Fnip2 Cas9-KO Strategy

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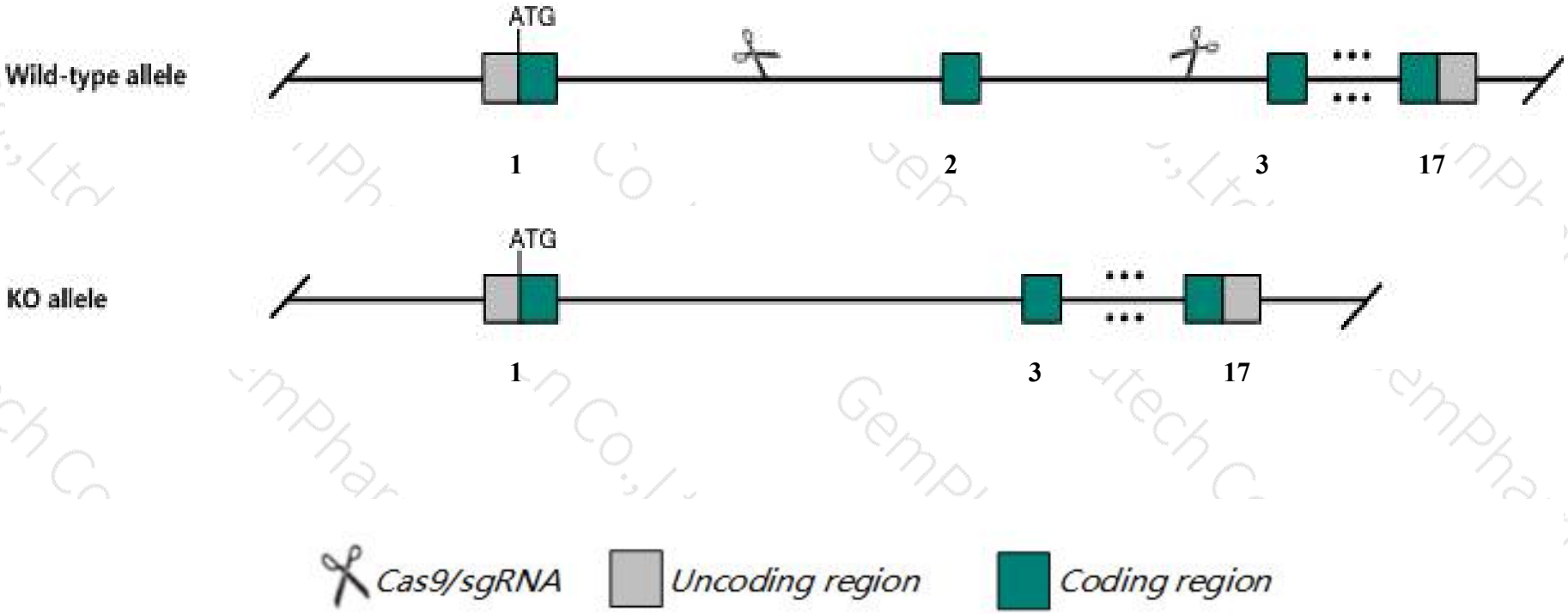
Project Overview

Project Name	***Fnip2***
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fnip2* gene. The schematic diagram is as follows:



Technical routes

- The *Fnip2* gene has 6 transcripts. According to the structure of *Fnip2* gene, exon2 of *Fnip2-201* (ENSMUST00000076136.6) transcript is recommended as the knockout region.The region contains 127bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Fnip2* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

Notice

- According to the existing MGI data,Mice homozygous for a null allele have normal lifespans. Mice with combined loss of this gene and a single null allele of Fnip1 develop kidney cancer.

- Transcript *Fnip2*-202&205&206 may not be affected.

