

Fzd2 Cas9-KO Strategy

Designer: JiaYu

Project Overview

Project Name

Fzd2

Project type

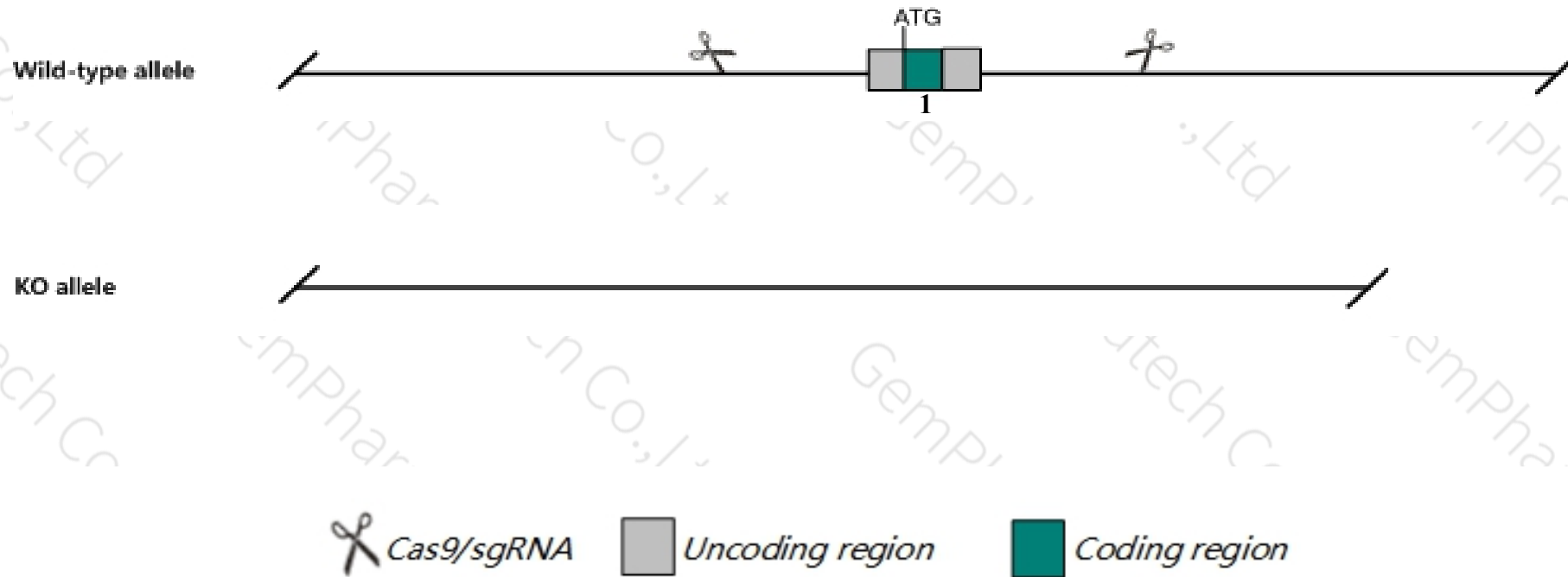
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fzd2* gene. The schematic diagram is as follows:



- The *Fzd2* gene has 1 transcript. According to the structure of *Fzd2* gene, exon1 of *Fzd2-201* (ENSMUST00000057893.6) transcript is recommended as the knockout region. The region contains all 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 *Fzd2* 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, About 50% of mice homozygous for a reporter allele display a cleft palate and die as neonates; the remaining 50% survive exhibiting a variable degree of postnatal runting and reduced olfactory sensitivity to various odorants.
- The *Fzd2* gene is located on the Chr11. 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)

Fzd2 frizzled class receptor 2 [*Mus musculus* (house mouse)]

Gene ID: 57265, updated on 31-Jan-2019

Summary

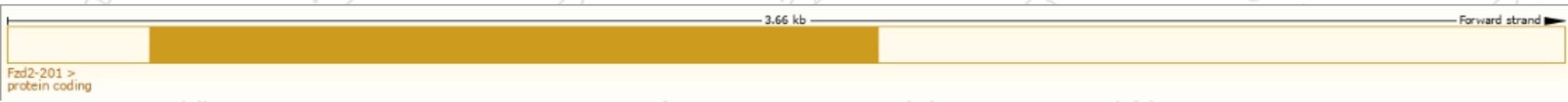
Official Symbol Fzd2 provided by [MGI](#)
Official Full Name frizzled class receptor 2 provided by [MGI](#)
Primary source [MGI:MGI:1888513](#)
See related [Ensembl:ENSMUSG00000050288](#)
Gene type protein coding
RefSeq status VALIDATED
Organism [Mus musculus](#)
Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as Fz10; Fzd10; Mfz10; Mfz10a; AL033370; AW456835
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

