Slc17a8 Cas9-CKO Strategy

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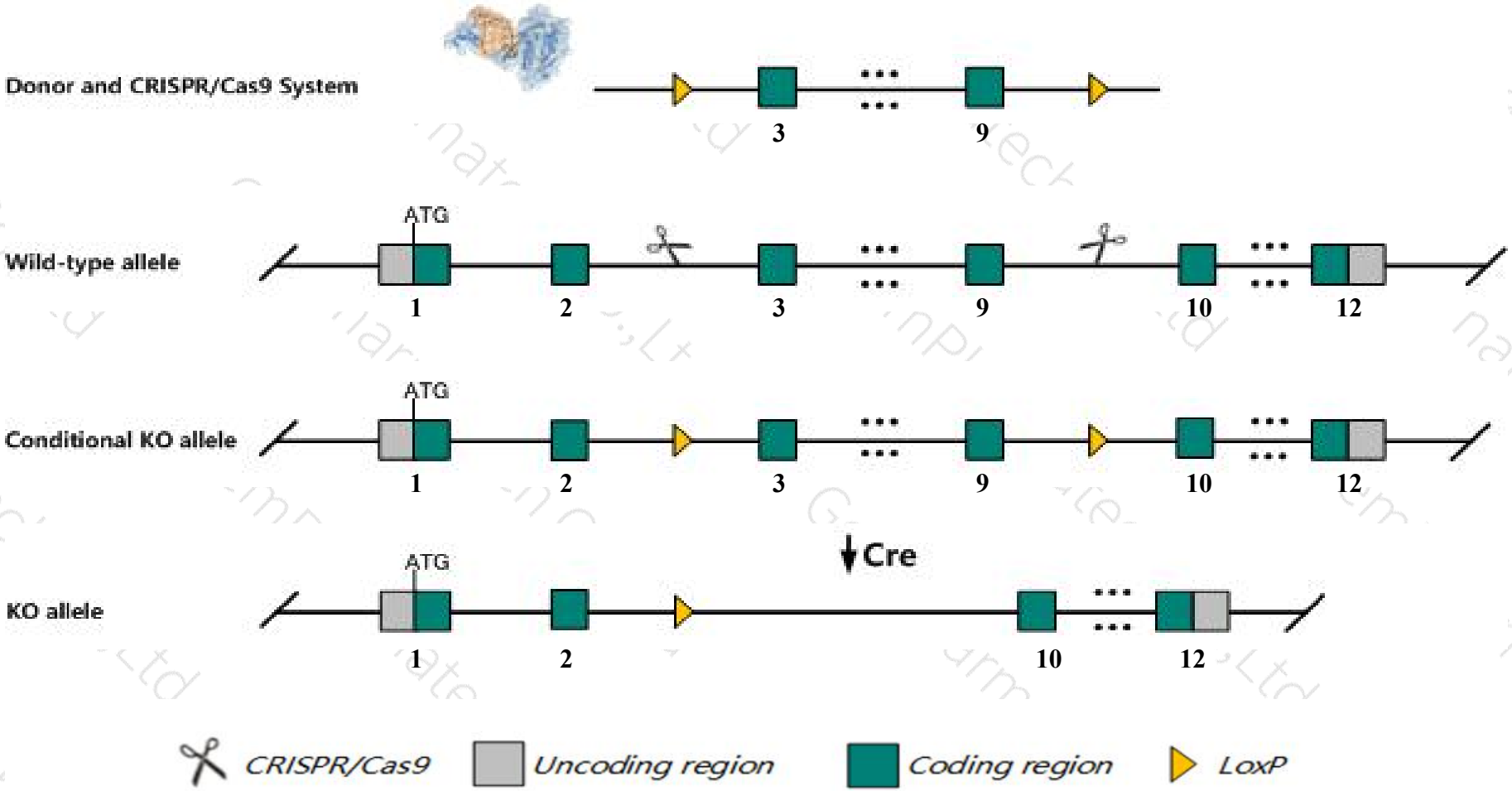
Project Overview

Project Name	***Slc17a8***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc17a8* gene. The schematic diagram is as follows:



Technical routes

- The *Slc17a8* gene has 2 transcripts. According to the structure of *Slc17a8* gene, exon3-exon9 of *Slc17a8-201* (ENSMUST00000020102.13) transcript is recommended as the knockout region.The region contains 832bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc17a8* 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 null allele exhibit sensorineural hearing loss, cochlear ganglion degeneration, decreased synaptic glutamate release, and nonconvulsive seizures.

