

Zfp683 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Zfp683

Project type

Cas9-CKO

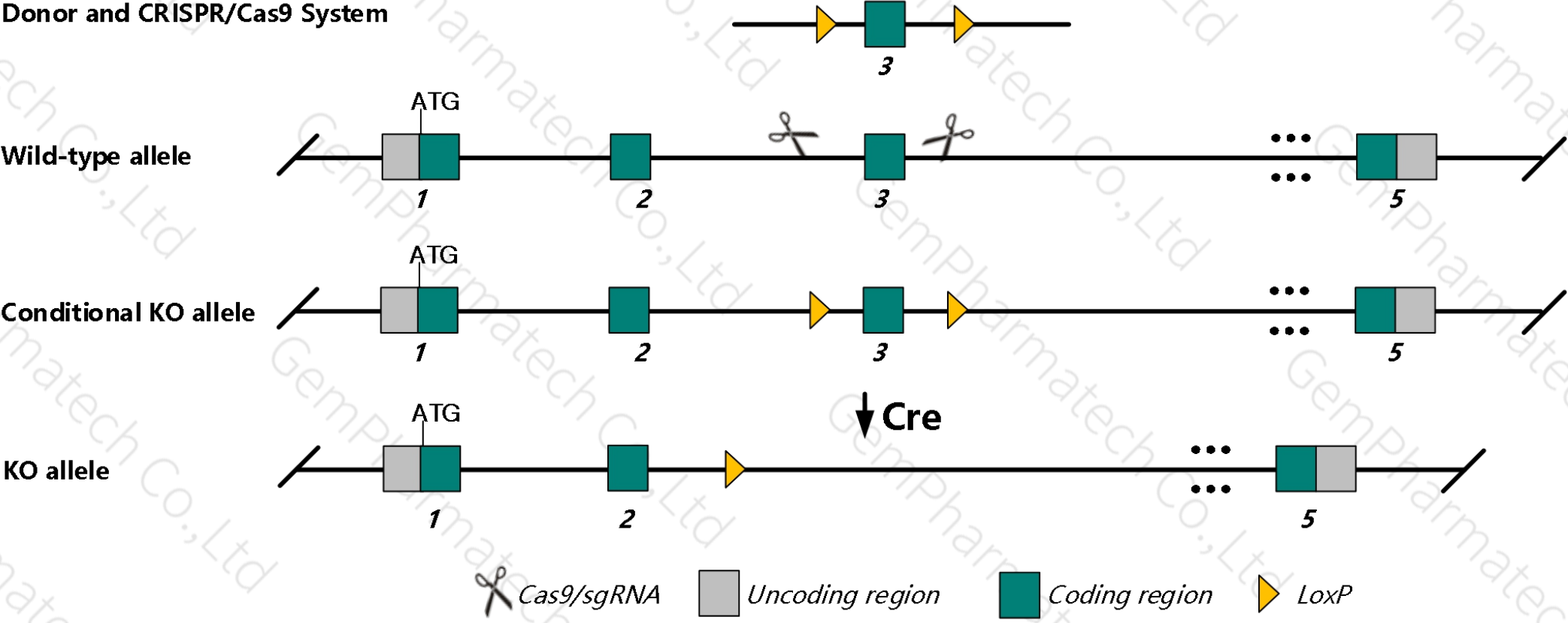
Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zfp683* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System



- The *Zfp683* gene has 1 transcript. According to the structure of *Zfp683* gene, exon3 of *Zfp683*-201 (ENSMUST00000105884.2) transcript is recommended as the knockout region. The region contains 668bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Zfp683* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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/6J Gpt mice.
- The flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- According to the existing MGI data, mice homozygous for a gene trap allele exhibit reduced mature NKT cells and altered susceptibility to MCMV infection.
- The *Zfp683* gene is located on the Chr 4. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Zfp683 zinc finger protein 683 [*Mus musculus* (house mouse)]

[Download Datasets](#)

