

Itpr3 Cas9-KO Strategy

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Reviewer:

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Design Date:

2019/12/18

Project Overview

Project Name

Itpr3

Project type

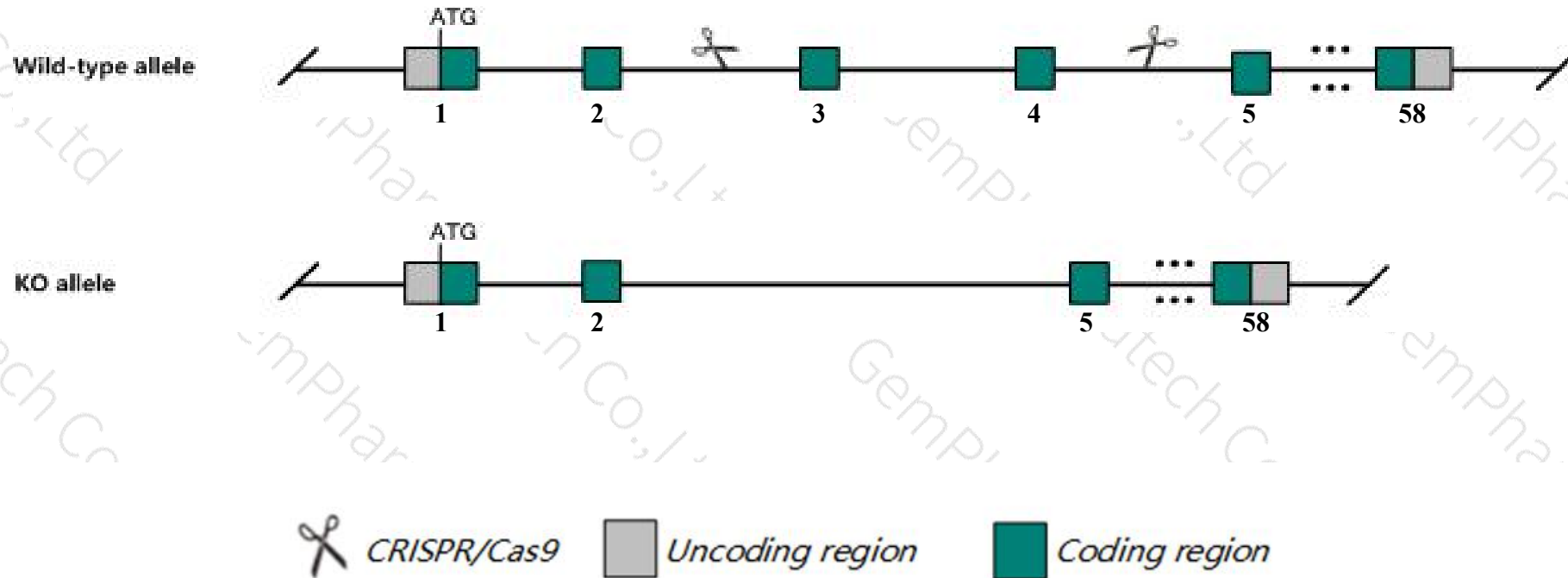
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Itpr3* gene. The schematic diagram is as follows:



- The *Itpr3* gene has 2 transcripts. According to the structure of *Itpr3* gene, exon3-exon4 of *Itpr3-201* (ENSMUST00000049308.8) transcript is recommended as the knockout region. The region contains 209bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Itpr3* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Mice homozygous for a knock-out allele are viable and fertile and exhibit no apparent abnormalities in pancreatic and salivary secretion. However, one mutation in this gene results in alternating abnormal hair loss and normal hair growth throughout the life of the mouse and low sweet preference.
- The *Itpr3* gene is located on the Chr17. 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)

Itpr3 inositol 1,4,5-triphosphate receptor 3 [*Mus musculus* (house mouse)]

Gene ID: 16440, updated on 19-Nov-2019

Summary

Official Symbol Itpr3 provided by MGI
Official Full Name inositol 1,4,5-triphosphate receptor 3 provided by MGI
Primary source MGI:MGI:96624
See related Ensembl:ENSMUSG00000042644
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 tf; Ip3r3; IP3R 3; Itpr-3
Expression Broad expression in stomach adult (RPKM 33.0), spleen adult (RPKM 27.9) and 17 other tissues [See more](#)
Orthologs [human](#) [all](#)

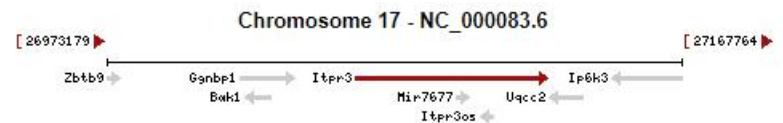
Genomic context

Location: 17 A3.3; 17 13.68 cM

[See Itpr3 in Genome Data Viewer](#)



Exon count: 57

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	17	NC_000083.6 (27057002..27122223)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	17	NC_000083.5 (27194249..27259168)

