

Fzd3 Cas9-KO Strategy

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Project Overview

Project Name

Fzd3

Project type

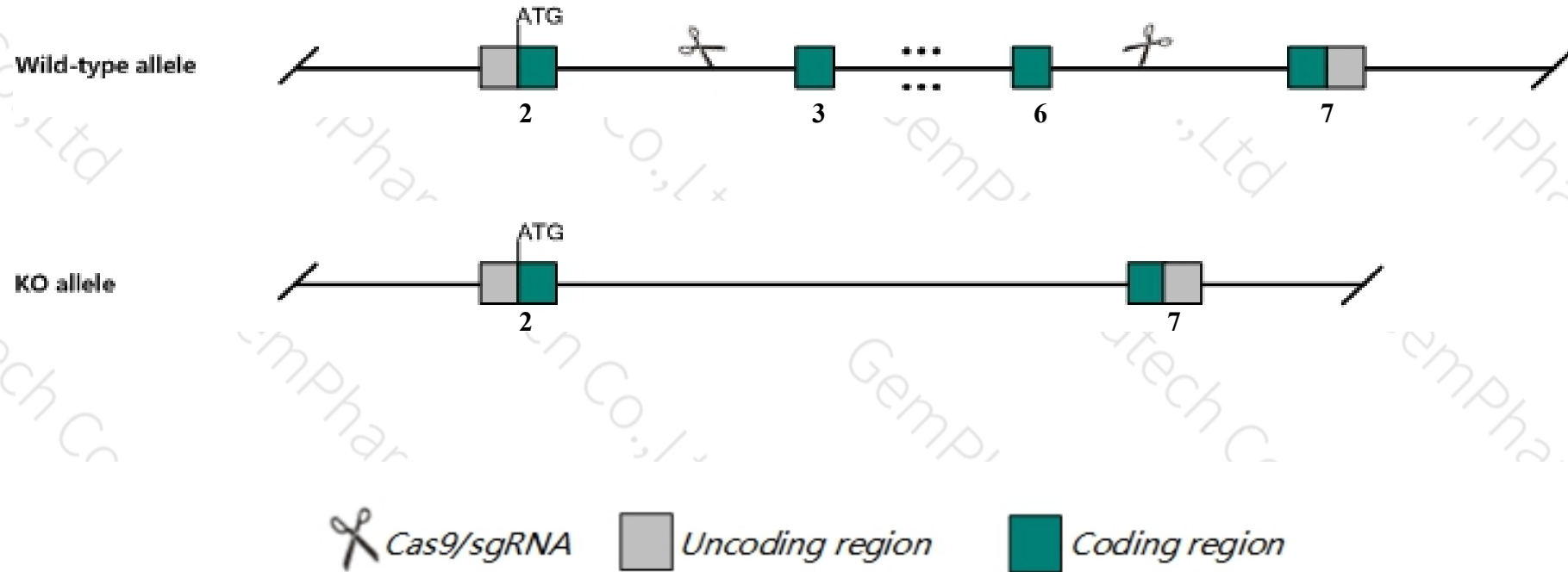
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fzd3* gene. The schematic diagram is as follows:



- The *Fzd3* gene has 2 transcripts. According to the structure of *Fzd3* gene, exon3-exon6 of *Fzd3-202* (ENSMUST00000131309.2) transcript is recommended as the knockout region. The region contains 1598bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fzd3* 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.

