Ints3 Cas9-CKO Strategy

Designer: Yanhua Shen

Reviewer: Xueting Zhang

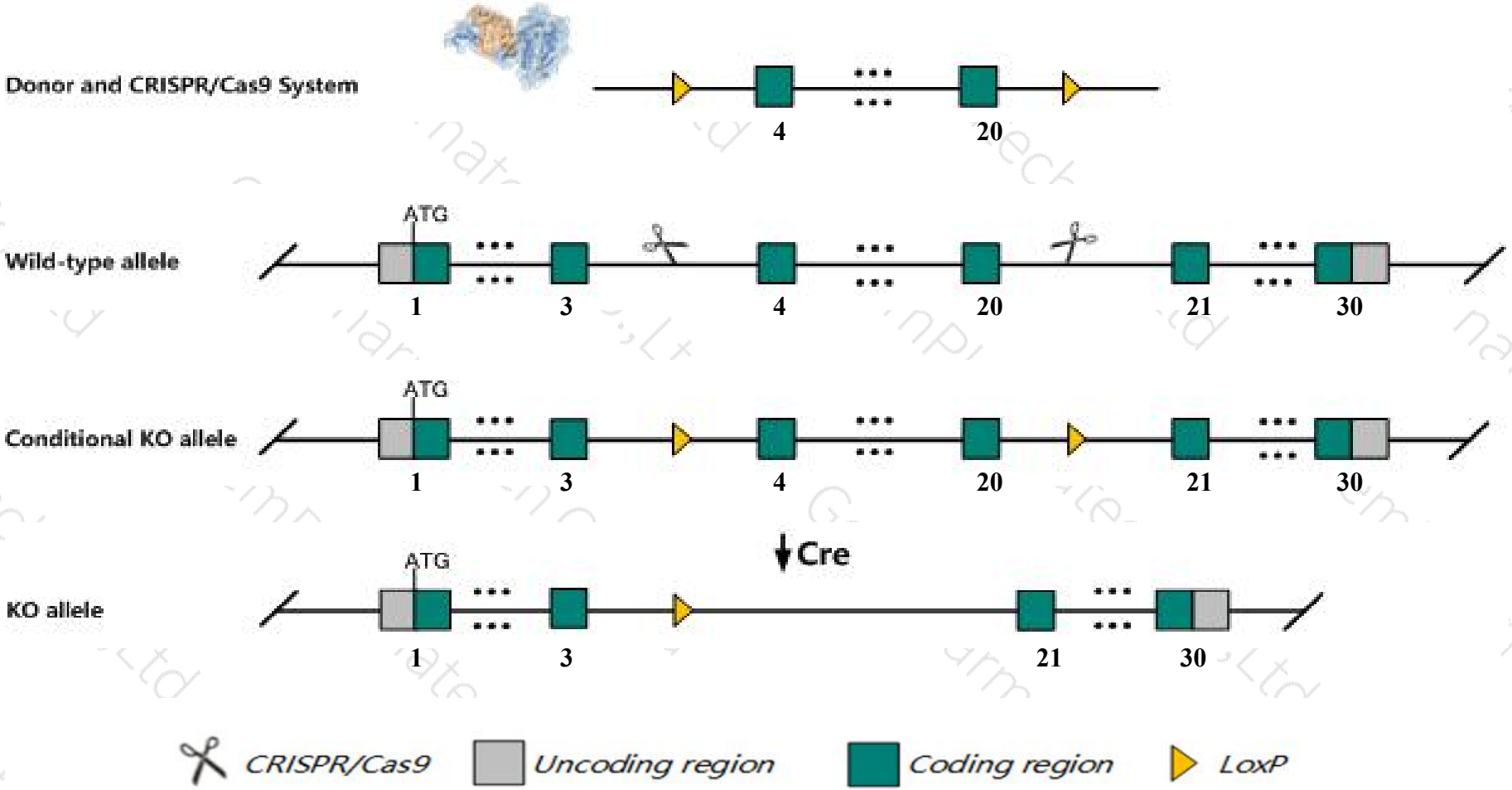
Design Date: 2020-01-21

Project Overview

Project Name	***Ints3***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ints3* gene. The schematic diagram is as follows:



Technical routes

- The *Ints3* gene has 7 transcripts. According to the structure of *Ints3* gene, exon4-exon20 of *Ints3-201* (ENSMUST00000029542.11) transcript is recommended as the knockout region.The region contains 1772bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Ints3* gene. The brief process is as follows:CRISPR/Cas9 system and Donor 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 flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

