

# ***Ikbkg Cas9-KO Strategy***

**Designer:**

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**Design Date:**

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# Project Overview

**Project Name**

***Ikbkg***

**Project type**

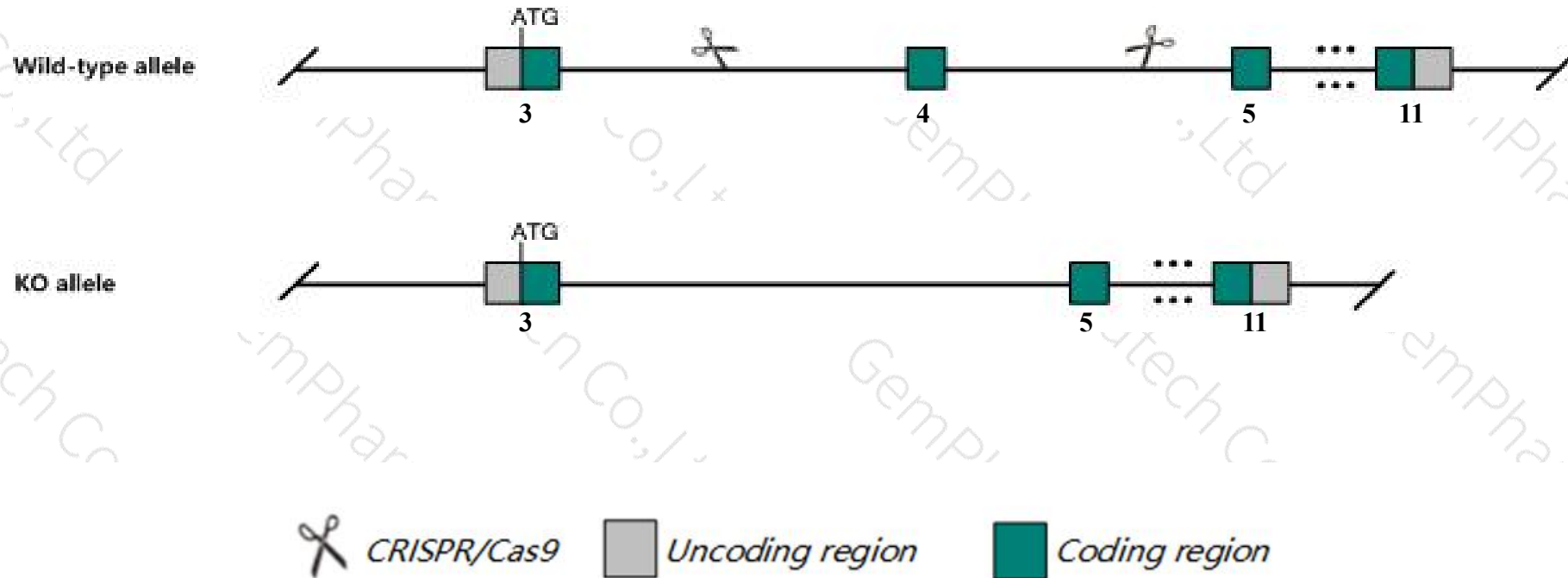
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

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



- The *Ikbkg* gene has 18 transcripts. According to the structure of *Ikbkg* gene, exon4 of *Ikbkg*-207 (ENSMUST00000114133.8) transcript is recommended as the knockout region. The region contains 212bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ikbkg* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Males hemizygous for targeted null mutations exhibit embryonic lethality by embryonic day 13.5 from apoptotic liver damage. Heterozygous females show patchy skin lesions with granulocyte infiltration, growth retardation, and shortened lifespan.
- Transcript *Ikbkg-209* may not be affected.
- The *Ikbkg* gene is located on the ChrX. 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)

## Ikbkg inhibitor of kappaB kinase gamma [Mus musculus (house mouse)]

Gene ID: 16151, updated on 12-Mar-2019

### Summary



<b>Official Symbol</b>	Ikbkg provided by <a href="#">MGI</a>
<b>Official Full Name</b>	inhibitor of kappaB kinase gamma provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1338074</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000004221</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>	1110037D23Rik, AI848108, AI851264, AW124339, IKK[g], NEMO
<b>Expression</b>	Ubiquitous expression in liver E18 (RPKM 3.8), bladder adult (RPKM 3.7) and 28 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