- According to the existing MGI data, Mice homozygous for disruption of this gene die within 30 minutes of birth. Breathing is irregular. Brain development is abnormal with occasional failure of the cephalic neural tube to close.
- The *Fzd3* gene is located on the Chr14. 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)

Fzd3 frizzled class receptor 3 [Mus musculus (house mouse)]

Gene ID: 14365, updated on 19-Mar-2019

Summary



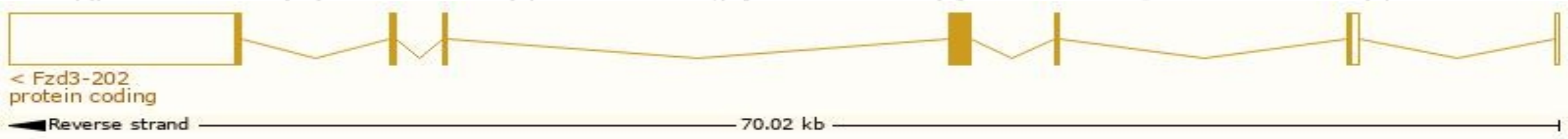
Official Symbol	Fzd3 provided by MGI
Official Full Name	frizzled class receptor 3 provided by MGI
Primary source	MGI:MGI:108476
See related	Ensembl:ENSMUSG00000007989
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AU020229, D930050A07Rik, Fz3
Expression	Broad expression in whole brain E14.5 (RPKM 1.9), CNS E11.5 (RPKM 1.8) and 17 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

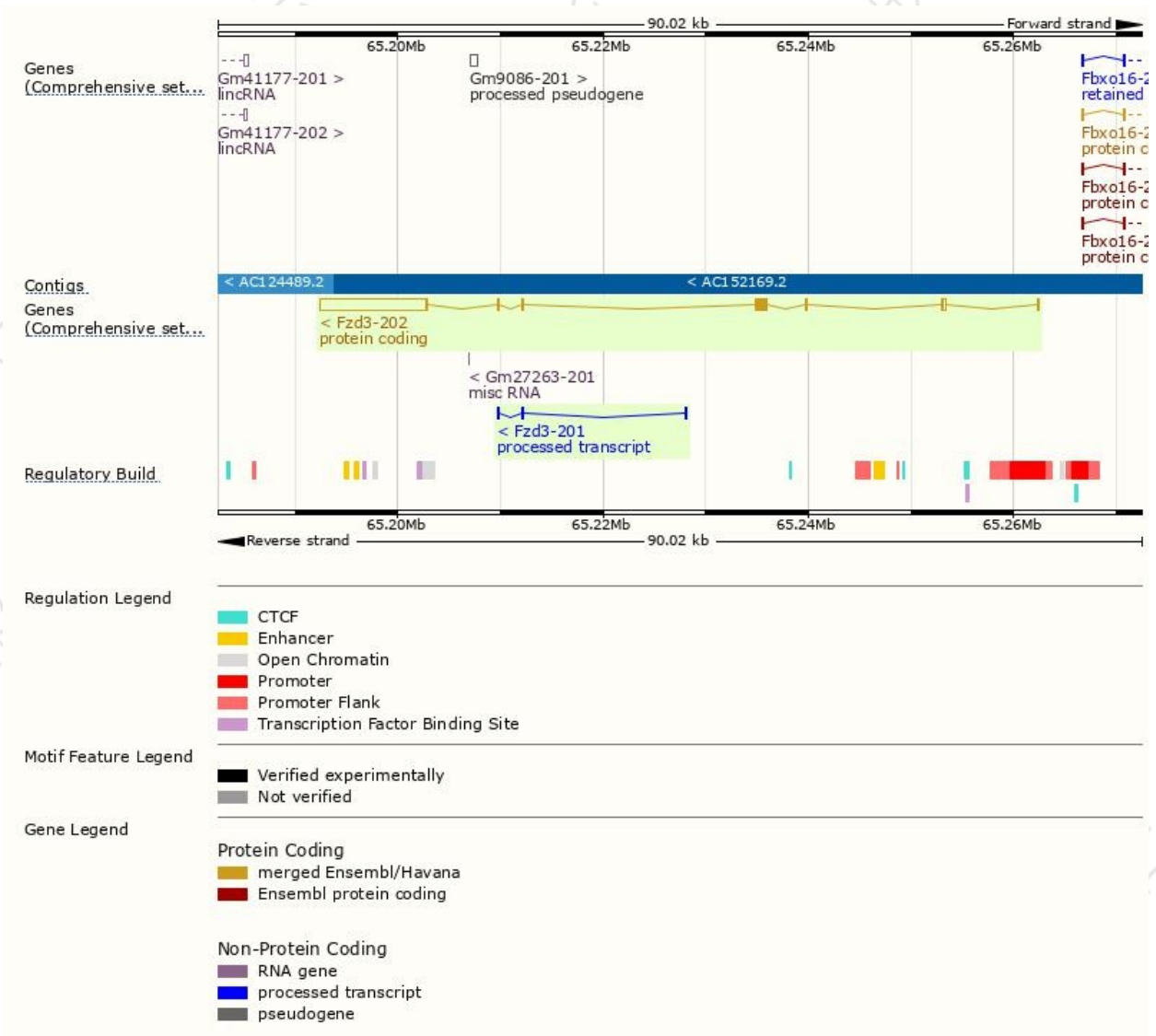
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fzd3-202	ENSMUST00000131309.2	12734	666aa	Protein coding	CCDS27212	Q61086	TSL:1 GENCODE basic APPRIS P1
Fzd3-201	ENSMUST00000127272.1	426	No protein	Processed transcript	-	-	TSL:3