- The *Fnip2* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

集萃药康 GemPharmatech

Fnip2 folliculin interacting protein 2 [Mus musculus (house mouse)]

Gene ID: 329679, updated on 31-Jan-2019

Summary

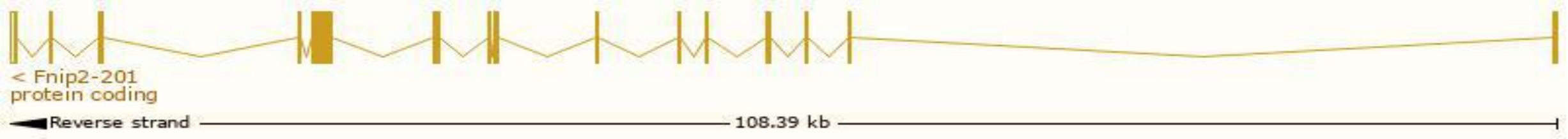
Official Symbol	Fnip2 provided by MGI
Official Full Name	folliculin interacting protein 2 provided byMGI
Primary source	MGI:MGI:2683054
See related	Ensembl:ENSMUSG00000061175
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	D630023B12Rik, mKIAA1450
Expression	Ubiquitous expression in kidney adult (RPKM 5.2), placenta adult (RPKM 4.8) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

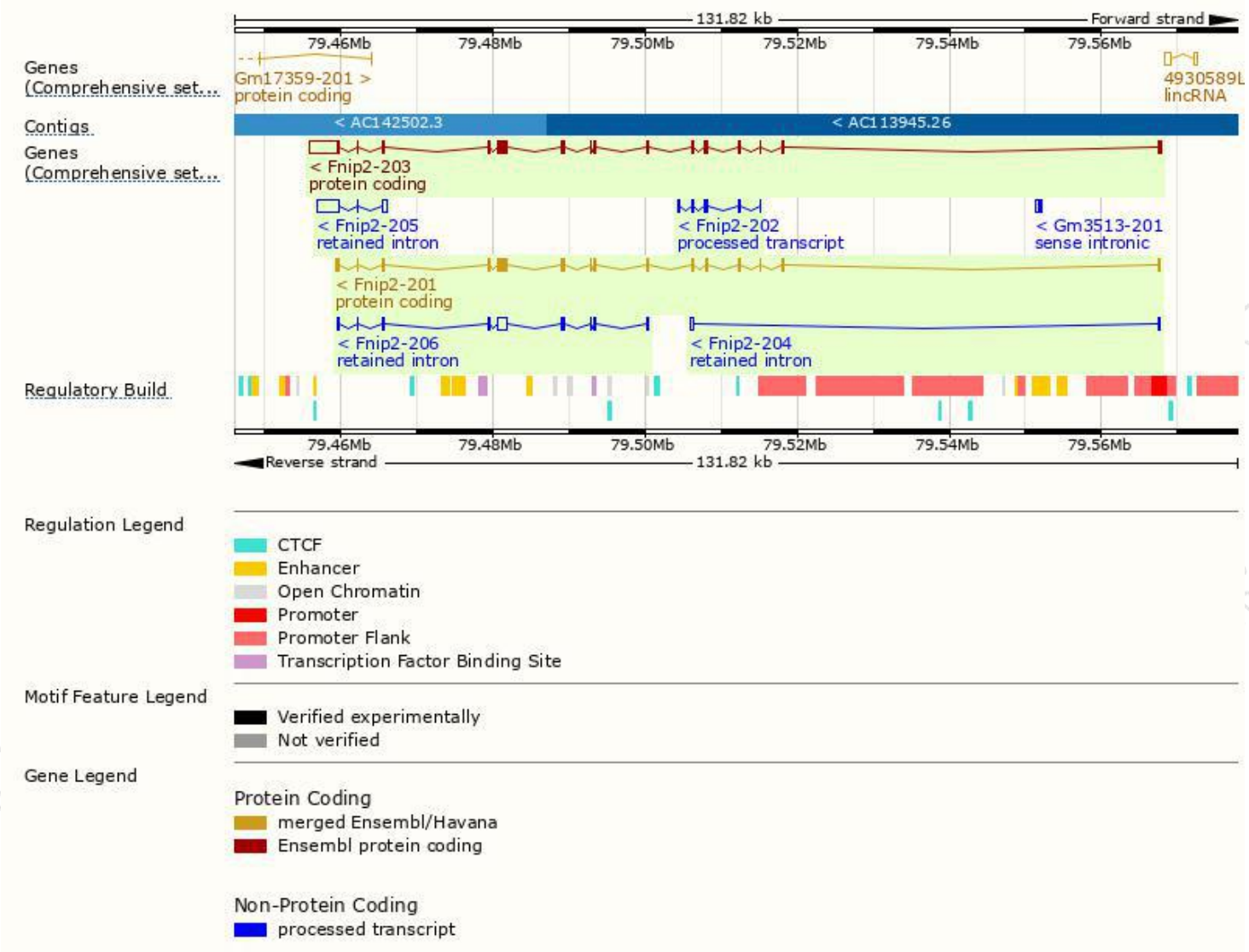
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID ▲	bp	Protein	Biotype	CCDS	UniProt	Flags
Fnip2-201	ENSMUST00000076136.6	3775	1108aa	Protein coding	CCDS50934	Q80TD3	TSL:5 GENCODE basic APPRIS P2
Fnip2-202	ENSMUST00000130613.1	872	No protein	Processed transcript	-	-	TSL:3
Fnip2-203	ENSMUST00000133154.6	7299	1138aa	Protein coding	-	D3YUC5	TSL:5 GENCODE basic APPRIS ALT2
Fnip2-204	ENSMUST00000139171.1	507	No protein	Retained intron	-	-	TSL:3
Fnip2-205	ENSMUST00000149475.7	3629	No protein	Retained intron	-	-	TSL:1
Fnip2-206	ENSMUST00000154645.1	2737	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Fnip2-201* transcript,The transcription is shown below