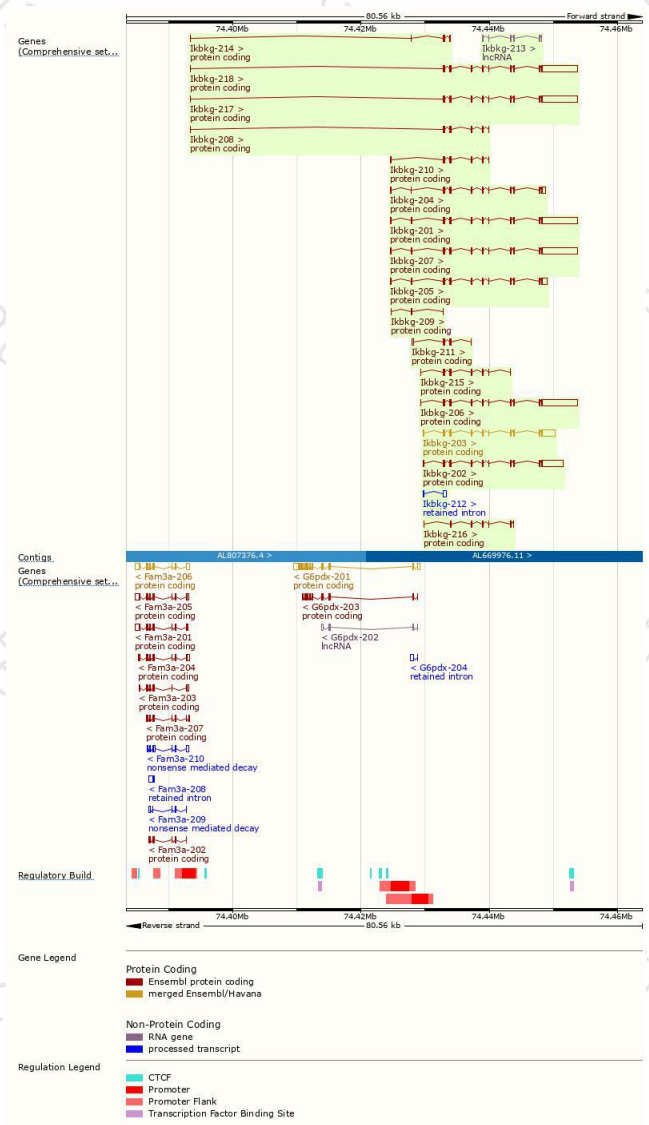
The gene has 18 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ikbkg-207	<a href="#">ENSMUST00000114133.8</a>	6994	<a href="#">412aa</a>	Protein coding	<a href="#">CCDS41023</a>	<a href="#">Q88522</a>	TSL:1 GENCODE basic APPRIS ALT2
Ikbkg-201	<a href="#">ENSMUST0000004330.9</a>	6918	<a href="#">430aa</a>	Protein coding	<a href="#">CCDS53108</a>	<a href="#">Q7TSS3</a>	TSL:1 GENCODE basic APPRIS ALT2
Ikbkg-217	<a href="#">ENSMUST00000164101.7</a>	6788	<a href="#">412aa</a>	Protein coding	<a href="#">CCDS41023</a>	<a href="#">Q88522</a>	TSL:5 GENCODE basic APPRIS ALT2
Ikbkg-218	<a href="#">ENSMUST00000180230.7</a>	6785	<a href="#">411aa</a>	Protein coding	<a href="#">CCDS30233</a>	<a href="#">Q8VC91</a>	TSL:5 GENCODE basic APPRIS P3
Ikbkg-206	<a href="#">ENSMUST00000114130.8</a>	6736	<a href="#">424aa</a>	Protein coding	<a href="#">CCDS53109</a>	<a href="#">E9Q2Y3</a>	TSL:5 GENCODE basic APPRIS ALT2
Ikbkg-202	<a href="#">ENSMUST00000064407.9</a>	4530	<a href="#">411aa</a>	Protein coding	<a href="#">CCDS30233</a>	<a href="#">Q8VC91</a>	TSL:1 GENCODE basic APPRIS P3
Ikbkg-203	<a href="#">ENSMUST00000114127.7</a>	3332	<a href="#">412aa</a>	Protein coding	<a href="#">CCDS41023</a>	<a href="#">Q88522</a>	TSL:1 GENCODE basic APPRIS ALT2
Ikbkg-205	<a href="#">ENSMUST00000114129.8</a>	2222	<a href="#">411aa</a>	Protein coding	<a href="#">CCDS30233</a>	<a href="#">Q8VC91</a>	TSL:1 GENCODE basic APPRIS P3
