

# ***Fkbp6* Cas9-KO Strategy**

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# Project Overview

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**Project Name**

*Fkbp6*

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**Project type**

**Cas9-KO**

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**Strain background**

**C57BL/6JGpt**

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# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fkbp6* gene. The schematic diagram is as follows:



- The *Fkbp6* gene has 4 transcripts. According to the structure of *Fkbp6* gene, exon3-exon4 of *Fkbp6-201* (ENSMUST00000044972.10) transcript is recommended as the knockout region. The region contains 293bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fkbp6* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit azoospermia and male infertility associated with arrest of male meiosis at the pachytene stage, and increased apoptosis of meiotic spermatocytes.
- The *Fkbp6* gene is located on the Chr5. 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)

## Fkbp6 FK506 binding protein 6 [ *Mus musculus* (house mouse) ]

Gene ID: 94244, updated on 27-Feb-2020

### Summary

**Official Symbol** Fkbp6 provided by MGI

**Official Full Name** FK506 binding protein 6 provided by MGI

**Primary source** [MGI:MGI:2137612](#)

**See related** [Ensembl:ENSMUSG00000040013](#)

**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** 36kDa; FKBP-6; FKBP-36; AU017274; D5ErtD724e; 1700008G22Rik

**Summary** This gene is a member of the FK506-binding protein (Fkbp) family. The encoded protein plays a role in male-specific fertility and homologous pairing of chromosomes during meiosis. The protein may also be involved in LINE1 transposon silencing and binding to Hsp90 as a co-chaperone. Alternative splicing of this gene results in multiple transcript variants encoding different isoforms. [provided by RefSeq, Apr 2013]

**Expression** Restricted expression toward testis adult (RPKM 22.2) [See more](#)

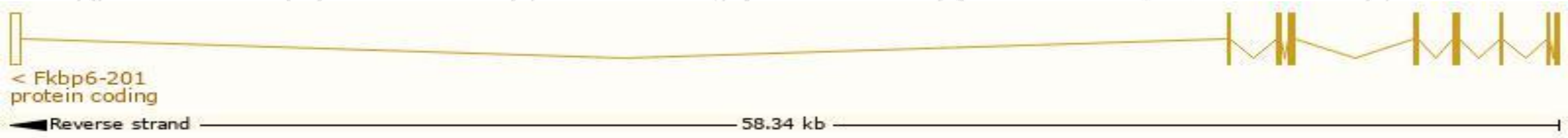
**Orthologs** [human](#) [all](#)