➢ Insertion site of 5' Loxp is close to transcript *Slc17a8*-202 ,whether it will be affected is unknown.

➢ The *Slc17a8* gene is located on the Chr10. 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）

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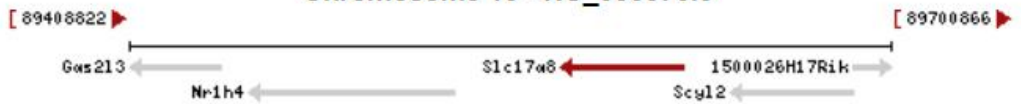
Slc17a8 solute carrier family 17 (sodium-dependent inorganic phosphate cotransporter), member 8 [*Mus musculus* (house mouse)]

Gene ID: 216227, updated on 19-Nov-2019

Summary

Official Symbol	Slc17a8 provided by MGI
Official Full Name	solute carrier family 17 (sodium-dependent inorganic phosphate cotransporter), member 8 provided by MGI
Primary source	MGI:MGI:3039629
See related	Ensembl:ENSMUSG00000019935
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	Vglut3; BC042593
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Chromosome 10 - NC_000076.6

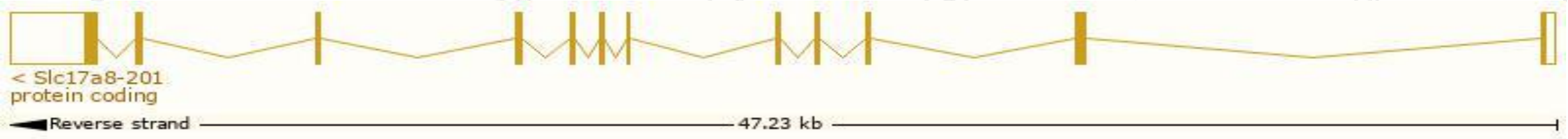


Transcript information（Ensembl）

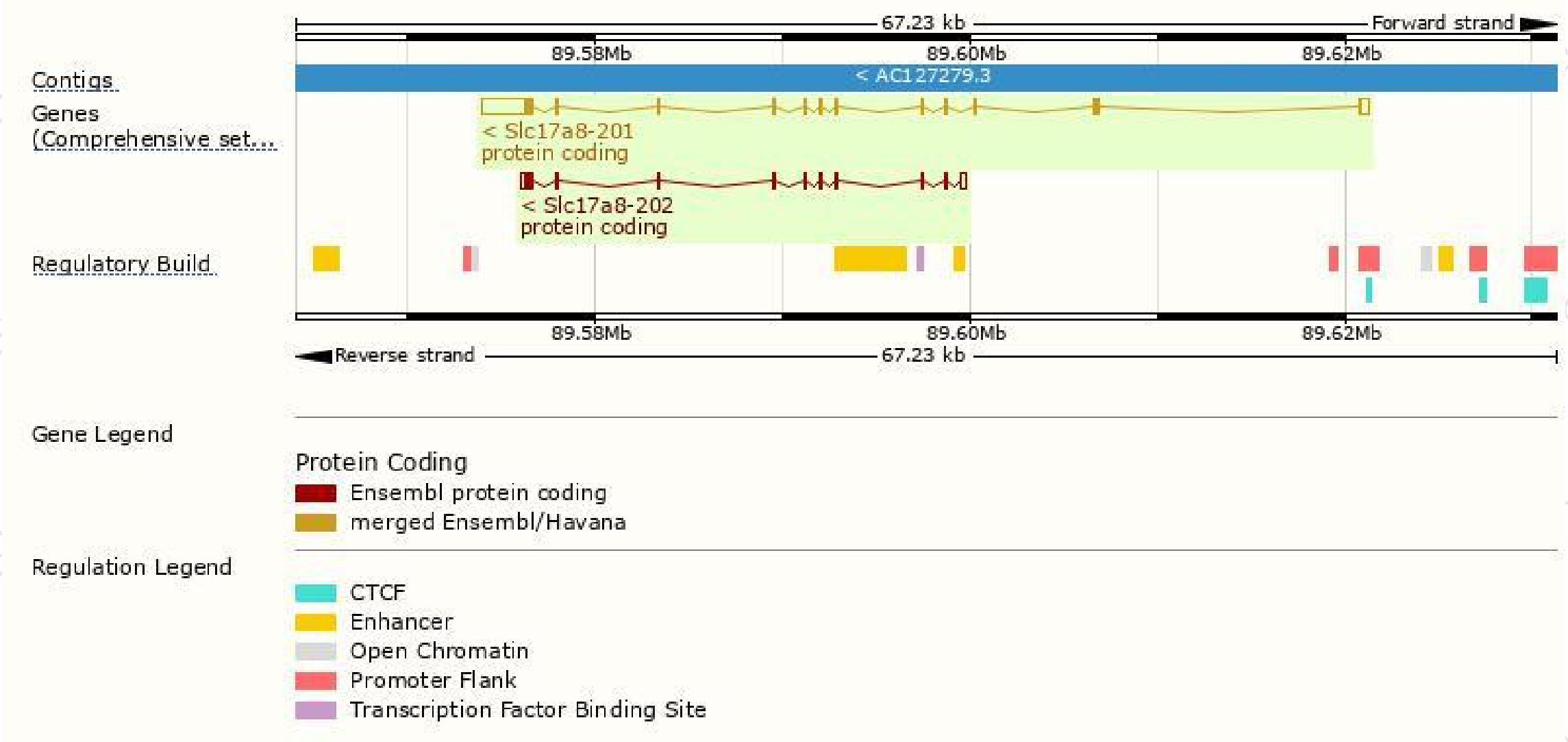
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc17a8-201	ENSMUST00000020102.13	4456	601aa	Protein coding	CCDS24117	Q8BFU8	TSL:1 GENCODE basic APPRIS P1
Slc17a8-202	ENSMUST00000105295.1	1863	417aa	Protein coding	CCDS78880	D3YTT3	TSL:1 GENCODE basic

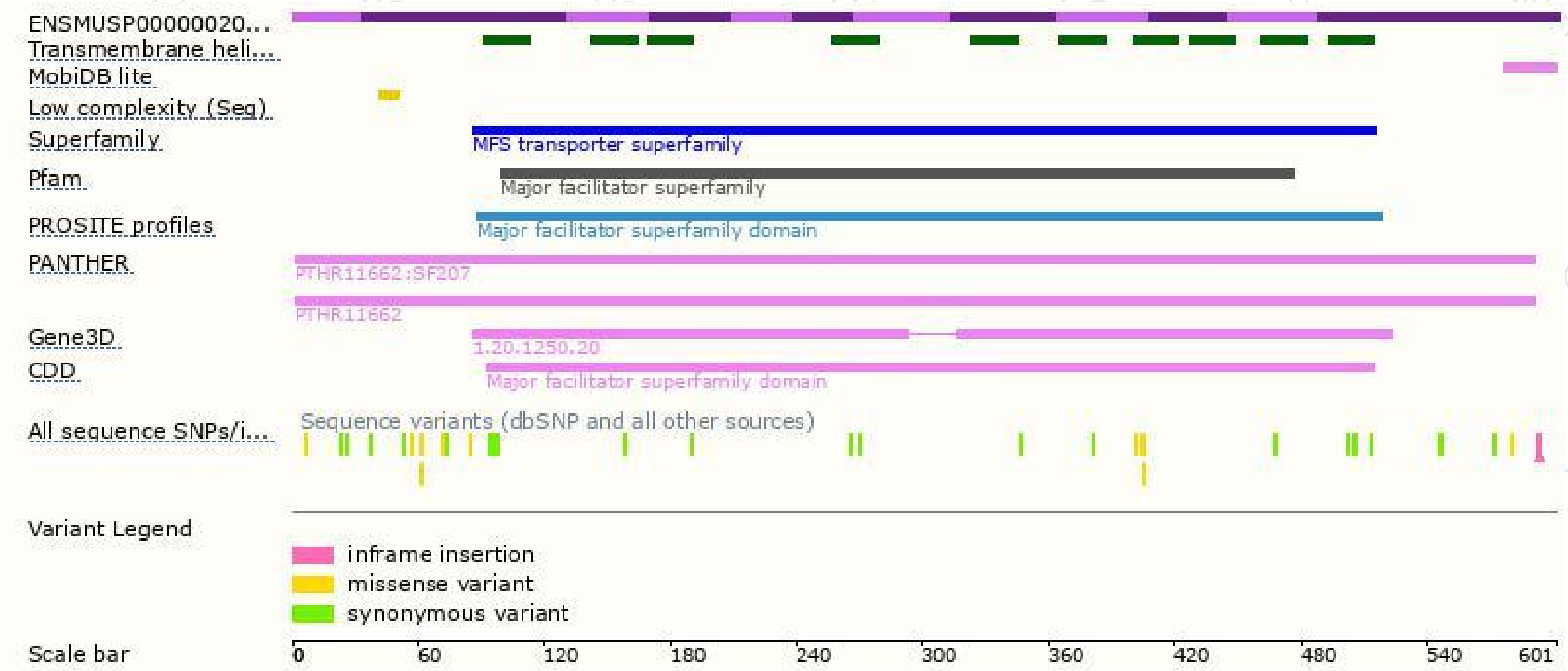
The strategy is based on the design of *Slc17a8-201* transcript,The transcription is shown below