Ikbkg-204	<a href="#">ENSMUST00000114128.7</a>	1867	<a href="#">412aa</a>	Protein coding	<a href="#">CCDS41023</a>	<a href="#">Q88522</a>	TSL:2 GENCODE basic APPRIS ALT2
Ikbkg-210	<a href="#">ENSMUST00000135165.7</a>	944	<a href="#">249aa</a>	Protein coding	-	<a href="#">A3KG41</a>	CDS 3' incomplete TSL:5
Ikbkg-215	<a href="#">ENSMUST00000149525.7</a>	872	<a href="#">265aa</a>	Protein coding	-	<a href="#">A3KG38</a>	CDS 3' incomplete TSL:1
Ikbkg-208	<a href="#">ENSMUST00000130802.7</a>	779	<a href="#">228aa</a>	Protein coding	-	<a href="#">A3KG40</a>	CDS 3' incomplete TSL:5
Ikbkg-211	<a href="#">ENSMUST00000138564.7</a>	727	<a href="#">141aa</a>	Protein coding	-	<a href="#">A3KG37</a>	CDS 3' incomplete TSL:5
Ikbkg-216	<a href="#">ENSMUST00000156707.2</a>	718	<a href="#">190aa</a>	Protein coding	-	<a href="#">A3KG44</a>	CDS 3' incomplete TSL:3
Ikbkg-214	<a href="#">ENSMUST00000144947.7</a>	622	<a href="#">126aa</a>	Protein coding	-	<a href="#">A3KG39</a>	CDS 3' incomplete TSL:2
Ikbkg-209	<a href="#">ENSMUST00000132749.1</a>	278	<a href="#">16aa</a>	Protein coding	-	<a href="#">D3YYY3</a>	CDS 3' incomplete TSL:5
Ikbkg-212	<a href="#">ENSMUST00000139036.1</a>	651	No protein	Retained intron	-	-	TSL:2
Ikbkg-213	<a href="#">ENSMUST00000143784.1</a>	611	No protein	lncRNA	-	-	TSL:2

