

Fshb Cas9-KO Strategy

Designer:

Ruirui Zhang

Reviewer:

Huimin Su

Design Date:

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Project Overview

Project Name

Fshb

Project type

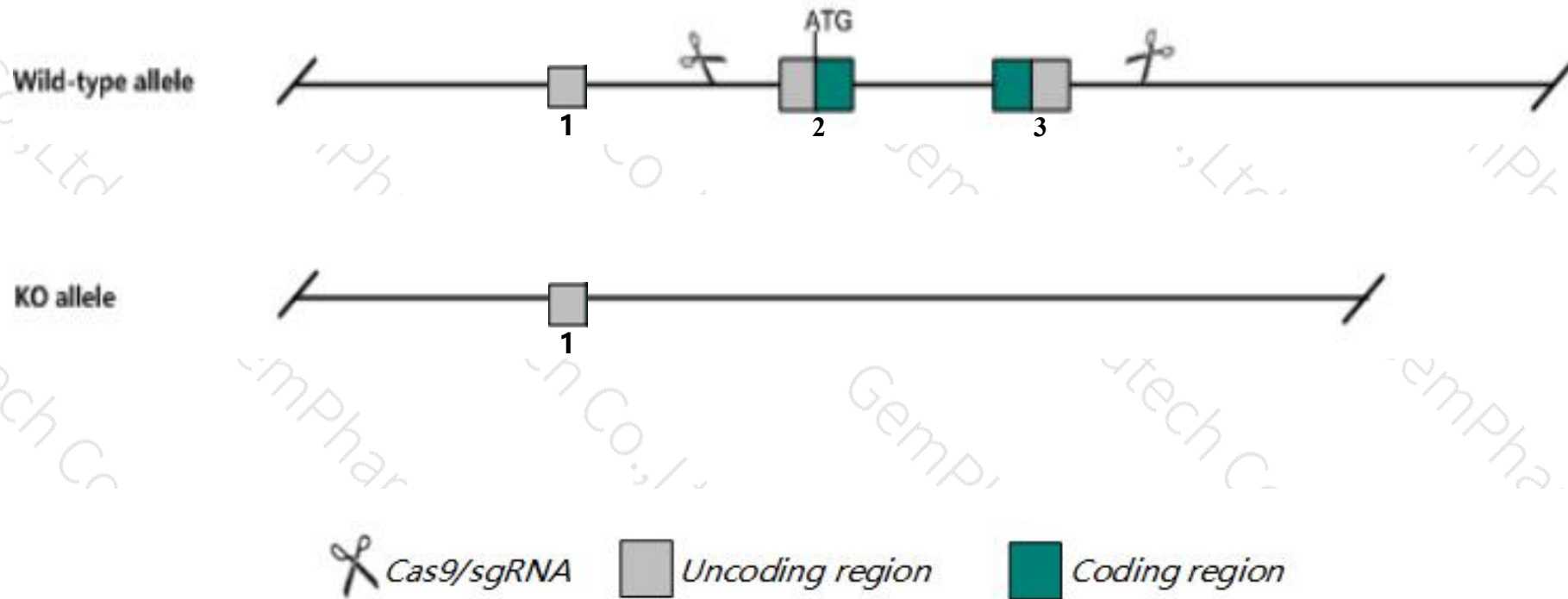
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Fshb* gene has 1 transcript. According to the structure of *Fshb* gene, exon2-exon3 of *Fshb-201* (ENSMUST00000028533.6) 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 *Fshb* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, females homozygous for a targeted null mutation are sterile with a preantral block in folliculogenesis. Mutant males have small testes and reduced Sertoli and germ cell numbers, but are fertile.
- The *Fshb* 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)

Fshb follicle stimulating hormone beta [*Mus musculus* (house mouse)]

Gene ID: 14308, updated on 12-Aug-2019

Summary

Official Symbol Fshb provided by [MGI](#)

Official Full Name follicle stimulating hormone beta provided by [MGI](#)

Primary source [MGI:MGI:95582](#)

See related [Ensembl:ENSMUSG00000027120](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as FSH; FSH-B; Fshbeta; FSH-beta