➢ The *Ints3* gene is located on the Chr3. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

集萃药康 GemPharmatech

Ints3 integrator complex subunit 3 [*Mus musculus* (house mouse)]

Gene ID: 229543, updated on 10-Oct-2019

Summary

Official Symbol	Ints3 provided by MGI
Official Full Name	integrator complex subunit 3 provided by MGI
Primary source	MGI:MGI:2140050
See related	Ensembl:ENSMUSG00000027933
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	C77668
Expression	Ubiquitous expression in placenta adult (RPKM 22.5), ovary adult (RPKM 19.2) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 3; 3 F1

See Ints3 in Genome Data Viewer

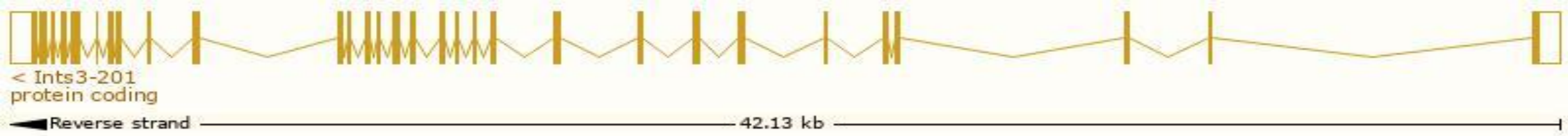
Exon count: 30

Transcript information（Ensembl）

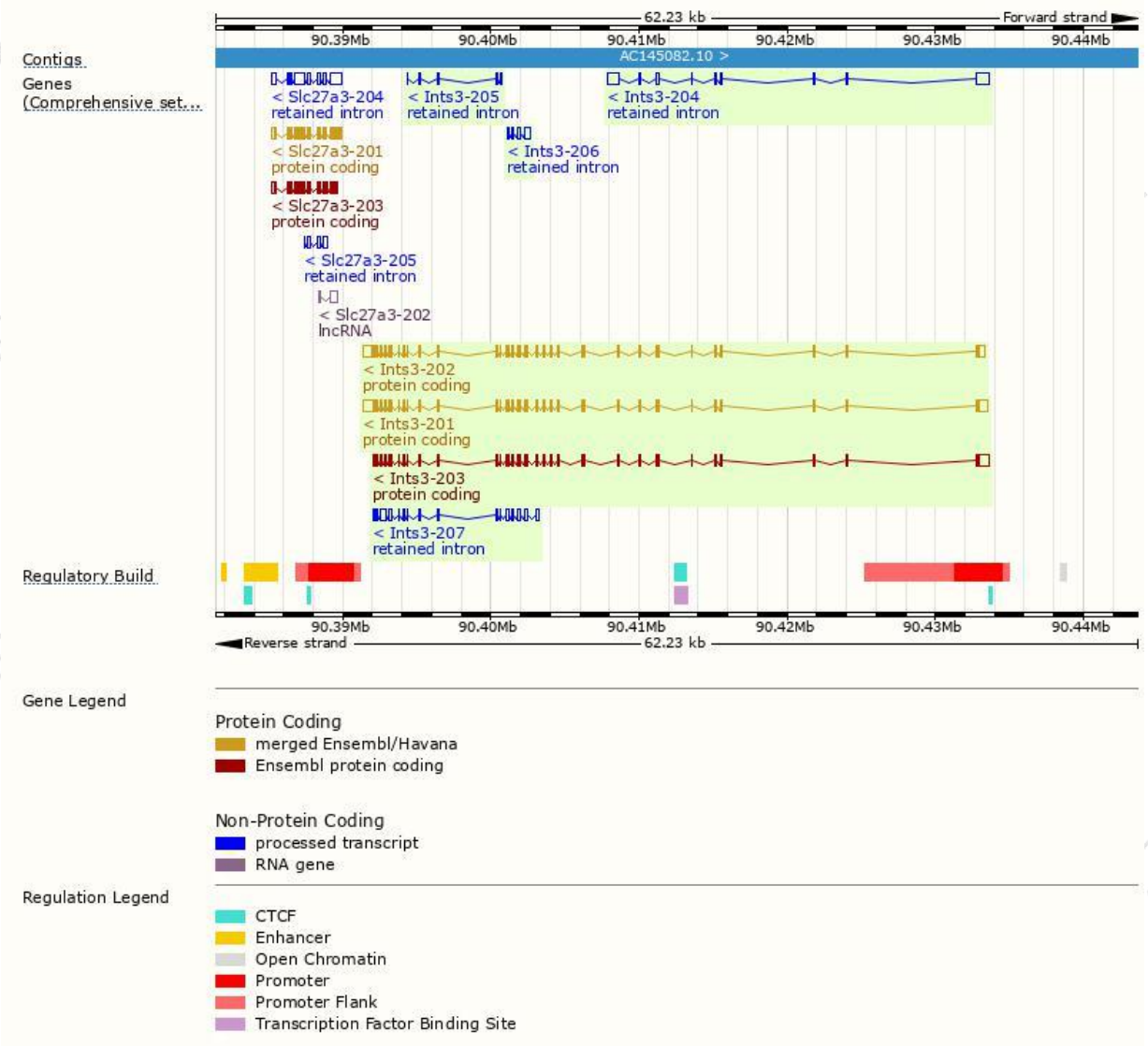
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ints3-201	ENSMUST00000029542.11	4337	1041aa	Protein coding	CCDS17528	Q7TPD0	TSL:1 GENCODE basic APPRIS P2
Ints3-202	ENSMUST00000071488.7	4038	1041aa	Protein coding	CCDS17528	Q7TPD0	TSL:1 GENCODE basic APPRIS P2
Ints3-203	ENSMUST00000196530.1	3778	1035aa	Protein coding	-	A0A0G2JFJ6	TSL:1 GENCODE basic APPRIS ALT2
Ints3-204	ENSMUST00000198562.1	2226	No protein	Retained intron	-	-	TSL:1
Ints3-207	ENSMUST00000199992.4	1891	No protein	Retained intron	-	-	TSL:2
Ints3-206	ENSMUST00000199158.1	619	No protein	Retained intron	-	-	TSL:3
Ints3-205	ENSMUST00000198776.1	556	No protein	Retained intron	-	-	TSL:3

