

Vipr2 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Vipr2

Project type

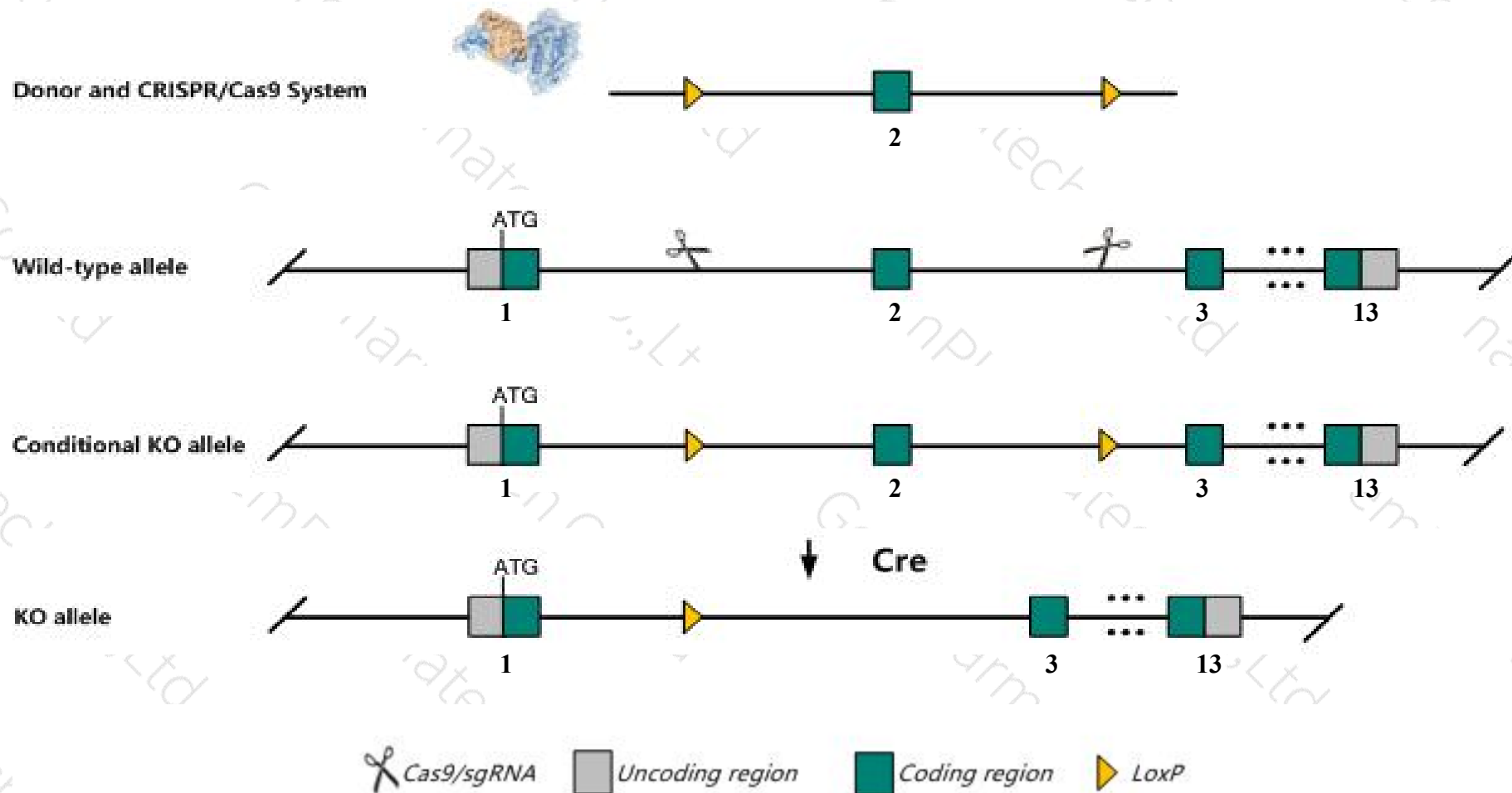
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Vipr2* gene. The schematic diagram is as follows:



- The *Vipr2* gene has 6 transcripts. According to the structure of *Vipr2* gene, exon2 of *Vipr2-201* (ENSMUST00000011315.9) transcript is recommended as the knockout region. The region contains 100bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Vipr2* 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/6JGpt 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 and cell types.