# Transcript information (Ensembl)

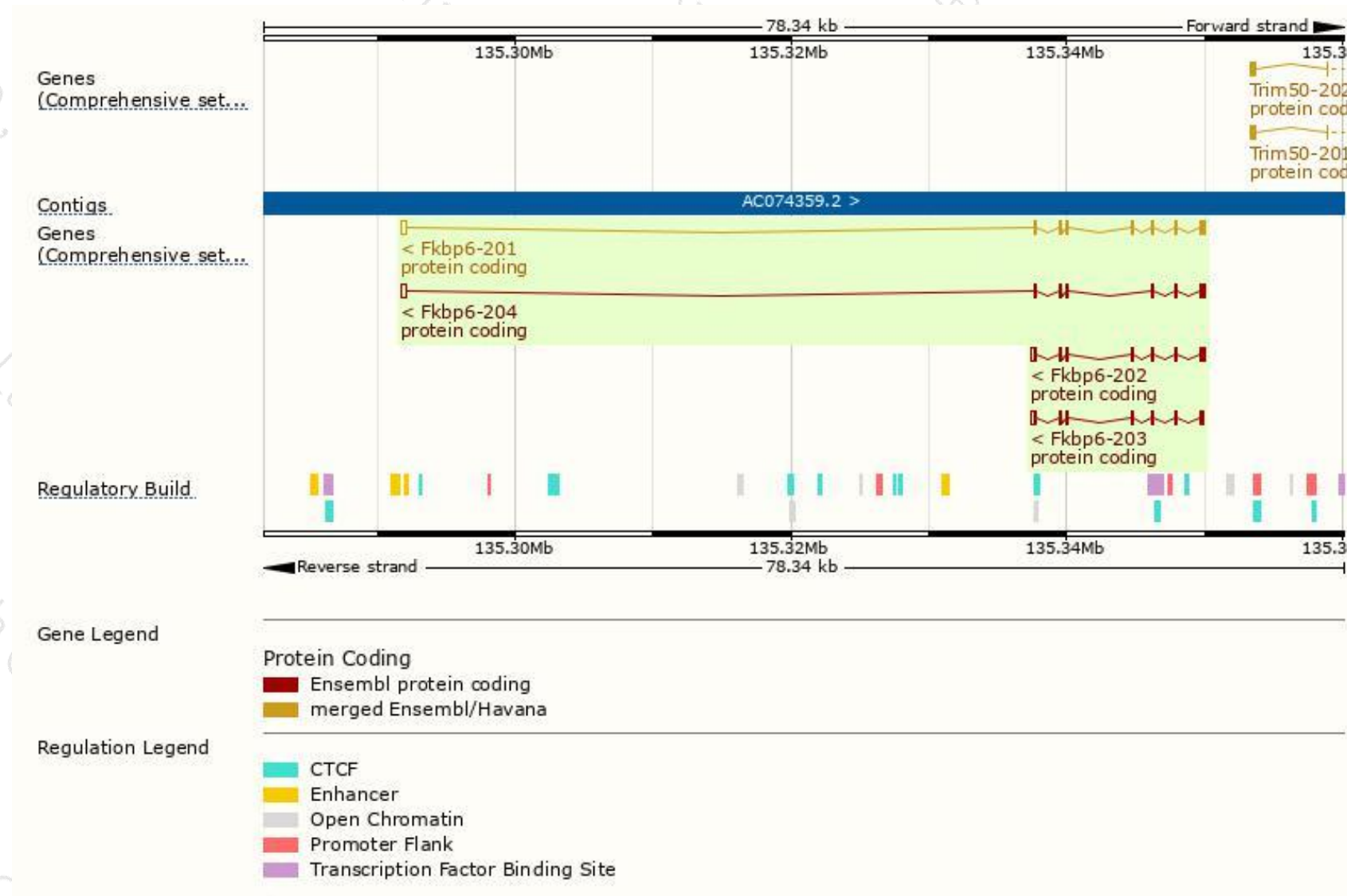
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fkbp6-201	<a href="#">ENSMUST00000044972.10</a>	1447	<a href="#">327aa</a>	Protein coding	<a href="#">CCDS19738</a>	<a href="#">Q91XW8</a>	TSL:1 GENCODE basic APPRIS P3
Fkbp6-204	<a href="#">ENSMUST00000201791.3</a>	1297	<a href="#">287aa</a>	Protein coding	<a href="#">CCDS80426</a>	<a href="#">Q91XW8</a>	TSL:1 GENCODE basic
Fkbp6-202	<a href="#">ENSMUST00000201534.1</a>	1287	<a href="#">327aa</a>	Protein coding	<a href="#">CCDS19738</a>	<a href="#">Q91XW8</a>	TSL:1 GENCODE basic APPRIS P3
Fkbp6-203	<a href="#">ENSMUST00000201784.3</a>	1235	<a href="#">327aa</a>	Protein coding	<a href="#">CCDS80425</a>	<a href="#">Q91XW8</a>	TSL:1 GENCODE basic APPRIS ALT 2

The strategy is based on the design of *Fkbp6-201* transcript,The transcription is shown below