Summary The pituitary glycoprotein hormone family includes follicle-stimulating hormone, luteinizing hormone, chorionic gonadotropin, and thyroid-stimulating hormone. All of these glycoproteins consist of an identical alpha subunit and a hormone-specific beta subunit. This gene encodes the beta subunit of follicle-stimulating hormone. In conjunction with luteinizing hormone, follicle-stimulating hormone induces egg and sperm production. [provided by RefSeq, Aug 2015]

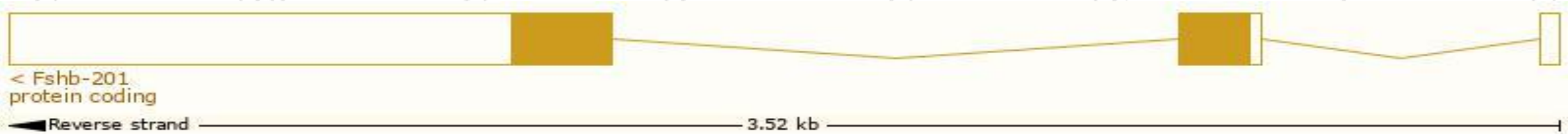
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

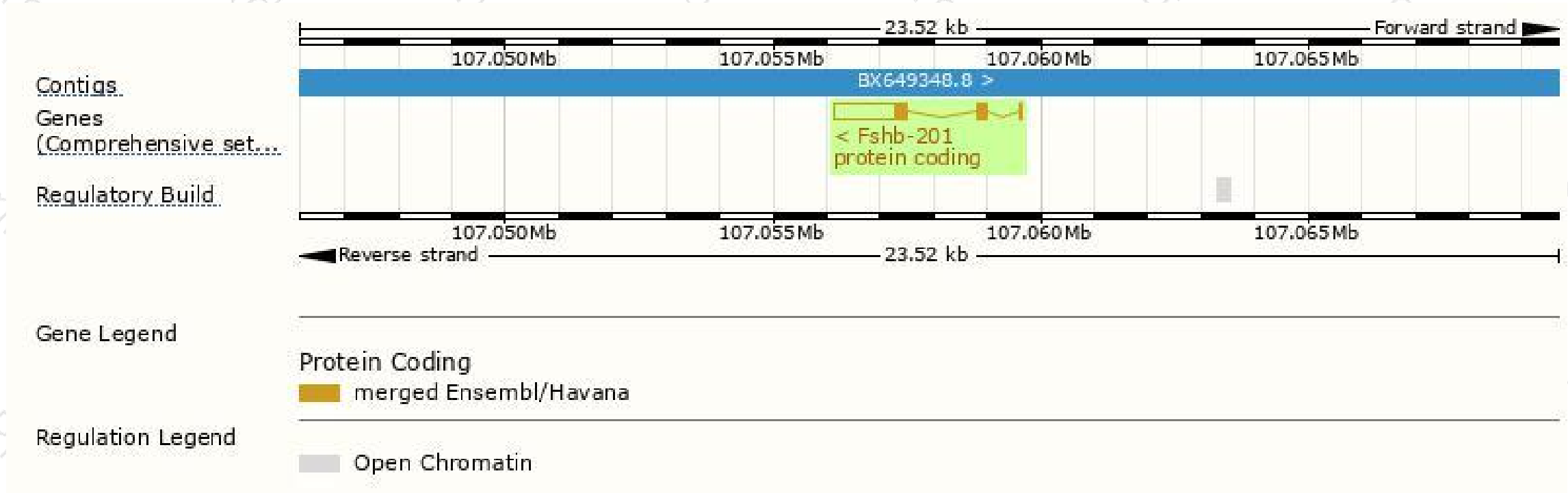
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fshb-201	ENSMUST00000028533.6	1600	130aa	Protein coding	CCDS16504	A0A0F7RQR1 Q60687	TSL:1 Gencode basic APPRIS P1

