Ifngr2 Cas9-KO Strategy

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Reviewer:Shilei Zhu

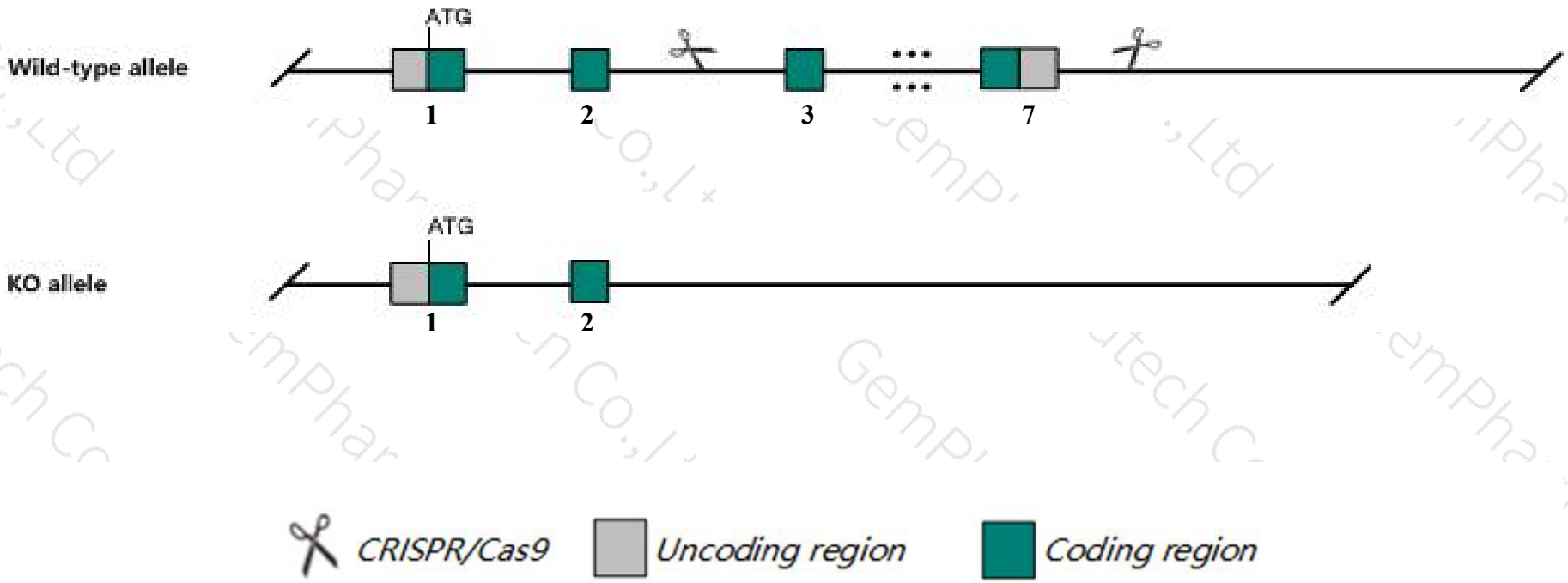
Design Date:2020-2-27

Project Overview

Project Name	***Ifngr2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ifngr2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ifngr2* gene has 3 transcripts. According to the structure of *Ifngr2* gene, exon3-exon7 of *Ifngr2-201* (ENSMUST00000023687.8) transcript is recommended as the knockout region.The region contains 796bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ifngr2* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Mice homozygous for disruptions in this gene develop normally.

