

***Ints10* Cas9-KO Strategy**

Designer: Huan Fan

Reviewer: Wenjing Li

Design Date: 2018/12/5

Project Overview

Project Name

Ints10

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ints10* gene. The schematic diagram is as follows:



Technical routes

- The *Ints10* gene has 9 transcripts. According to the structure of *Ints10* gene, exon3-exon4 of *Ints10*-201(ENSMUST00000034328.12) transcript is recommended as the knockout region. The region contains 244bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ints10* gene. The brief process is as follows: CRISPR/Cas9 system were microinjected into the fertilized eggs of C57BL/6JGpt 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/6JGpt mice.

- The *Ints10* gene is located on the Chr8. 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)

Ints10 integrator complex subunit 10 [Mus musculus (house mouse)]

Gene ID: 70885, updated on 13-Mar-2020

Summary



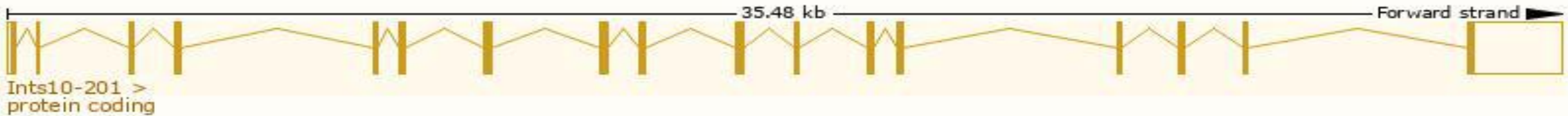
Official Symbol	Ints10 provided by MGI
Official Full Name	integrator complex subunit 10 provided by MGI
Primary source	MGI:MGI:1918135
See related	Ensembl:ENSMUSG000000031864
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4921521J11Rik, AI462004
Expression	Ubiquitous expression in CNS E18 (RPKM 17.4), testis adult (RPKM 15.1) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

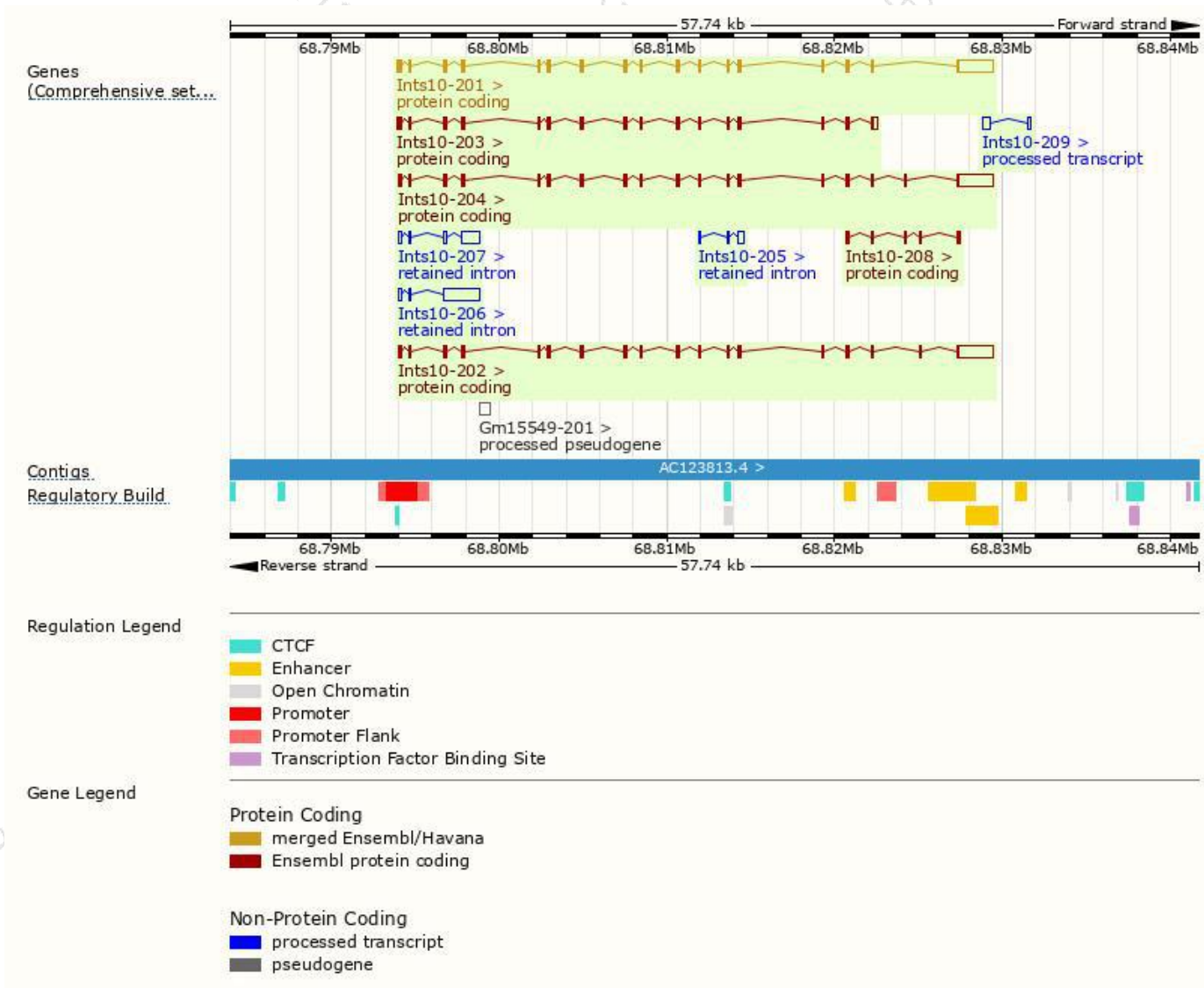
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ints10-204	ENSMUST00000110242.7	4250	736aa	Protein coding	CCDS80885	E9Q360	TSL:1 GENCODE basic
Ints10-201	ENSMUST00000034328.12	4201	710aa	Protein coding	CCDS22342	Q8K2A7	TSL:1 GENCODE basic APPRIS P3
Ints10-202	ENSMUST00000070713.7	4192	736aa	Protein coding	CCDS80886	A0A0R4J0V1	TSL:1 GENCODE basic APPRIS ALT1
Ints10-203	ENSMUST00000110241.7	2322	659aa	Protein coding	-	E9Q361	TSL:1 GENCODE basic
Ints10-208	ENSMUST00000147072.1	607	179aa	Protein coding	-	F6WSW2	CDS 5' incomplete TSL:3
Ints10-209	ENSMUST00000212064.1	592	No protein	Processed transcript	-	-	TSL:2
Ints10-206	ENSMUST00000145140.1	2328	No protein	Retained intron	-	-	TSL:1
Ints10-207	ENSMUST00000146322.7	1408	No protein	Retained intron	-	-	TSL:2
Ints10-205	ENSMUST00000140309.1	555	No protein	Retained intron	-	-	TSL:3

