

Igfn1 Cas9-CKO Strategy

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Reviewer: JiaYu

Design Date: 2020-10-14

Project Overview

Project Name

Igfn1

Project type

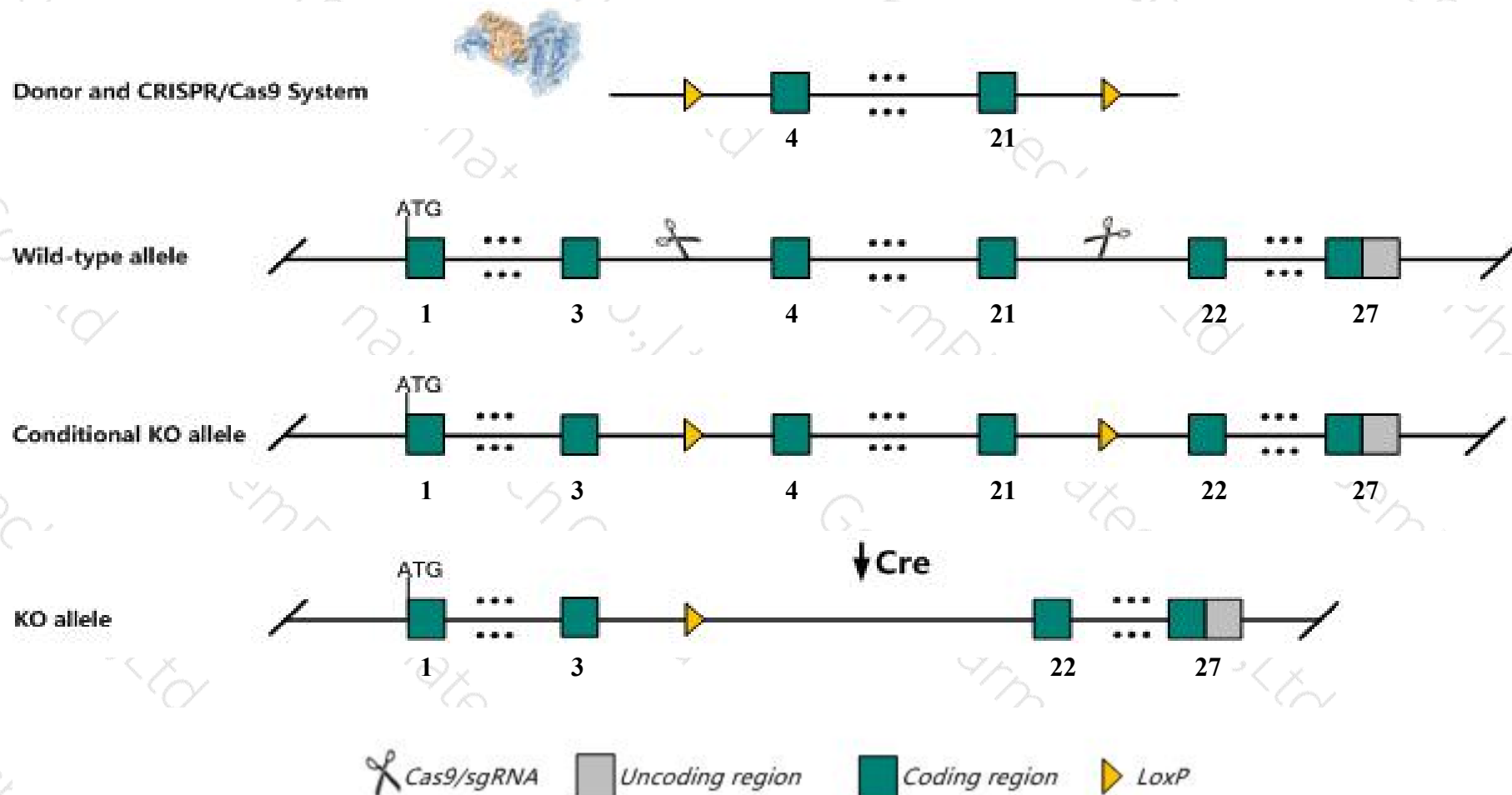
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Igfn1* gene. The schematic diagram is as follows:



Technical routes

- The *Igfn1* gene has 3 transcripts. According to the structure of *Igfn1* gene, exon4-exon21 of *Igfn1*-203(ENSMUST00000166193.8) transcript is recommended as the knockout region. The region contains 7073bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Igfn1* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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.

