

# *Kifc3* Cas9-KO Strategy

**Designer:**

**JiaYu**

**Reviewer:**

**Xiaojing Li**

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# Project Overview

**Project Name**

***Kifc3***

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kifc3* gene. The schematic diagram is as follows:



- The *Kifc3* gene has 12 transcripts. According to the structure of *Kifc3* gene, exon6-exon12 of *Kifc3-203* (ENSMUST00000169748.8) transcript is recommended as the knockout region. The region contains 1015bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Kifc3* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for this targeted mutation are viable, fertile, and appear phenotypically indistinguishable from wild-type littermates.
- Transcript 205,207,209,211 CDS 3' incomplete the influences is unknown.
- The flox region is about 2.5 kb away from the 5th end of the Gm31224 gene, which may affect the regulation of this gene.
- The *Kifc3* gene is located on the Chr8. 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)

## Kifc3 kinesin family member C3 [Mus musculus (house mouse)]

Gene ID: 16582, updated on 12-Mar-2019

### Summary

<b>Official Symbol</b>	Kifc3 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	kinesin family member C3 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:109202</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG000000031788</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	AI325457, BB123200
<b>Expression</b>	Ubiquitous expression in adrenal adult (RPKM 47.2), lung adult (RPKM 23.0) and 26 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

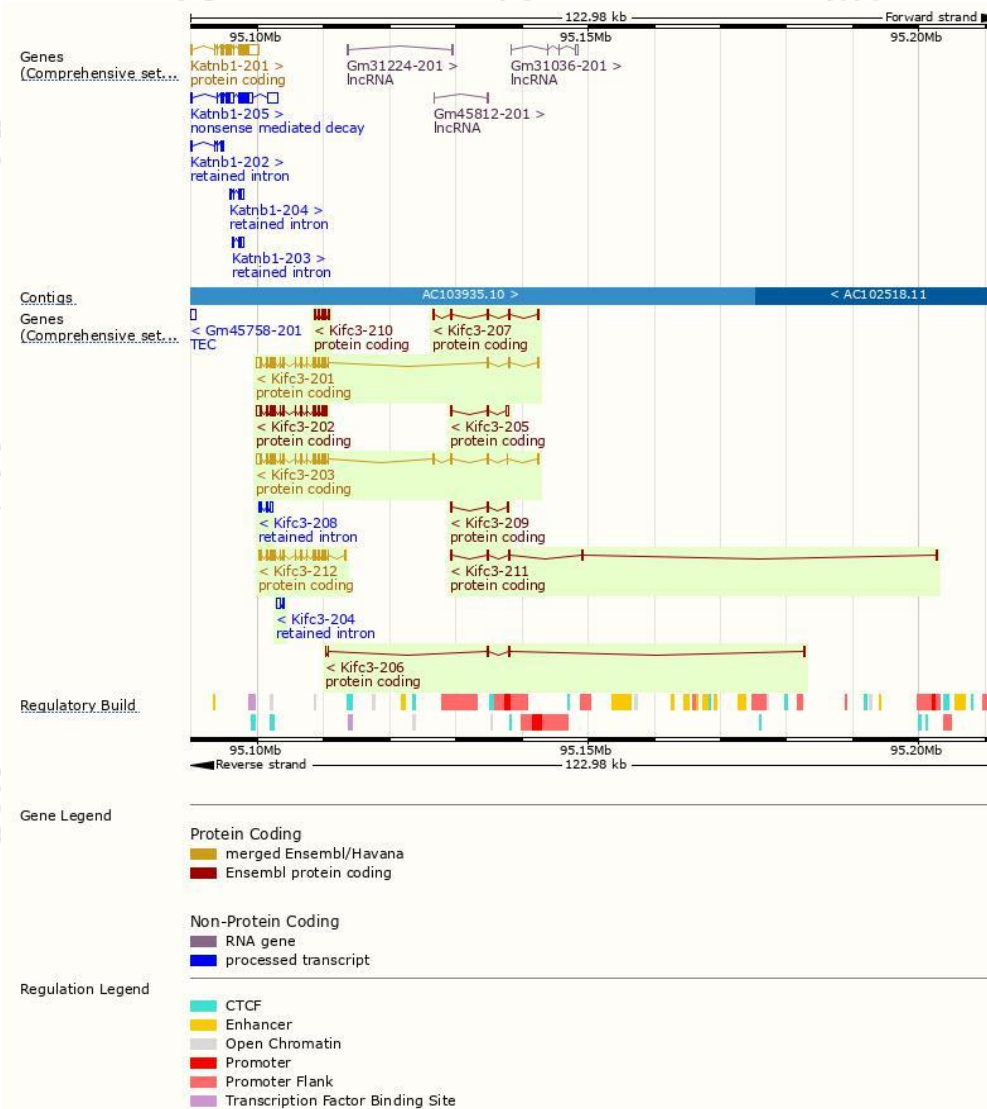
The gene has 12 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kifc3-203	<a href="#">ENSMUST00000169748.8</a>	3384	<a href="#">778aa</a>	Protein coding	<a href="#">CCDS52639</a>	<a href="#">E9PWU7</a>	TSL:1 GENCODE basic APPRIS ALT2
Kifc3-201	<a href="#">ENSMUST00000034240.14</a>	3277	<a href="#">824aa</a>	Protein coding	<a href="#">CCDS52640</a>	<a href="#">O35231</a>	TSL:1 GENCODE basic APPRIS P4
Kifc3-212	<a href="#">ENSMUST00000213004.1</a>	2453	<a href="#">687aa</a>	Protein coding	<a href="#">CCDS52638</a>	<a href="#">A0A1D5RLM0</a>	TSL:1 GENCODE basic APPRIS ALT2
Kifc3-202	<a href="#">ENSMUST00000169353.2</a>	2898	<a href="#">709aa</a>	Protein coding	-	<a href="#">A0A0R4J220 O35231</a>	TSL:1 GENCODE basic APPRIS ALT2
Kifc3-210	<a href="#">ENSMUST00000212787.1</a>	721	<a href="#">188aa</a>	Protein coding	-	<a href="#">A0A1D5RMF3</a>	CDS 3' incomplete TSL:2
Kifc3-207	<a href="#">ENSMUST00000212554.1</a>	711	<a href="#">200aa</a>	Protein coding	-	<a href="#">A0A1D5RMG8</a>	CDS 3' incomplete TSL:2
Kifc3-211	<a href="#">ENSMUST00000212842.1</a>	647	<a href="#">129aa</a>	Protein coding	-	<a href="#">A0A1D5RMI2</a>	CDS 3' incomplete TSL:3
Kifc3-205	<a href="#">ENSMUST00000212076.1</a>	630	<a href="#">6aa</a>	Protein coding	-	-	CDS 3' incomplete TSL:3
Kifc3-206	<a href="#">ENSMUST00000212424.1</a>	598	<a href="#">133aa</a>	Protein coding	-	<a href="#">A0A1D5RLS5</a>	CDS 3' incomplete TSL:3
Kifc3-209	<a href="#">ENSMUST00000212786.1</a>	359	<a href="#">2aa</a>	Protein coding	-	-	CDS 3' incomplete TSL:3
Kifc3-204	<a href="#">ENSMUST00000211854.1</a>	781	No protein	Retained intron	-	-	TSL:3
Kifc3-208	<a href="#">ENSMUST00000212656.1</a>	629	No protein	Retained intron	-	-	TSL:2

