

# ***Htr1b Cas9-KO Strategy***

**Designer:**

**Huan Wang**

**Design Date:**

**2020-7-22**

# Project Overview

---

**Project Name**

***Htr1b***

---

**Project type**

**Cas9-KO**

---

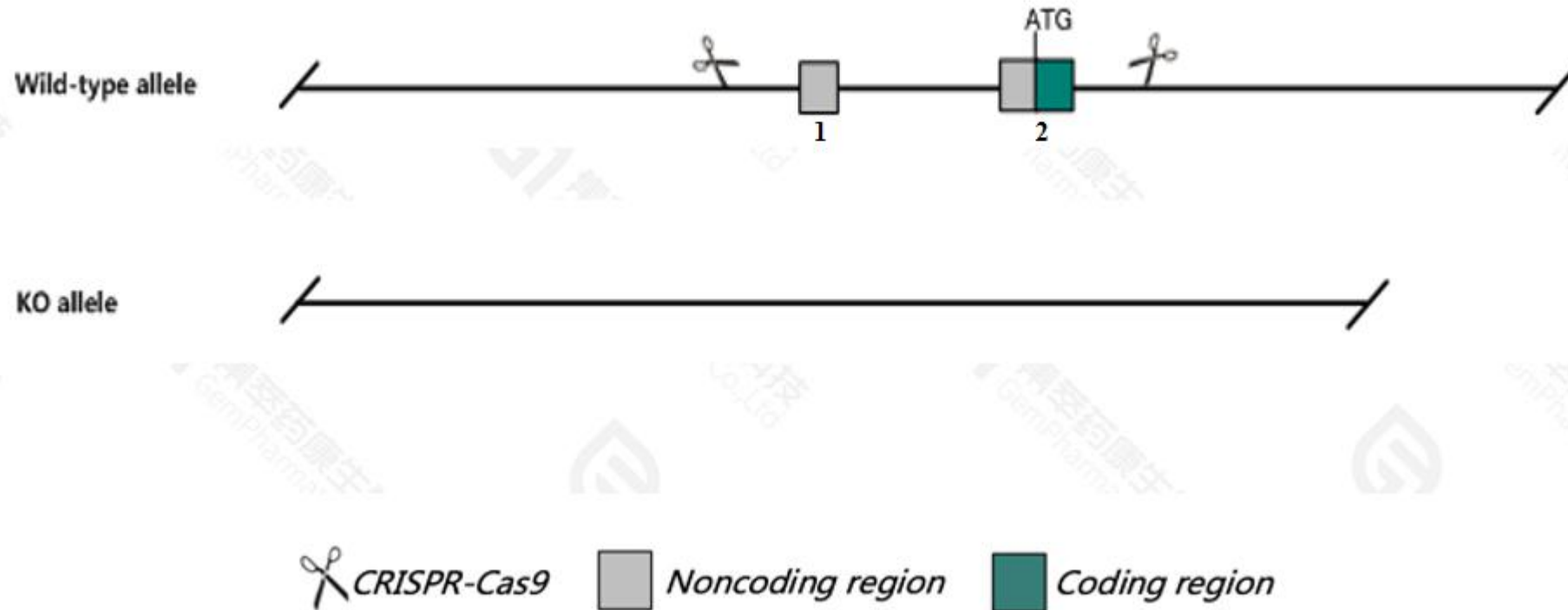
**Strain background**

**C57BL/6J**

---

# Conditional Knock Out strategy

This model will use CRISPR-Cas9 technology to edit the *Htr1b* gene. The schematic diagram is as follows:



- The *Htr1b* gene has 2 transcript. According to the structure of *Htr1b* gene, exon 1-2 of *Htr1b*-202 transcript is recommended as the knock Out region. The region contains all coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify xxx gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit an increase in body weight, aggression, drinking behavior, and osteoblast proliferation and bone mass, and show altered spatial learning and operant conditional behavior as well as reduced anxiety-related response and startle reflex, and small testes.
- The KO region contains functional region of the *D430036J16RIK* gene. Knock Out the region may affect the function of *D430036J16RIK* gene.
- The *Htr1b* gene is located on the Chr9. If the knock out 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.



# Gene information (NCBI)



## Htr1b 5-hydroxytryptamine (serotonin) receptor 1B [ *Mus musculus* (house mouse) ]

Gene ID: 15551, updated on 12-Feb-2019

Summary

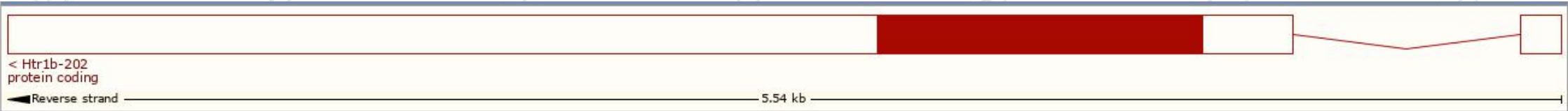
Official Symbol	Htr1b provided by <a href="#">MGI</a>
Official Full Name	5-hydroxytryptamine (serotonin) receptor 1B provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:96274</a>
See related	<a href="#">Ensembl:ENSMUSG00000049511</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<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	5-HT-1B
Orthologs	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