- According to the existing MGI data, Homozygotes for a targeted null mutation exhibit enhanced delayed-type hypersensitivity (type IV) and reduced immediate-type hypersensitivity (type I).
- The *Vipr2* gene is located on the Chr12. 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)

Vipr2 vasoactive intestinal peptide receptor 2 [Mus musculus (house mouse)]

Gene ID: 22355, updated on 19-Mar-2019

Summary



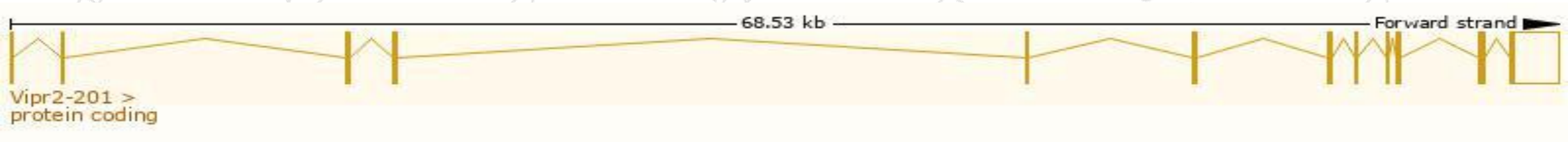
Official Symbol	Vipr2 provided by MGI
Official Full Name	vasoactive intestinal peptide receptor 2 provided by MGI
Primary source	MGI:MGI:107166
See related	Ensembl:ENSMUSG00000011171
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	VPAC2, VPAC2R, Vip2
Expression	Biased expression in lung adult (RPKM 5.1), frontal lobe adult (RPKM 4.1) and 13 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

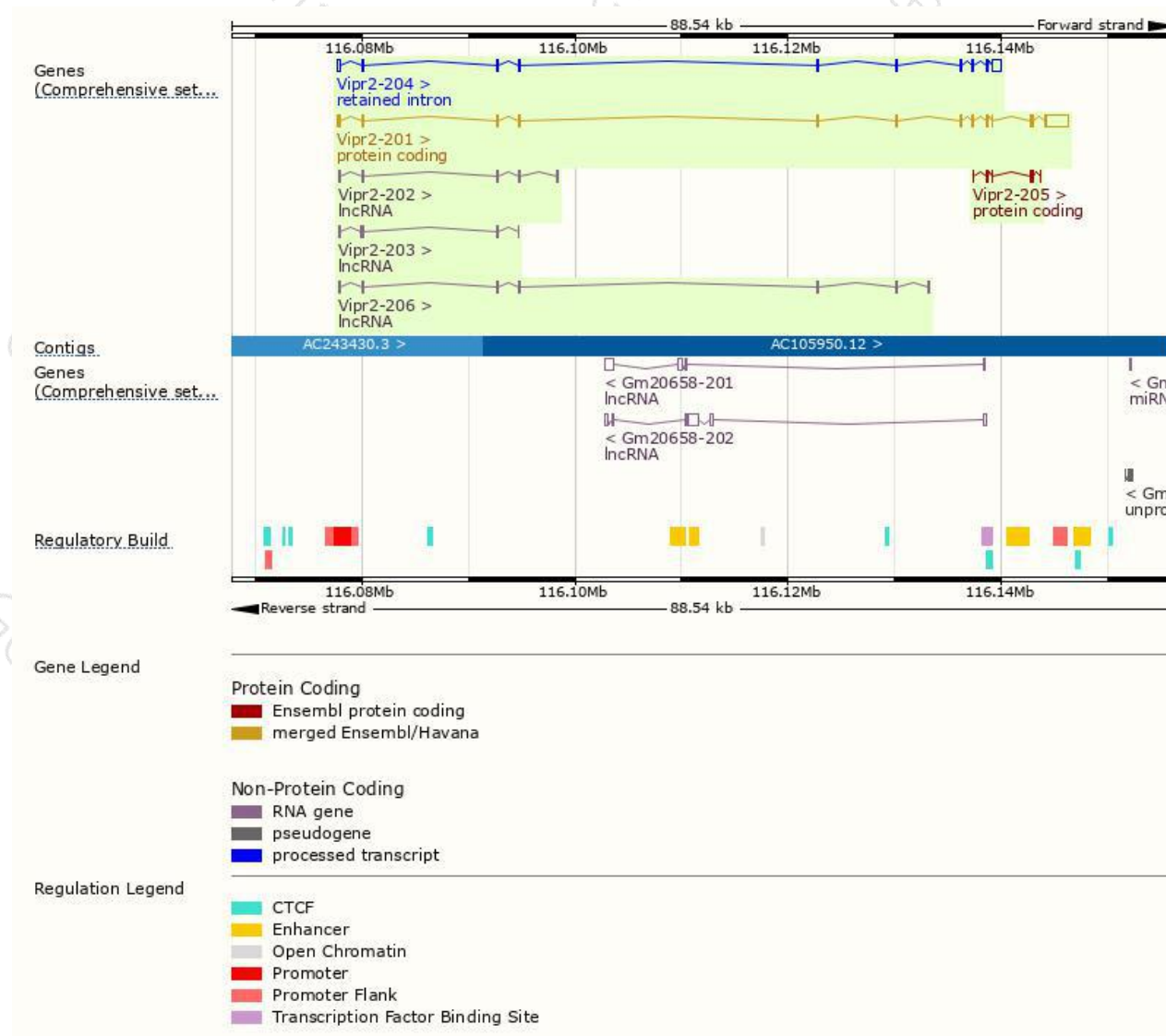
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Vipr2-201	ENSMUST00000011315.9	3383	437aa	Protein coding	CCDS26210	P41588 Q546Q8	TSL:1 GENCODE basic APPRIS P1
Vipr2-205	ENSMUST00000176433.1	434	123aa	Protein coding	-	H3BJW2	CDS 5' incomplete TSL:5
Vipr2-204	ENSMUST00000176078.7	1821	No protein	Retained intron	-	-	TSL:1
Vipr2-206	ENSMUST00000177199.1	811	No protein	lncRNA	-	-	TSL:3
Vipr2-202	ENSMUST00000100988.10	514	No protein	lncRNA	-	-	TSL:1
Vipr2-203	ENSMUST00000175785.7	426	No protein	lncRNA	-	-	TSL:3