- The *Igfn1* gene is located on the Chr1. 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)

Igfn1 immunoglobulin-like and fibronectin type III domain containing 1 [Mus musculus (house mouse)]

Gene ID: 226438, updated on 13-Mar-2020

Summary



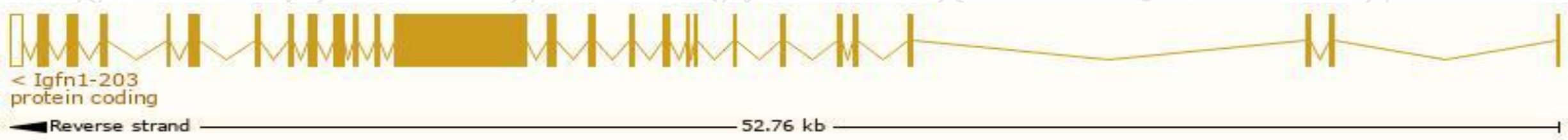
Official Symbol	Igfn1 provided by MGI
Official Full Name	immunoglobulin-like and fibronectin type III domain containing 1 provided by MGI
Primary source	MGI:MGI:3045352
See related	Ensembl:ENSMUSG00000051985
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9830123M21Rik
Expression	Biased expression in cortex adult (RPKM 2.9) and frontal lobe adult (RPKM 1.4) See more
Orthologs	human all

Transcript information (Ensembl)

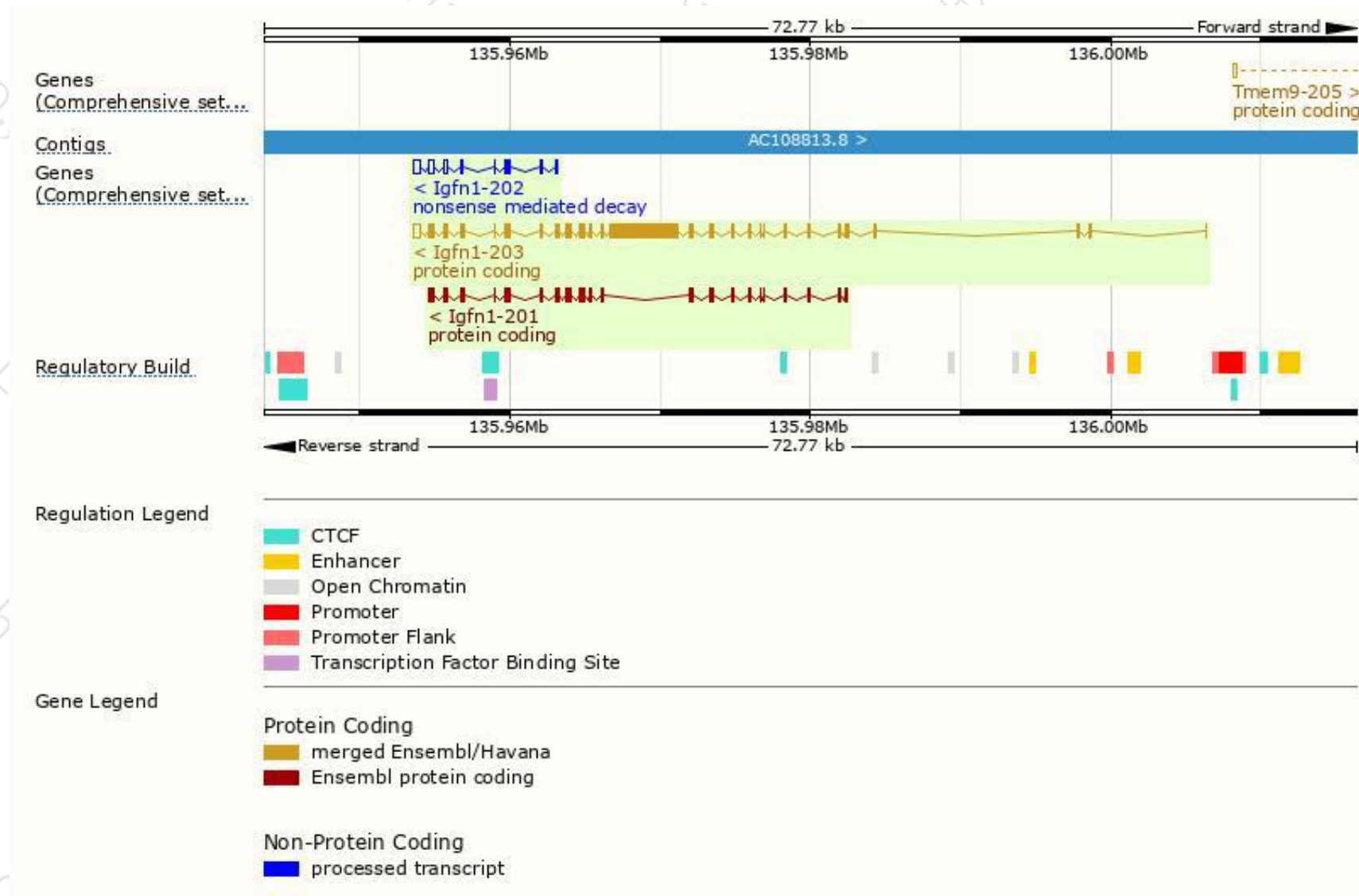
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Igfn1-203	ENSMUST00000166193.8	8989	2849aa	Protein coding	CCDS48379	Q3KNY0	TSL:1 GENCODE basic APPRIS P2
Igfn1-201	ENSMUST00000124134.2	3661	1221aa	Protein coding	-	F6QKE4	CDS 5' and 3' incomplete TSL:1 APPRIS ALT2
Igfn1-202	ENSMUST00000140703.7	1770	208aa	Nonsense mediated decay	-	A0A087WPK2	CDS 5' incomplete TSL:2