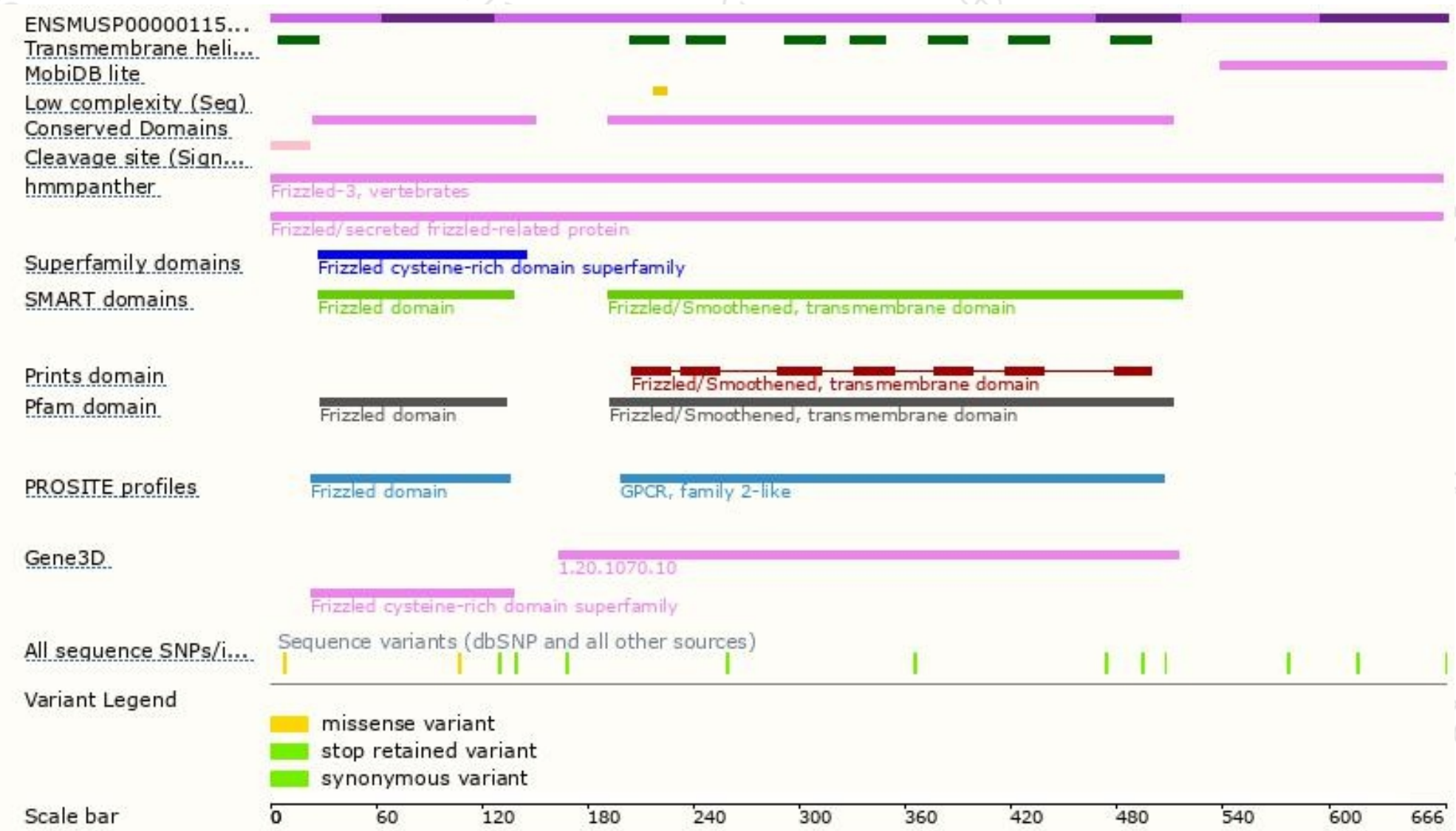
The strategy is based on the design of *Fzd3-202* transcript,The transcription is shown below



