

***Gcn1* Cas9-CKO Strategy**

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Project Overview

Project Name

Gcn1

Project type

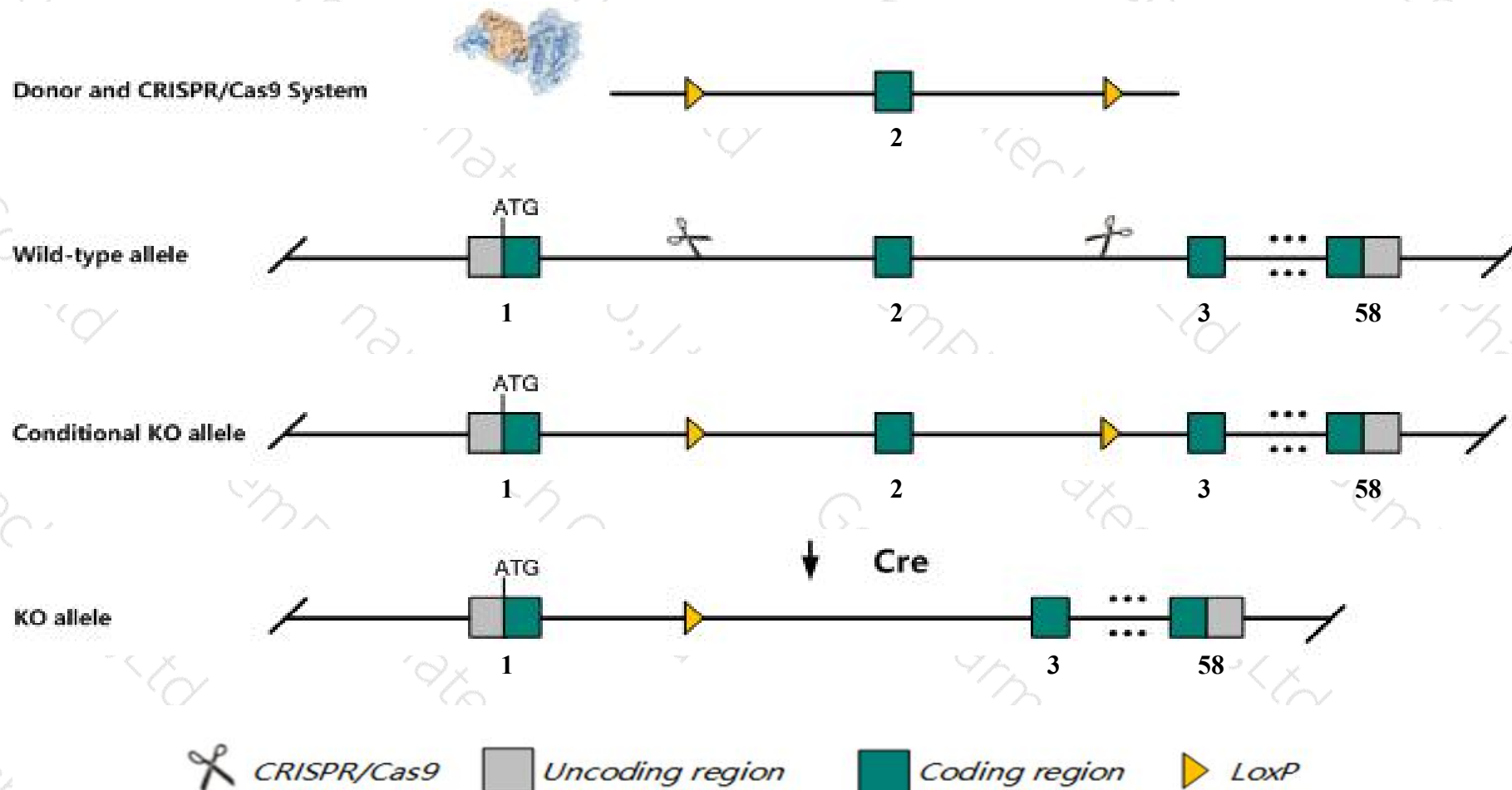
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gcn1* gene. The schematic diagram is as follows:



Technical routes

- The *Gcn1* gene has 10 transcripts. According to the structure of *Gcn1* gene, exon2 of *Gcn1-201*(ENSMUST00000064454.11) transcript is recommended as the knockout region. The region contains 103bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gcn1* 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 *Gcn1* gene is located on the Chr5. 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)

Gcn1 GCN1 activator of EIF2AK4 [Mus musculus (house mouse)]

