

Pcgf3 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Pcgf3

Project type

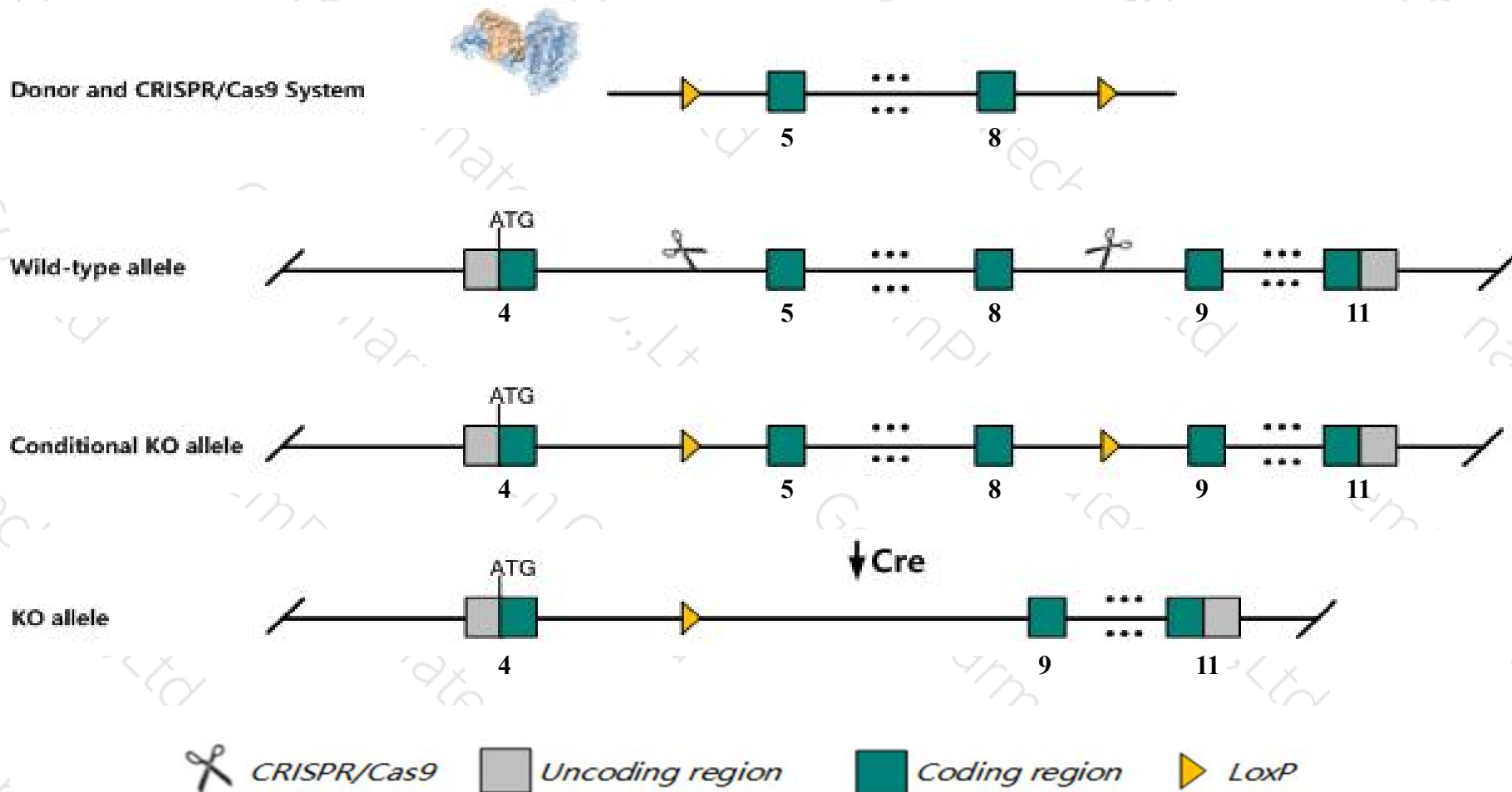
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pcgf3* gene. The schematic diagram is as follows:



