

# *Mov10* Cas9-KO Strategy

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**Reviewer:**

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# Project Overview

**Project Name**

*Mov10*

**Project type**

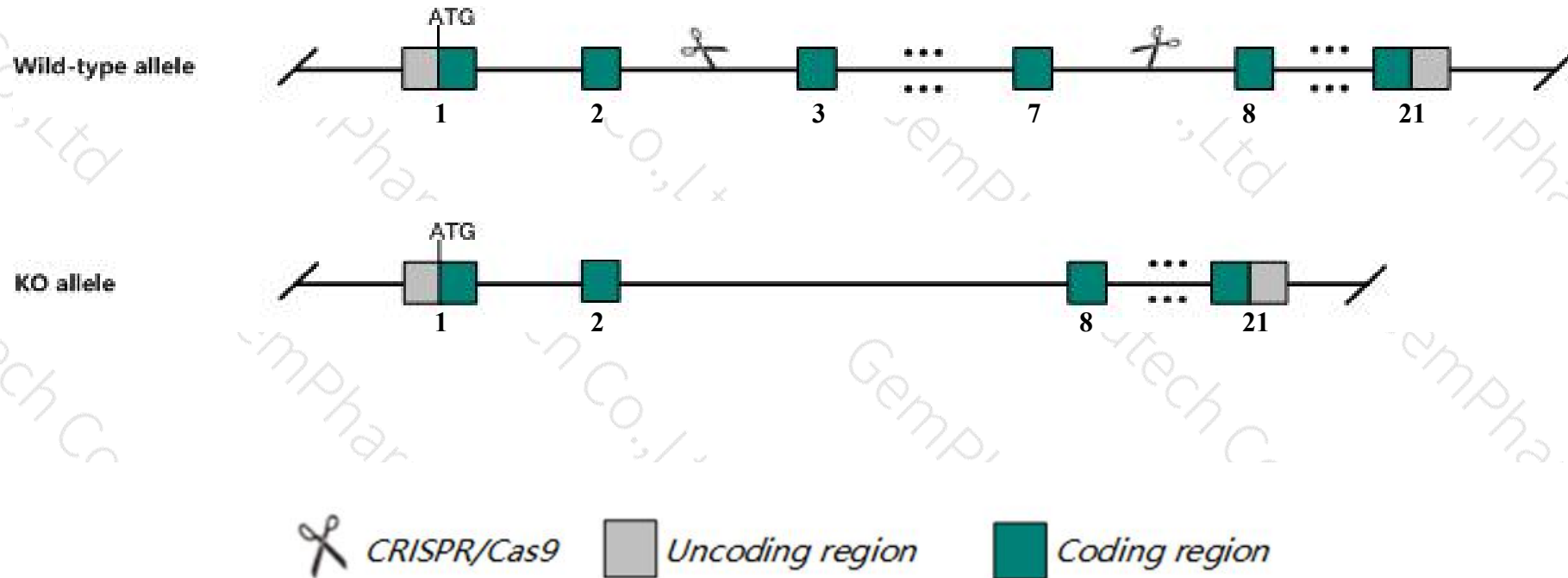
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mov10* gene. The schematic diagram is as follows:



- The *Mov10* gene has 9 transcripts. According to the structure of *Mov10* gene, exon3-exon7 of *Mov10-206* (ENSMUST00000166979.7) transcript is recommended as the knockout region. The region contains 1006bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mov10* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous knockout is embryonic lethal. Heterozygous knockout leads to reduced dendritic branching of neurons, which affects anxiety- and/or activity-related behavior.
- The *Mov10* gene is located on the Chr3. 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)

## Mov10 Mov10 RISC complex RNA helicase [Mus musculus (house mouse)]

Gene ID: 17454, updated on 31-Jan-2019

### Summary



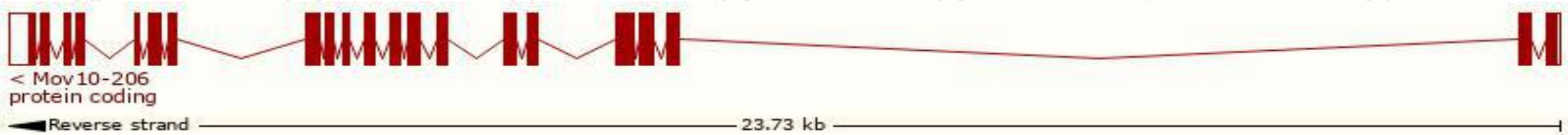
<b>Official Symbol</b>	Mov10 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	Mov10 RISC complex RNA helicase provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:97054</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000002227</a>
<b>Gene type</b>	protein coding
<b>RefSeq 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>	C77703, Mov-10
<b>Expression</b>	Ubiquitous expression in duodenum adult (RPKM 17.0), small intestine adult (RPKM 14.9) and 27 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