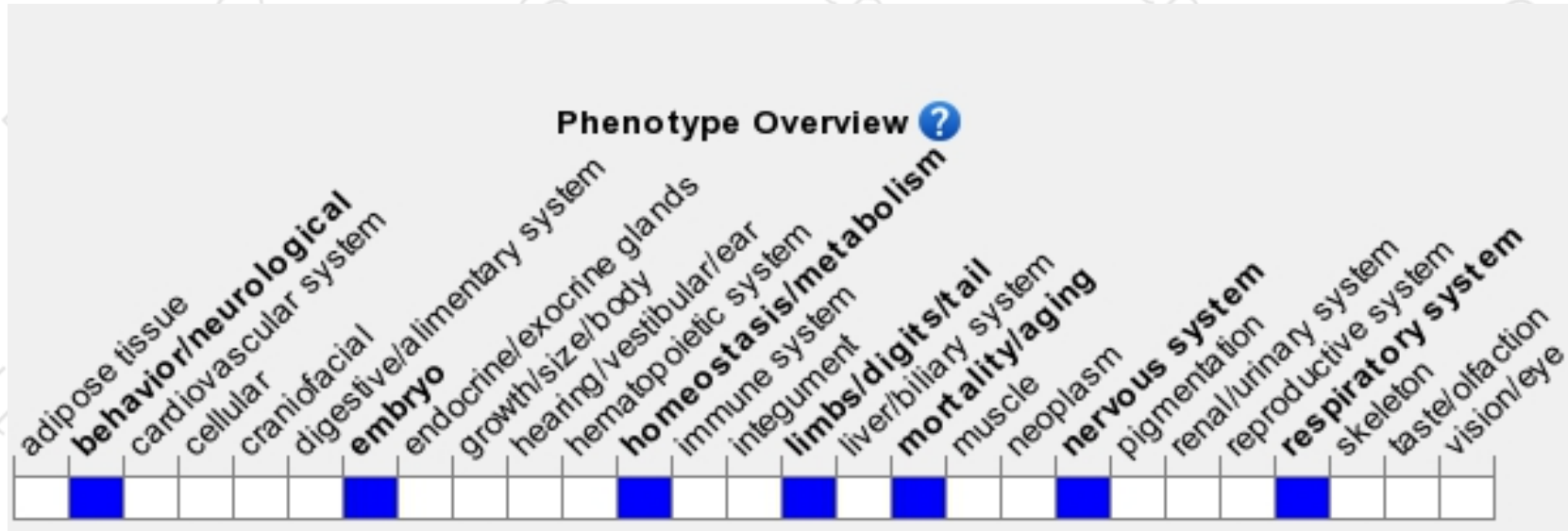
Genomic location distribution



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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