

# ***Map3k14 Cas9-KO Strategy***

**Designer:**

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# Project Overview

**Project Name**

***Map3k14***

**Project type**

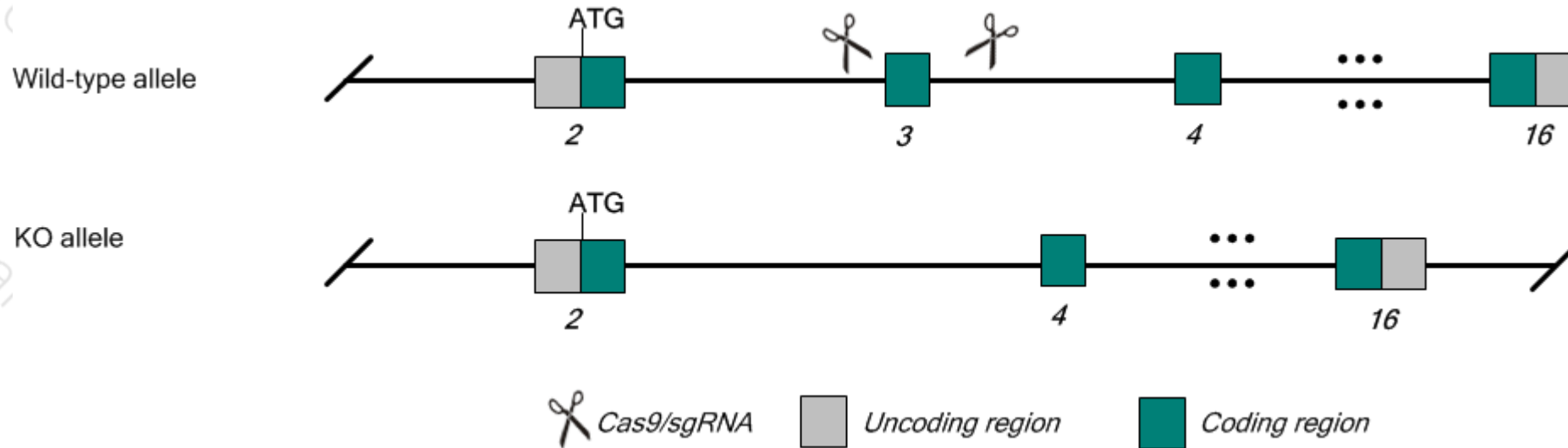
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Map3k14* gene. The schematic diagram is as follows:



# Technical routes

- The *Map3k14* gene has 4 transcripts, According to the structure of *Map3k14* gene, exon3 of *Map3k14-201* transcript is recommended as the knockout region. The region contains the 70bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Map3k14* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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 , Homozygotes for a spontaneous mutation exhibit deficiencies in cellular and humoral immunity, susceptibility to infections, absence of lymph nodes and Peyer's patches, failure of isotype switching, and inflammation of exocrine organs.
- Transcript *Map3k14-202*, *Map3k14-204* may not be affected.
- The *Map3k14* gene is located in the Chr11 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

# Gene information ( NCBI )

## Map3k14 mitogen-activated protein kinase kinase kinase 14 [ *Mus musculus* (house mouse) ]

Gene ID: 53859, updated on 31-Jan-2019

### Summary

<b>Official Symbol</b>	Map3k14 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	mitogen-activated protein kinase kinase kinase 14 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1858204</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000020941</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>	Nik; aly
<b>Expression</b>	Broad expression in spleen adult (RPKM 11.8), thymus adult (RPKM 8.3) and 23 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

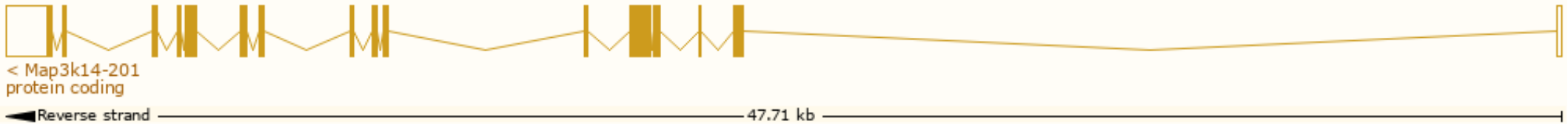
# Transcript information (Ensembl)



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

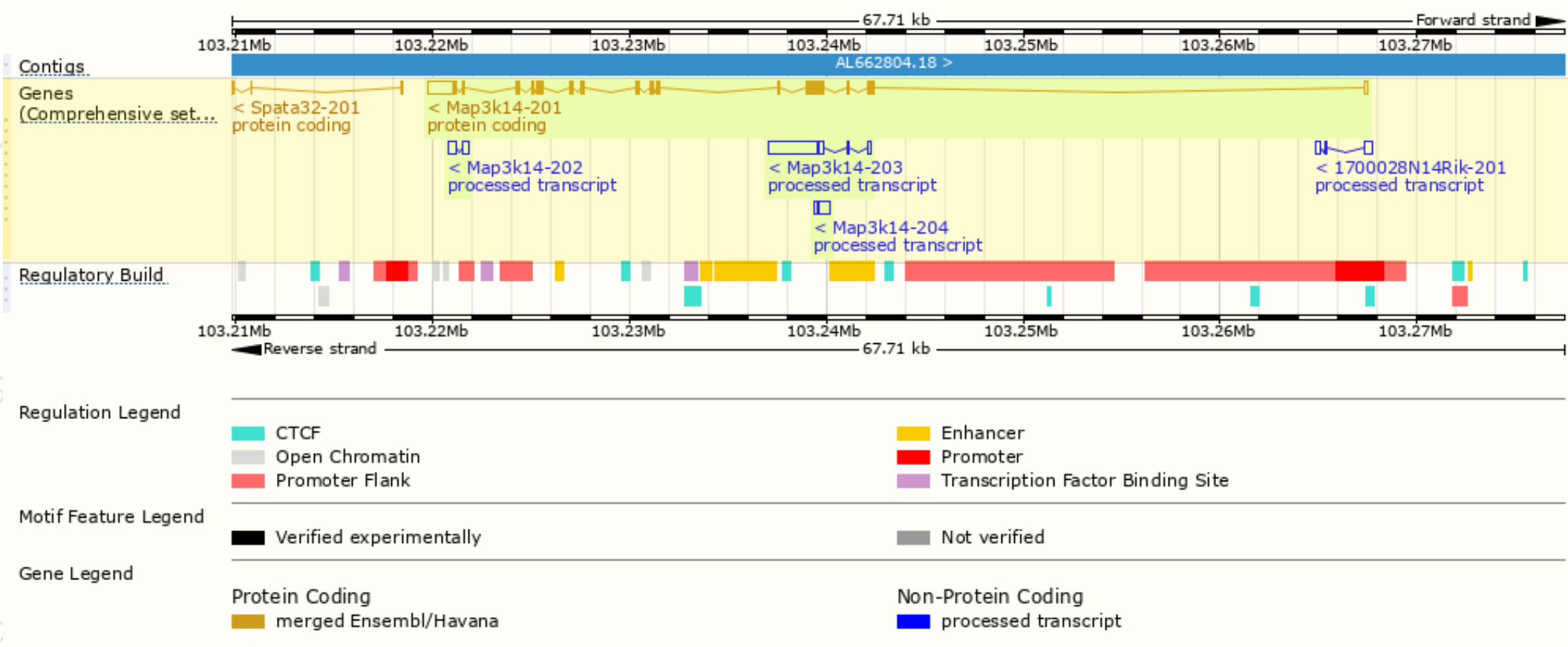
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Map3k14-201	<a href="#">ENSMUST00000021324.2</a>	4246	<a href="#">942aa</a>	Protein coding	<a href="#">CCDS25516</a>	<a href="#">Q544K4</a> <a href="#">Q9WUL6</a>	<a href="#">NM_016896</a> <a href="#">NP_058592</a>	TSL:1 GENCODE basic APPRIS P1
Map3k14-203	<a href="#">ENSMUST00000152300.1</a>	2961	No protein	Processed transcript	-	-	-	TSL:1
Map3k14-202	<a href="#">ENSMUST00000146163.1</a>	734	No protein	Processed transcript	-	-	-	TSL:2
Map3k14-204	<a href="#">ENSMUST00000152677.1</a>	722	No protein	Processed transcript	-	-	-	TSL:3

The strategy is based on the design of *Map3k14-201* transcript, The transcription is shown below



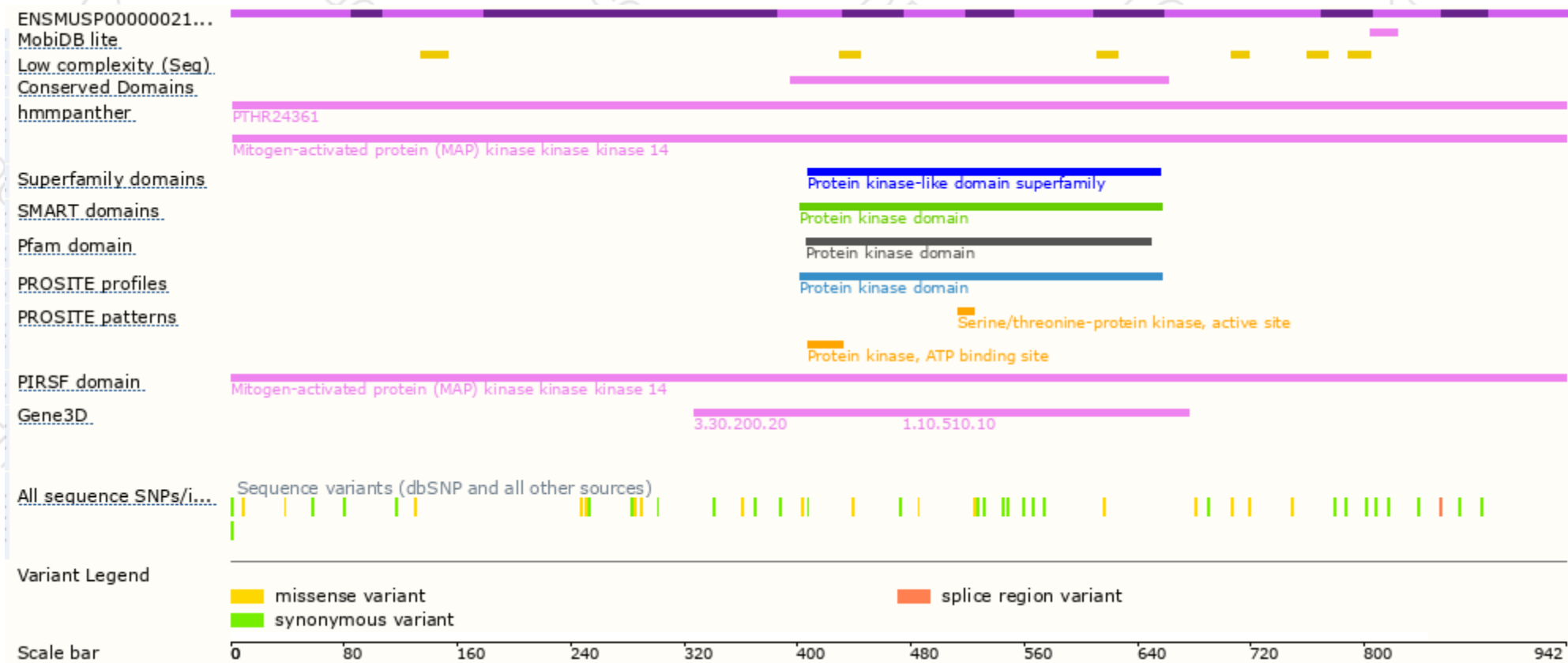


# Genomic location distribution





# Protein domain



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