Gene ID: 231659, updated on 13-Mar-2020

Summary



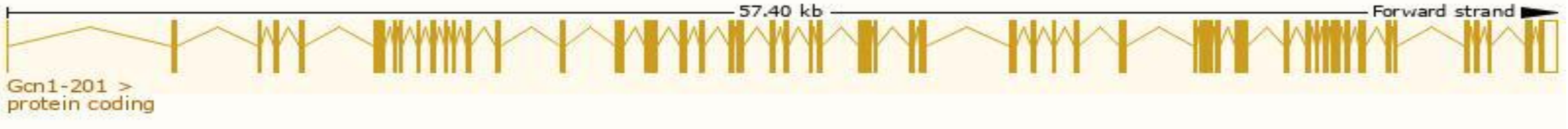
Official Symbol	Gcn1 provided by MGI
Official Full Name	GCN1 activator of EIF2AK4 provided by MGI
Primary source	MGI:MGI:2444248
See related	Ensembl:ENSMUSG00000041638
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4932409G22, AL022764, G431004K08Rik, GCN1L, Gcn1l1, mKIAA0219
Expression	Ubiquitous expression in ovary adult (RPKM 25.3), thymus adult (RPKM 23.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

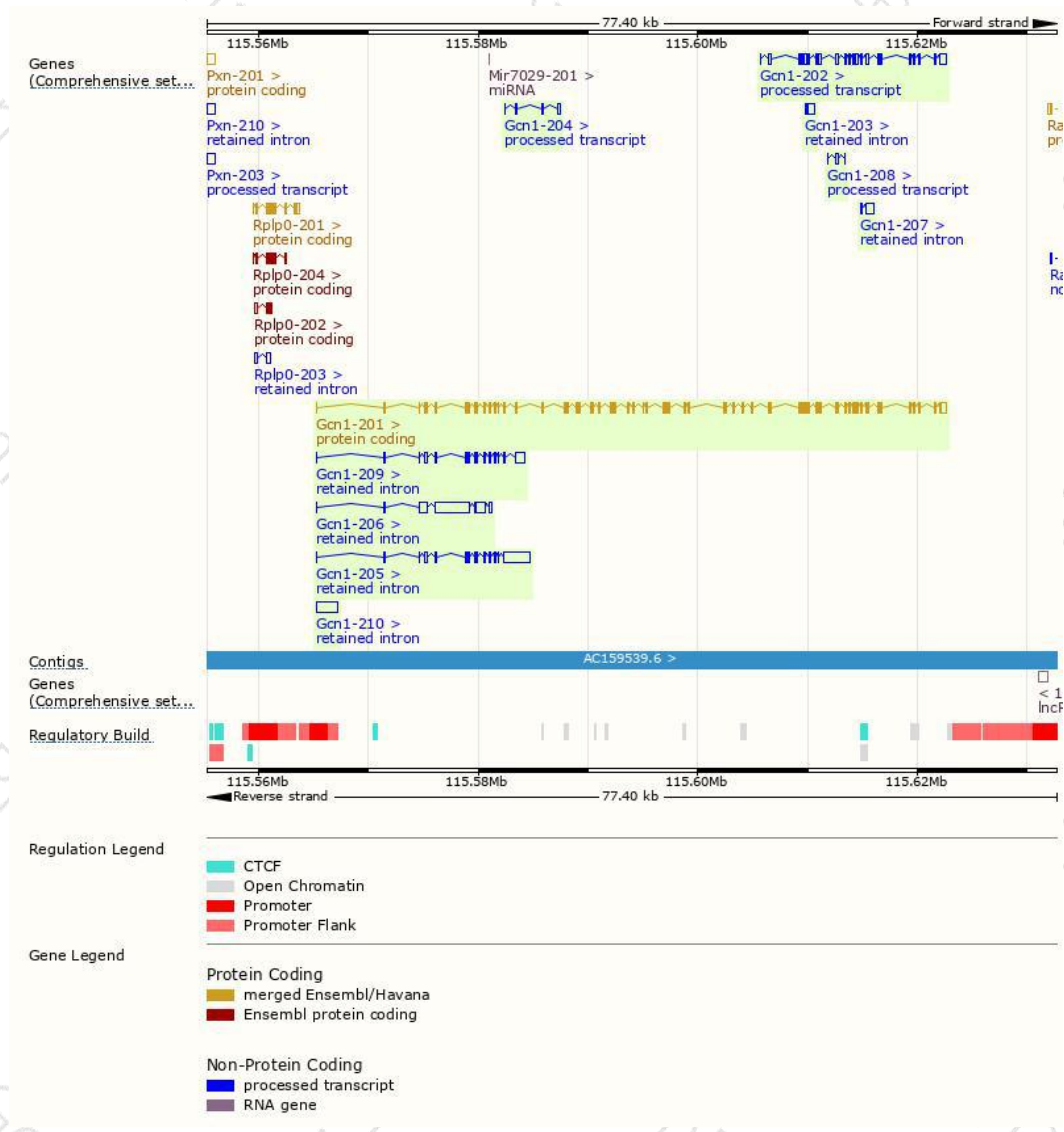
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gcn1-201	ENSMUST00000064454.11	8555	2671aa	Protein coding	CCDS19595	E9PVA8	TSL:1 GENCODE basic APPRIS P1
Gcn1-202	ENSMUST00000094427.6	3857	No protein	Processed transcript	-	-	TSL:1
Gcn1-204	ENSMUST00000125299.1	465	No protein	Processed transcript	-	-	TSL:3
Gcn1-208	ENSMUST00000139933.1	240	No protein	Processed transcript	-	-	TSL:5
Gcn1-206	ENSMUST00000136041.7	5085	No protein	Retained intron	-	-	TSL:2
Gcn1-205	ENSMUST00000129424.1	3689	No protein	Retained intron	-	-	TSL:1
Gcn1-209	ENSMUST00000141472.7	2224	No protein	Retained intron	-	-	TSL:1
Gcn1-210	ENSMUST00000202584.1	1918	No protein	Retained intron	-	-	TSL:NA
Gcn1-207	ENSMUST00000137523.1	754	No protein	Retained intron	-	-	TSL:3
Gcn1-203	ENSMUST00000122964.1	643	No protein	Retained intron	-	-	TSL:2

