Fign Cas9-KO Strategy

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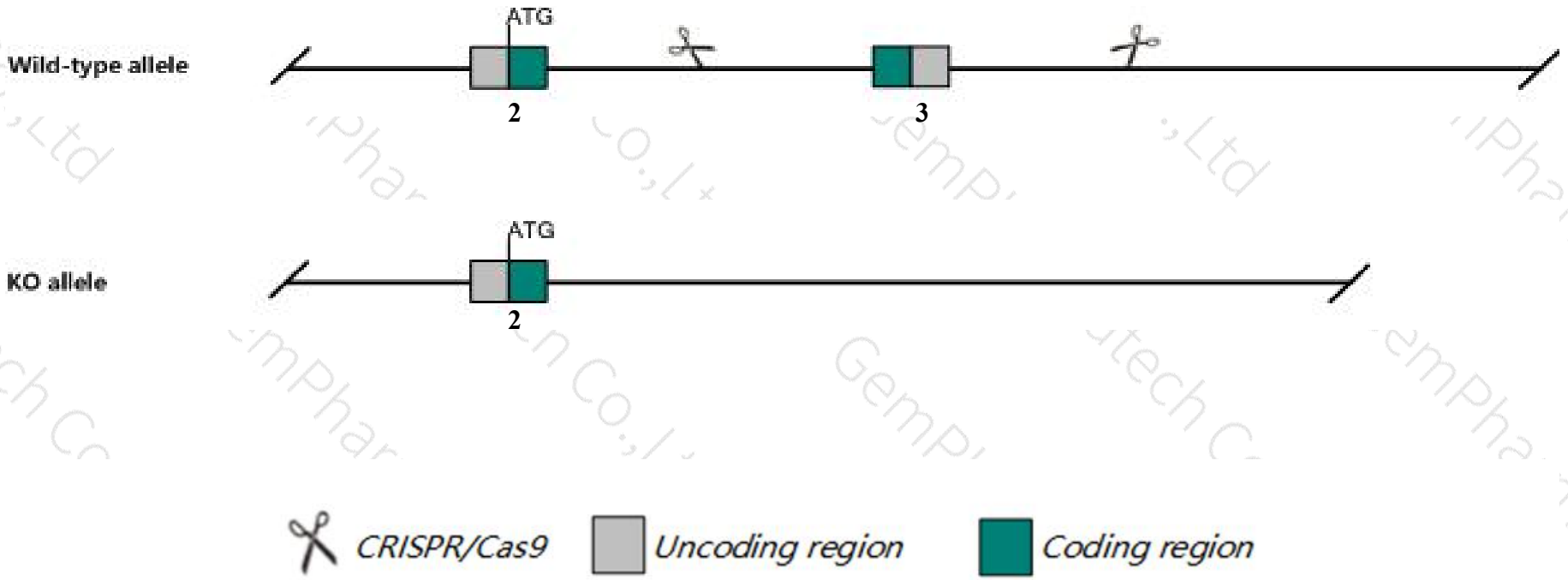
Project Overview

Project Name	***Fign***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

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 v

Notice

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

Gene information （NCBI）

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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

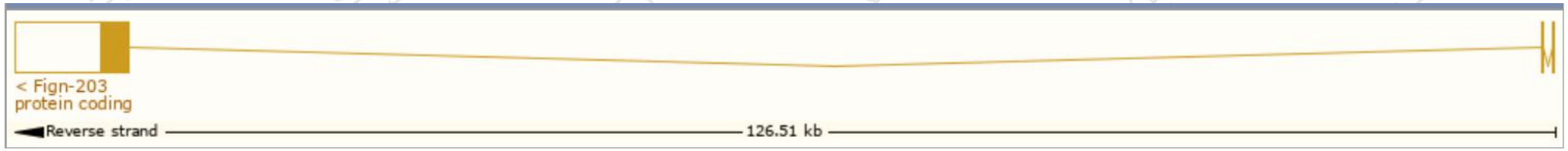
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (63971508..64098038, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (63815418..63936064, complement)