Gene ID: 100503878, updated on 13-Dec-2020

Summary

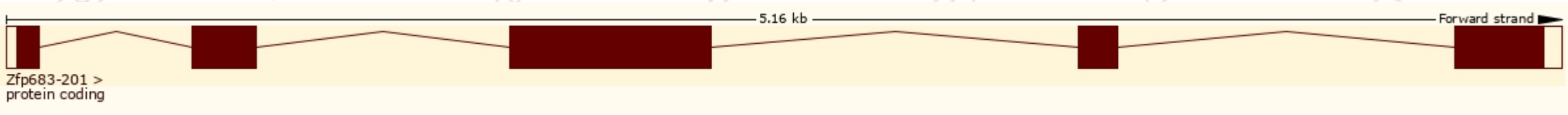
Official Symbol	Zfp683 provided by MGI
Official Full Name	zinc finger protein 683 provided by MGI
Primary source	MGI:MGI:3650254
Gene type	pseudo
RefSeq status	INFERRED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Hob; Hobit; Gm13060
Orthologs	human all

Transcript information (Ensembl)

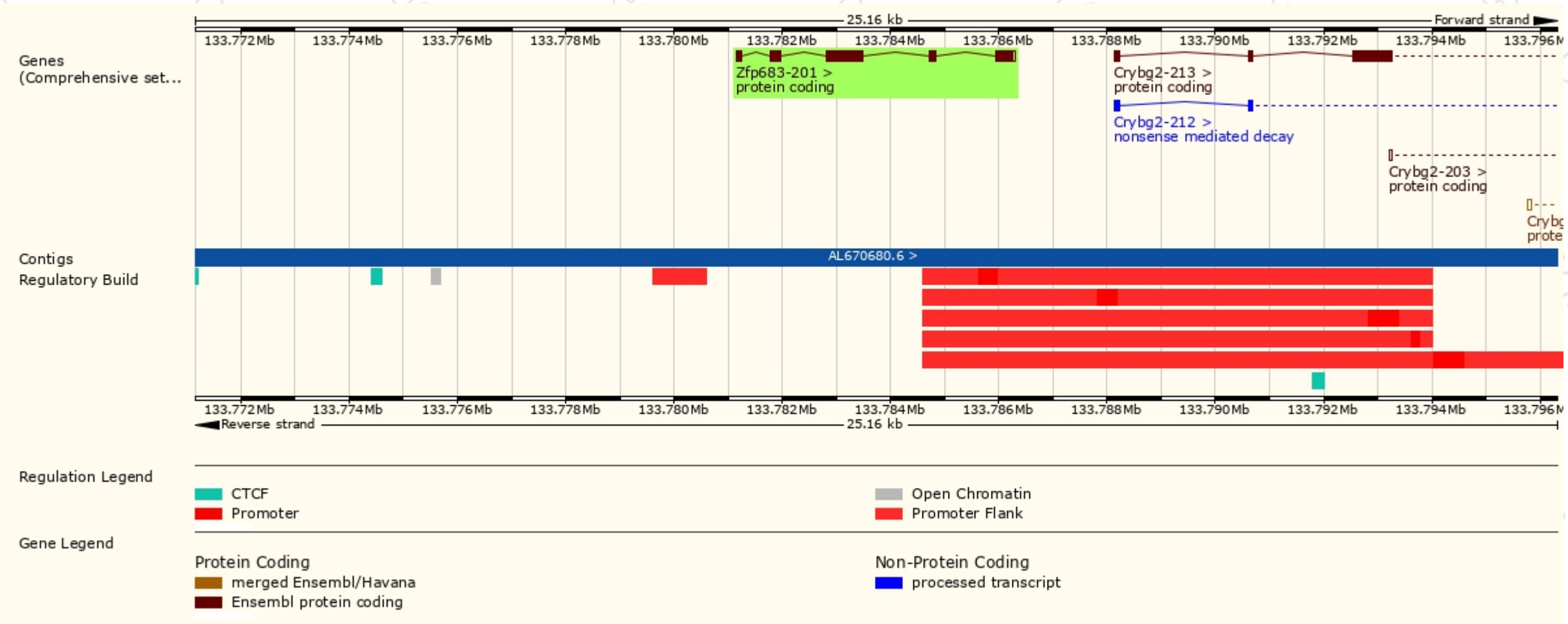
The gene has 1 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt Match	Flags
Zfp683-201	ENSMUST00000105884.2	1471	458aa	Protein coding	-	I7HJS4	TSL:5 Gencode basic APPRIS P1

