

Hrh2 Cas9-KO Strategy

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Project Overview

Project Name

Hrh2

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Hrh2* gene. The schematic diagram is as follows:



- The *Hrh2* gene has 3 transcripts. According to the structure of *Hrh2* gene, exon2 of *Hrh2-201* (ENSMUST00000038101.3) 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 *Hrh2* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygotes for a targeted null mutation exhibit enlarged folds in gastric mucosa, elevated serum gastrin levels, increased numbers of parietal and enterochromaffin-like cells, and lack of secretion of gastric acid in response to histamine or gastrin.
- The *Hrh2* gene is located on the Chr13. 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)

Hrh2 histamine receptor H2 [Mus musculus (house mouse)]

Gene ID: 15466, updated on 31-Jan-2019

Summary



Official Symbol	Hrh2 provided by MGI
Official Full Name	histamine receptor H2 provided by MGI
Primary source	MGI:MGI:108482
See related	Ensembl:ENSMUSG000000034987
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	H2R, HH2R
Expression	Broad expression in frontal lobe adult (RPKM 1.9), stomach adult (RPKM 1.8) and 18 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

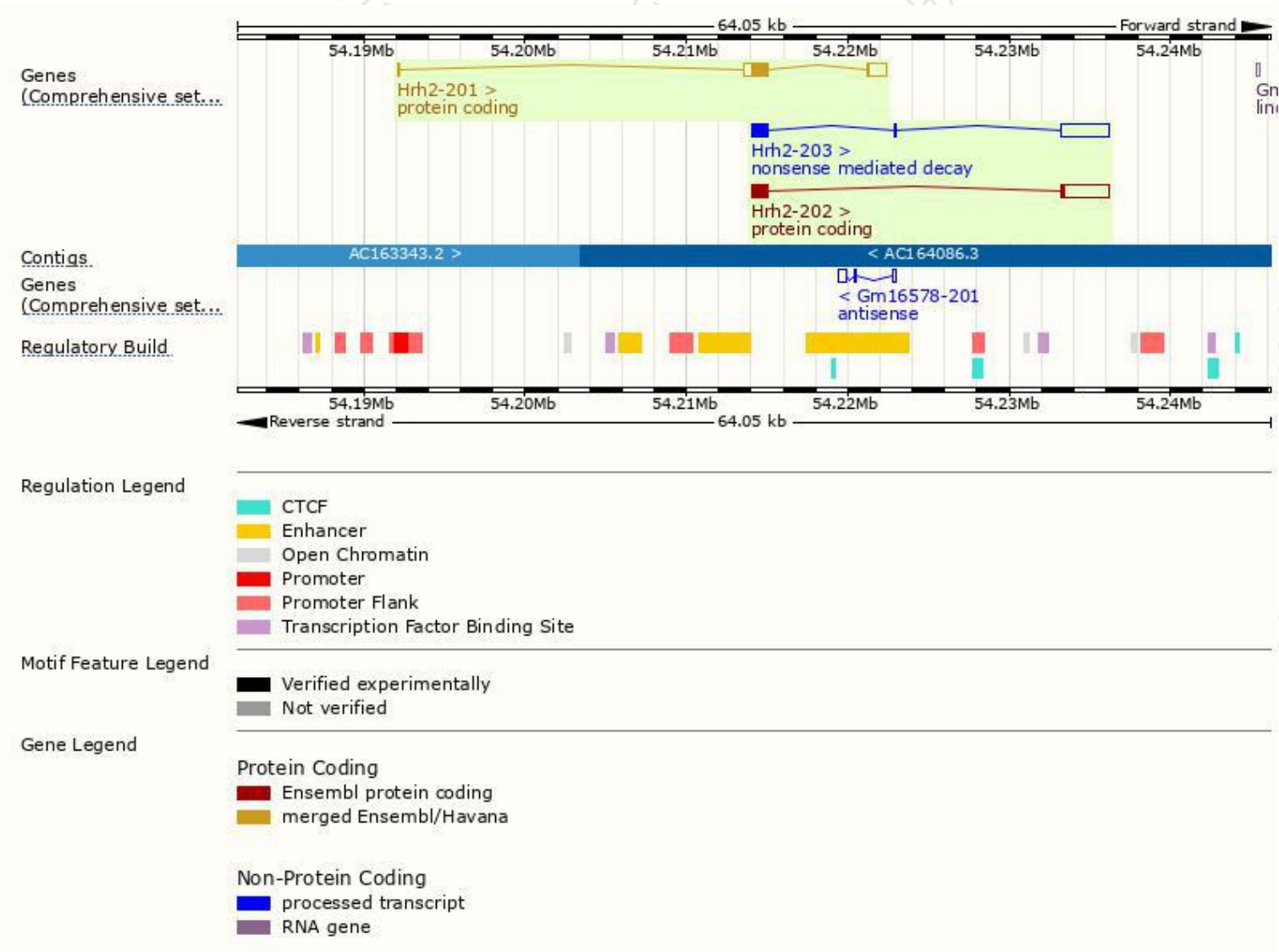
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Hrh2-201	ENSMUST00000038101.3	2789	397aa	Protein coding	CCDS26526	P97292	TSL:1 GENCODE basic APPRIS P2
Hrh2-202	ENSMUST00000209846.1	4074	421aa	Protein coding	-	A0A1B0GSX9	TSL:5 GENCODE basic APPRIS ALT2
Hrh2-203	ENSMUST00000211742.1	4219	371aa	Nonsense mediated decay	-	A0A1B0GR79	TSL:5

