

Fgd5 Cas9-KO Strategy

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Project Overview

Project Name

Fgd5

Project type

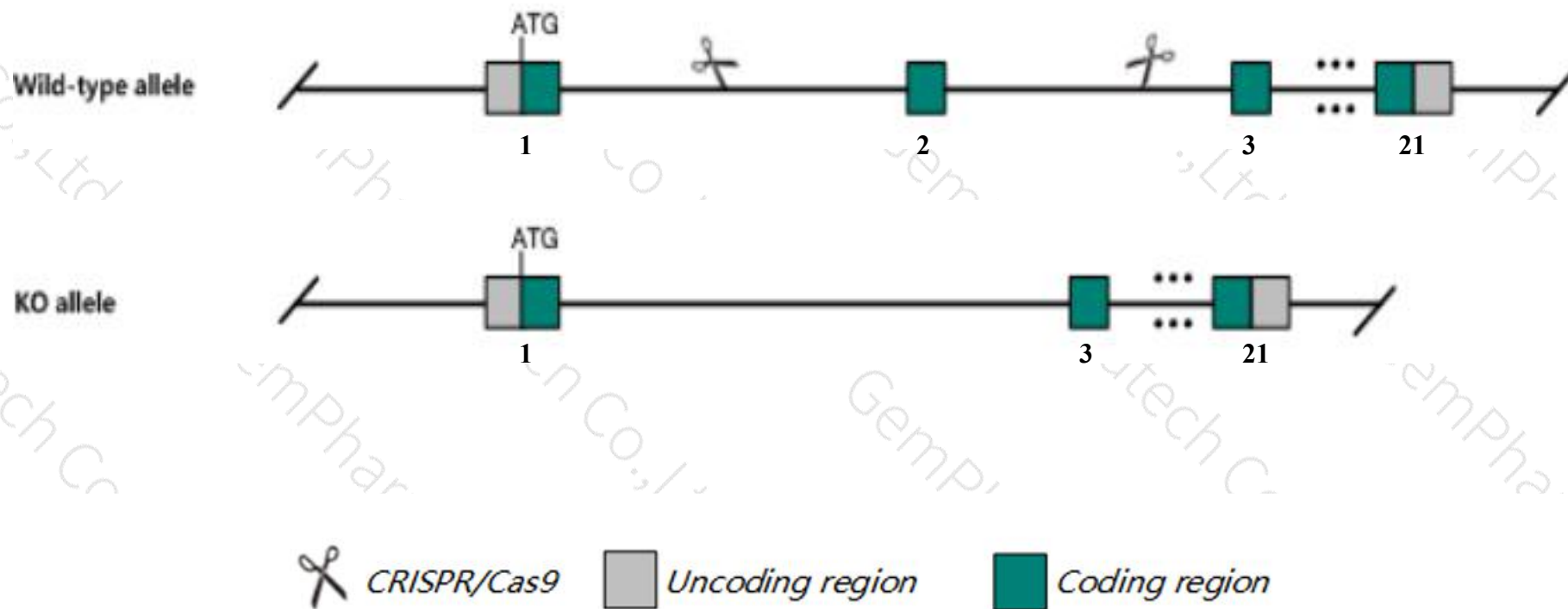
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fgd5* gene. The schematic diagram is as follows:



➤ The *Fgd5* gene has 4 transcripts. According to the structure of *Fgd5* gene, exon2 of *Fgd5-201*(ENSMUST00000089334.8) transcript is recommended as the knockout region. The region contains 2665bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Fgd5* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, homozygous disruption of this gene leads to complete embryonic lethality during organogenesis.
- The *Fgd5* gene is located on the Chr6. 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)

Fgd5 FYVE, RhoGEF and PH domain containing 5 [Mus musculus (house mouse)]

