Inf2 Cas9-CKO Strategy

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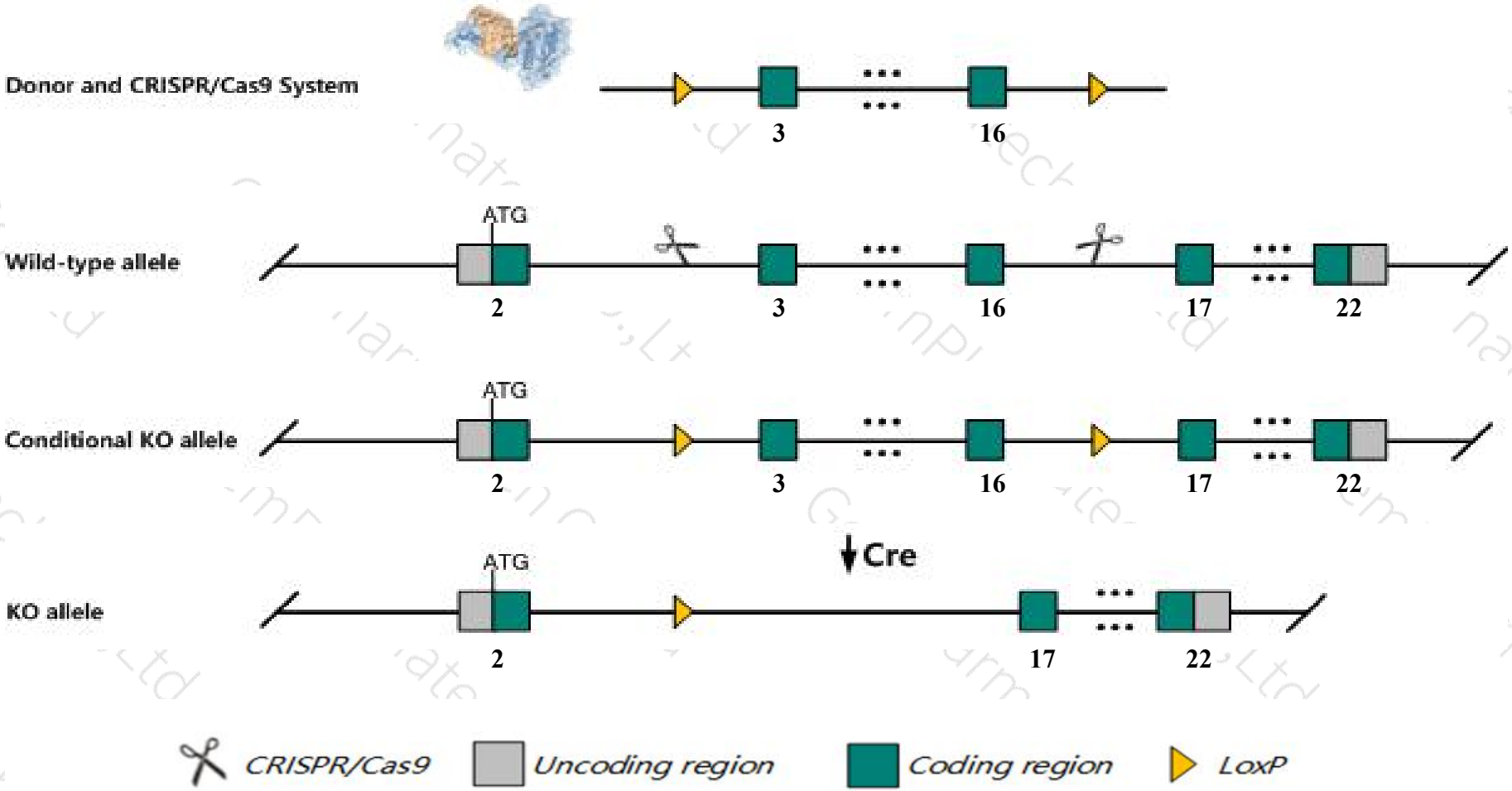
Project Overview

Project Name	***Inf2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Inf2* gene. The schematic diagram is as follows:



Technical routes

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- The *Inf2* gene has 3 transcripts. According to the structure of *Inf2* gene, exon3-exon16 of *Inf2-201* (ENSMUST00000101029.3) transcript is recommended as the knockout region.The region contains 2191bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Inf2* 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

- According to the existing MGI data,Mice homozygous for a null allele display placental vasculopathy, restricted fetal growth, increased gestational length and transient increase in maternal blood pressure in the late stages of pregnancy.

- Transcript 202 CDS 3' incomplete the influences is unknown.

