

Ntsr1 Cas9-CKO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Ntsr1

Project type

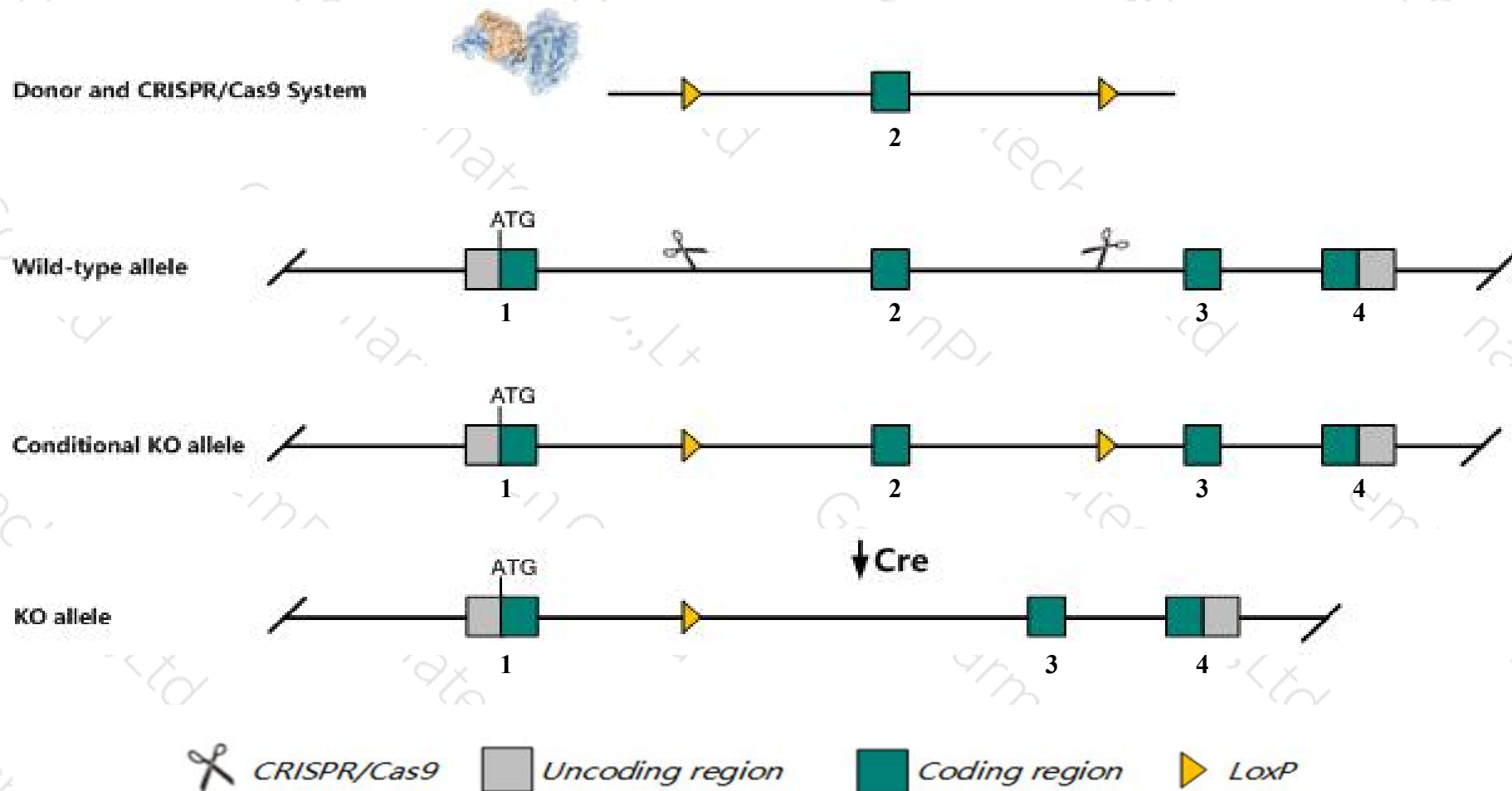
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ntsr1* gene. The schematic diagram is as follows:



Technical routes

- The *Ntsr1* gene has 2 transcripts. According to the structure of *Ntsr1* gene, exon2 of *Ntsr1-201* (ENSMUST00000029084.8) transcript is recommended as the knockout region. The region contains 217bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ntsr1* 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, Mice deficient for this marker have normal baseline prepulse inhibition responses and acoustic startle responses. Mice are heavier, eat more, and have lower body temperatures.
- The *Ntsr1* gene is located on the Chr2. 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)

Ntsr1 neurotensin receptor 1 [*Mus musculus* (house mouse)]

