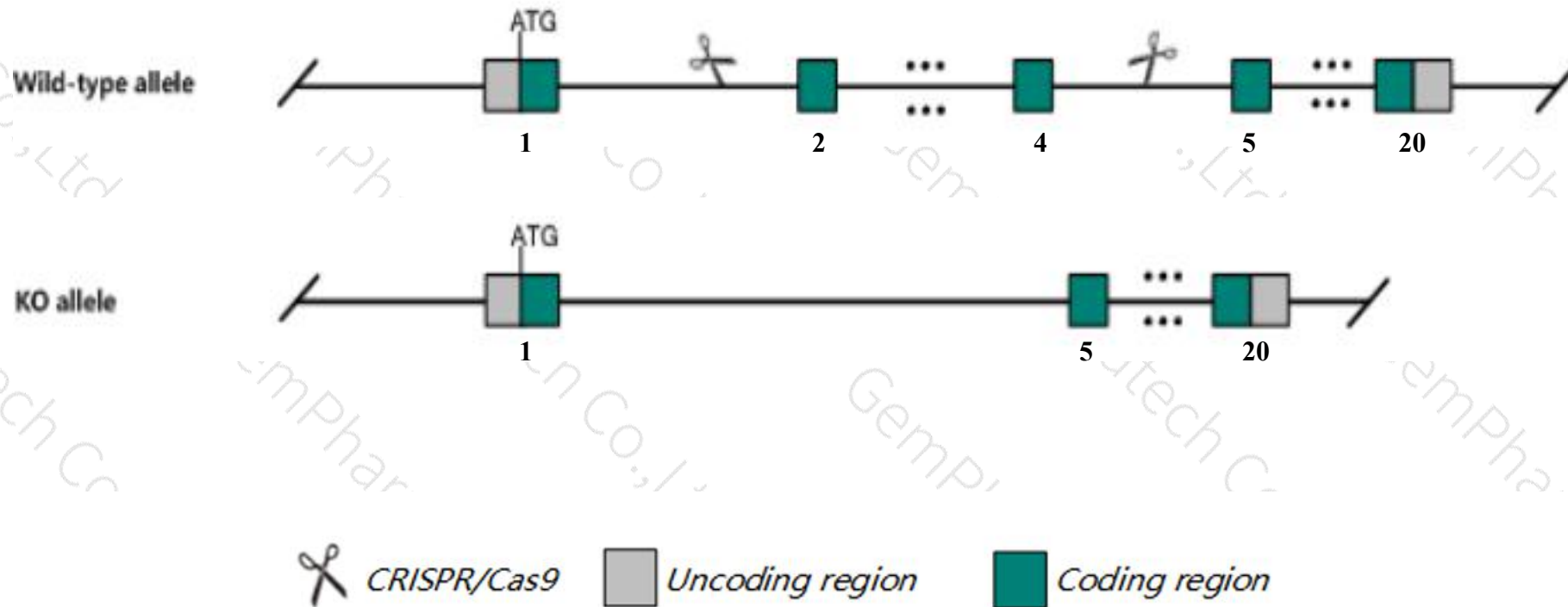
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Capn9* gene. The schematic diagram is as follows:



- The *Capn9* gene has 3 transcripts. According to the structure of *Capn9* gene, exon2-exon4 of *Capn9-201* (ENSMUST00000093033.5) transcript is recommended as the knockout region. The region contains 323bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Capn9* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit increased sensitivity to ethanol-induced gastric mucosa injury.
- The *Capn9* gene is located on the Chr8. 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)

Capn9 calpain 9 [Mus musculus (house mouse)]

Gene ID: 73647, updated on 13-Mar-2020

Summary



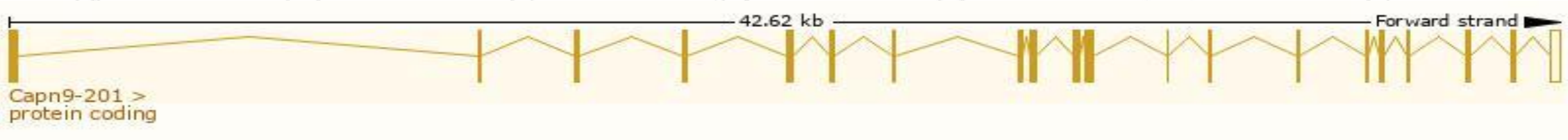
Official Symbol	Capn9 provided by MGI
Official Full Name	calpain 9 provided by MGI
Primary source	MGI:MGI:1920897
See related	Ensembl:ENSMUSG000000031981
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2200003B16Rik, GC36, nCL-4, nCL4
Expression	Biased expression in stomach adult (RPKM 25.5), colon adult (RPKM 12.1) and 3 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

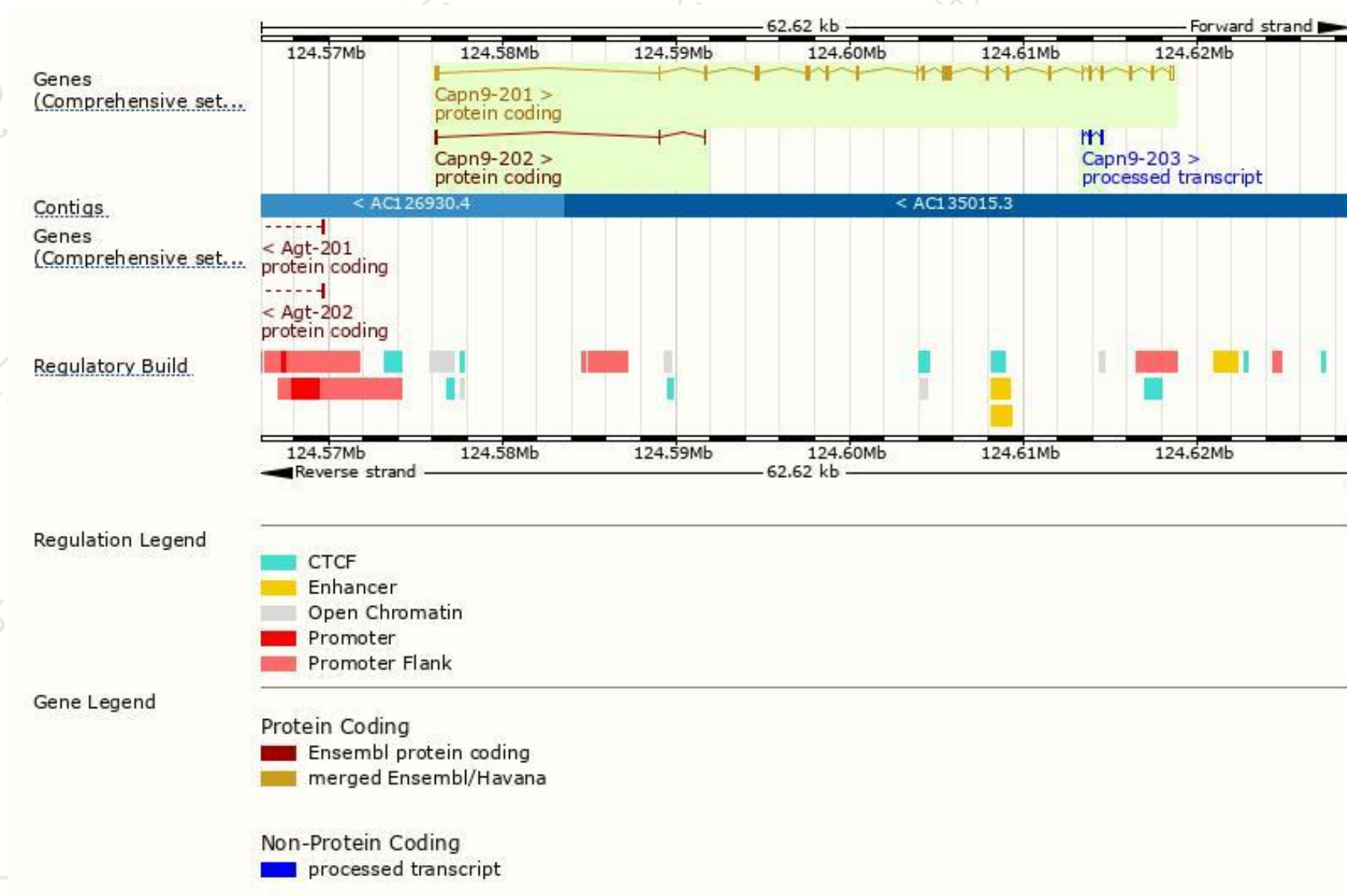
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Capn9-201	ENSMUST00000093033.5	2330	690aa	Protein coding	CCDS40514	Q9D805	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Capn9-202	ENSMUST00000133086.1	224	64aa	Protein coding	-	D3Z7U6	CDS 3' incomplete TSL:5
Capn9-203	ENSMUST00000133583.1	274	No protein	Processed transcript	-	-	TSL:5

The strategy is based on the design of *Capn9-201* transcript,the transcription is shown below:



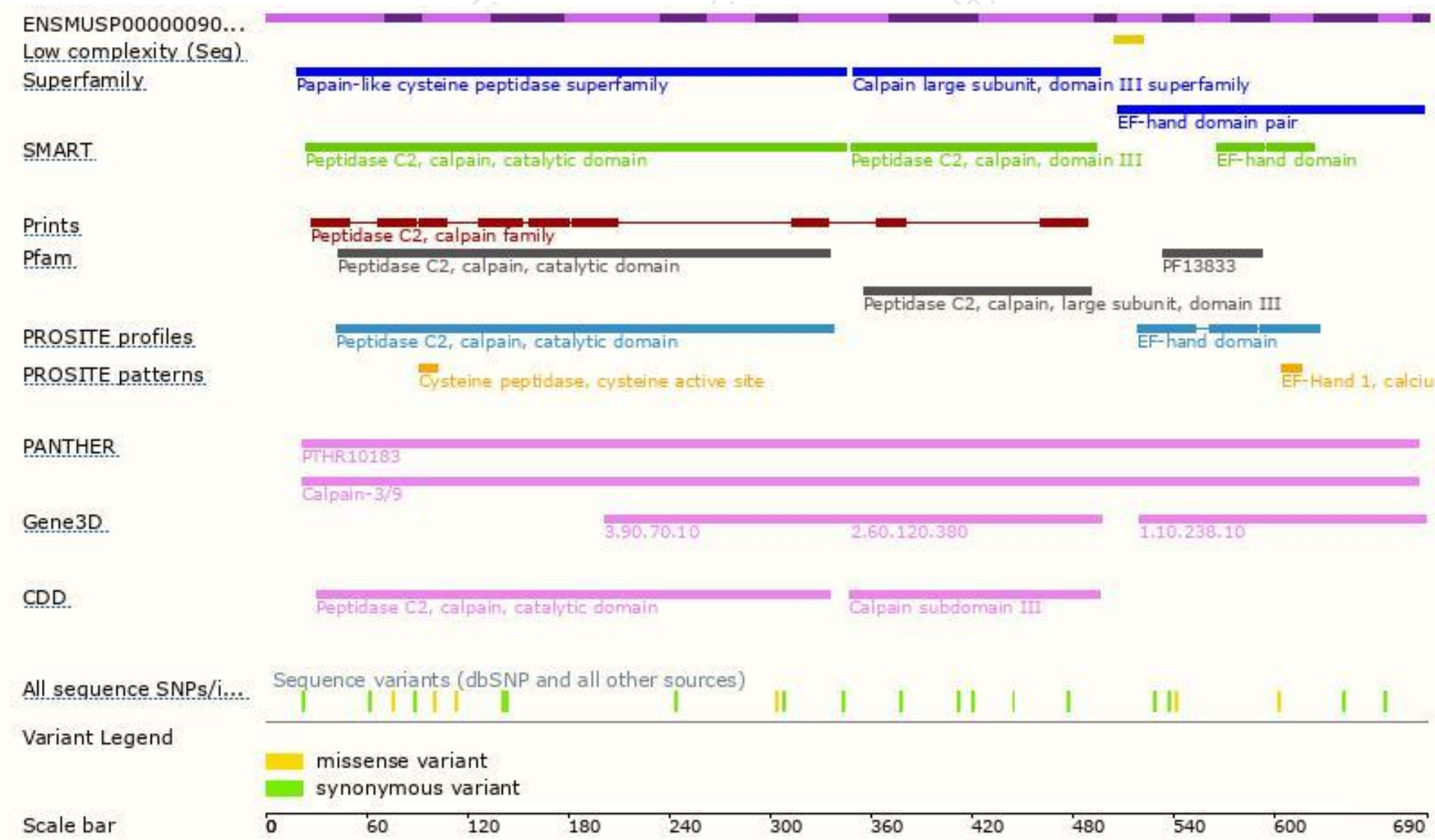
Genomic location distribution



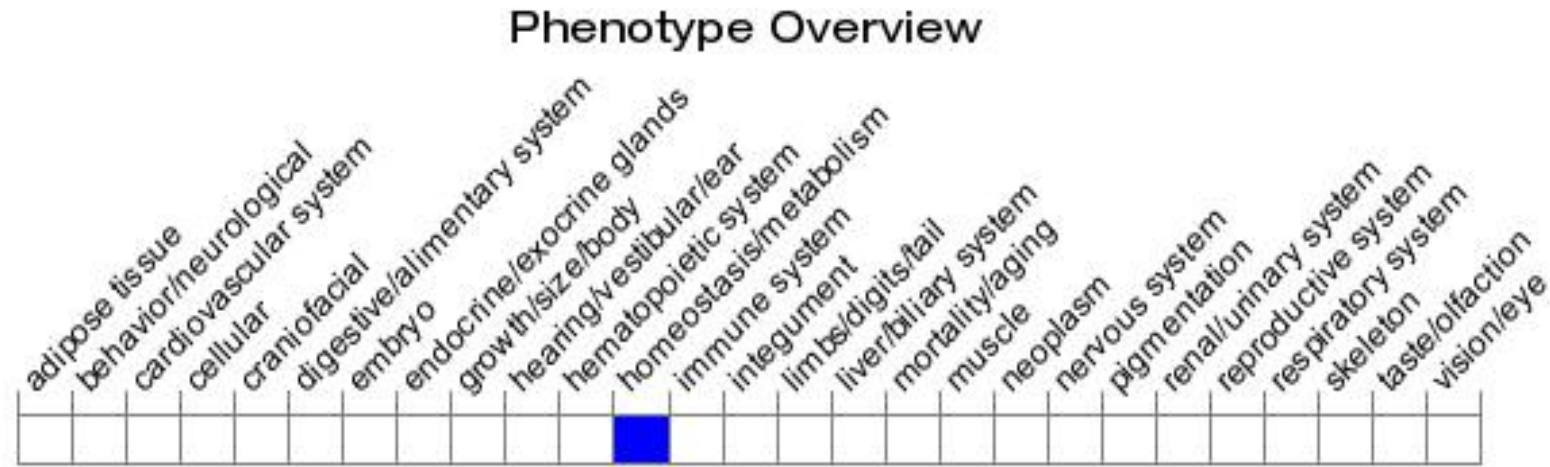
Protein domain



集萃药康
GemPharmatech



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, mice homozygous for a knock-out allele exhibit increased sensitivity to ethanol-induced gastric mucosa injury.

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

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