- The *Inf2* gene is located on the Chr12. 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）

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Inf2 inverted formin, FH2 and WH2 domain containing [Mus musculus (house mouse)]

Gene ID: 70435, updated on 31-Jan-2019

Summary

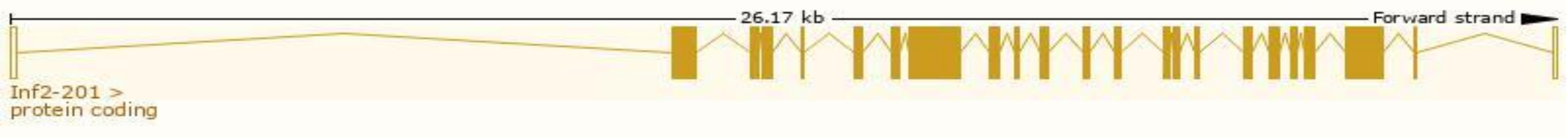
Official Symbol	Inf2 provided by MGI
Official Full Name	inverted formin, FH2 and WH2 domain containing provided by MGI
Primary source	MGI:MGI:1917685
See related	Ensembl:ENSMUSG00000037679
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610204M08Rik, AA589465, AW125550, EG629699
Expression	Ubiquitous expression in cortex adult (RPKM 15.2), frontal lobe adult (RPKM 13.7) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

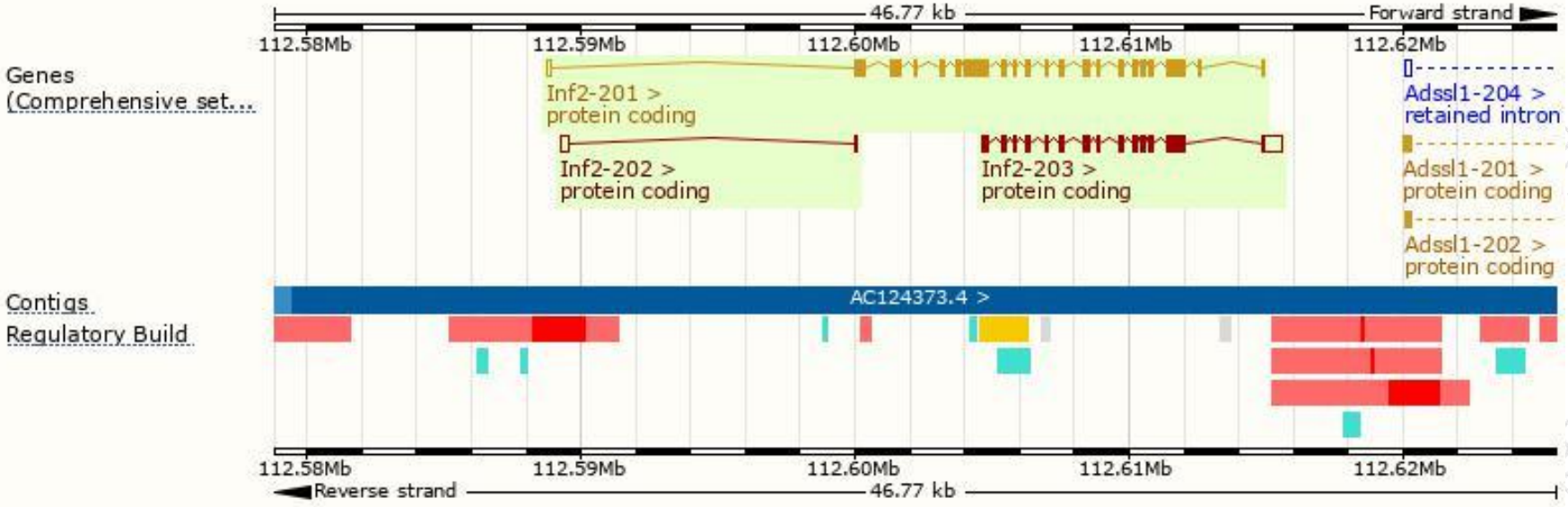
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Inf2-201	ENSMUST00000101029.3	4001	1271aa	Protein coding	CCDS36571	E9QLA5	TSL:1 GENCODE basic APPRIS P1
Inf2-203	ENSMUST00000222275.1	2795	720aa	Protein coding	-	A0A1Y7VM80	CDS 5' incomplete TSL:1
Inf2-202	ENSMUST00000220786.1	352	24aa	Protein coding	-	A0A1Y7VLQ6	CDS 3' incomplete TSL:3

