

# ***Chrna6* Cas9-KO Strategy**

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# Project Overview

**Project Name**

***Chrna6***

**Project type**

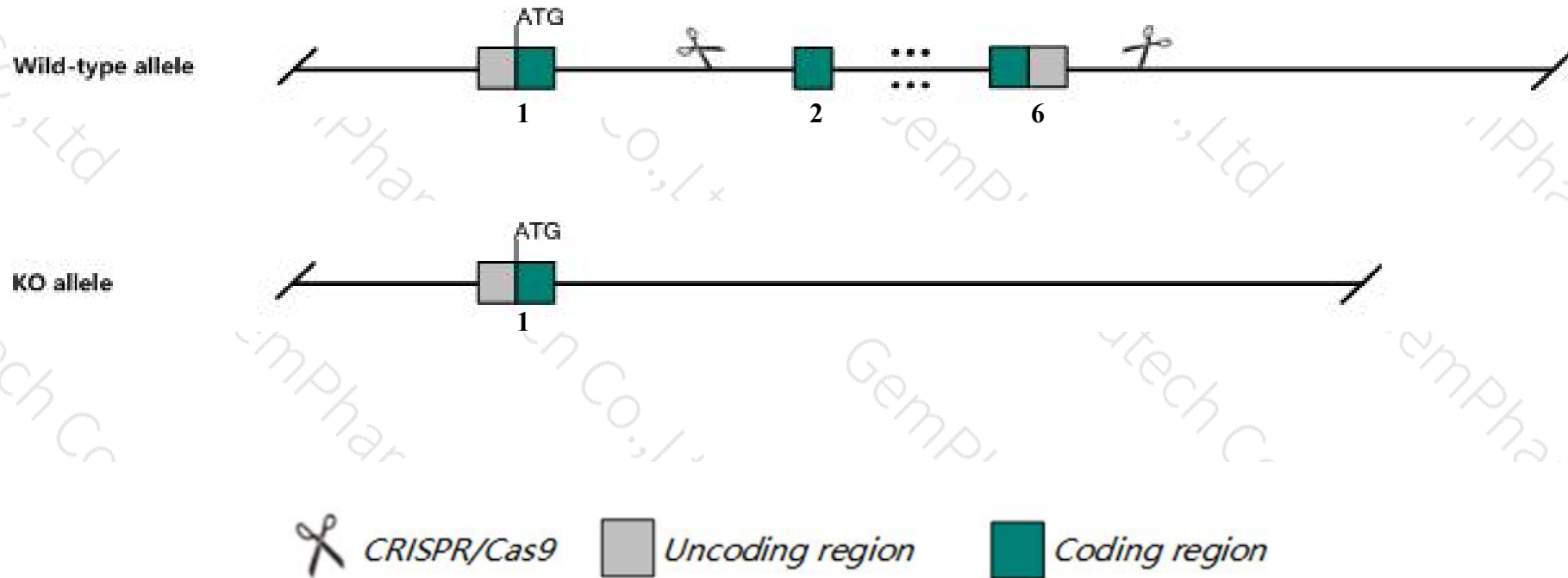
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Chrna6* gene. The schematic diagram is as follows:



# Technical routes

- The *Chrna6* gene has 1 transcript. According to the structure of *Chrna6* gene, exon2-exon6 of *Chrna6-201* (ENSMUST00000033882.9) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Chrna6* gene. The brief process is as follows: CRISPR/Cas9 system will

- According to the existing MGI data, Homzygous mutant animals have decreased numbers of high affinity binding sites for [3H]nicotine, [3H]epibaditine, and [3H]cytisine in the terminal region of the retinal ganglion.
- The *Chrna6* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