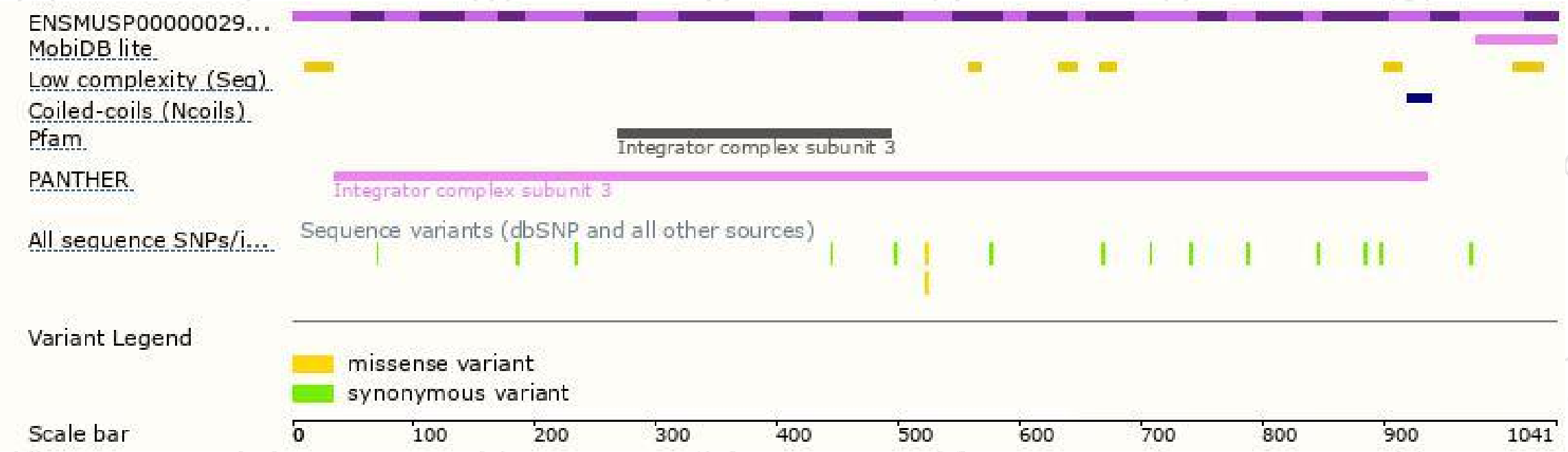
The strategy is based on the design of *Ints3-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd