

Slc6a2 Cas9-CKO Strategy

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Project Overview

Project Name

Slc6a2

Project type

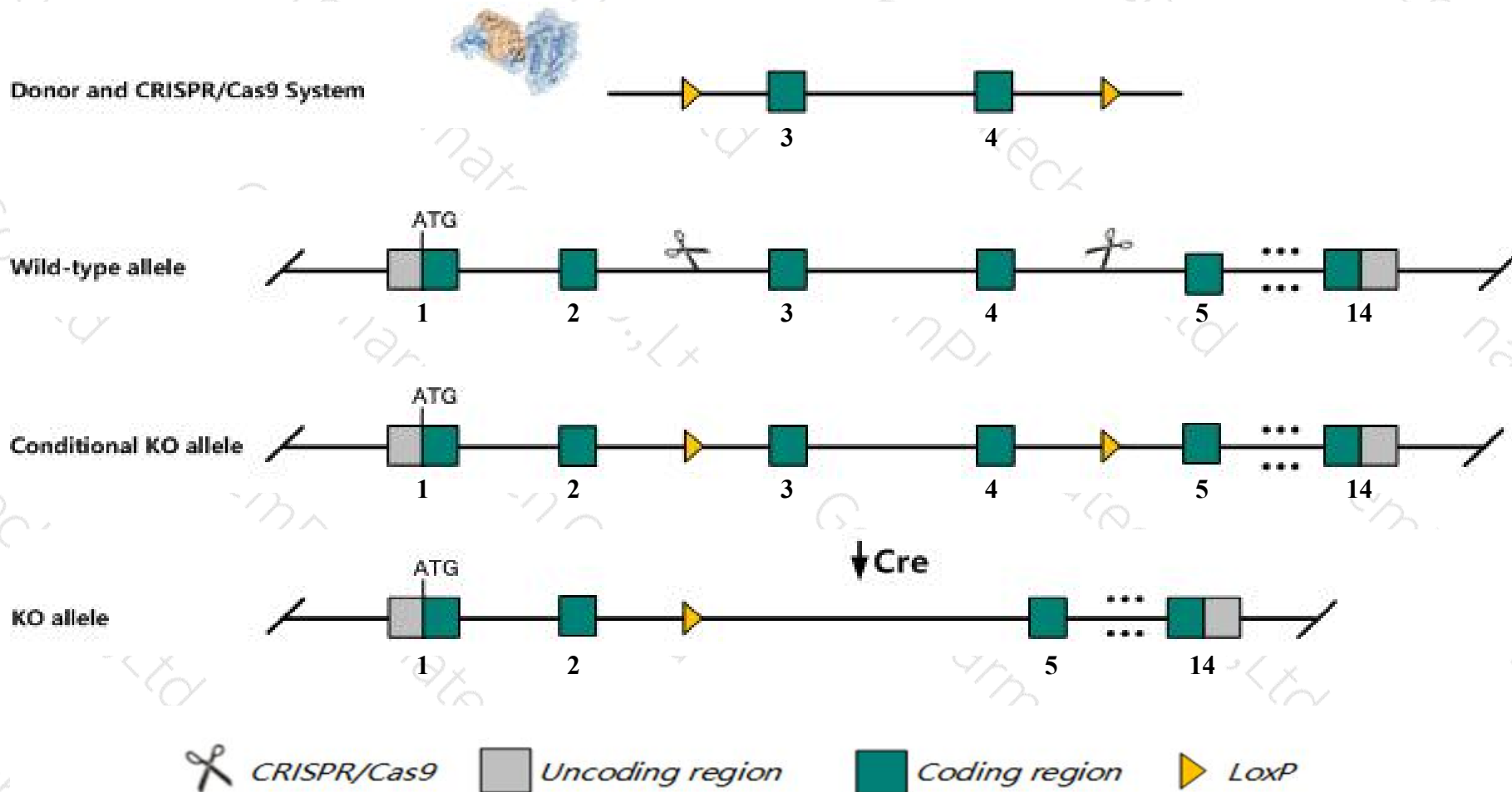
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc6a2* gene. The schematic diagram is as follows:



- The *Slc6a2* gene has 2 transcripts. According to the structure of *Slc6a2* gene, exon3-exon4 of *Slc6a2-201* (ENSMUST00000072939.7) transcript is recommended as the knockout region. The region contains 377bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc6a2* 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.

- According to the existing MGI data, Norepinephrine homeostasis is abnormal in homozygous mutant mice. In addition to displaying altered behavior, mutant mice are hypersensitive to psychostimulants.
- The *Slc6a2* gene is located on the Chr8. 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)

Slc6a2 solute carrier family 6 (neurotransmitter transporter, noradrenalin), member 2 [*Mus musculus* (house mouse)]

Gene ID: 20538, updated on 12-Aug-2019

Summary

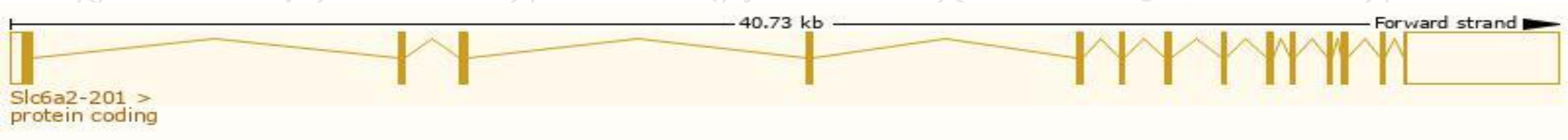
Official Symbol	Slc6a2 provided by MGI
Official Full Name	solute carrier family 6 (neurotransmitter transporter, noradrenalin), member 2 provided by MGI
Primary source	MGI:MGI:1270850
See related	Ensembl:ENSMUSG00000055368
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	NET; NE-T; Slc6a5
Expression	Biased expression in placenta adult (RPKM 4.2), subcutaneous fat pad adult (RPKM 4.1) and 8 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

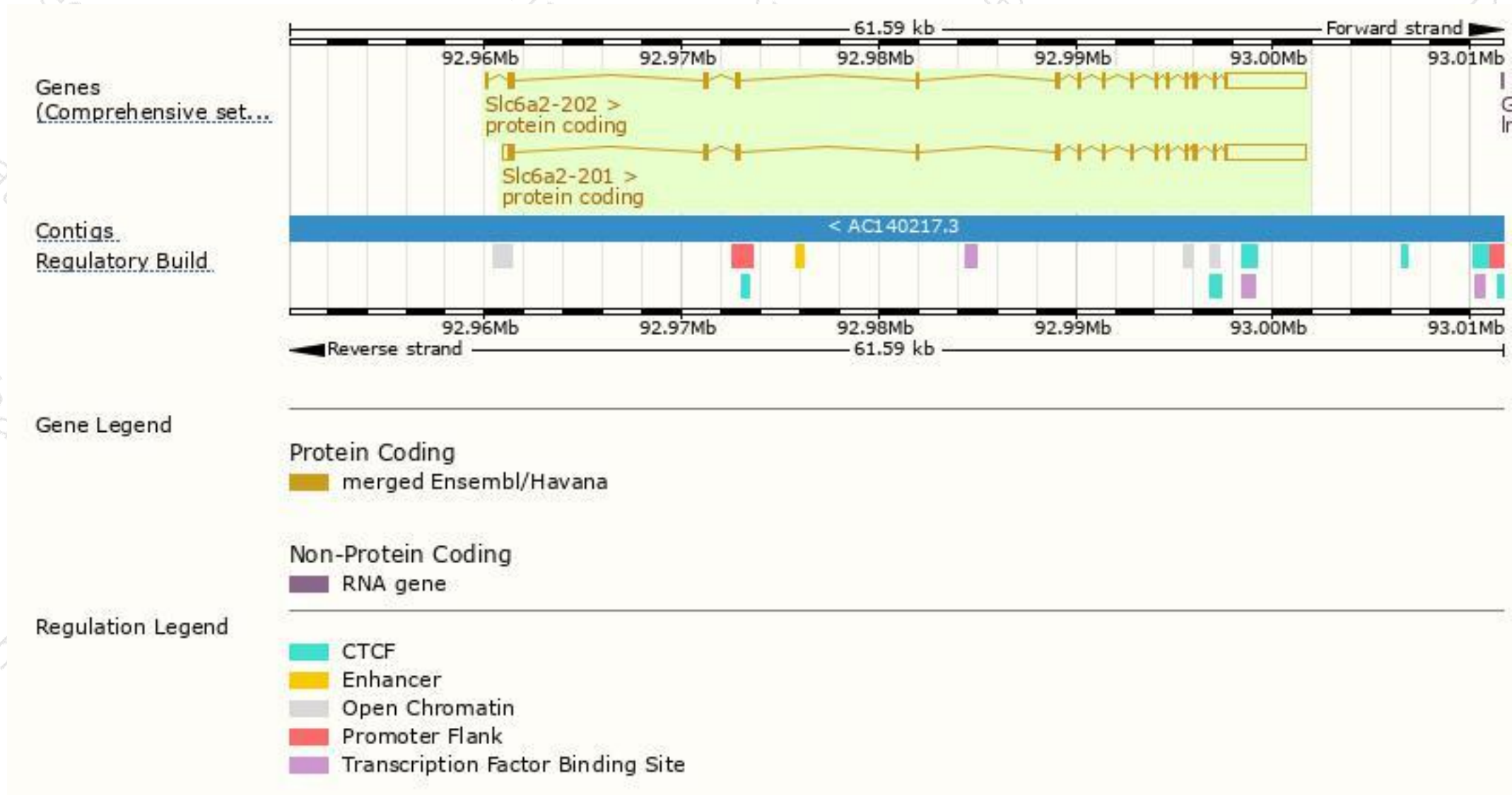
The gene has 2 transcripts,all transcripts are shown below:

Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲
Slc6a2-201	ENSMUST00000072939.7	6187	617aa	Protein coding	CCDS22525	Q55192	TSL:1 Gencode basic APPRIS P1
Slc6a2-202	ENSMUST00000165470.8	6007	617aa	Protein coding	CCDS22525	Q55192	TSL:1 Gencode basic APPRIS P1

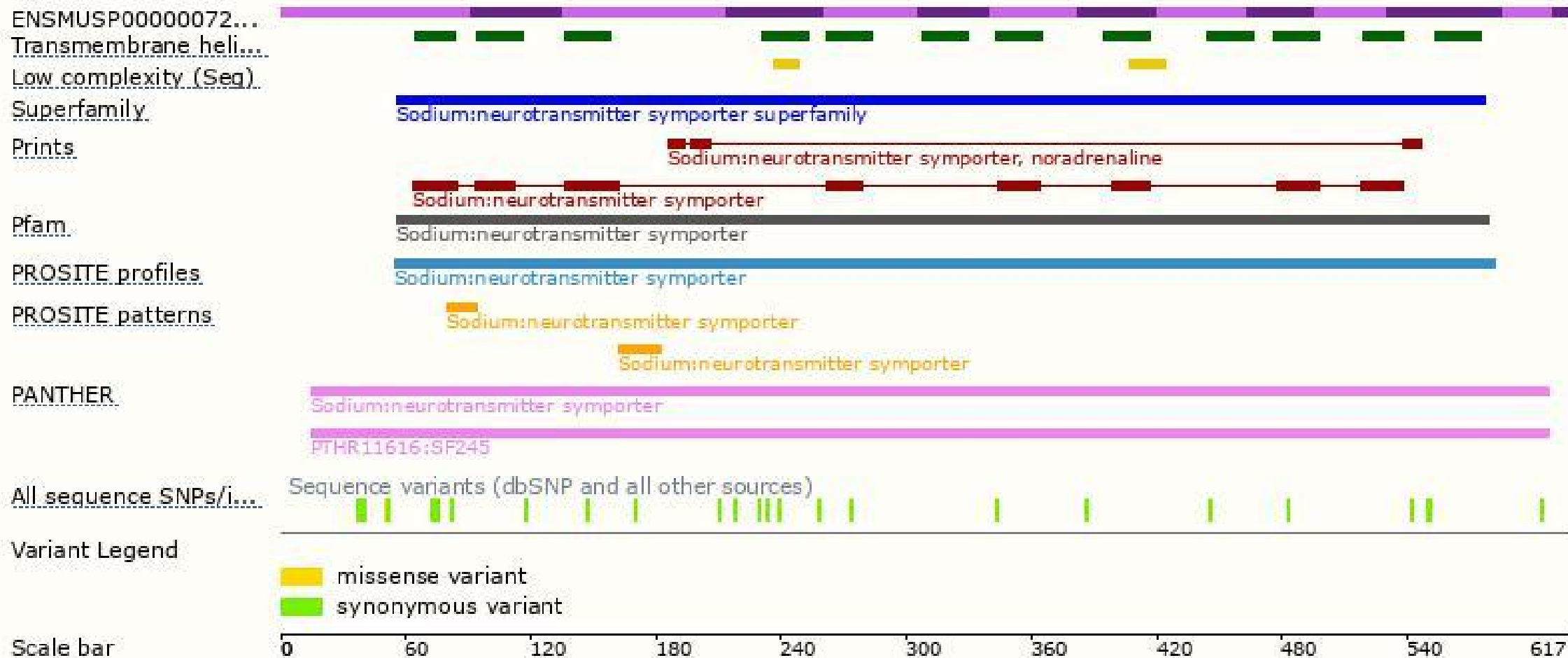
The strategy is based on the design of *Slc6a2-201* transcript,The transcription is shown below



