

# *Trim9* Cas9-KO Strategy

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# Project Overview

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**Project Name**

***Trim9***

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**Project type**

**Cas9-KO**

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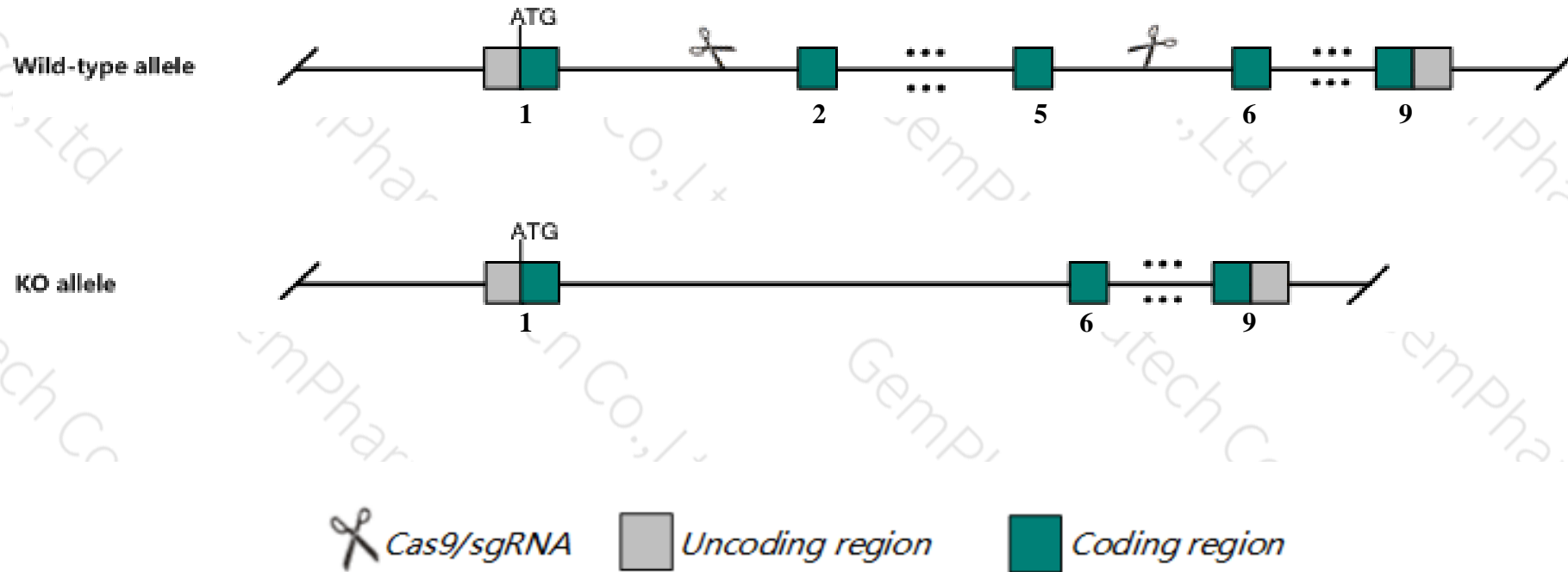
**Strain background**

**C57BL/6JGpt**

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# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trim9* gene. The schematic diagram is as follows:



- The *Trim9* gene has 12 transcripts. According to the structure of *Trim9* gene, exon2-exon5 of *Trim9*-202 (ENSMUST00000110522.9) transcript is recommended as the knockout region. The region contains 484bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Trim9* 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, Mice homozygous for a null mutation display increased axonal branching and increased corpus callosum thickness.
- The *Trim9* gene is located on the Chr12. 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)

## Trim9 tripartite motif-containing 9 [Mus musculus (house mouse)]

Gene ID: 94090, updated on 3-Mar-2019

### Summary



<b>Official Symbol</b>	Trim9 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	tripartite motif-containing 9 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:2137354</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG000000021071</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>Expression</b>	Biased expression in frontal lobe adult (RPKM 15.7), cortex adult (RPKM 12.9) and 5 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

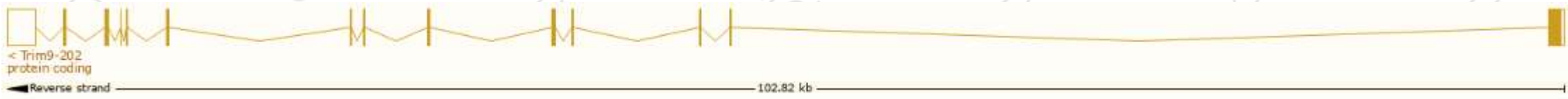


# Transcript information (Ensembl)

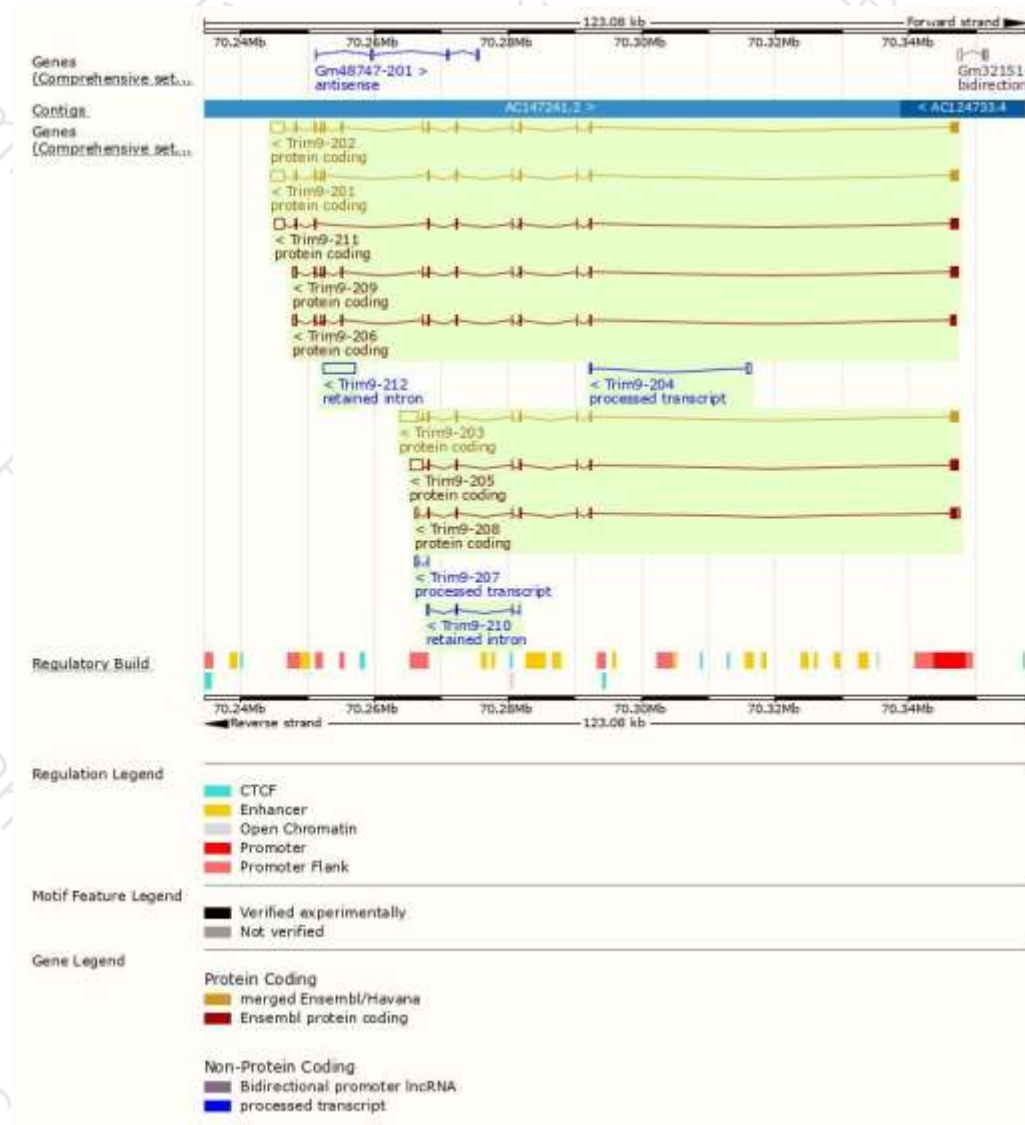
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trim9-203	<a href="#">ENSMUST00000167755.2</a>	4559	<a href="#">547aa</a>	Protein coding	<a href="#">CCDS49079</a>	<a href="#">E9Q524</a>	TSL:1 GENCODE basic
Trim9-202	<a href="#">ENSMUST00000110522.9</a>	4405	<a href="#">788aa</a>	Protein coding	<a href="#">CCDS49078</a>	<a href="#">E9QLH4</a>	TSL:1 GENCODE basic
Trim9-201	<a href="#">ENSMUST00000110520.9</a>	4156	<a href="#">714aa</a>	Protein coding	<a href="#">CCDS49077</a>	<a href="#">Q8C7M3</a>	TSL:1 GENCODE basic
Trim9-205	<a href="#">ENSMUST00000221041.1</a>	3767	<a href="#">565aa</a>	Protein coding	-	<a href="#">Q8C7M3</a>	TSL:1 GENCODE basic
Trim9-211	<a href="#">ENSMUST00000223160.1</a>	3574	<a href="#">710aa</a>	Protein coding	-	<a href="#">A0A1Y7VP88</a>	TSL:5 GENCODE basic APPRIS P1
Trim9-209	<a href="#">ENSMUST00000222316.1</a>	3049	<a href="#">817aa</a>	Protein coding	-	<a href="#">Q8C7M3</a>	TSL:2 GENCODE basic
Trim9-206	<a href="#">ENSMUST00000221294.1</a>	2752	<a href="#">772aa</a>	Protein coding	-	<a href="#">A0A1Y7VJX8</a>	CDS 5' incomplete TSL:1
Trim9-208	<a href="#">ENSMUST00000221370.1</a>	2393	<a href="#">536aa</a>	Protein coding	-	<a href="#">Q8C7M3</a>	TSL:1 GENCODE basic
Trim9-204	<a href="#">ENSMUST00000220557.1</a>	642	No protein	Processed transcript	-	-	TSL:2
Trim9-207	<a href="#">ENSMUST00000221306.1</a>	399	No protein	Processed transcript	-	-	TSL:3
Trim9-212	<a href="#">ENSMUST00000223518.1</a>	4807	No protein	Retained intron	-	-	TSL:NA
Trim9-210	<a href="#">ENSMUST00000222603.1</a>	719	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Trim9-202* transcript,The transcription is shown below

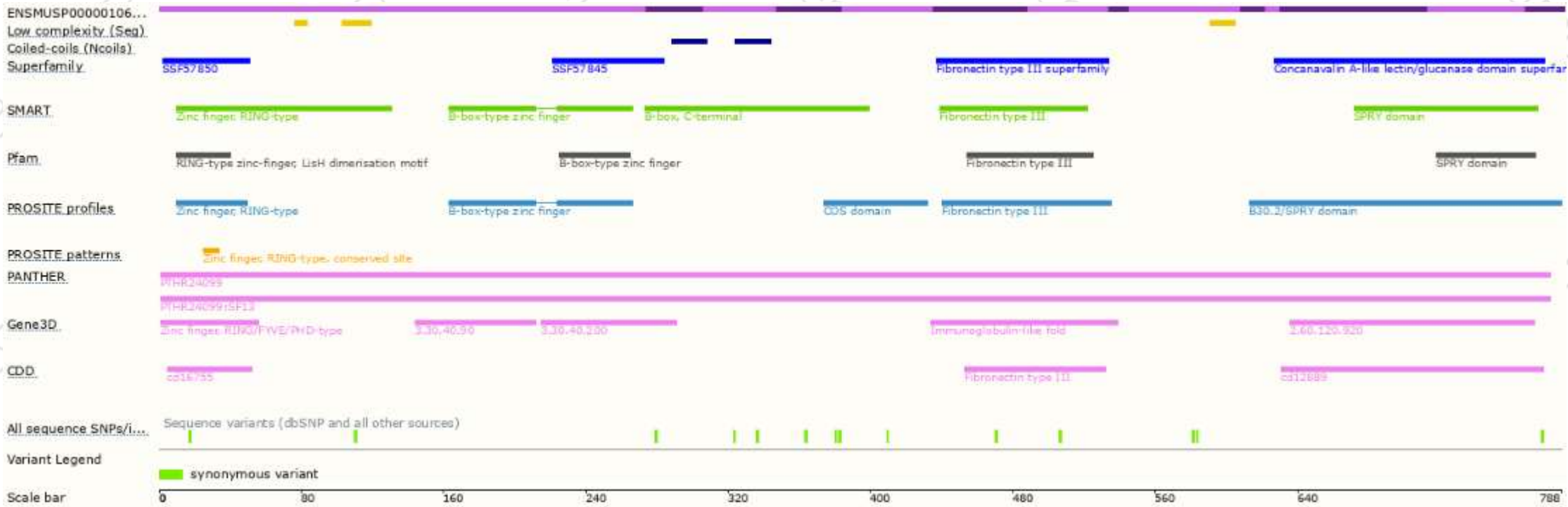


# Genomic location distribution

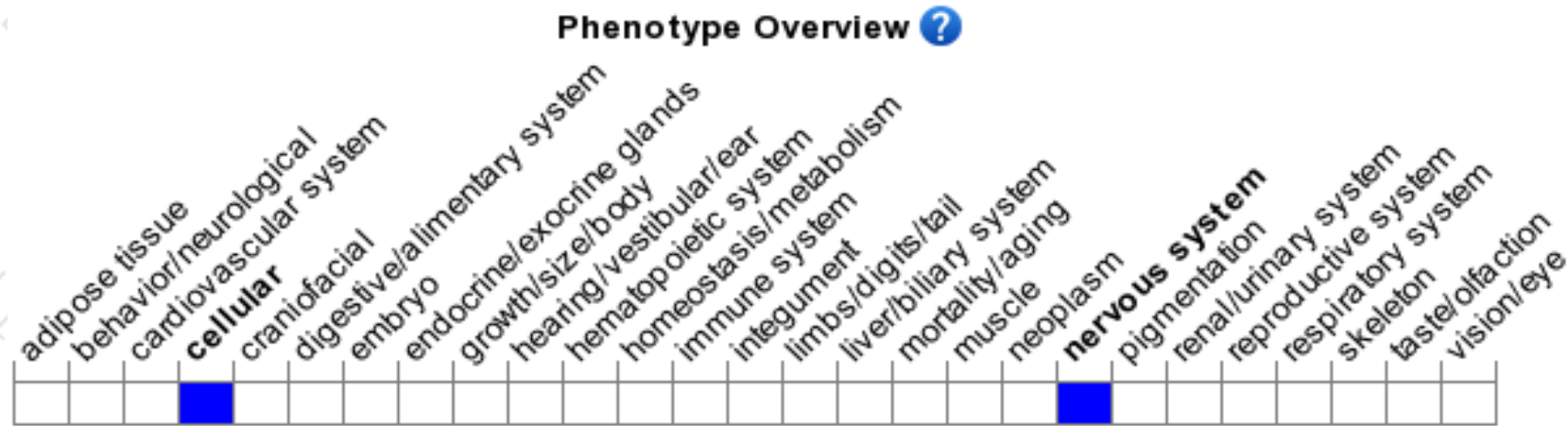




# Protein domain



# 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 null mutation display increased axonal branching and increased corpus callosum thickness.

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

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