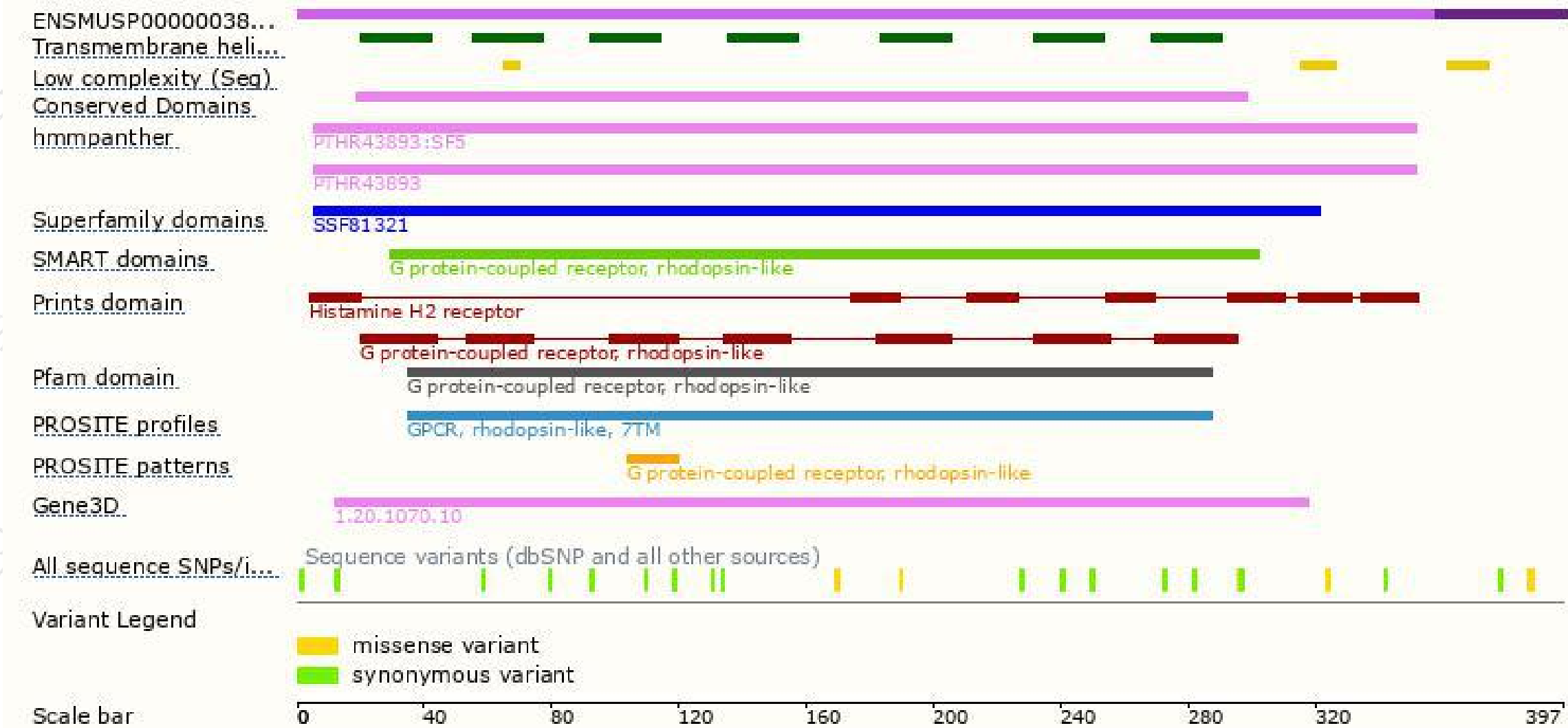
The strategy is based on the design of *Hrh2-201* transcript,The transcription is shown below