- The *Ifngr2* gene is located on the Chr16. 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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Ifngr2 interferon gamma receptor 2 [Mus musculus (house mouse)]

Gene ID: 15980, updated on 31-Jan-2019

Summary

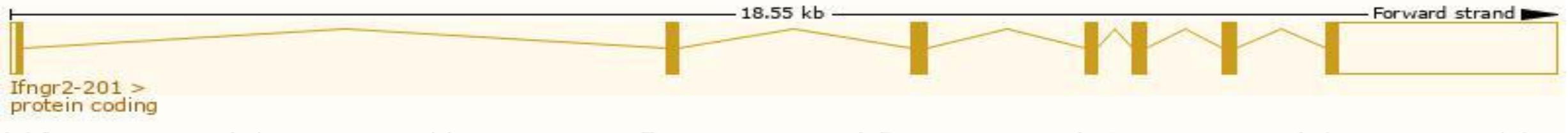
Official Symbol	Ifngr2 provided by MGI
Official Full Name	interferon gamma receptor 2 provided by MGI
Primary source	MGI:MGI:107654
See related	Ensembl:ENSMUSG00000022965
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ifgr2, Ifgt
Expression	Broad expression in duodenum adult (RPKM 148.1), small intestine adult (RPKM 81.1) and 22 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

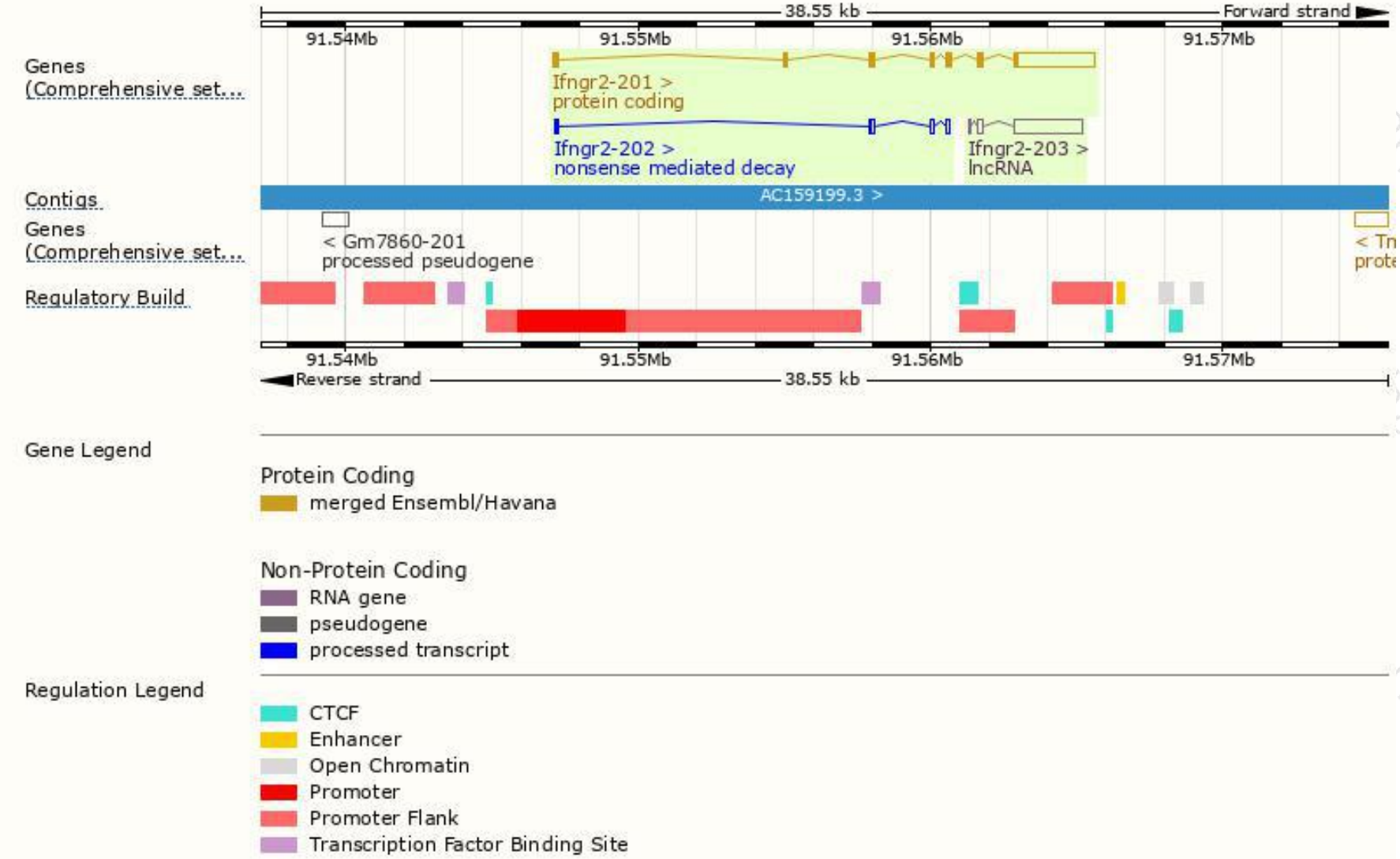
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ifngr2-201	ENSMUST00000023687.8	3708	332aa	Protein coding	CCDS28327	Q63953	TSL:1 GENCODE basic APPRIS P1
Ifngr2-202	ENSMUST00000127644.1	534	46aa	Nonsense mediated decay	-	D6RIP6	TSL:5
Ifngr2-203	ENSMUST00000130404.1	2516	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Ifngr2-201* transcript,The transcription is shown below