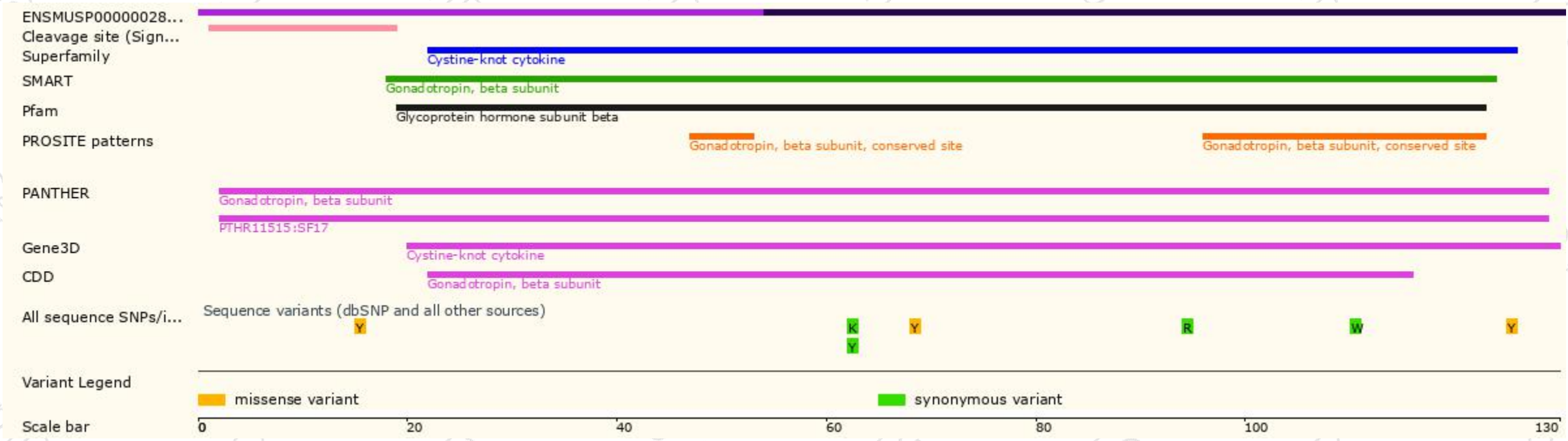
The strategy is based on the design of *Fshb-201* transcript, the transcription is shown below:



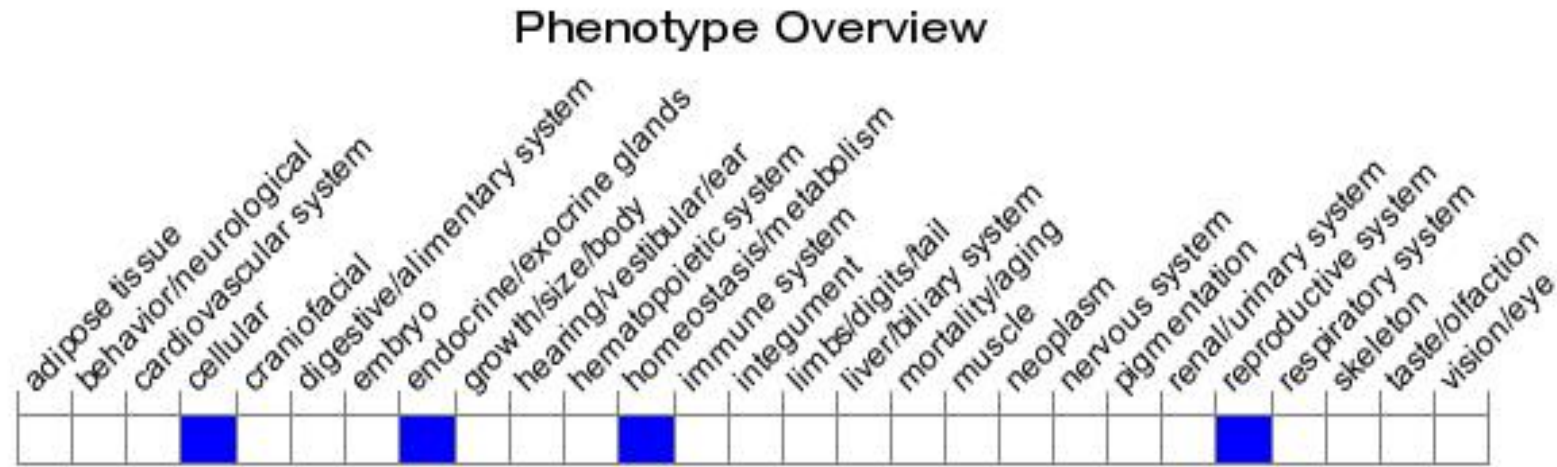
Genomic location distribution



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/>).

According to the existing MGI data, females homozygous for a targeted null mutation are sterile with a preantral block in folliculogenesis. Mutant males have small testes and reduced Sertoli and germ cell numbers, but are fertile.

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

Tel: 400-9660890