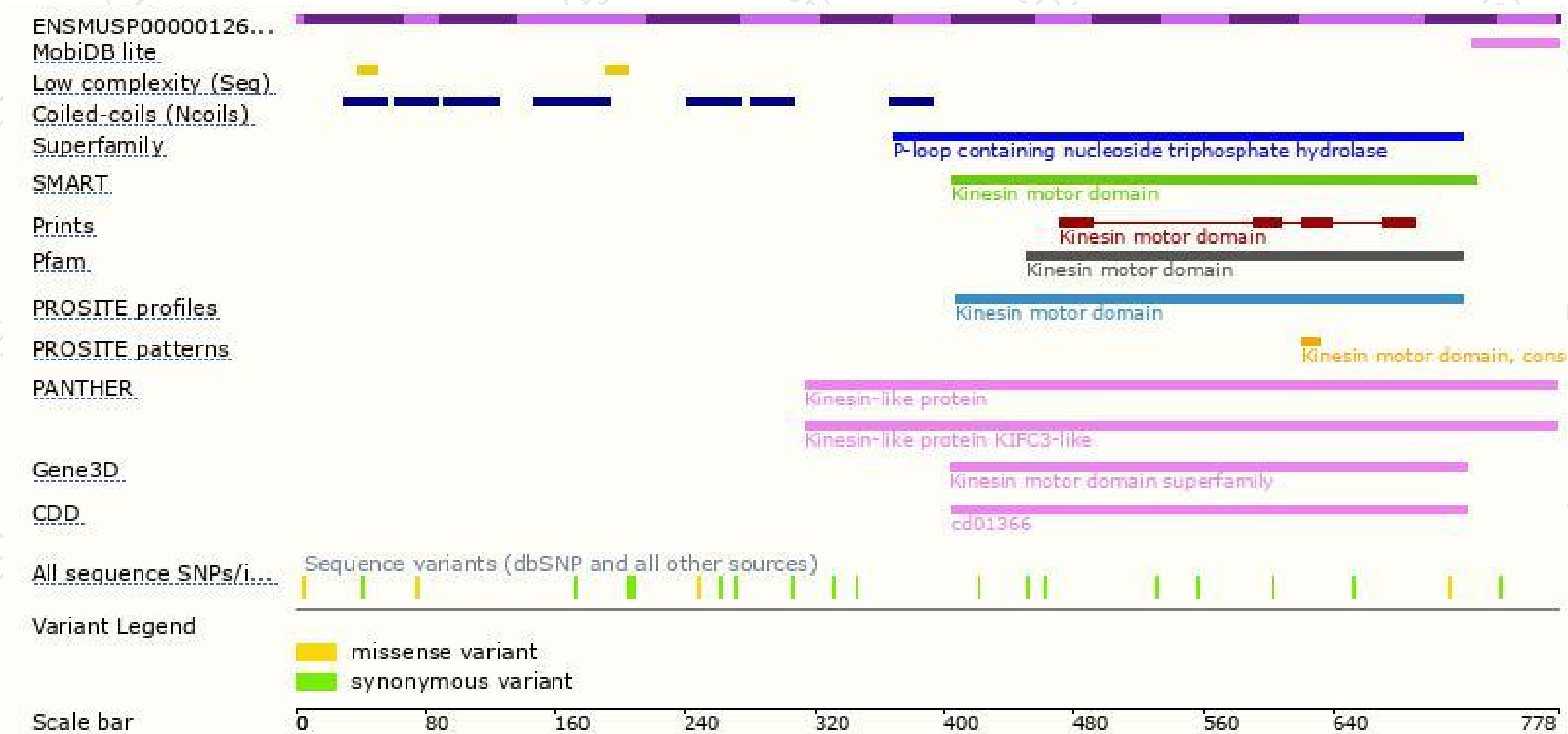
The strategy is based on the design of *Kifc3-203* transcript, The transcription is shown below



# Genomic location distribution



# Protein domain



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

Tel: 400-9660890