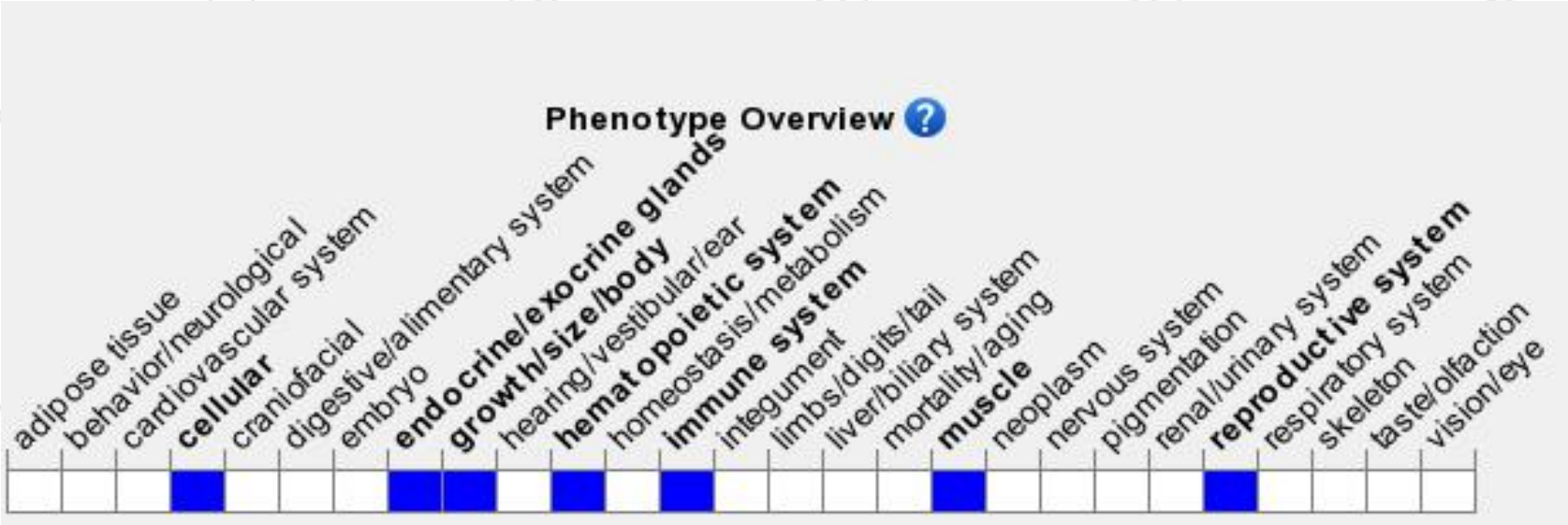


Genomic location distribution



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 disruptions in this gene develop normally.

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

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