

# *Avpr1b* Cas9-KO Strategy

**Designer:**

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**Design Date:**

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# Project Overview

**Project Name**

*Avpr1b*

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Avpr1b* gene. The schematic diagram is as follows:



- The *Avpr1b* gene has 2 transcripts. According to the structure of *Avpr1b* gene, exon1 of *Avpr1b-201* (ENSMUST00000027690.6) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Avpr1b* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mice for one allele display dysregulation of the hypothalamic-pituitary-adrenal axis activity under stress and resting conditions. Homozygous null mice for other alleles display decreased aggression or an increased propensity for seizures.
- The *Avpr1b* 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)

## Avpr1b arginine vasopressin receptor 1B [Mus musculus (house mouse)]

Gene ID: 26361, updated on 31-Jan-2019

### Summary



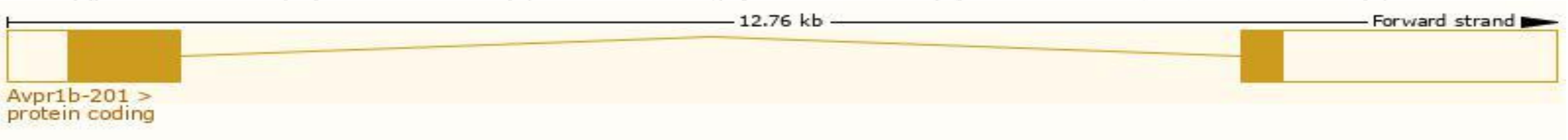
<b>Official Symbol</b>	Avpr1b provided by <a href="#">MGI</a>
<b>Official Full Name</b>	arginine vasopressin receptor 1B provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1347010</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000026432</a>
<b>Gene type</b>	protein coding
<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>	AVPR3, V3/V1b, VIBR, VPR3
<b>Expression</b>	Low expression observed in reference dataset <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

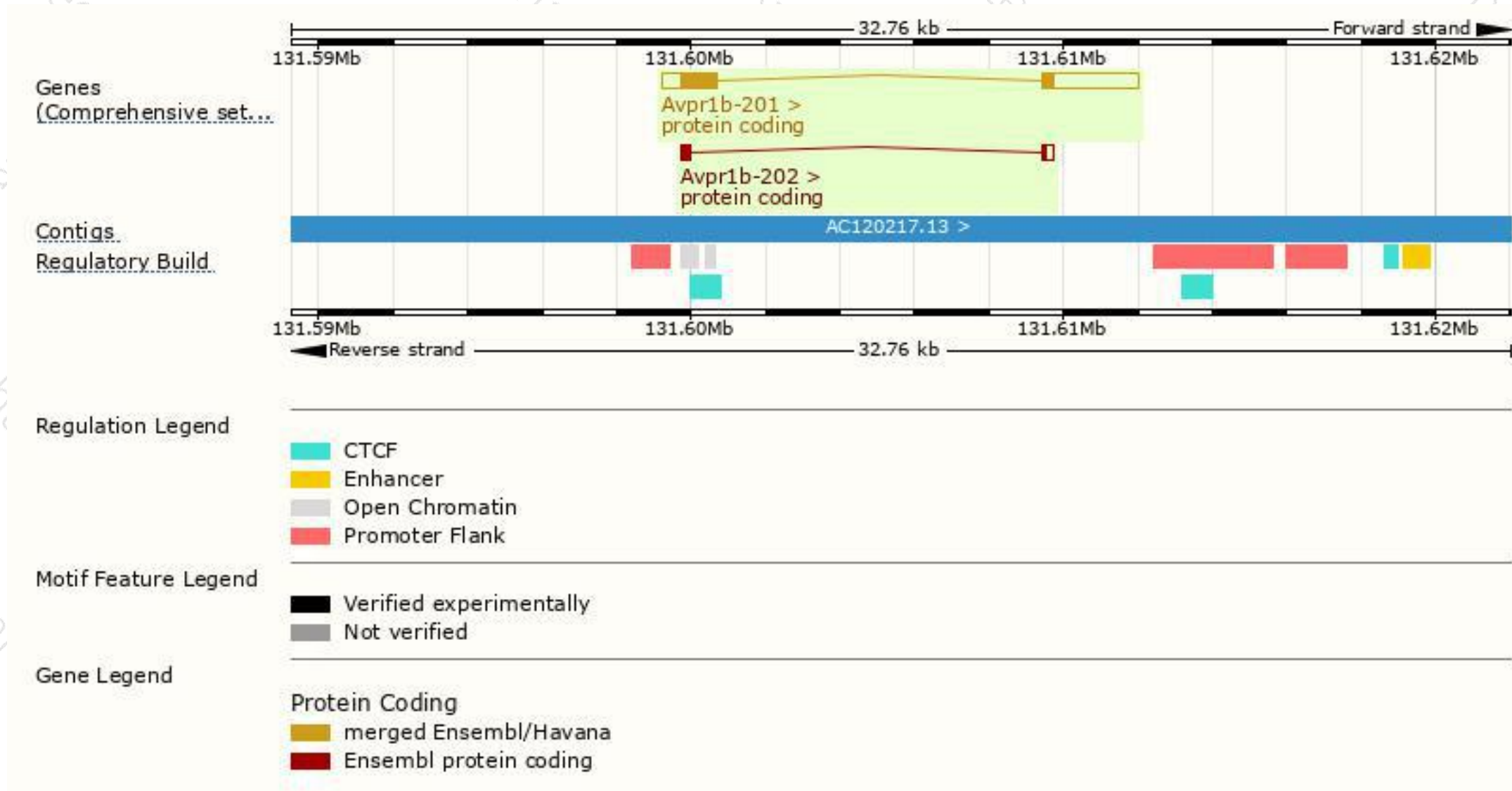
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Avpr1b-201	<a href="#">ENSMUST00000027690.6</a>	4023	<a href="#">421aa</a>	Protein coding	<a href="#">CCDS35703</a>	<a href="#">Q9WU02</a>	TSL:1 GENCODE basic APPRIS P1
Avpr1b-202	<a href="#">ENSMUST00000190410.1</a>	623	<a href="#">123aa</a>	Protein coding	-	<a href="#">A0A087WR95</a>	TSL:5 GENCODE basic