Transcript information（Ensembl）

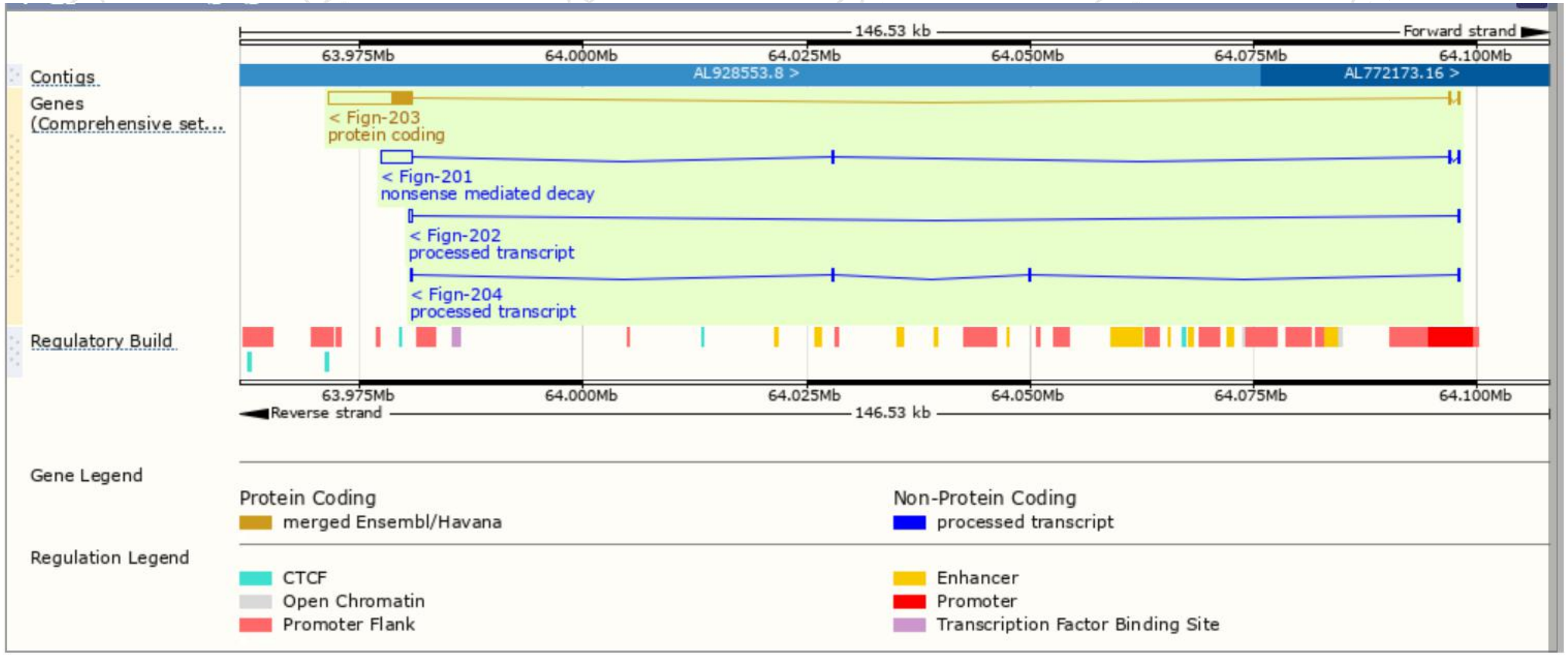
The gene has 4 transcripts,all the transcripts are shown below:

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

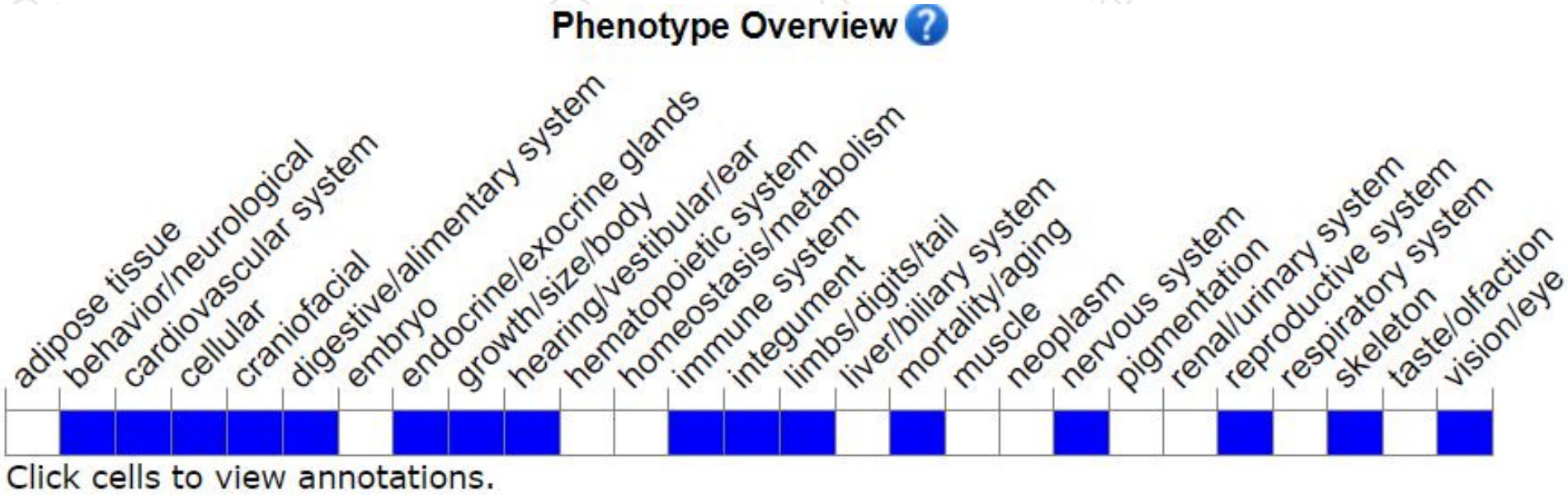


Genomic location distribution



Protein domain

Mouse phenotype description(MGI)



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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