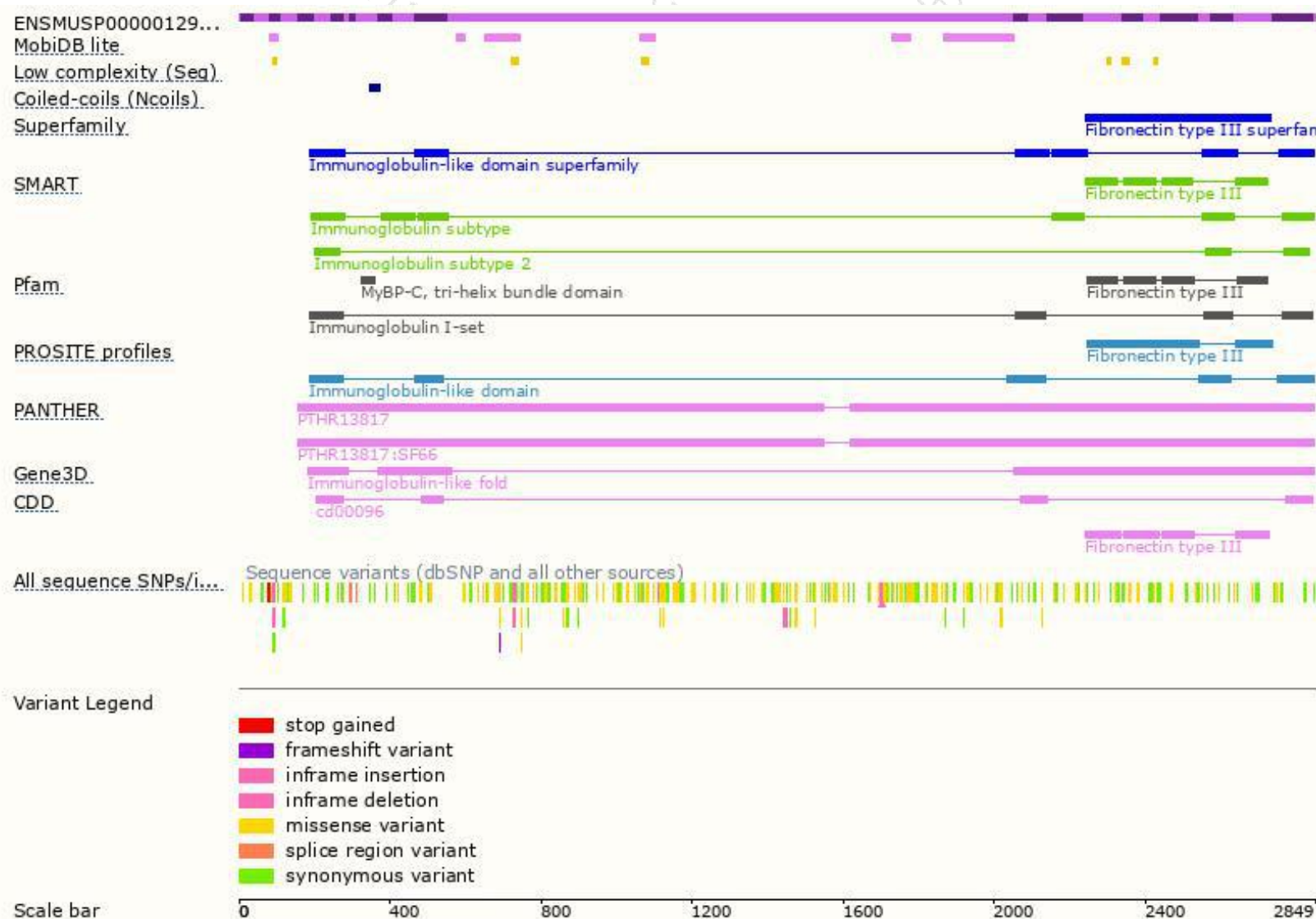
The strategy is based on the design of *Igfn1-203* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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