

Gzmc Cas9-CKO Strategy

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Project Overview

Project Name

Gzmc

Project type

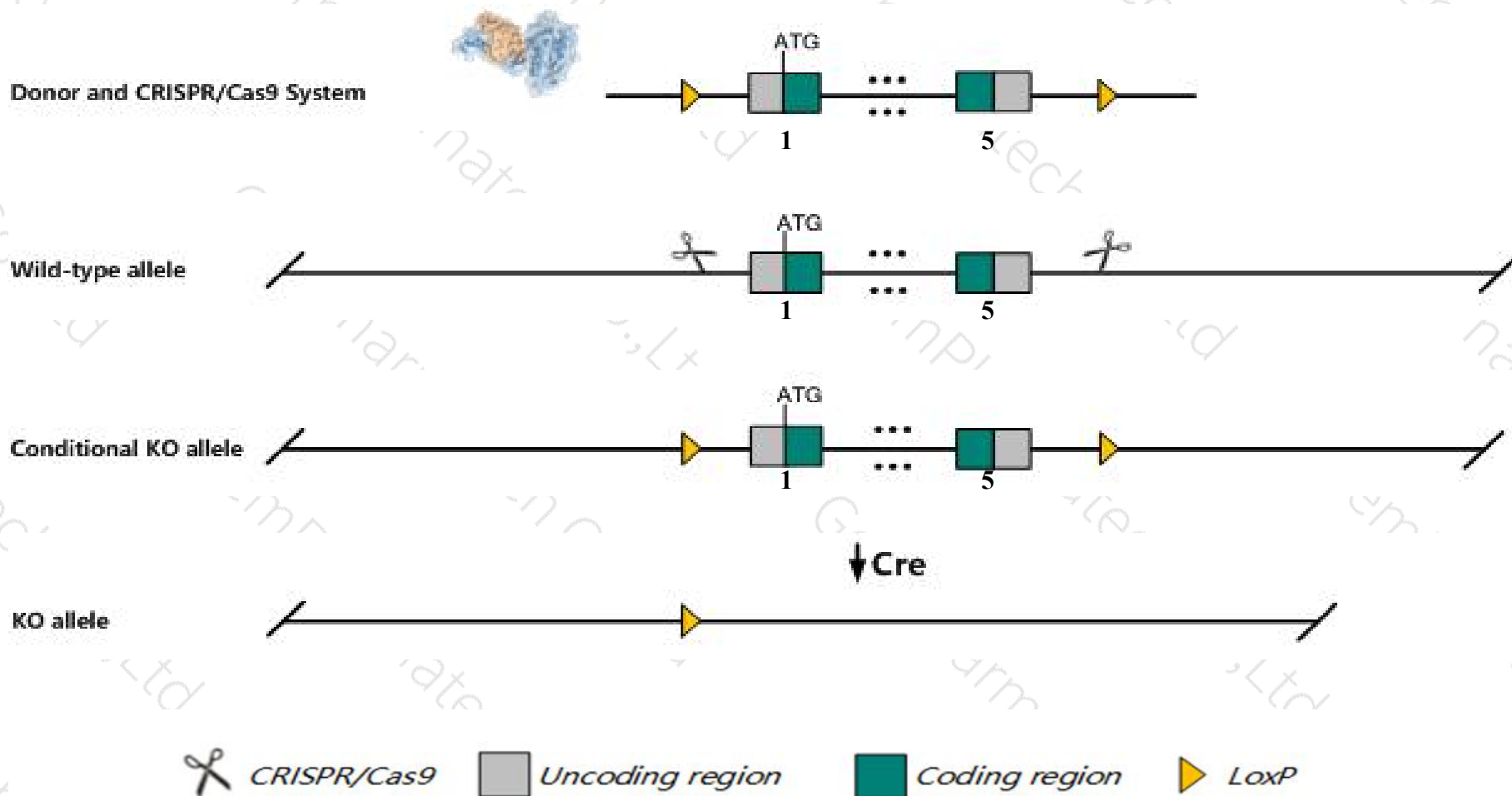
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Gzmc* gene has 1 transcript. According to the structure of *Gzmc* gene, exon1-exon5 of *Gzmc-201* (ENSMUST00000015585.3) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gzmc* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- The *Gzmc* gene is located on the Chr14. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Gzmc granzyme C [*Mus musculus* (house mouse)]