The strategy is based on the design of *Avpr1b-201* transcript,The transcription is shown below



# Genomic location distribution

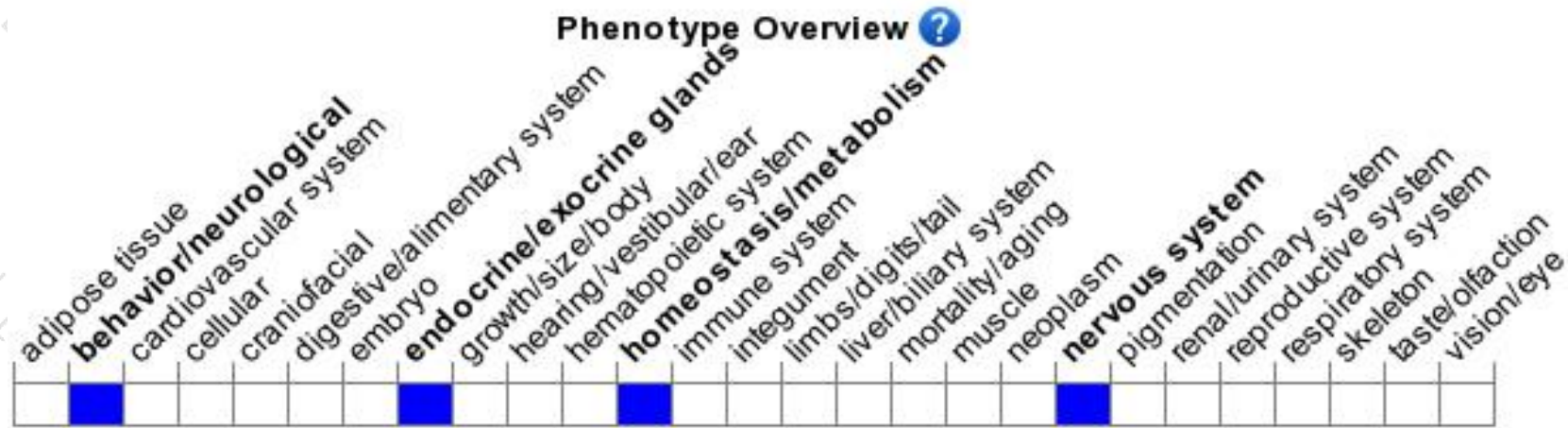




# Protein domain



# 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, Homozygous null mice for one allele display dysregulation of the hypothalamic-pituitary-adrenal axis activity under stress and resting conditions. Homozygous null mice for other alleles display aggression or an increased propensity for seizures.

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

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