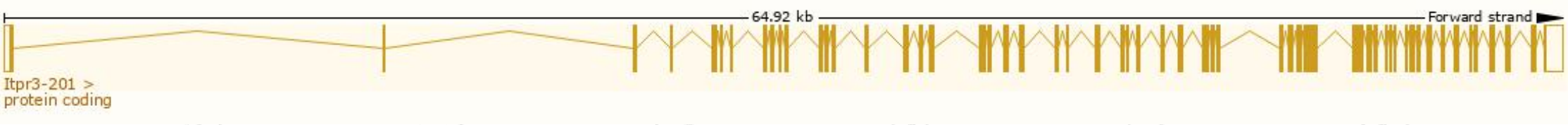


Transcript information (Ensembl)

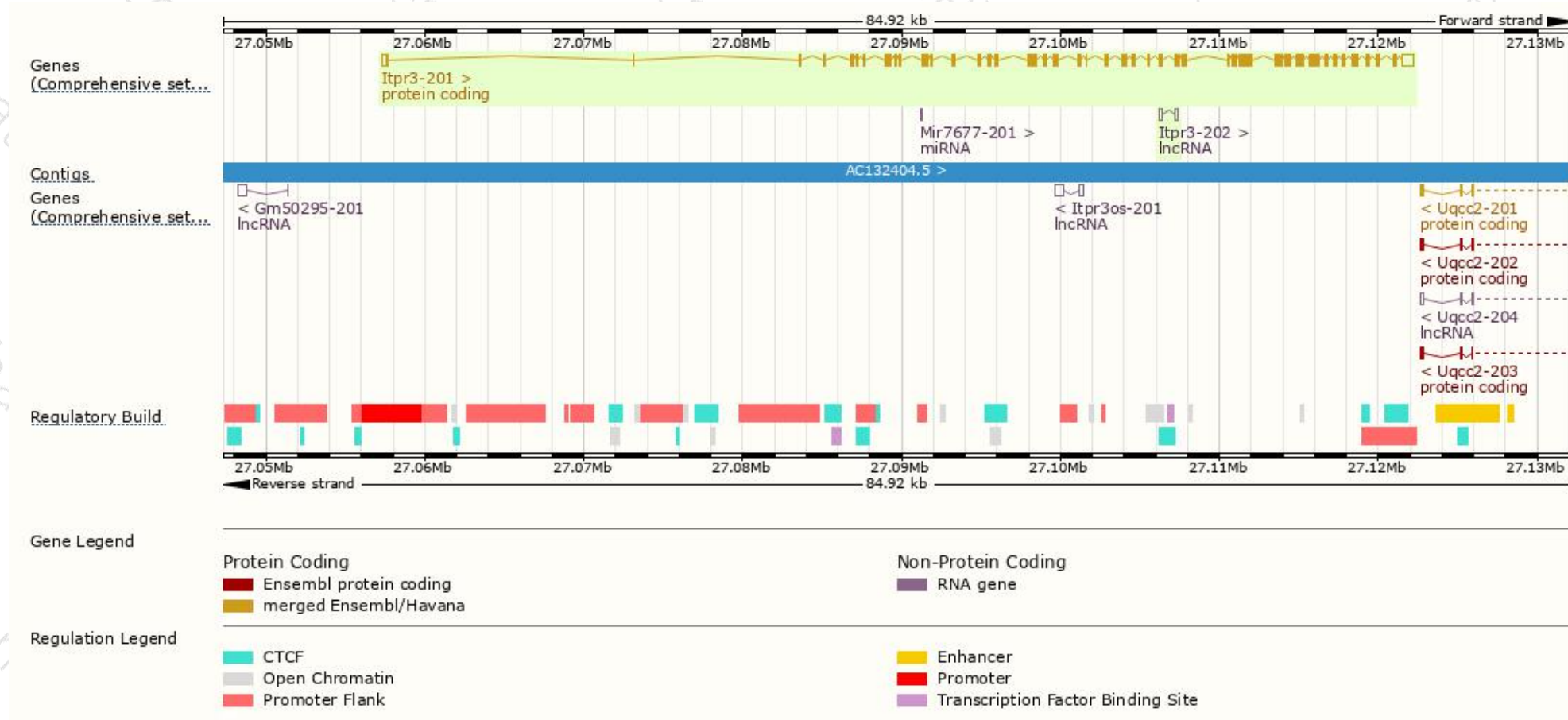
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Itpr3-201	ENSMUST00000049308.8	8990	2670aa	 Protein coding	CCDS28560	P70227	TSL:1 Gencode basic APPRIS P1
Itpr3-202	ENSMUST00000235521.1	350	No protein	 lncRNA	-	-	-