The gene has 1 transcript, and the transcript is shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags | | |
|----------|--------------------------------------|------|-----------------------|----------------|---------------------------|------------------------|--------|---------------|-----------|
| Fzd2-201 | ENSMUST00000057893.6 | 3663 | 570aa | Protein coding | CCDS25501 | Q9JIP6 | TSL:NA | GENCODE basic | APPRIS P1 |

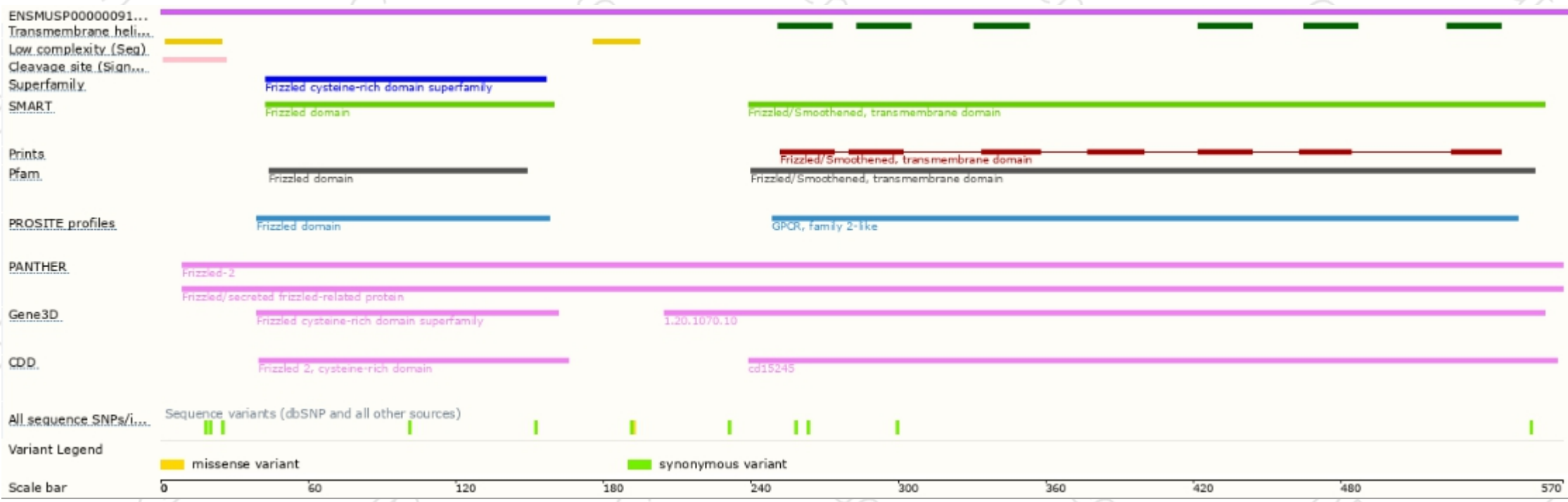
The strategy is based on the design of *Fzd2-201* transcript, The transcription is shown below



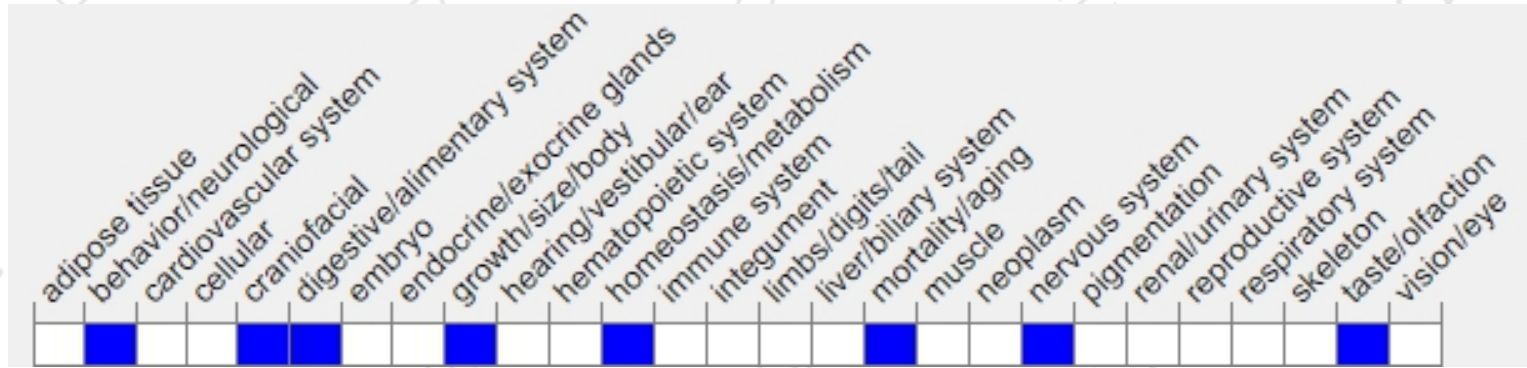
Genomic location distribution



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.

Tel: 025-5864 1534