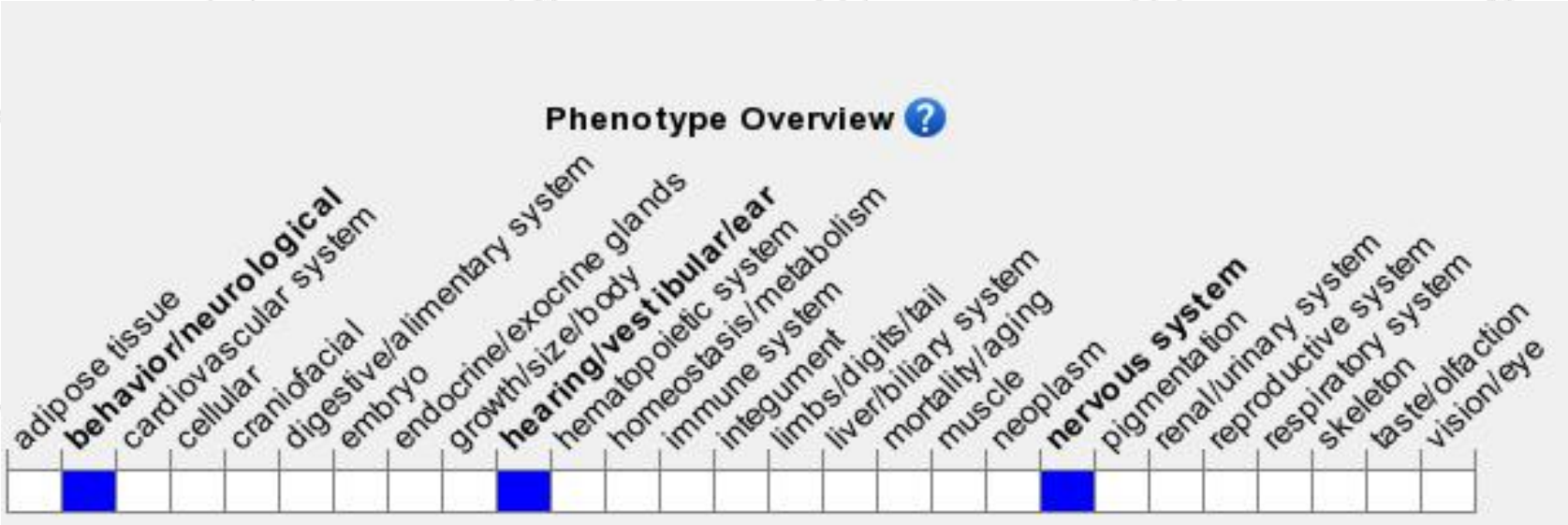
Genomic location distribution



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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