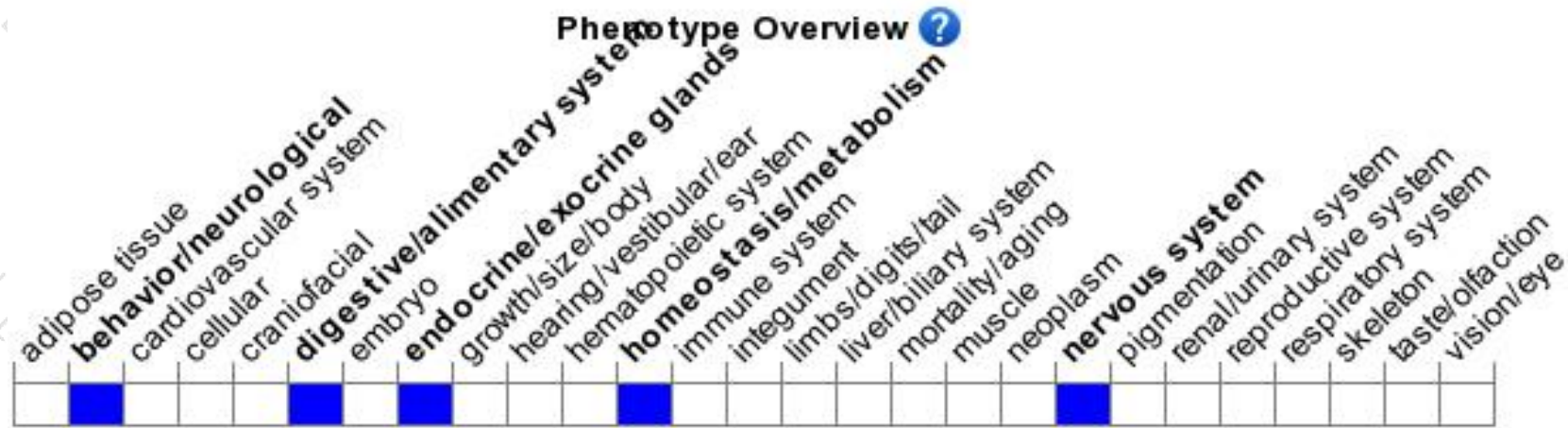
Genomic location distribution



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, Homozygotes for a targeted null mutation exhibit enlarged folds in gastric mucosa, elevated serum gastrin levels, increased numbers of parietal and enterochromaffin-like cells, and lack of secretion of gastric acid in response to histamine or gastrin.

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

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