- The *Pcgf3* gene has 5 transcripts. According to the structure of *Pcgf3* gene, exon5-exon8 of *Pcgf3-201* (ENSMUST00000046975.11) transcript is recommended as the knockout region. The region contains 350bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pcgf3* 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

- According to the existing MGI data, Mice homozygous for a transgenic gene disruption exhibit limb defects and spleen agenesis.
- The *Pcgf3* 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)

Pcgf3 polycomb group ring finger 3 [Mus musculus (house mouse)]

Gene ID: 69587, updated on 31-Jan-2019

Summary



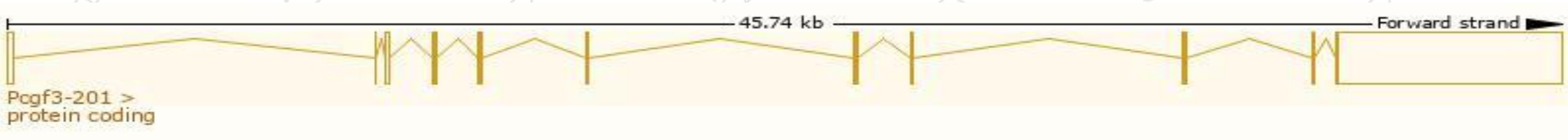
Official Symbol	Pcgf3 provided by MGI
Official Full Name	polycomb group ring finger 3 provided by MGI
Primary source	MGI:MGI:1916837
See related	Ensembl:ENSMUSG00000033623
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310035N15Rik, A1662857, D630042K08Rik, DONG1, E430039C14, RNF3A, Rnf3
Expression	Ubiquitous expression in whole brain E14.5 (RPKM 11.1), CNS E14 (RPKM 9.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

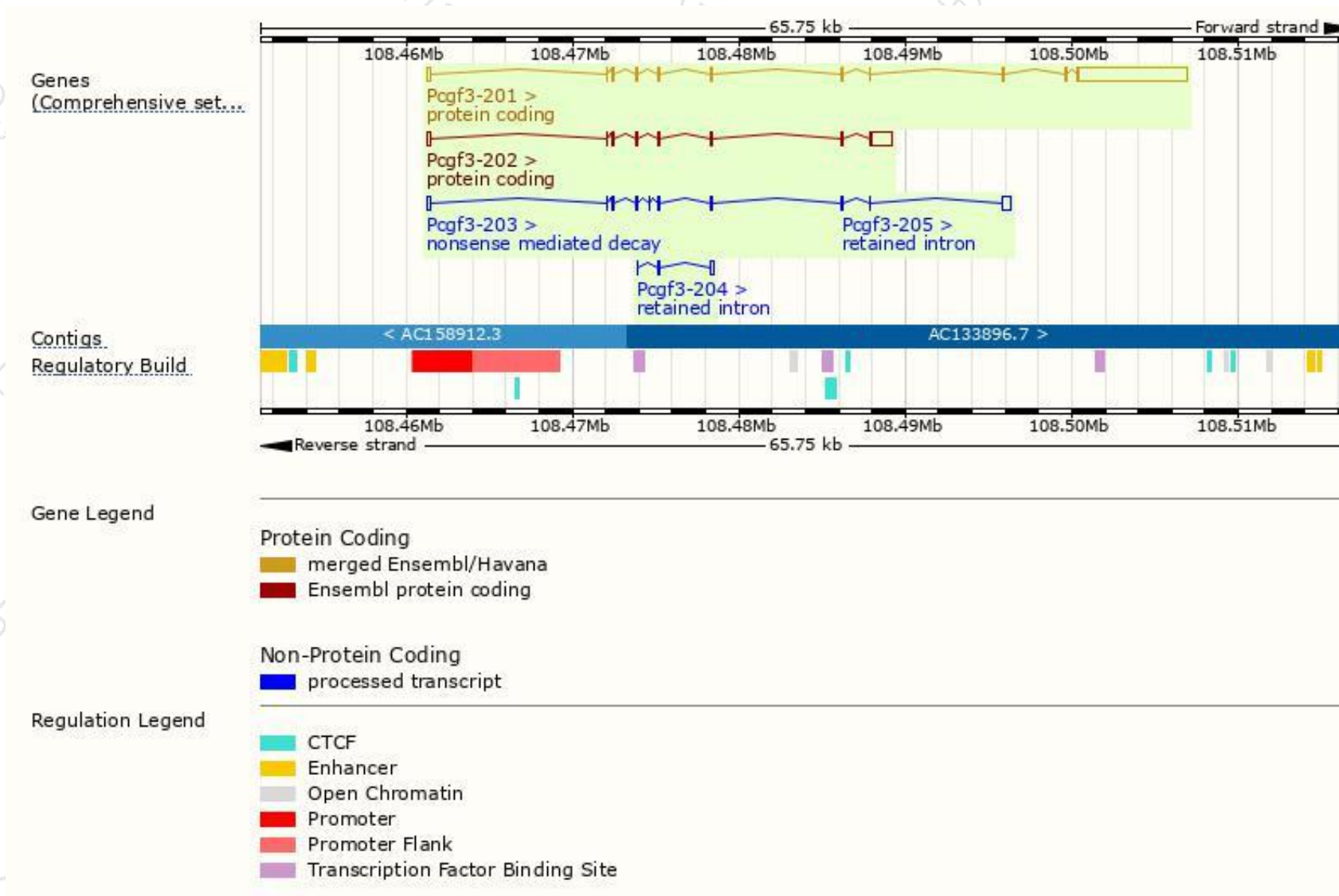
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pcgf3-201	ENSMUST00000046975.11	7708	241aa	Protein coding	CCDS19512	Q8BTQ0	TSL:1 GENCODE basic APPRIS P1
Pcgf3-202	ENSMUST00000112597.7	2169	178aa	Protein coding	-	Q8BTQ0	TSL:1 GENCODE basic
Pcgf3-203	ENSMUST00000138264.7	688	56aa	Nonsense mediated decay	-	A0A0G2JDR0	TSL:3
Pcgf3-205	ENSMUST00000151897.1	574	No protein	Retained intron	-	-	TSL:2
Pcgf3-204	ENSMUST00000143973.1	325	No protein	Retained intron	-	-	TSL:5

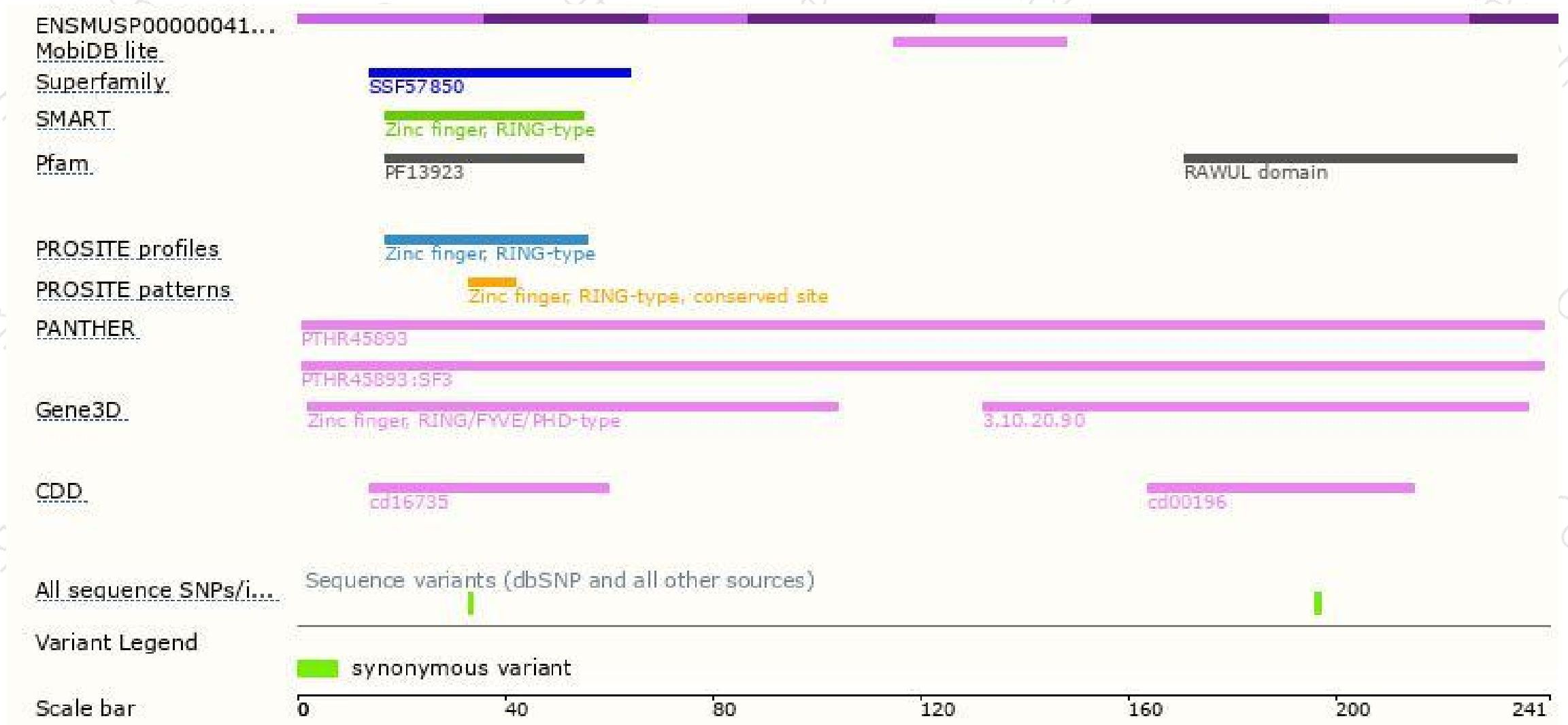
The strategy is based on the design of *Pcgf3-201* transcript,The transcription is shown below



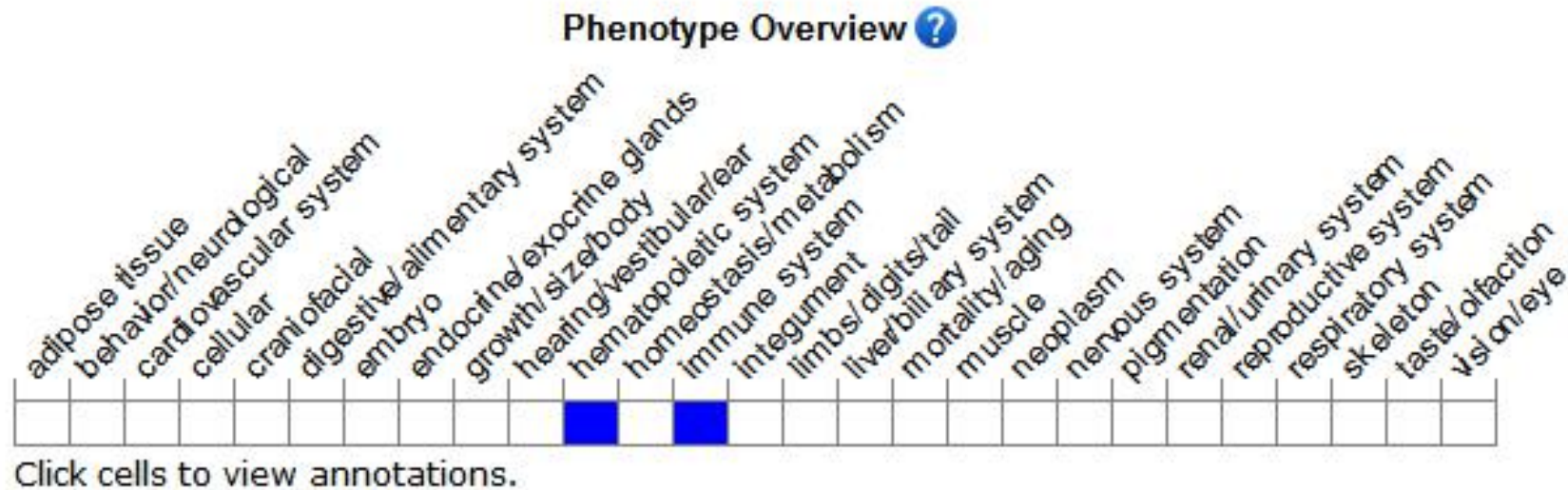
Genomic location distribution



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/>).

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

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