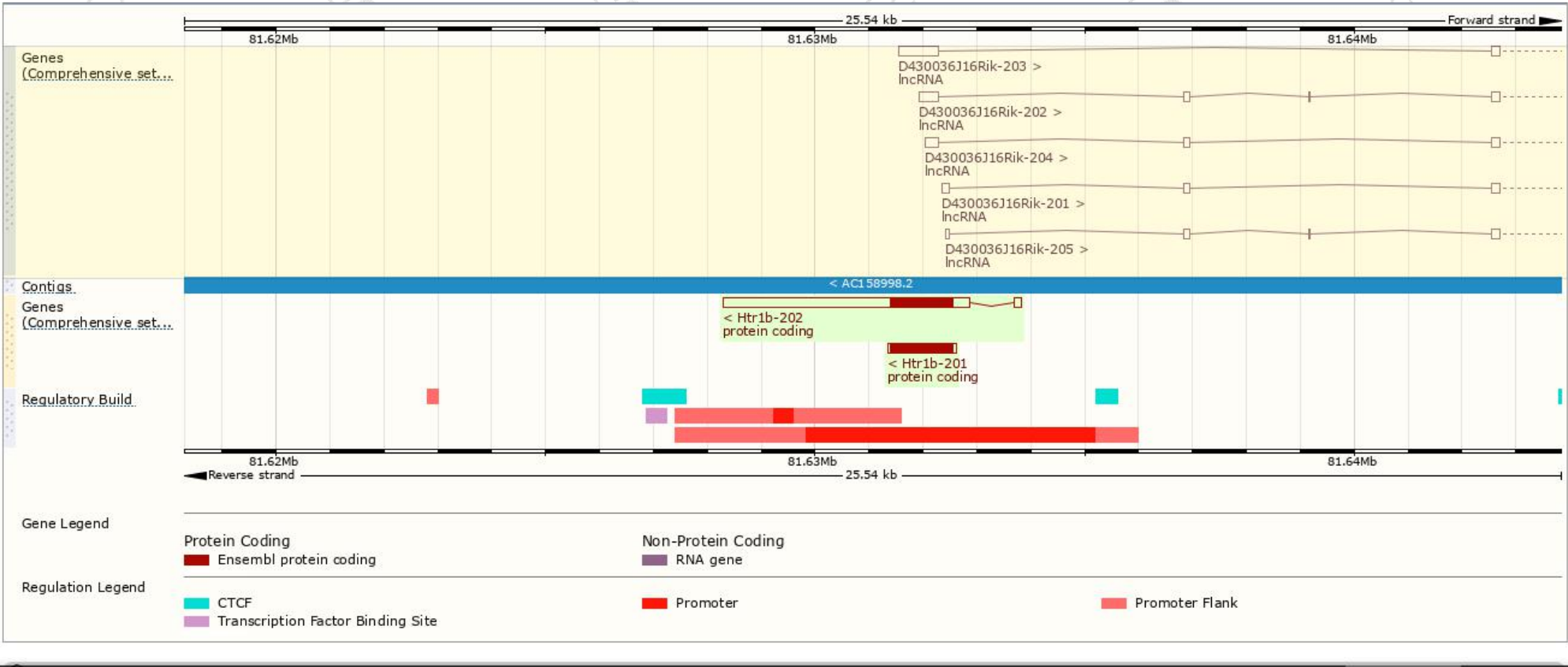
The gene has 2 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Htr1b-202	<a href="#">ENSMUST00000183482.1</a>	4724	<a href="#">386aa</a>	Protein coding	<a href="#">CCDS23370</a>	<a href="#">P28334</a> <a href="#">Q0VES5</a>	TSL:3 GENCODE basic APPRIS P1
Htr1b-201	<a href="#">ENSMUST00000051005.4</a>	1273	<a href="#">386aa</a>	Protein coding	<a href="#">CCDS23370</a>	<a href="#">P28334</a> <a href="#">Q0VES5</a>	TSL:NA GENCODE basic APPRIS P1

The strategy is based on the design of *Htr1b*-202 transcript, The transcription is shown below