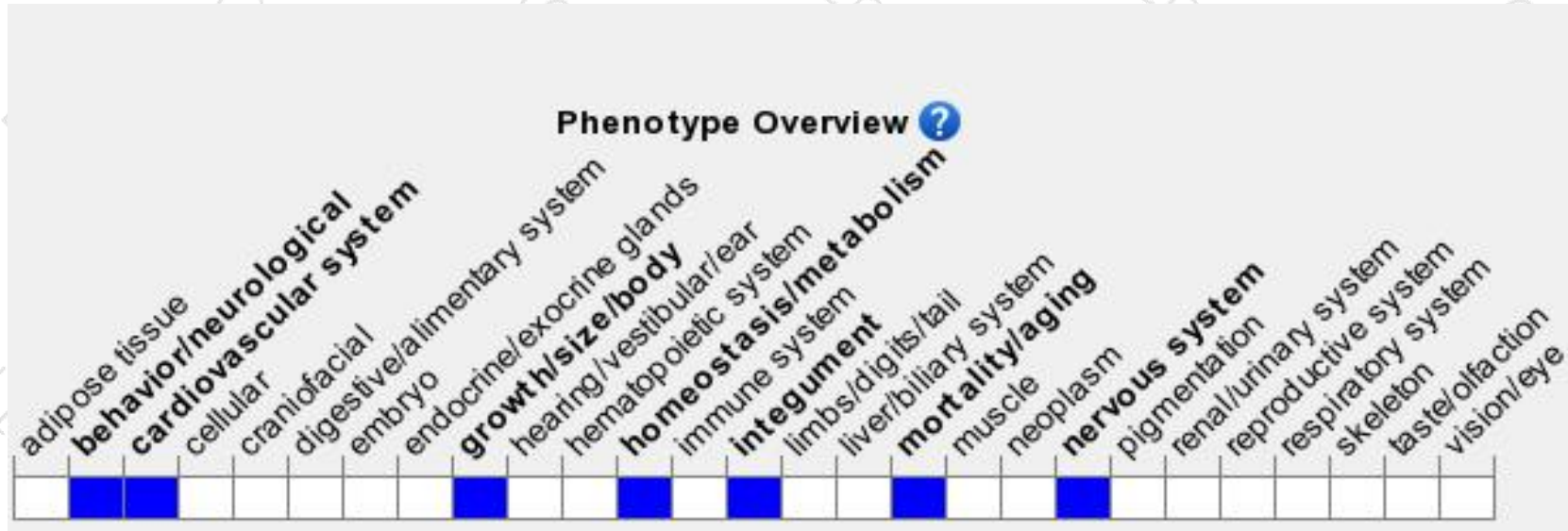
Genomic location distribution



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, Norepinephrine homeostasis is abnormal in homozygous mutant mice. In addition to displaying altered behavior, mutant mice are hypersensitive to psychostimulants.

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

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