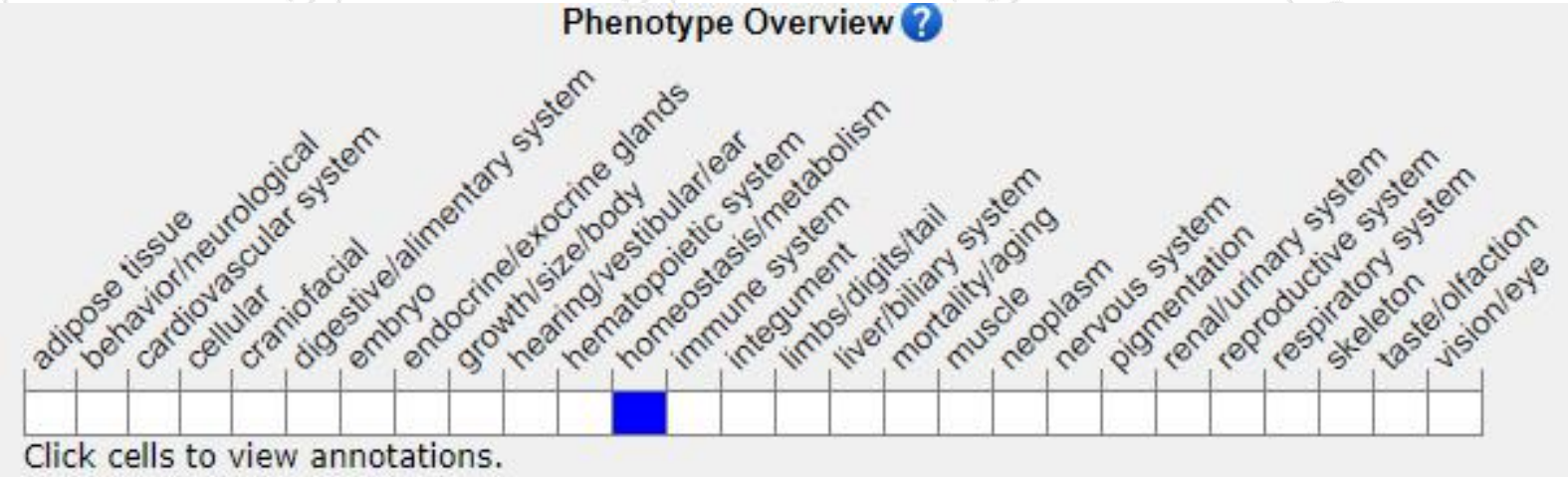


Genomic location distribution



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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