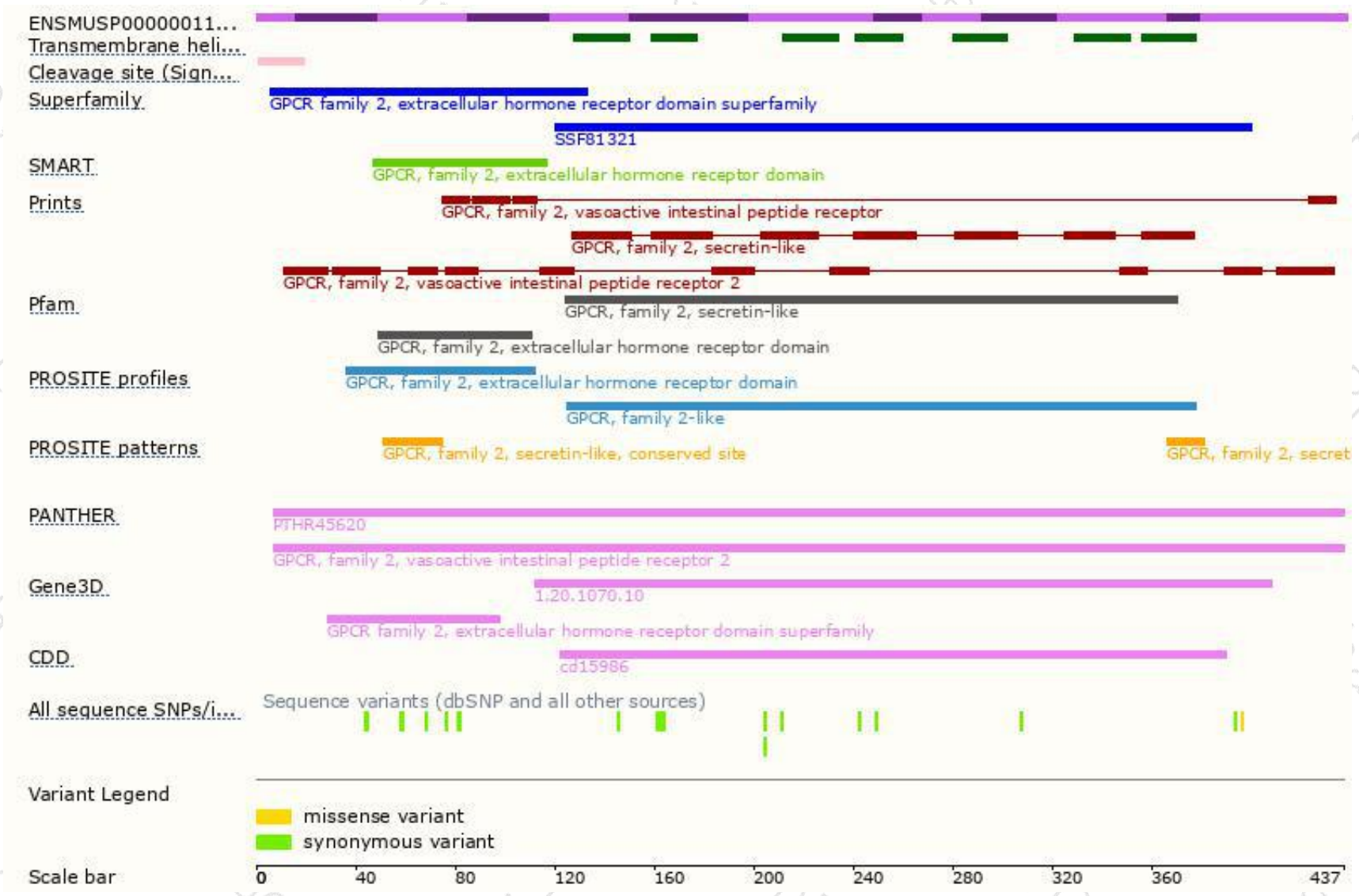
The strategy is based on the design of *Vipr2-201* transcript,The transcription is shown below



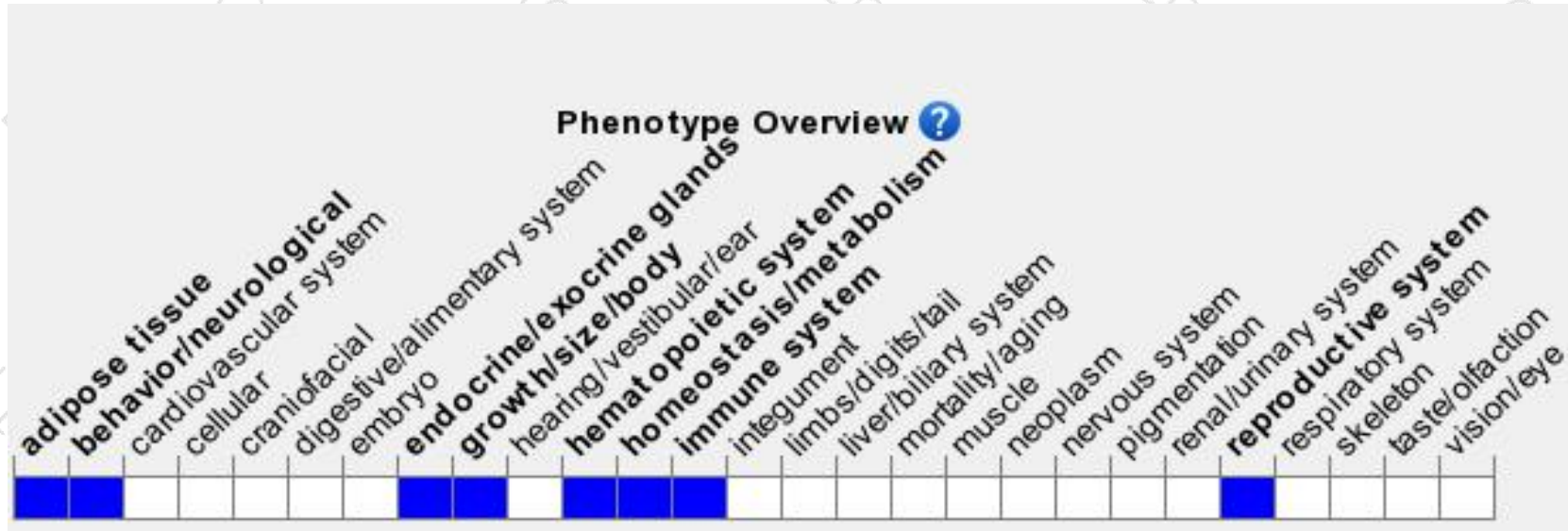
Genomic location distribution



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/>).

According to the existing MGI data, Homozygotes for a targeted null mutation exhibit enhanced delayed-type hypersensitivity (type IV) and reduced immediate-type hypersensitivity (type I).

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

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