

Fign Cas9-CKO Strategy

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Project Overview

Project Name

Fign

Project type

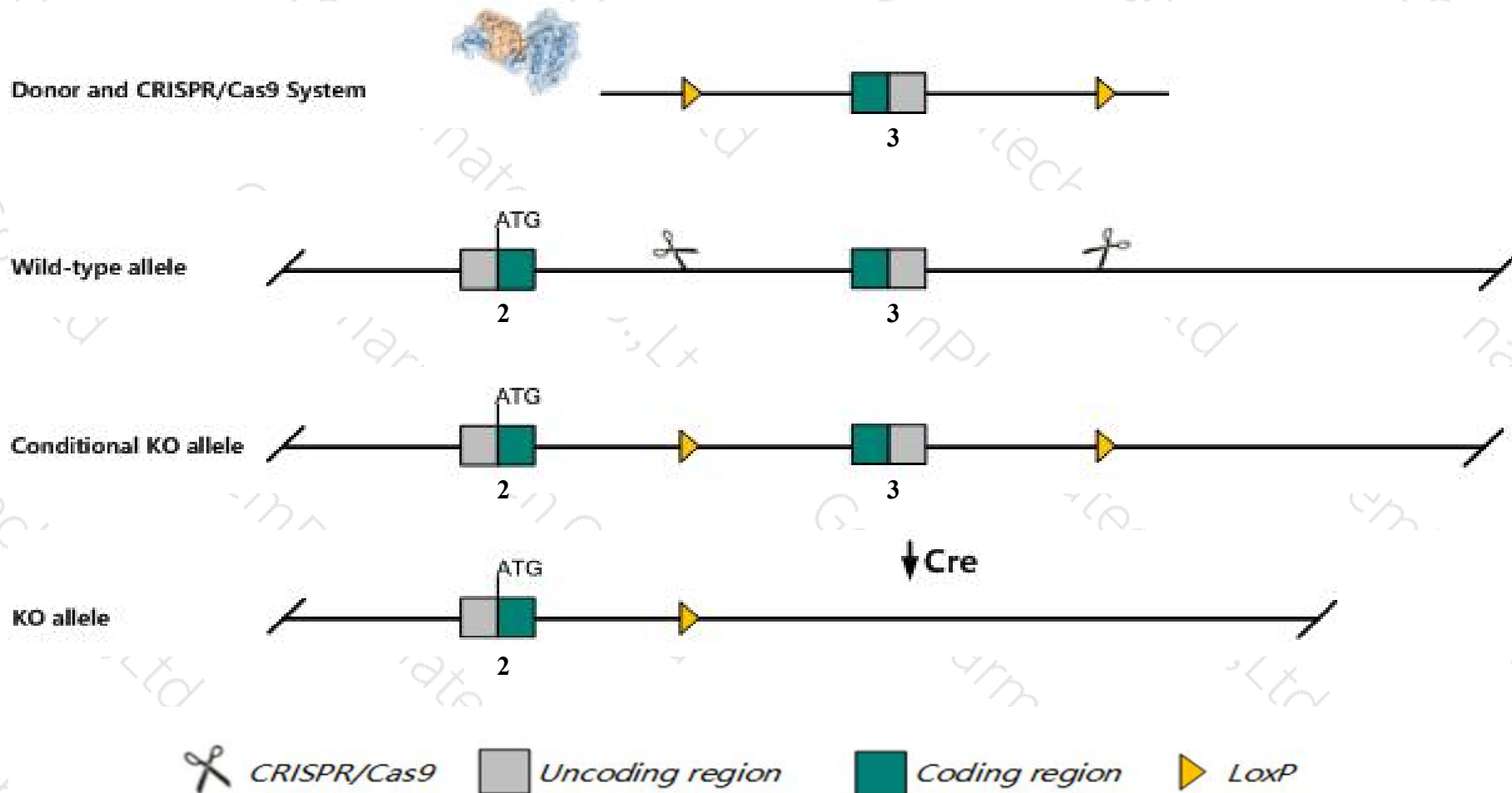
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Fign* gene has 4 transcripts. According to the structure of *Fign* gene, exon3 of *Fign*-203 (ENSMUST00000131615.8) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fign* 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.