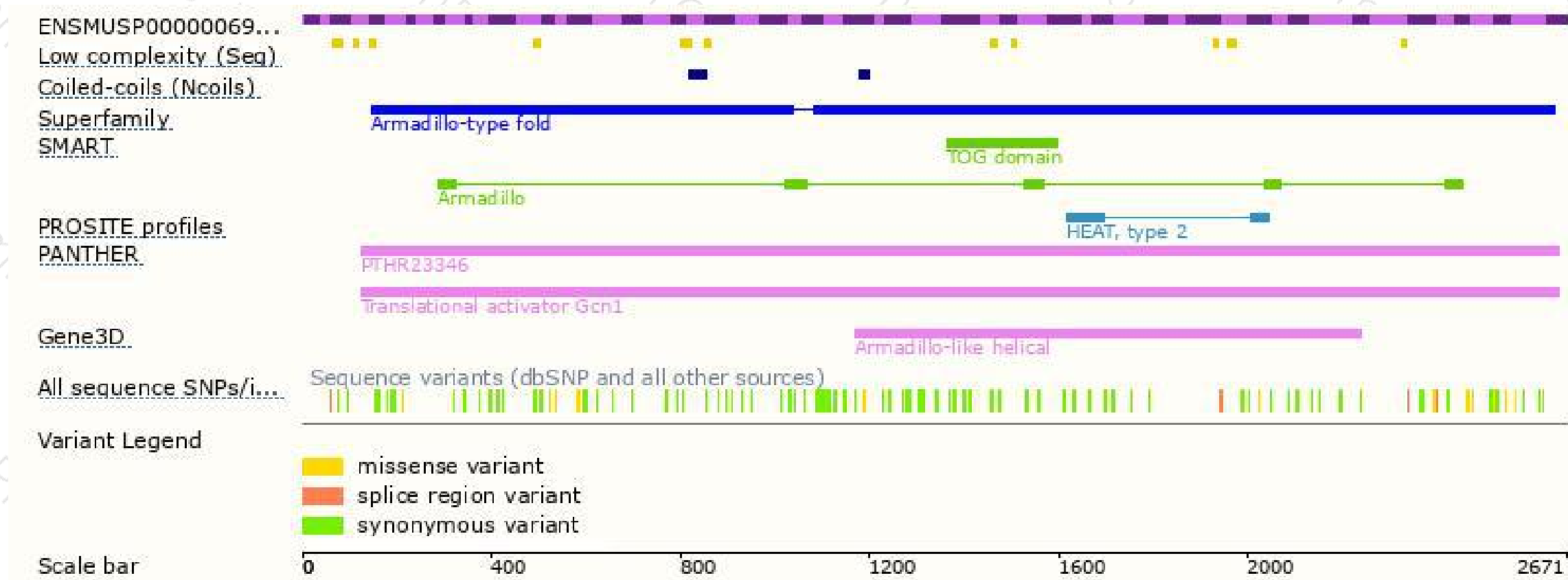
The strategy is based on the design of *Gcn1-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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