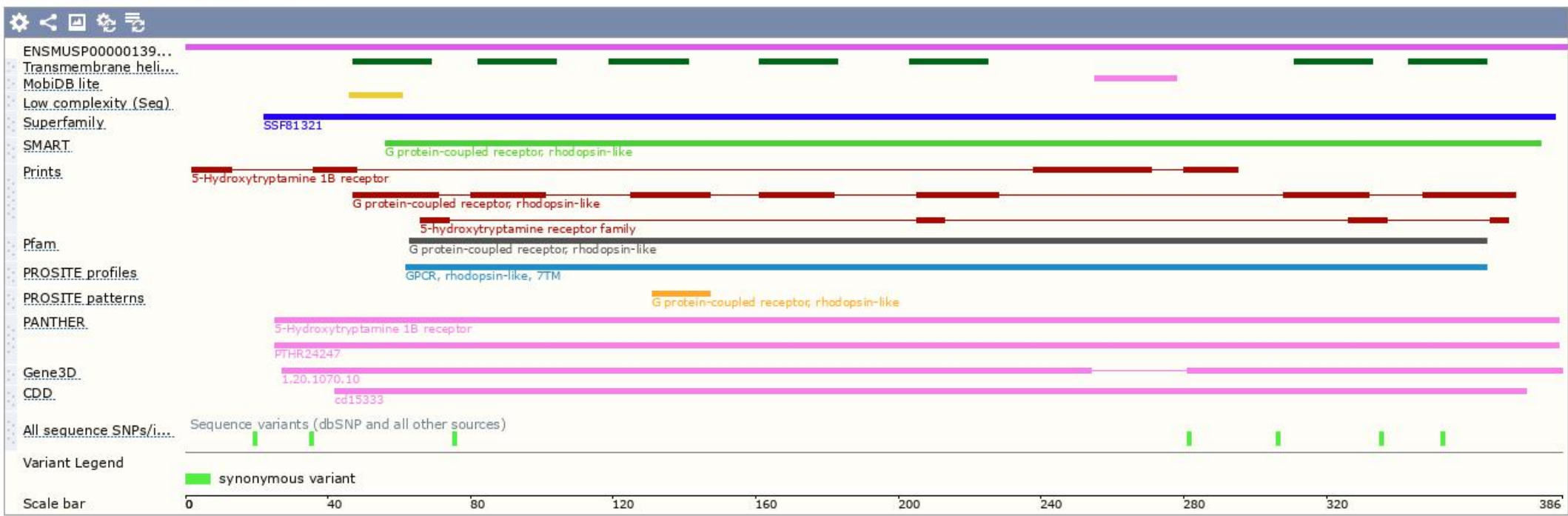
# Genomic location distribution



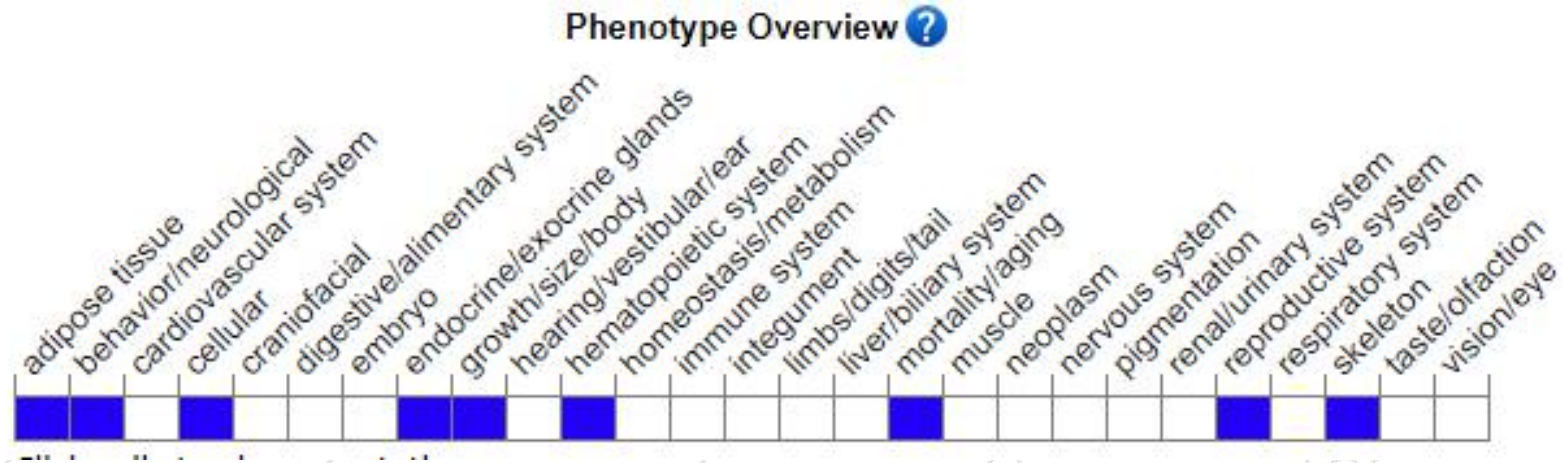


# Protein domain

Protein domains for ENSMUSP00000139389.1



# Mouse phenotype description(MGI)



*Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>) .*

Mice homozygous for a knock-out allele exhibit an increase in body weight, aggression, drinking behavior, and osteoblast proliferation and bone mass, and show altered spatial learning and operant conditional behavior as well as reduced anxiety-related response and startle reflex, and small testes.

If you have any questions, you are welcome to inquire.  
Tel: 025-5864 1534



集萃药康生物科技  
GemPharmatech Co.,Ltd