- According to the existing MGI data, Homozygotes for a reporter allele show pre- and postnatal death, head-shaking, and small eyes. Spontaneous mutants show head-shaking, circling, reduced or absent semicircular canals, small abnormal eyes, aberrant cell-cycling, female sterility, and low penetrance craniofacial and skeletal defects.
- The *Fign* gene is located on the Chr2. 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)

Fign fidgetin [*Mus musculus* (house mouse)]

Gene ID: 60344, updated on 21-Jan-2020

Summary

- Official Symbol** Fign provided by [MGI](#)
- Official Full Name** fidgetin provided by [MGI](#)
- Primary source** [MGI:MGI:1890647](#)
- See related** [Ensembl:ENSMUSG00000075324](#)
- 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** fi; Fgn; fidget
- Expression** Broad expression in whole brain E14.5 (RPKM 2.5), CNS E11.5 (RPKM 2.2) and 20 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 2 C1.3; 2 37.19 cM See Fign in [Genome Data Viewer](#)

Exon count: 5

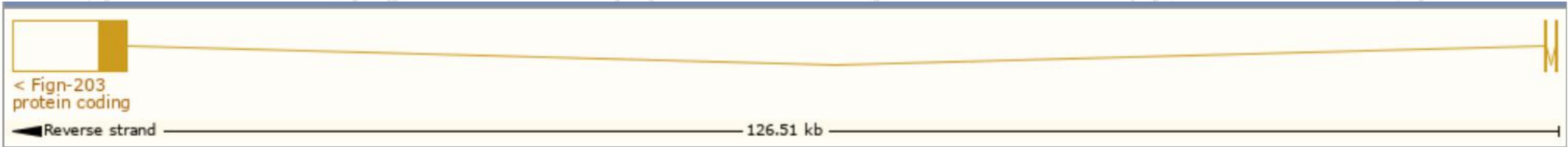
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (63971508..64098038, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (63815418..63936064, complement)

Transcript information (Ensembl)

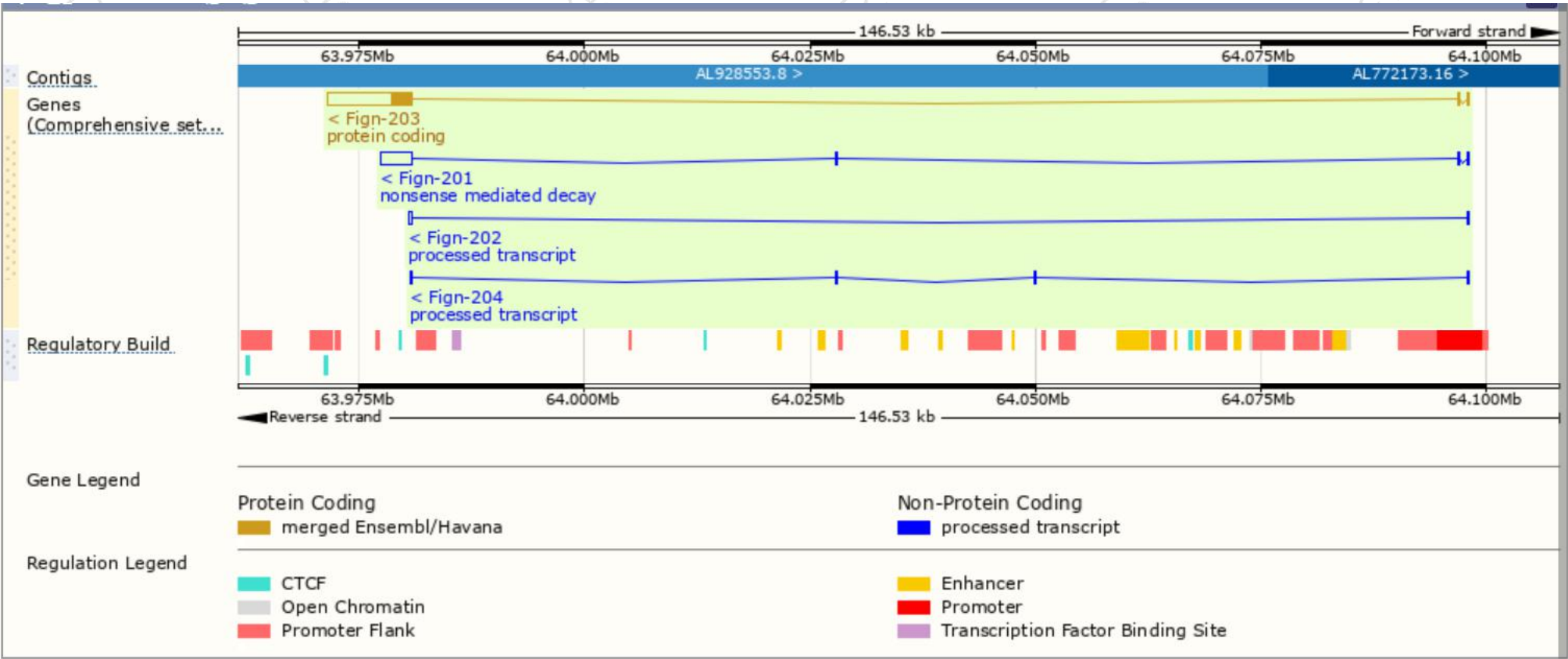
The gene has 4 transcripts,all the transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fign-203	ENSMUST00000131615.8	9734	759aa	Protein coding	CCDS16070	Q9ERZ6	TSL:1 Gencode basic APPRIS P1
Fign-201	ENSMUST00000102728.3	3988	45aa	Nonsense mediated decay	-	E0CYB7	TSL:1
Fign-204	ENSMUST00000153538.1	662	No protein	Processed transcript	-	-	TSL:1
Fign-202	ENSMUST00000126042.1	600	No protein	Processed transcript	-	-	TSL:3