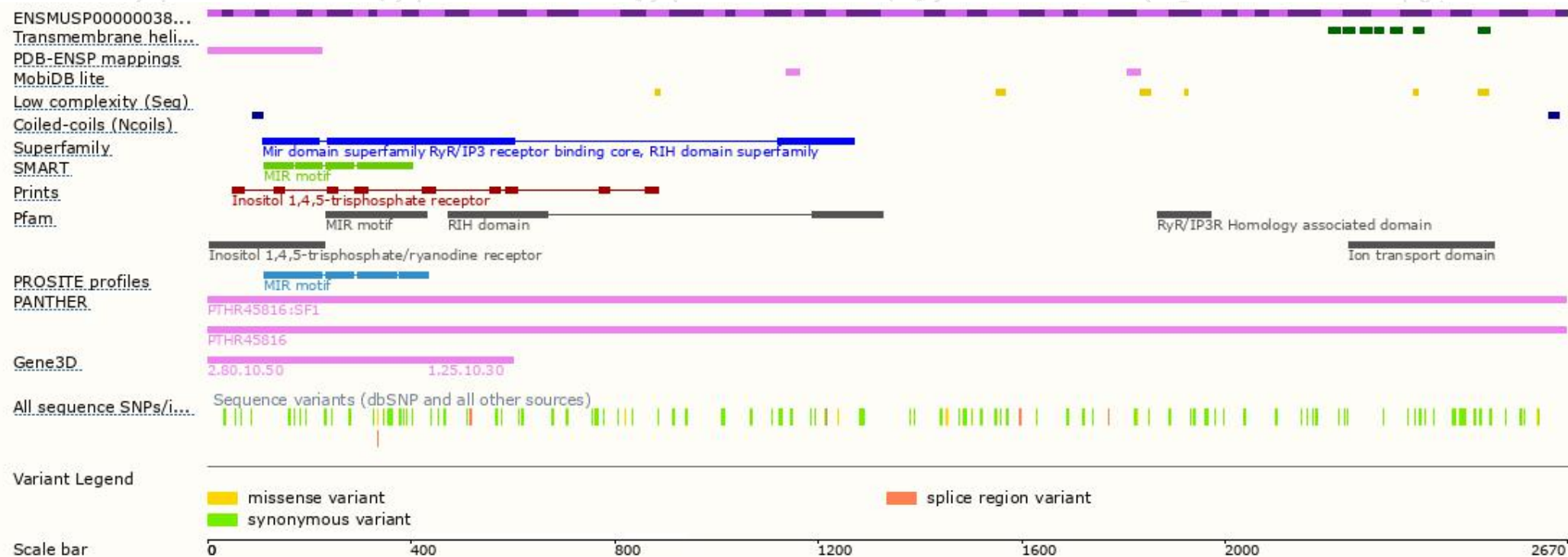
The strategy is based on the design of *Itpr3-201* transcript,The transcription is shown below



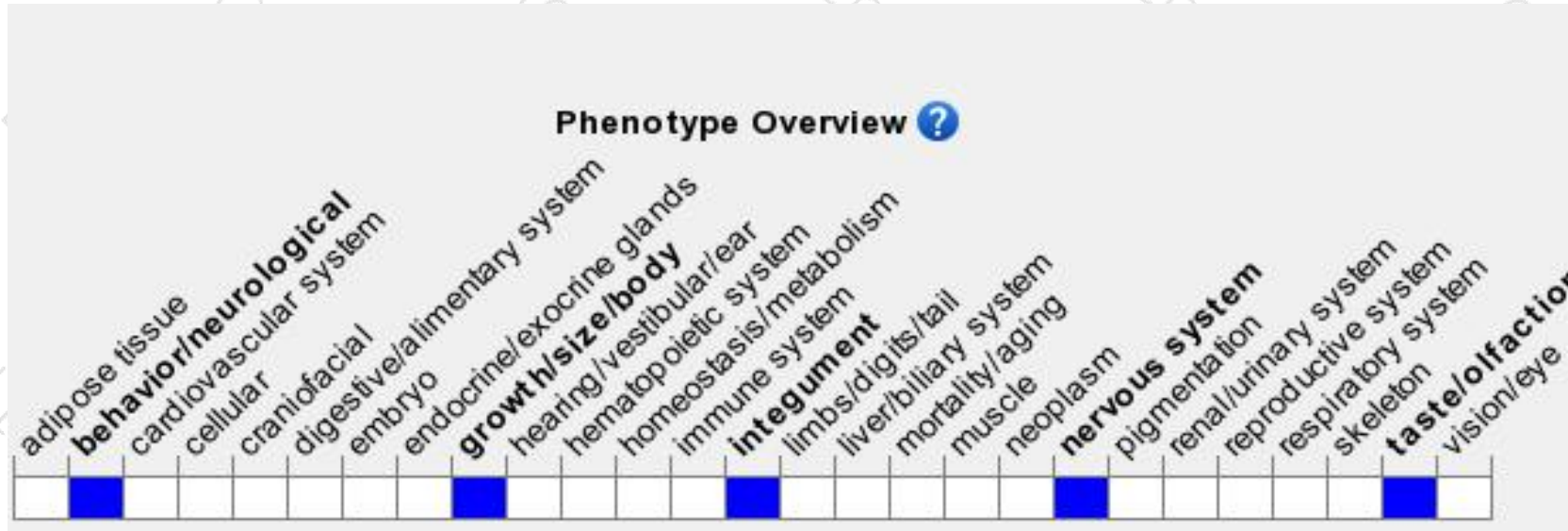
Genomic location distribution



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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