集萃药康
GemPharmatech

Rraga Cas9-KO Strategy

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Design Date: 2020-3-12

Project Overview

Project Name	***Rraga***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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

Technical routes

The *Rraga* gene has 1 transcript. According to the structure of *Rraga* gene, exon1 of *Rraga-201* (ENSMUST00000091064.7) transcript is recommended as the knockout region.The region contains all of coding sequence.Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Rraga* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

According to the existing MGI data,Mice homozygous for null mutations display embryonic lethality during organogenesis, impaired growth and open neural tubes. Mice homozygous for a constitutively active knock-in allele exhibit neonatal lethality associated with impaired hepatic gluconeogenesis and impaired autophagy.

The *Rraga* gene is located on the Chr4. 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

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Rraga Ras-related GTP binding A [*Mus musculus* (house mouse)]

Gene ID: 68441, updated on 27-Feb-2020

Summary

Official Symbol	Rraga provided by MGI
Official Full Name	Ras-related GTP binding A provided by MGI
Primary source	MGI:MGI:1915691
See related	Ensembl:ENSMUSG00000070934
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	RAGA; FIP-1; AI255374; 1300010C19Rik
Orthologs	human all

Genomic context

Location: 4; 4 C4

See Rraga in Genome Data Viewer

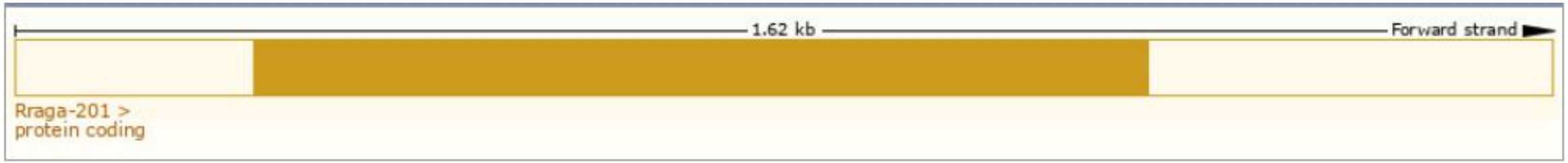
Exon count: 1

Transcript information Ensembl

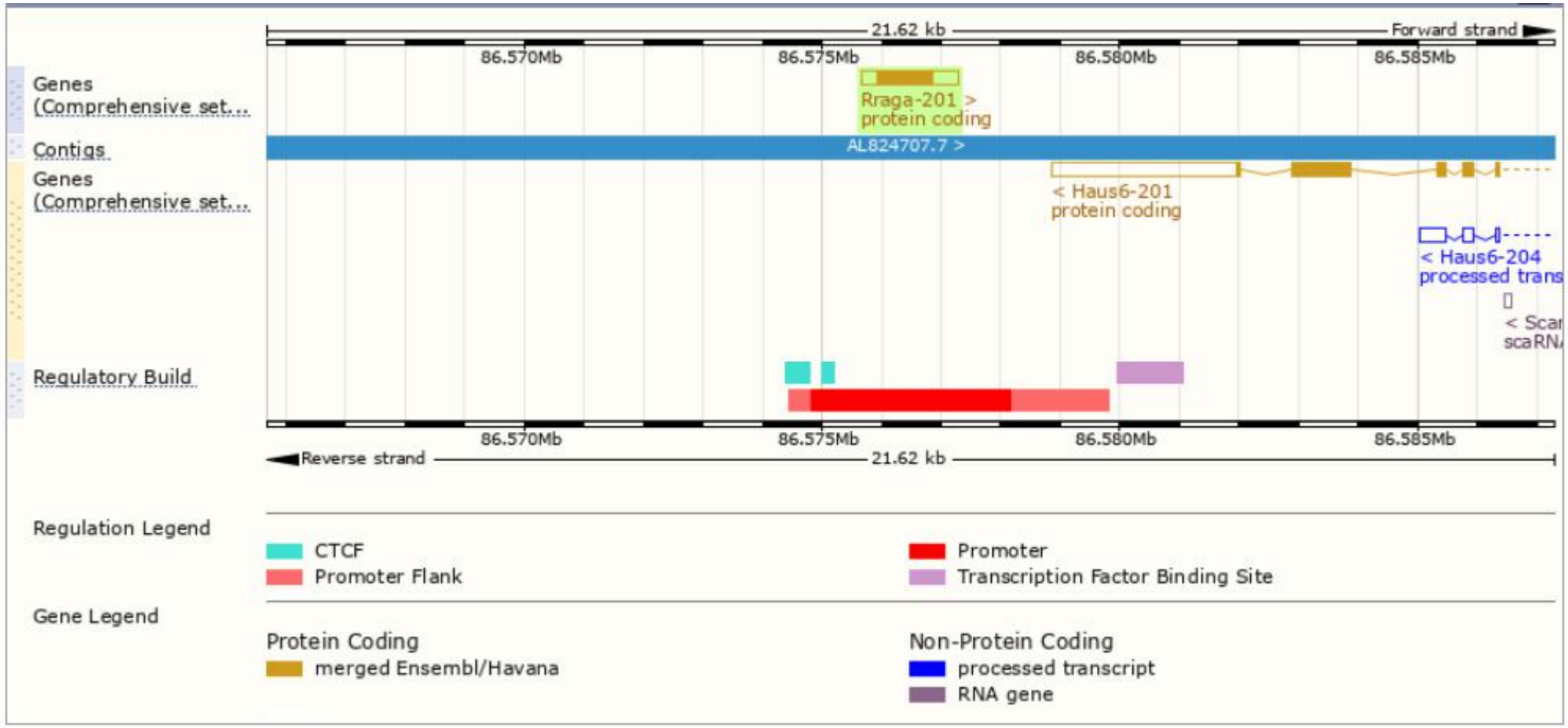
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rraga-201	ENSMUST00000091064.7	1618	313aa	Protein coding	CCDS18306	Q80X95	TSL:NA GENCODE basic APPRIS P1