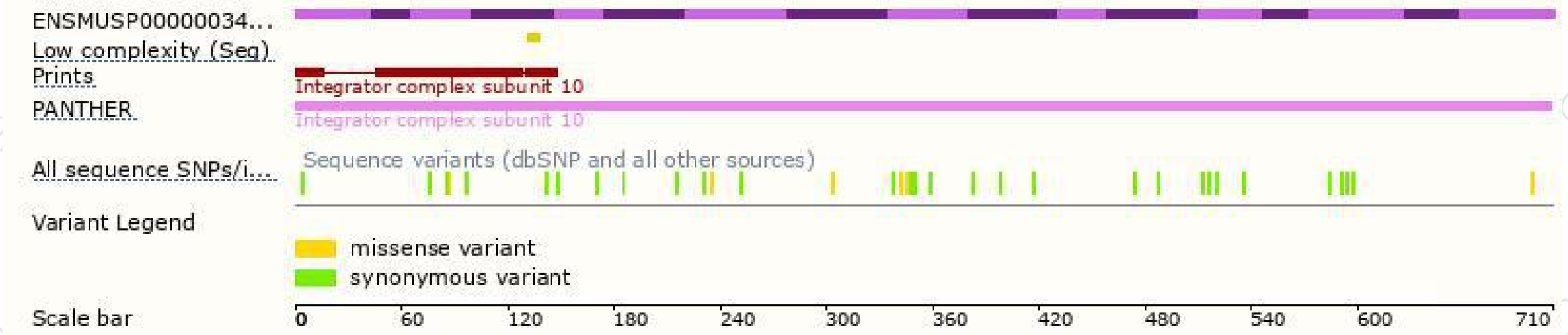
The strategy is based on the design of *Ints10-201* transcript,the transcription is shown below:



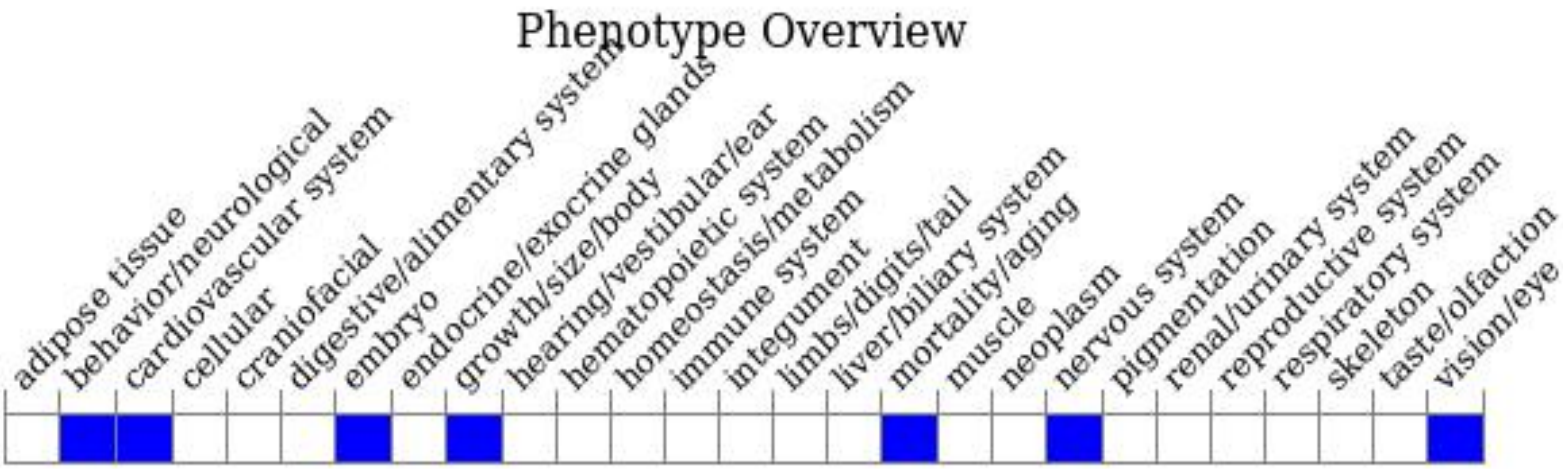
Genomic location distribution



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/>).

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

Tel: 400-9660890