Gene ID: 18216, updated on 10-Aug-2019

Summary

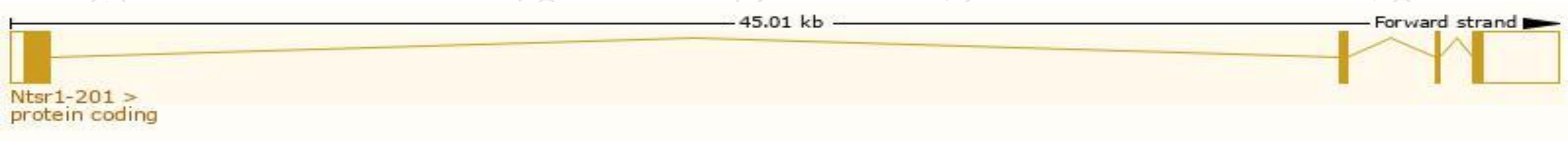
Official Symbol	Ntsr1 provided by MGI
Official Full Name	neurotensin receptor 1 provided by MGI
Primary source	MGI:MGI:97386
See related	Ensembl:ENSMUSG000000027568
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	NTR1; NT-1R; NTR-1
Expression	Biased expression in CNS E18 (RPKM 4.6), genital fat pad adult (RPKM 1.5) and 10 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

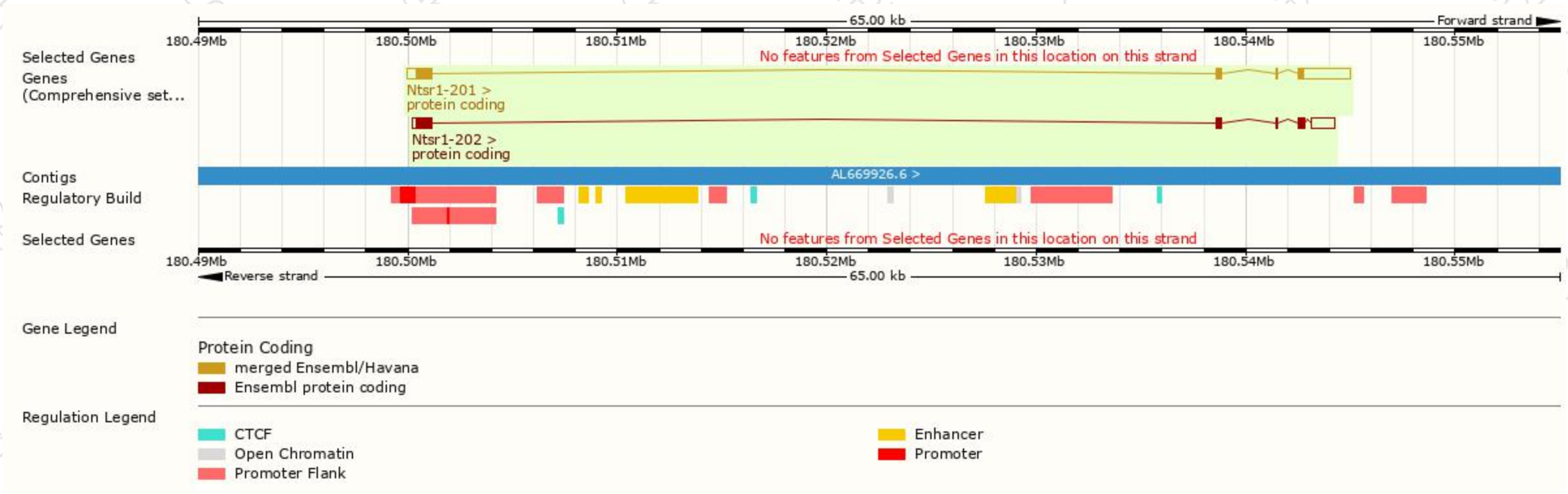
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ntsr1-201	ENSMUST00000029084.8	3917	424aa	Protein coding	CCDS17177	A2ACT4 O88319	TSL:1 GENCODE basic APPRIS P1
Ntsr1-202	ENSMUST00000170448.1	2594	424aa	Protein coding	CCDS17177	A2ACT4 O88319	TSL:1 GENCODE basic APPRIS P1

