

# *Nenf* Cas9-KO Strategy

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**Reviewer:**

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# Project Overview

**Project Name**

*Nenf*

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

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



- The *Nenf* gene has 1 transcript. According to the structure of *Nenf* gene, exon2 of *Nenf-201* (ENSMUST00000046770.9) transcript is recommended as the knockout region. The region contains 61bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nenf* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit increased anxiety-related response, abnormal dendrite morphology and decreased dopamine levels.
- The *Nen* gene is located on the Chr1. 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)

## Nenf neuron derived neurotrophic factor [Mus musculus (house mouse)]

Gene ID: 66208, updated on 31-Jan-2019

### Summary



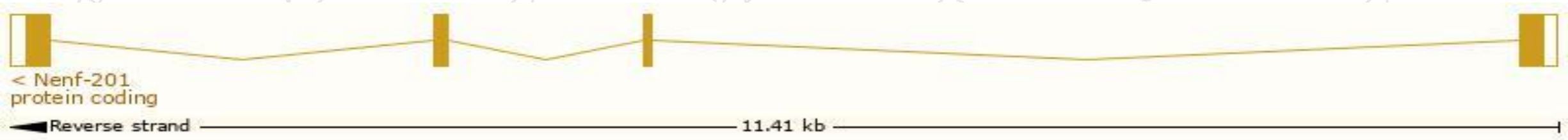
<b>Official Symbol</b>	Nenf provided by <a href="#">MGI</a>
<b>Official Full Name</b>	neuron derived neurotrophic factor provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1913458</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000037499</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	1110060M21Rik, SCIRP10, Spuf
<b>Expression</b>	Ubiquitous expression in ovary adult (RPKM 144.0), adrenal adult (RPKM 120.8) and 28 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

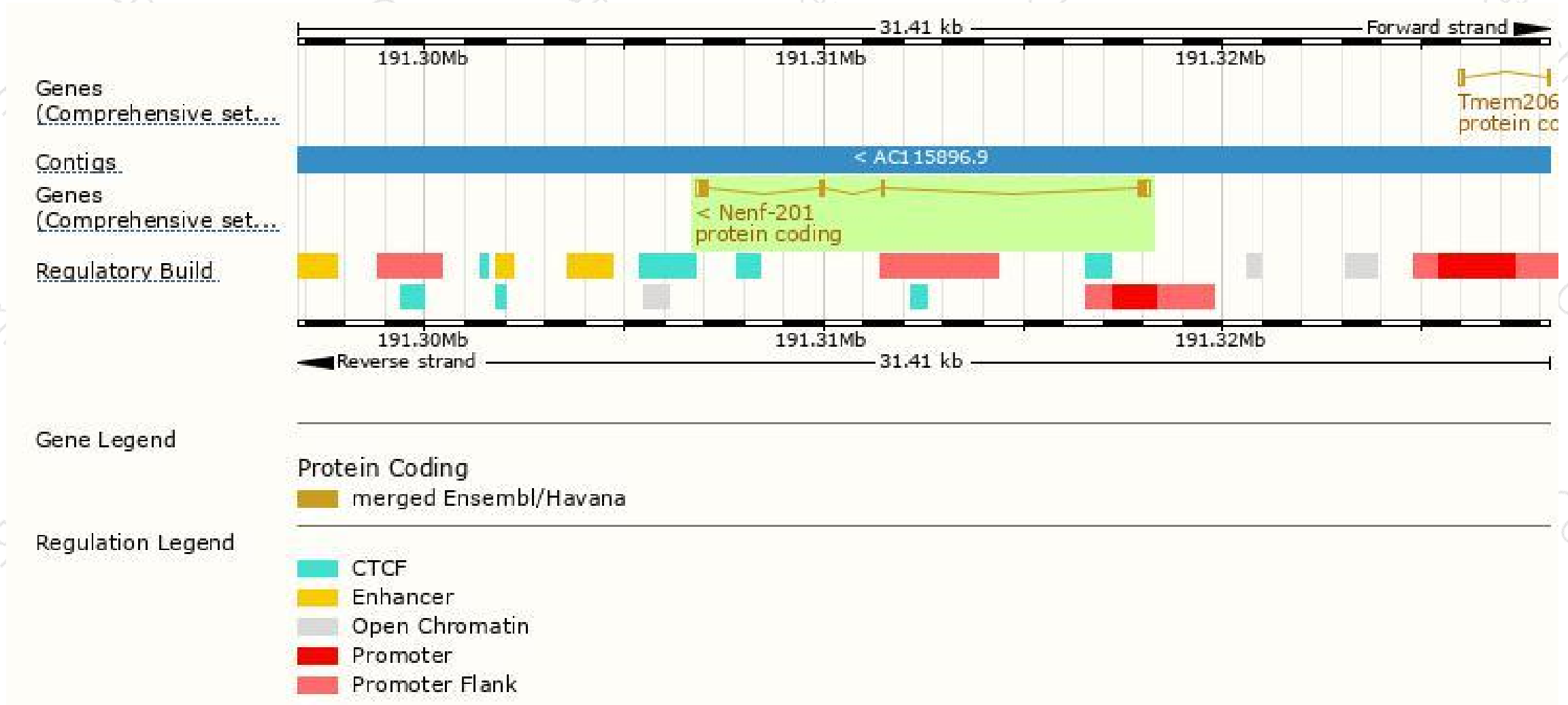
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nenf-201	<a href="#">ENSMUST00000046770.9</a>	742	<a href="#">171aa</a>	Protein coding	<a href="#">CCDS15618</a>	<a href="#">Q9CQ45</a>	TSL:1 GENCODE basic APPRIS P1