# Gene information (NCBI)

## Chrna6 cholinergic receptor, nicotinic, alpha polypeptide 6 [ *Mus musculus* (house mouse) ]

Gene ID: 11440, updated on 12-Aug-2019

### Summary

|                    |                                                                                                                                                                           |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Official Symbol    | Chrna6 provided by <a href="#">MGI</a>                                                                                                                                    |
| Official Full Name | cholinergic receptor, nicotinic, alpha polypeptide 6 provided by <a href="#">MGI</a>                                                                                      |
| Primary source     | <a href="#">MGI:MGI:106213</a>                                                                                                                                            |
| See related        | <a href="#">Ensembl:ENSMUSG000000031491</a>                                                                                                                               |
| Gene type          | protein coding                                                                                                                                                            |
| RefSeq status      | VALIDATED                                                                                                                                                                 |
| Organism           | <a href="#">Mus musculus</a>                                                                                                                                              |
| Lineage            | Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus |
| Also known as      | Acra6; Nica6                                                                                                                                                              |
| Expression         | Low expression observed in reference dataset <a href="#">See more</a>                                                                                                     |
| Orthologs          | <a href="#">human</a> <a href="#">all</a>                                                                                                                                 |

### Genomic context

Location: 8; 8 A2

See Chrna6 in [Genome Data Viewer](#)

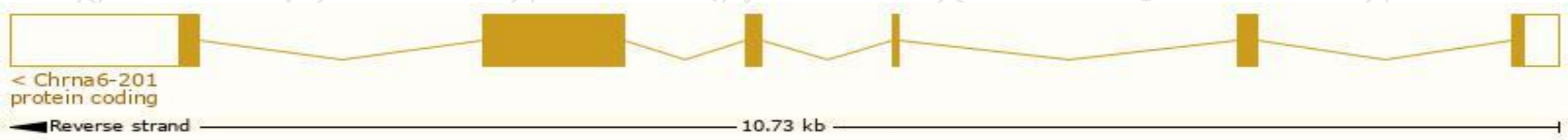
Exon count: 6

# Transcript information (Ensembl)

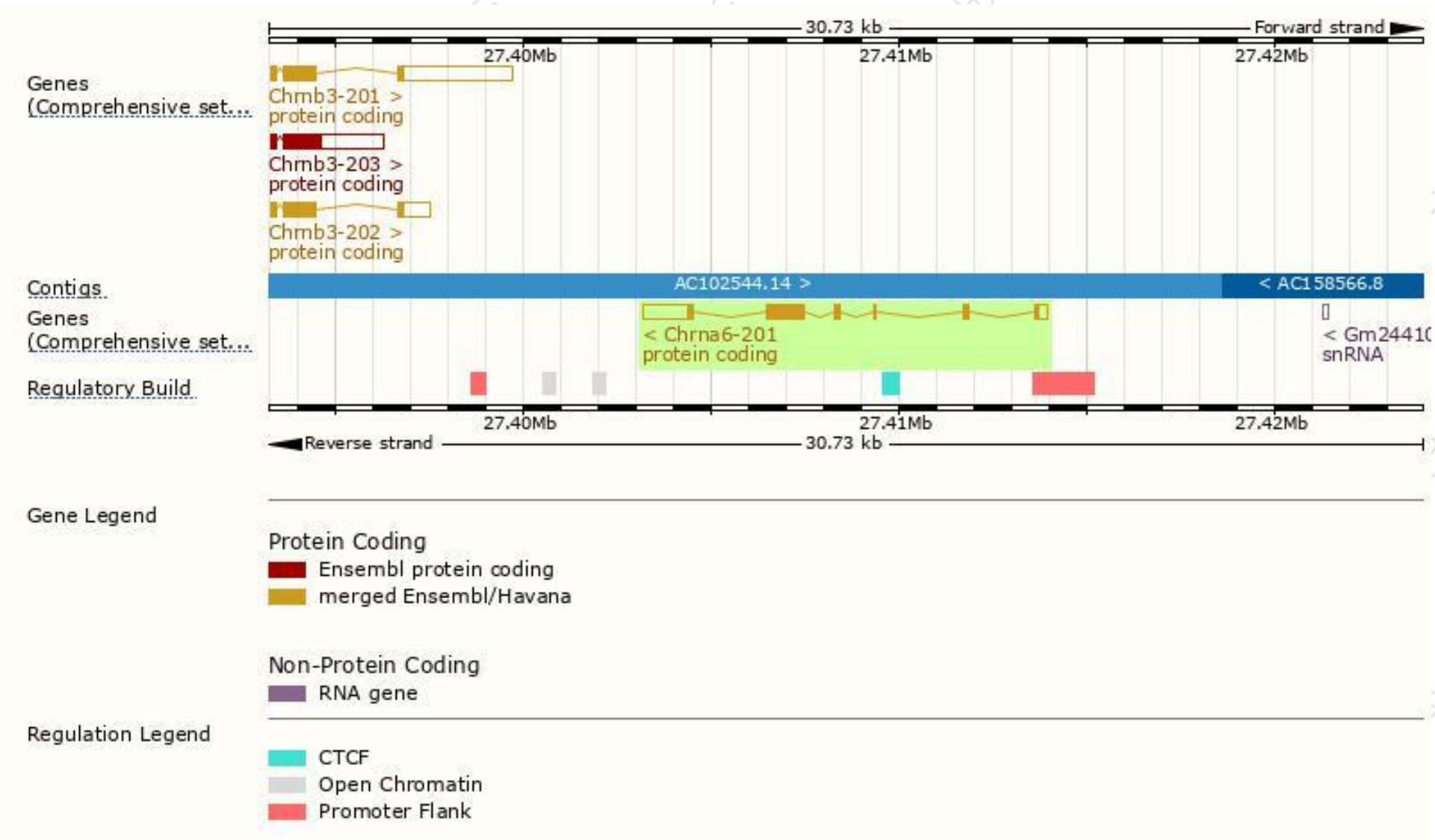
The gene has 1 transcript, and the transcript is shown below:

| Name       | Transcript ID                        | bp   | Protein               | Biotype        | CCDS                      | UniProt                | Flags                         |
|------------|--------------------------------------|------|-----------------------|----------------|---------------------------|------------------------|-------------------------------|
| Chrna6-201 | <a href="#">ENSMUST00000033882.9</a> | 2906 | <a href="#">494aa</a> | Protein coding | <a href="#">CCDS40312</a> | <a href="#">Q9R0W9</a> | TSL:1 GENCODE basic APPRIS P1 |

The strategy is based on the design of *Chrna6-201* transcript, The transcription is shown below



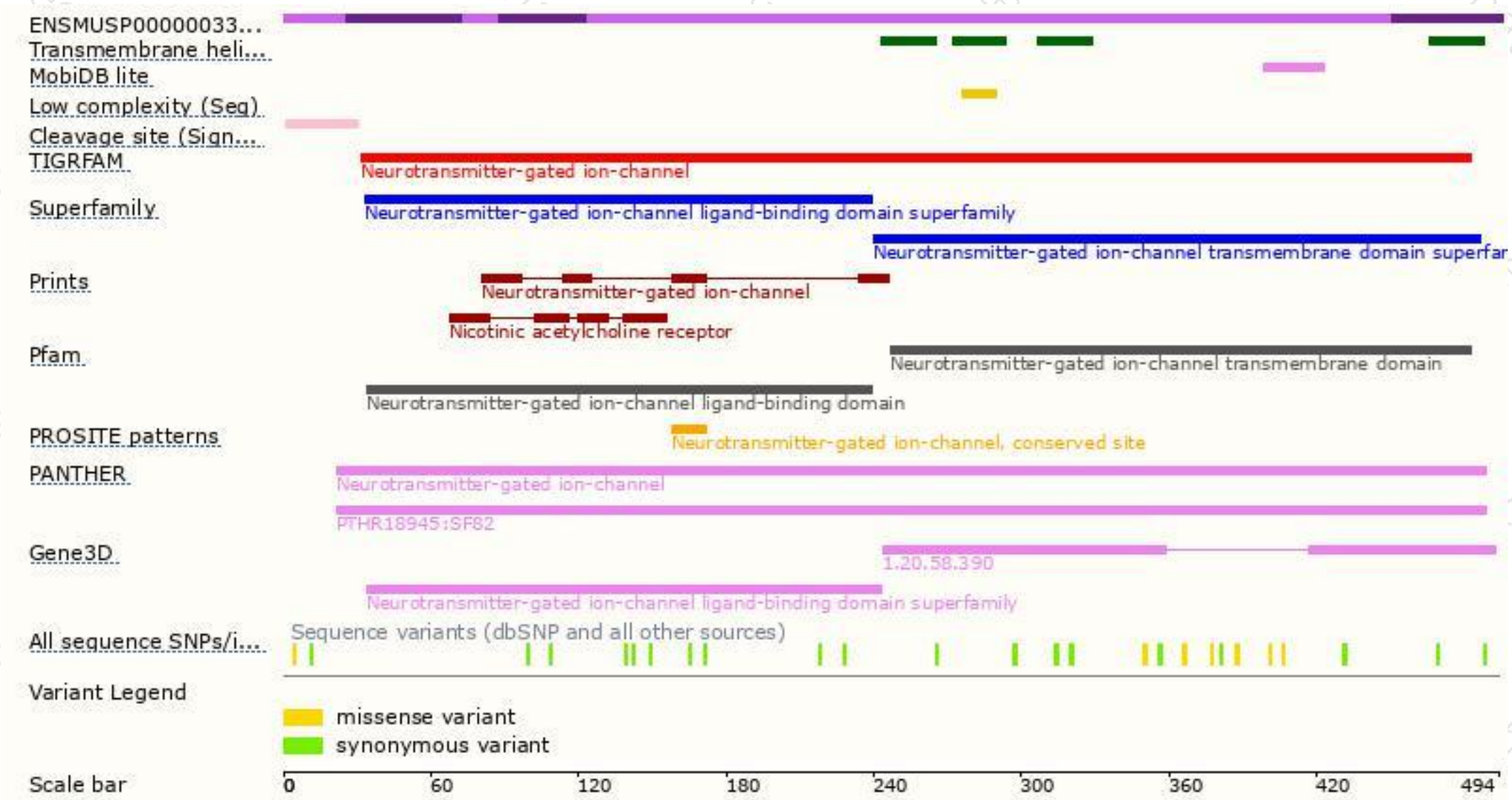
# Genomic location distribution



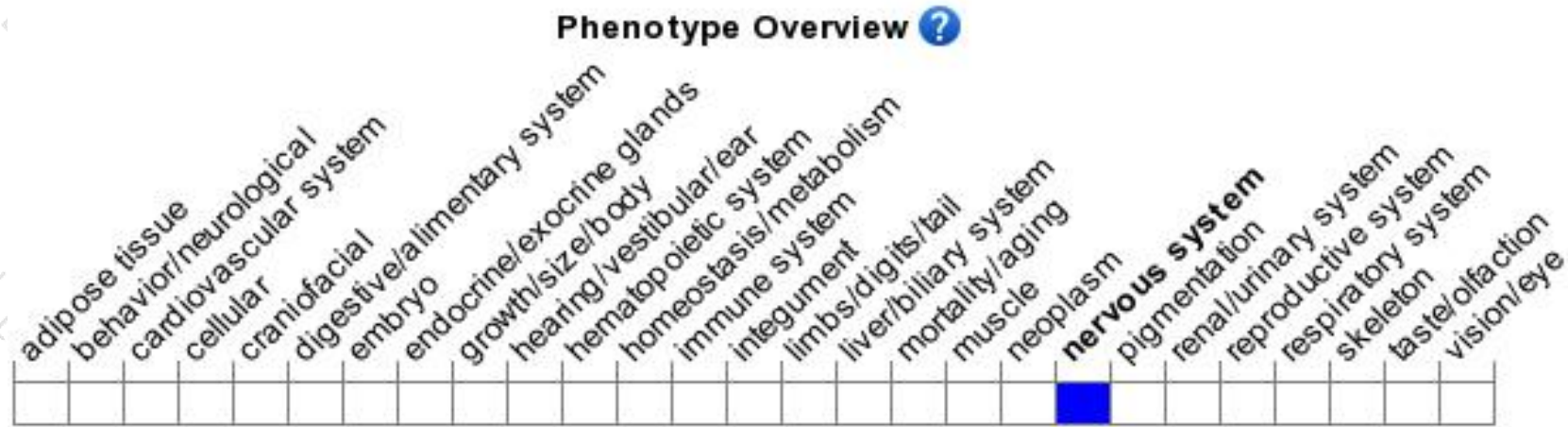
# Protein domain



集萃药康  
GemPharmatech



# 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, Homozygous mutant animals have decreased numbers of high affinity binding sites for [3H]nicotine, [3H]epibatidine, and [3H]cytisine in the terminal region of the retinal ganglion.

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

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