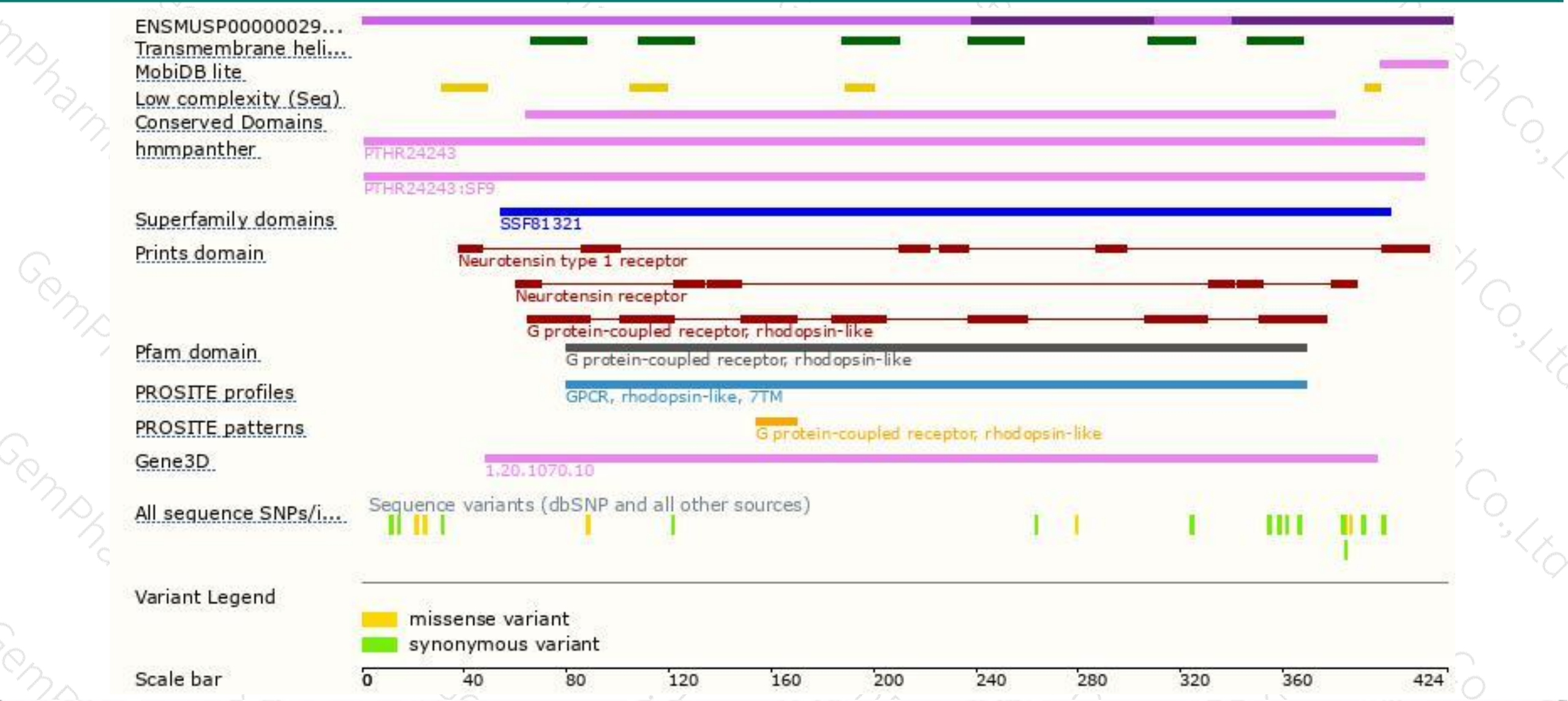
The strategy is based on the design of *Ntsr1-201* transcript,The transcription is shown below:



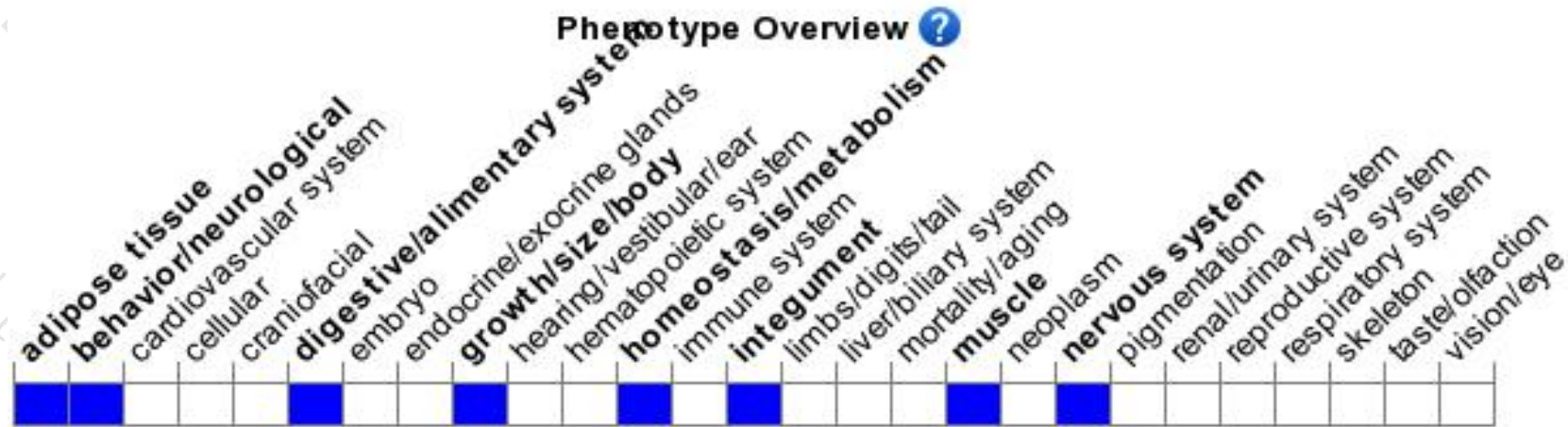
Genomic location distribution



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, Mice deficient for this marker have normal baseline prepulse inhibition responses and acoustic startle responses. Mice are heavier, eat more, and have lower body temperatures.

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

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