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



Genomic location distribution

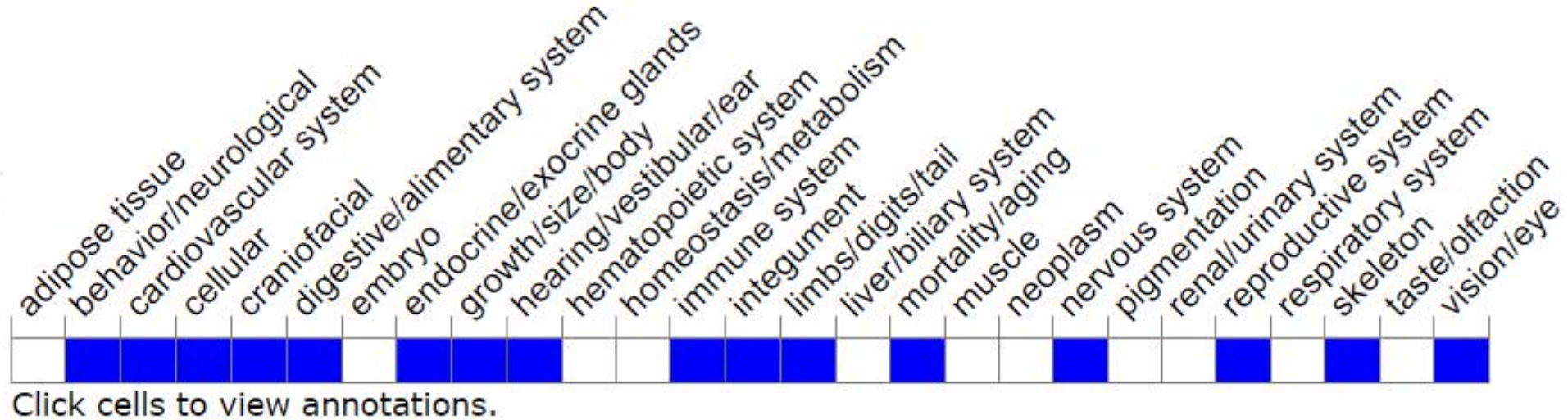


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



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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