The strategy is based on the design of *Ikbkg-207* transcript,The transcription is shown below

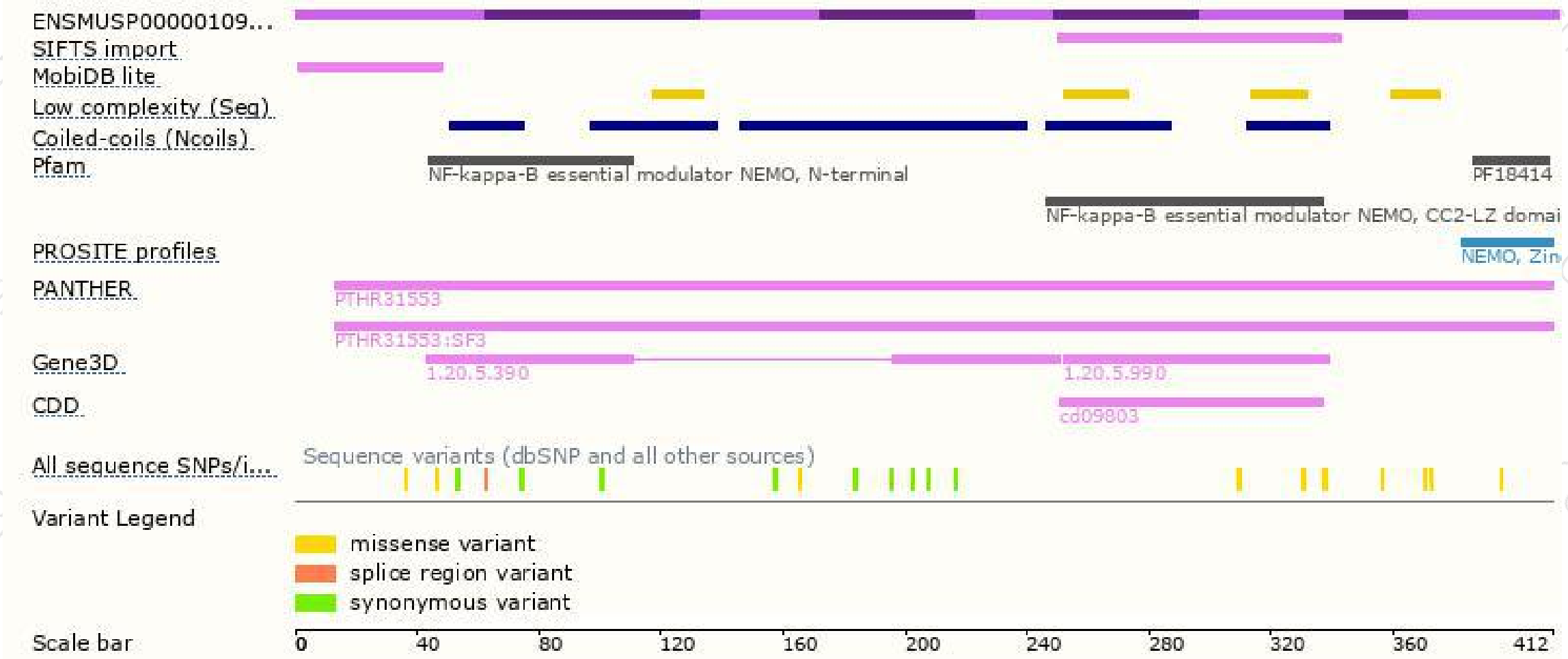


# Genomic location distribution

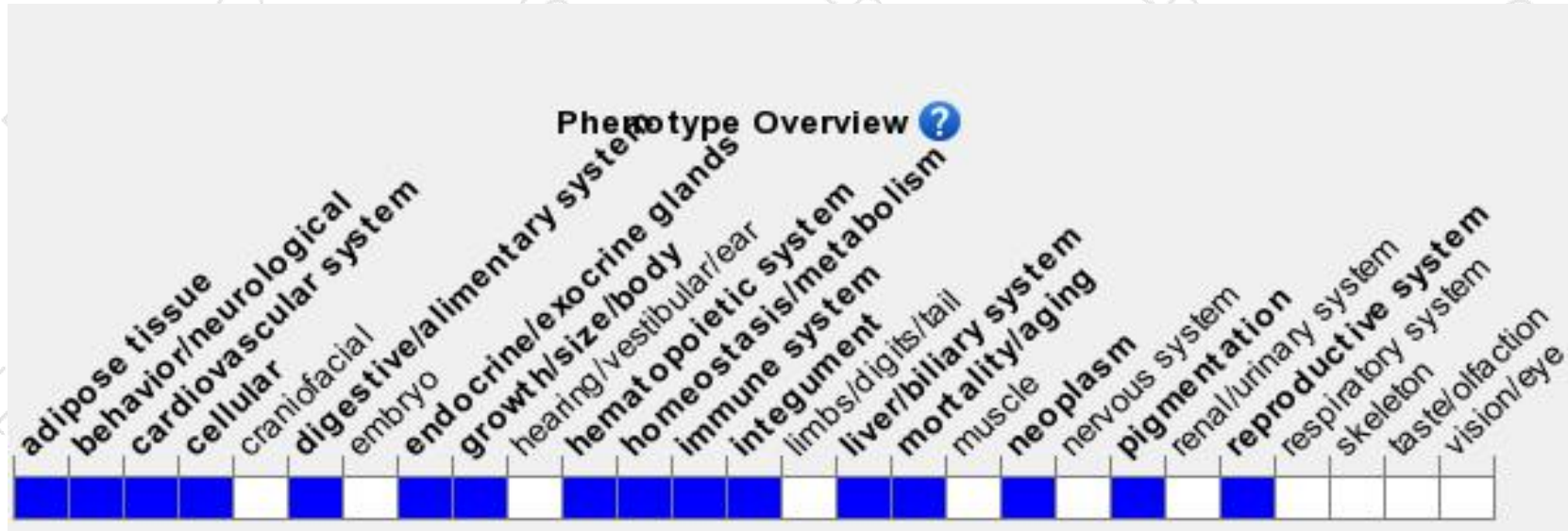




# Protein domain



# 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, Males hemizygous for targeted null mutations exhibit embryonic lethality by embryonic day 13.5 from apoptotic liver damage. Heterozygous females show patchy skin lesions with granulocyte infiltration, growth retardation, and shortened lifespan.

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

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