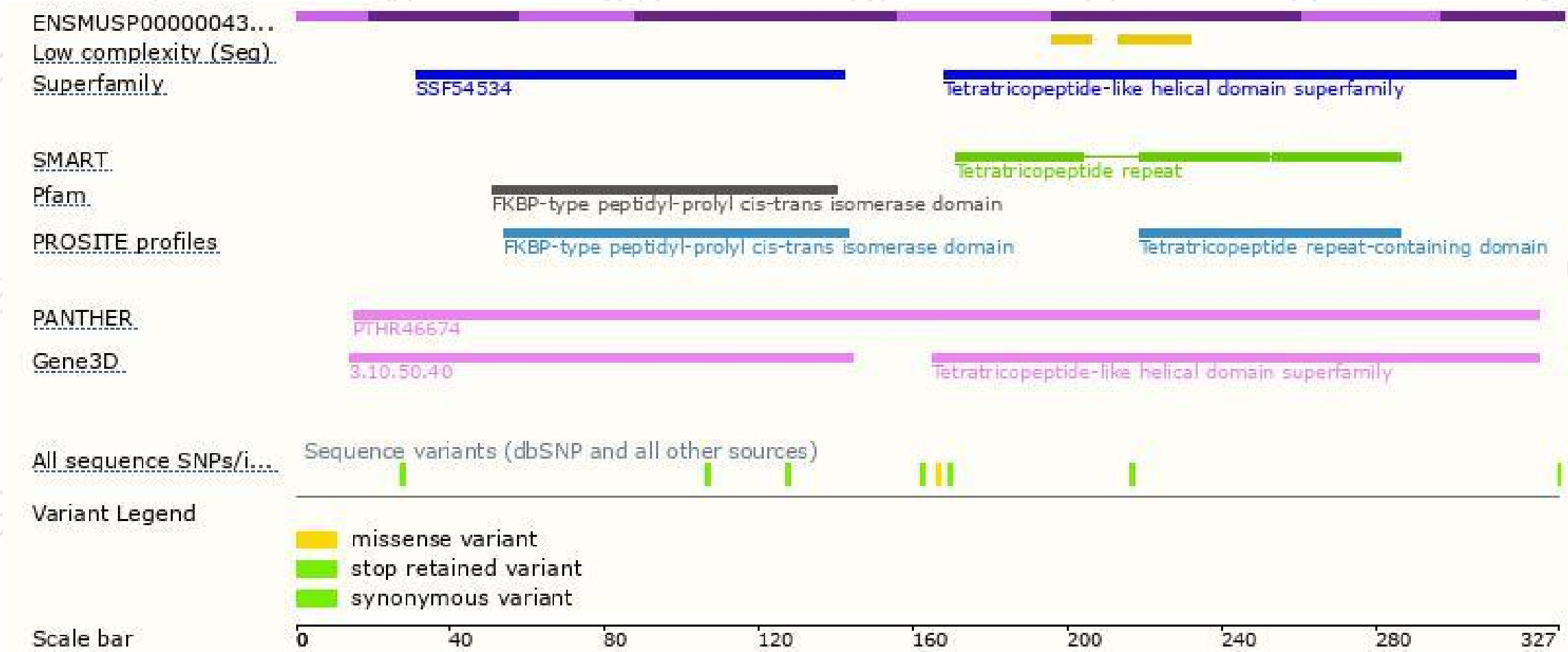


# Genomic location distribution

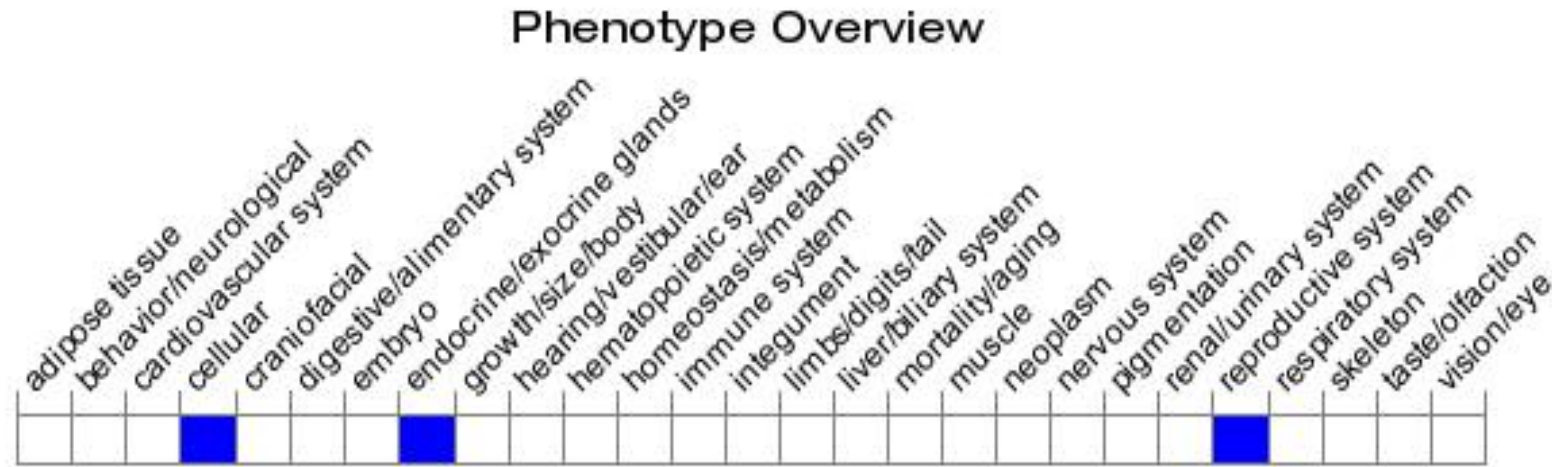




# Protein domain



# 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, Mice homozygous for a knock-out allele exhibit azoospermia and male infertility associated with arrest of male meiosis at the pachytene stage, and increased apoptosis of meiotic spermatocytes.

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

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