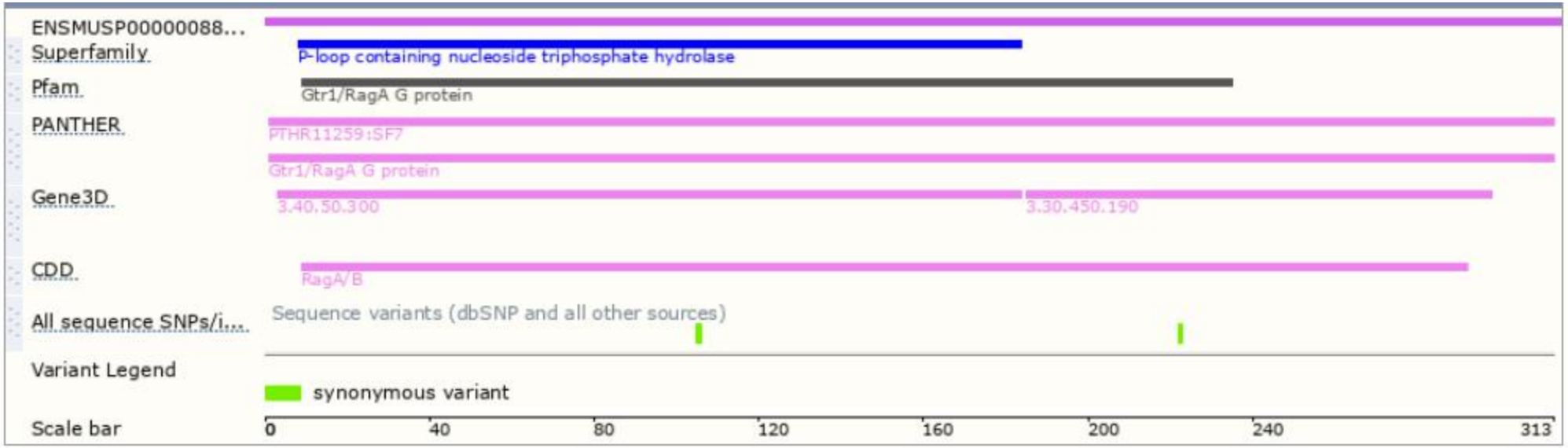
The strategy is based on the design of *Rraga-201* transcript,The transcription is shown below



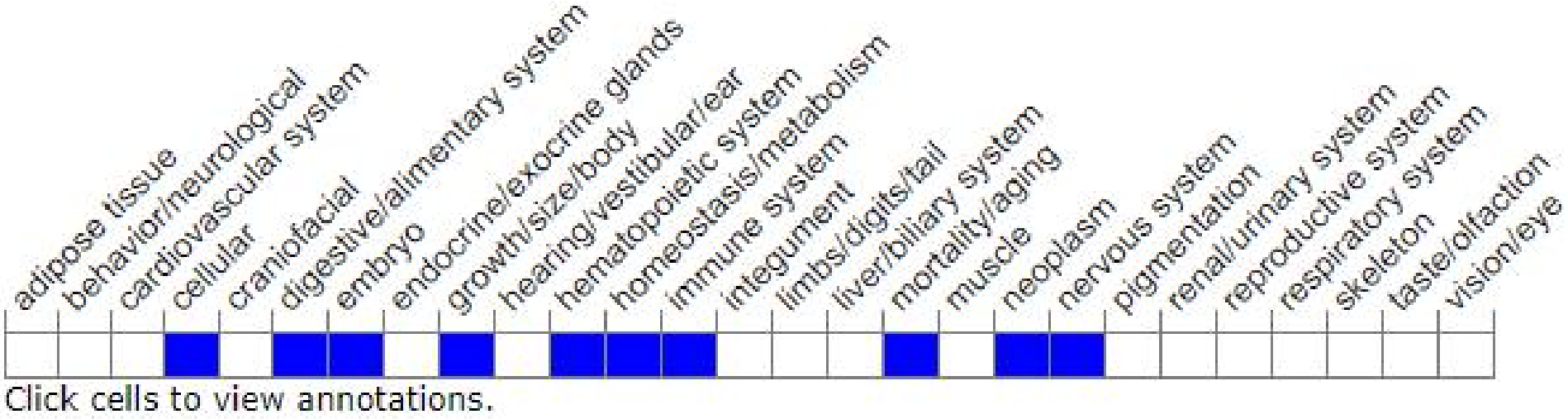
Genomic location distribution



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/).

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

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