Gene ID: 232237, updated on 13-Mar-2020

Summary



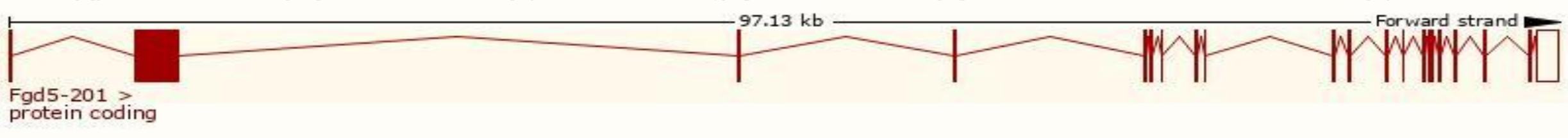
Official Symbol	Fgd5 provided by MGI
Official Full Name	FYVE, RhoGEF and PH domain containing 5 provided by MGI
Primary source	MGI:MGI:2443369
See related	Ensembl:ENSMUSG00000034037
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C330025N11Rik, ZFYVE23, mFLJ00274
Expression	Ubiquitous expression in lung adult (RPKM 11.1), subcutaneous fat pad adult (RPKM 5.0) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

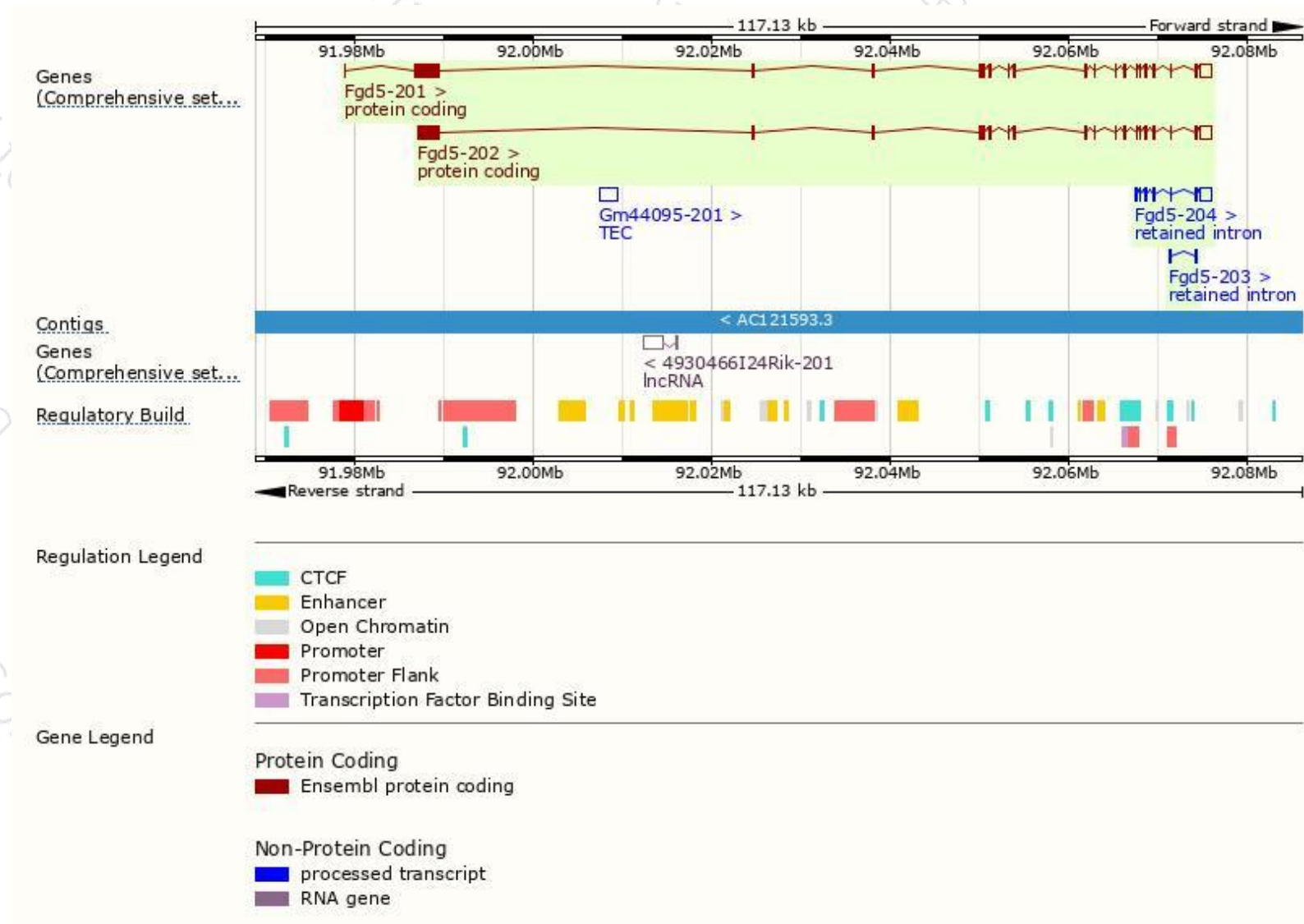
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fgd5-201	ENSMUST00000089334.8	6095	1514aa	Protein coding	CCDS20371	E9QKY4	TSL:1 GENCODE basic APPRIS P2
Fgd5-202	ENSMUST00000113466.1	5621	1356aa	Protein coding	-	E9QLU9	TSL:1 GENCODE basic APPRIS ALT2
Fgd5-204	ENSMUST00000146743.1	2294	No protein	Retained intron	-	-	TSL:1
Fgd5-203	ENSMUST00000130369.1	371	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Fgd5-201* transcript,the transcription is shown below:



Genomic location distribution



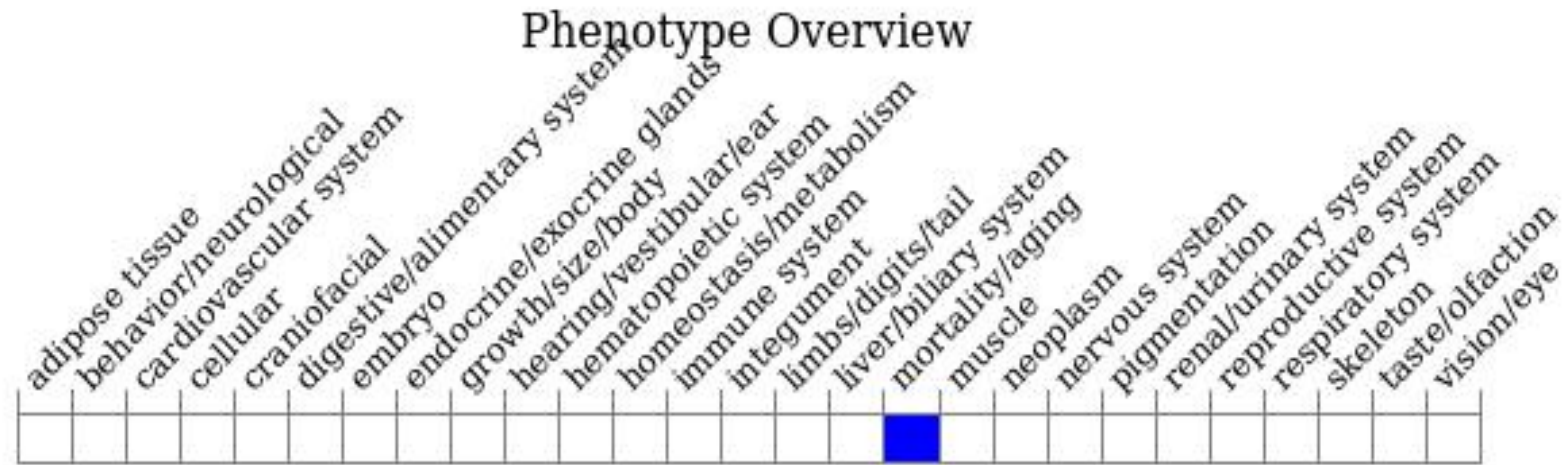
Protein domain



集萃药康
GemPharmatech



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, homozygous disruption of this gene leads to complete embryonic lethality during organogenesis.

If you have any questions, you are welcome to inquire.

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