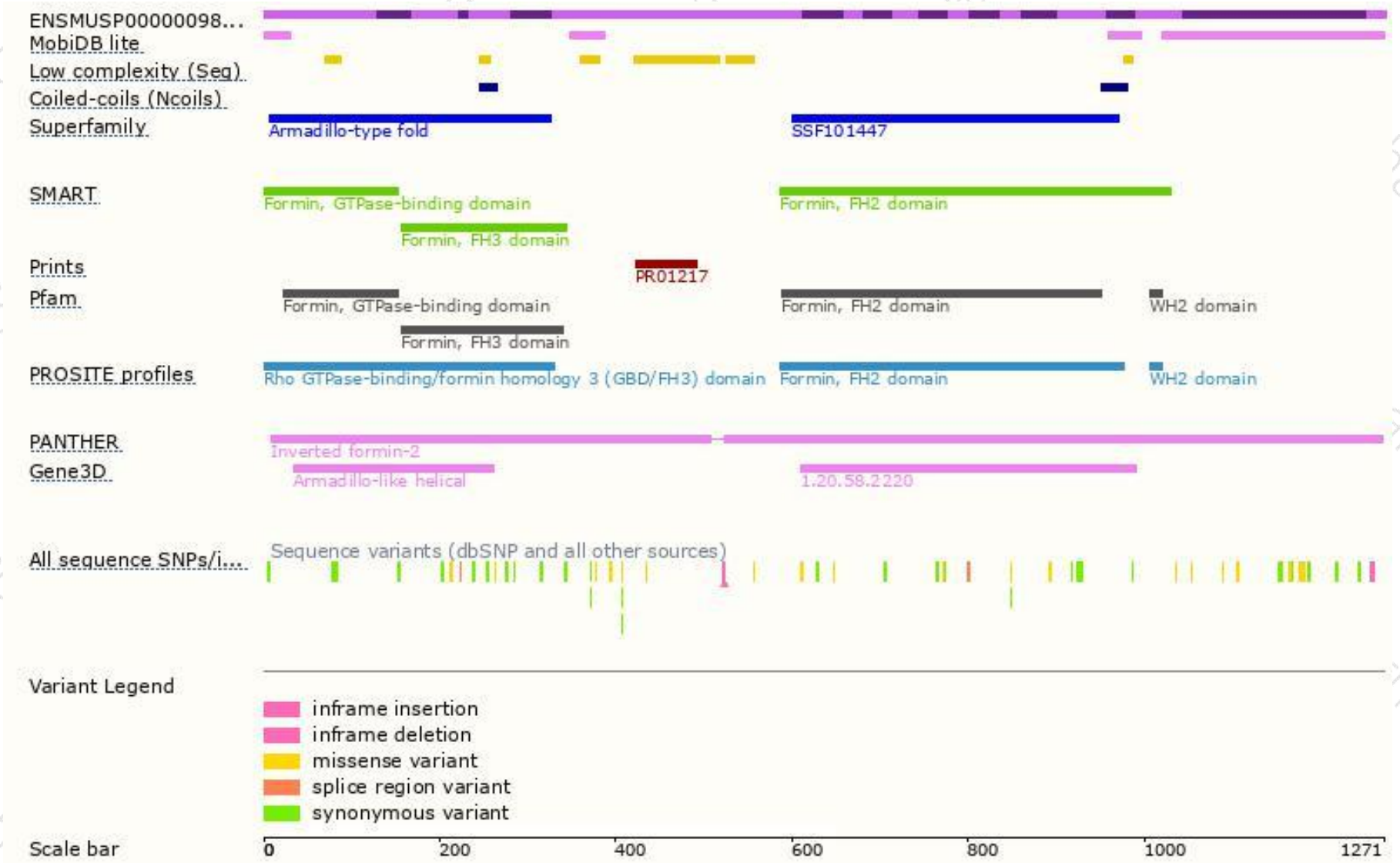
The strategy is based on the design of *Inf2-201* transcript,The transcription is shown below



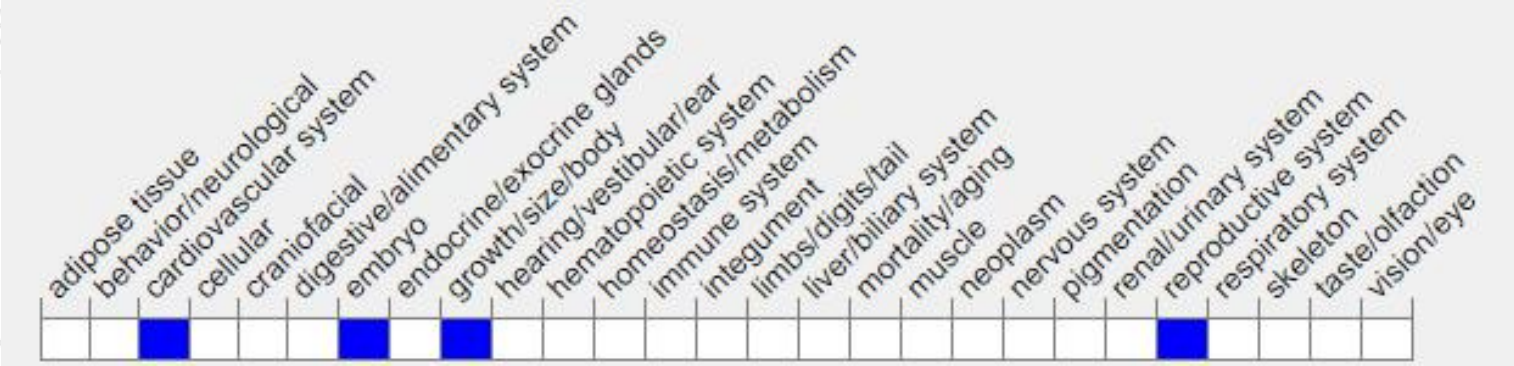
Genomic location distribution



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 a null allele display placental vasculopathy, restricted fetal growth, increased gestational length and transient increase in maternal blood pressure in the late stages of pregnancy.

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

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