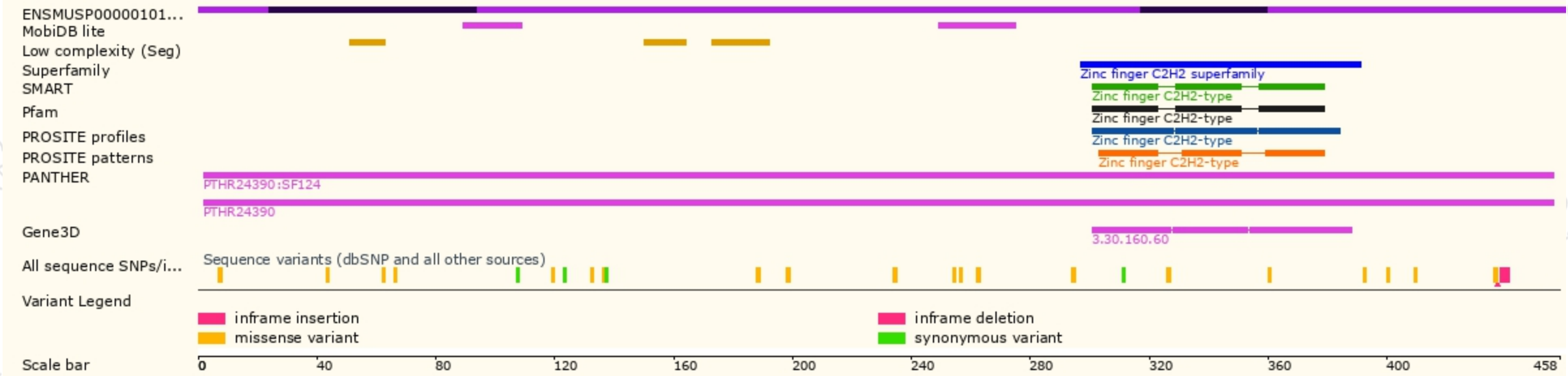
The strategy is based on the design of *Zfp683-201* transcript, the transcription is shown below:



Genomic location distribution

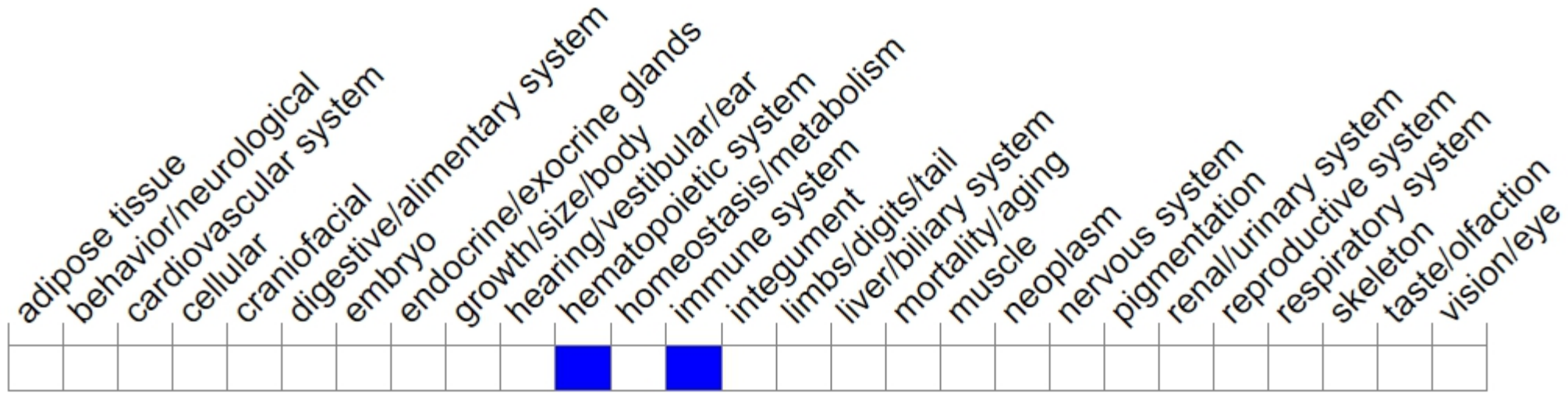


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>) .

Mice homozygous for a gene trap allele exhibit reduced mature NKT cells and altered susceptibility to MCMV infection.

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