Gene ID: 14940, updated on 12-Aug-2019

Summary

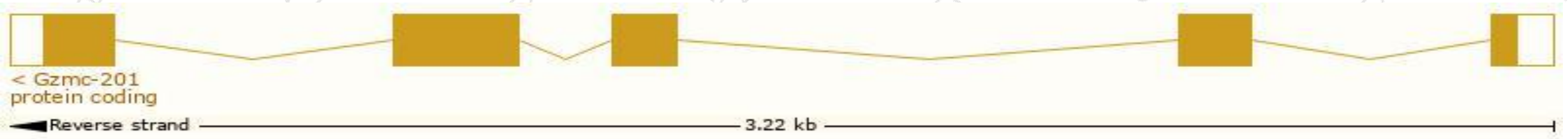
Official Symbol	Gzmc provided by MGI
Official Full Name	granzyme C provided by MGI
Primary source	MGI:MGI:109256
See related	Ensembl:ENSMUSG000000079186
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B10; CCP2; Ctla5; Ctla-5; AI323531
Summary	This gene encodes a member of the peptidase S1 family of serine proteases. The encoded preproprotein is proteolytically processed to generate a mature protein product. This product, expressed by activated T cells, may induce apoptosis of target cells. This gene is present in a gene cluster with other members of the granzyme subfamily on chromosome 14. [provided by RefSeq, Sep 2015]
Expression	Biased expression in placenta adult (RPKM 7.5) and subcutaneous fat pad adult (RPKM 0.6) See more
Orthologs	human all

Transcript information (Ensembl)

The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gzmc-201	ENSMUST00000015585.3	894	248aa	Protein coding	CCDS27146	P08882 Q0VB76	TSL:1 GENCODE basic APPRIS P1

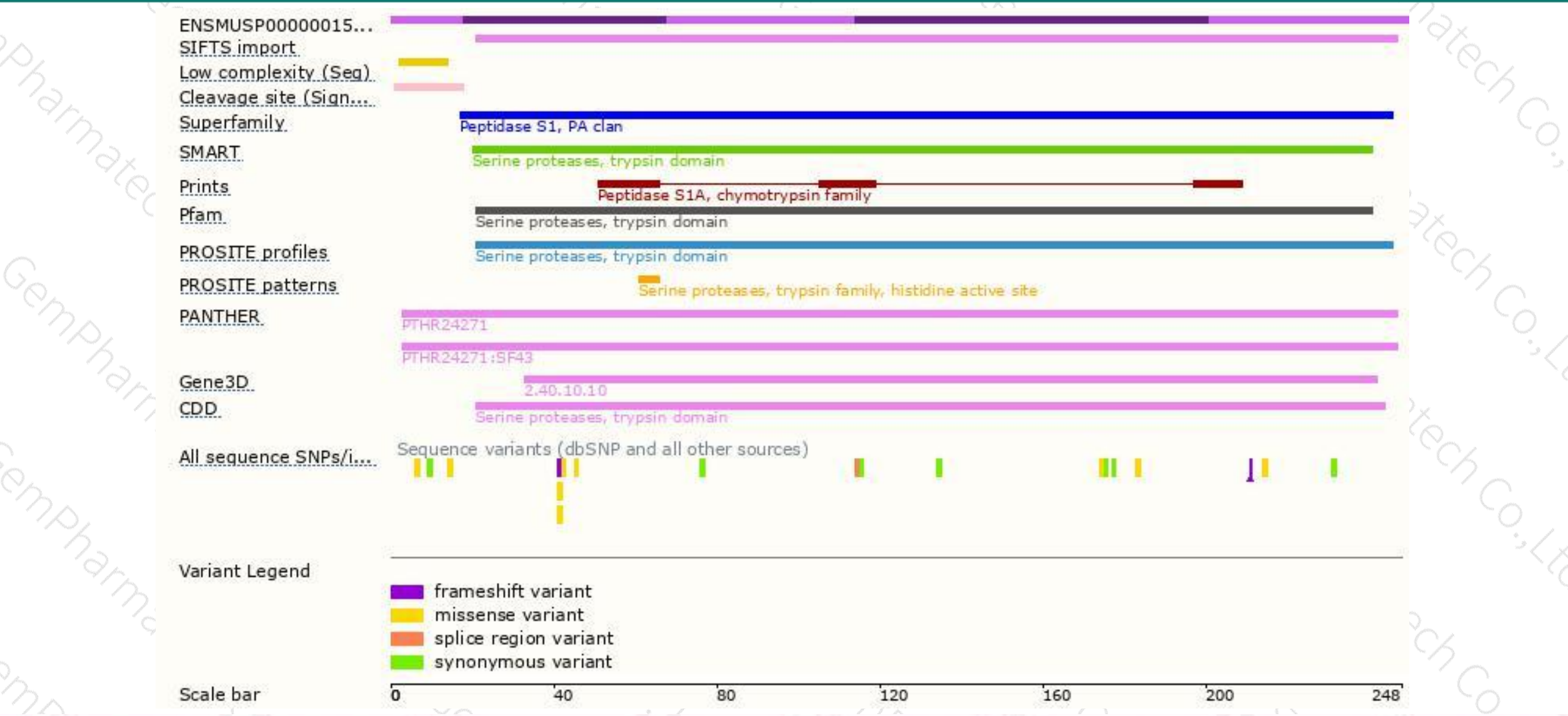
The strategy is based on the design of *Gzmc-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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

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