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

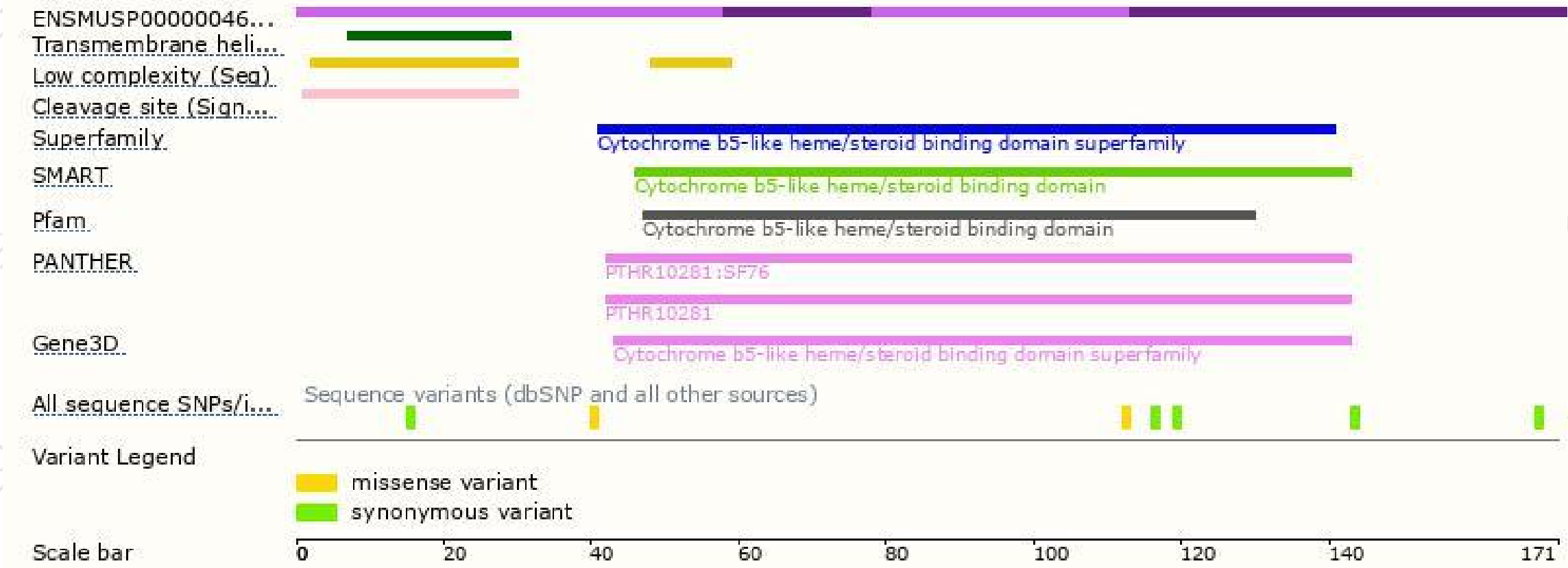


# Genomic location distribution

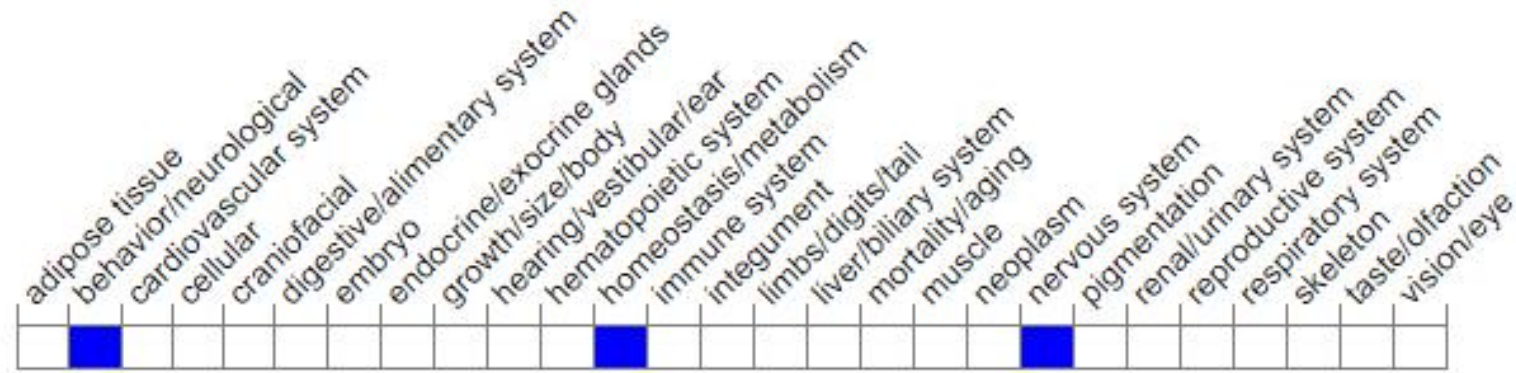




# Protein domain



# 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 homozygous for a knock-out allele exhibit increased anxiety-related response, abnormal dendrite morphology and decreased dopamine levels.

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

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