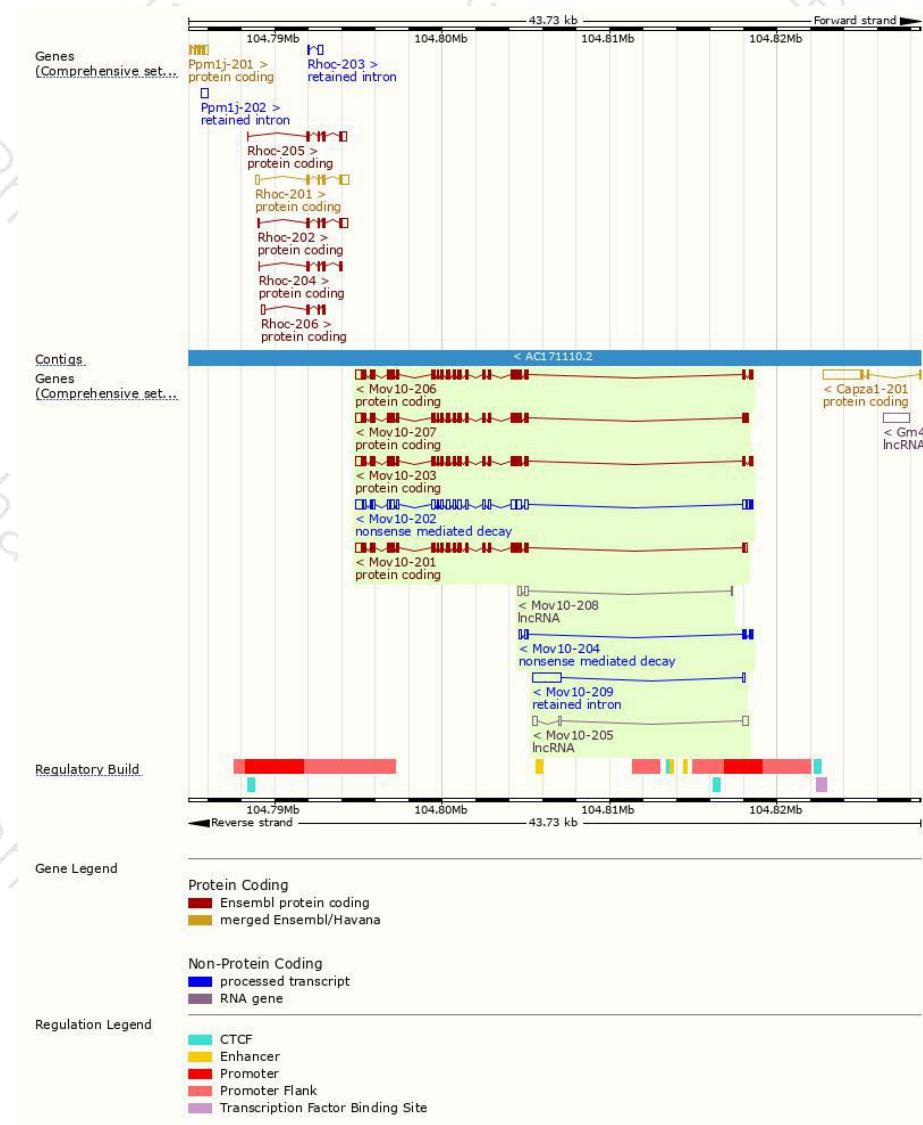
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mov10-206	<a href="#">ENSMUST00000166979.7</a>	3584	<a href="#">1077aa</a>	Protein coding	<a href="#">CCDS51033</a>	<a href="#">E9PW39</a>	TSL:1 GENCODE basic
Mov10-207	<a href="#">ENSMUST00000168015.7</a>	3460	<a href="#">1004aa</a>	Protein coding	<a href="#">CCDS38579</a>	<a href="#">P23249</a>	TSL:1 GENCODE basic APPRIS P2
Mov10-203	<a href="#">ENSMUST00000106775.7</a>	3584	<a href="#">1077aa</a>	Protein coding	-	<a href="#">D3YVL0</a>	TSL:5 GENCODE basic
Mov10-201	<a href="#">ENSMUST00000002297.11</a>	3498	<a href="#">1004aa</a>	Protein coding	-	<a href="#">D3Z3E8</a>	TSL:5 GENCODE basic APPRIS ALT 1
Mov10-202	<a href="#">ENSMUST00000106774.7</a>	3718	<a href="#">57aa</a>	Nonsense mediated decay	-	<a href="#">D3YVL1</a>	TSL:5
Mov10-204	<a href="#">ENSMUST00000136148.2</a>	755	<a href="#">145aa</a>	Nonsense mediated decay	-	<a href="#">D3YYR1</a>	TSL:3
Mov10-209	<a href="#">ENSMUST00000196211.1</a>	1876	No protein	Retained intron	-	-	TSL:1
Mov10-205	<a href="#">ENSMUST00000145414.1</a>	763	No protein	lncRNA	-	-	TSL:2
Mov10-208	<a href="#">ENSMUST00000196161.1</a>	454	No protein	lncRNA	-	-	TSL:2

The strategy is based on the design of *Mov10-206* transcript,The transcription is shown below

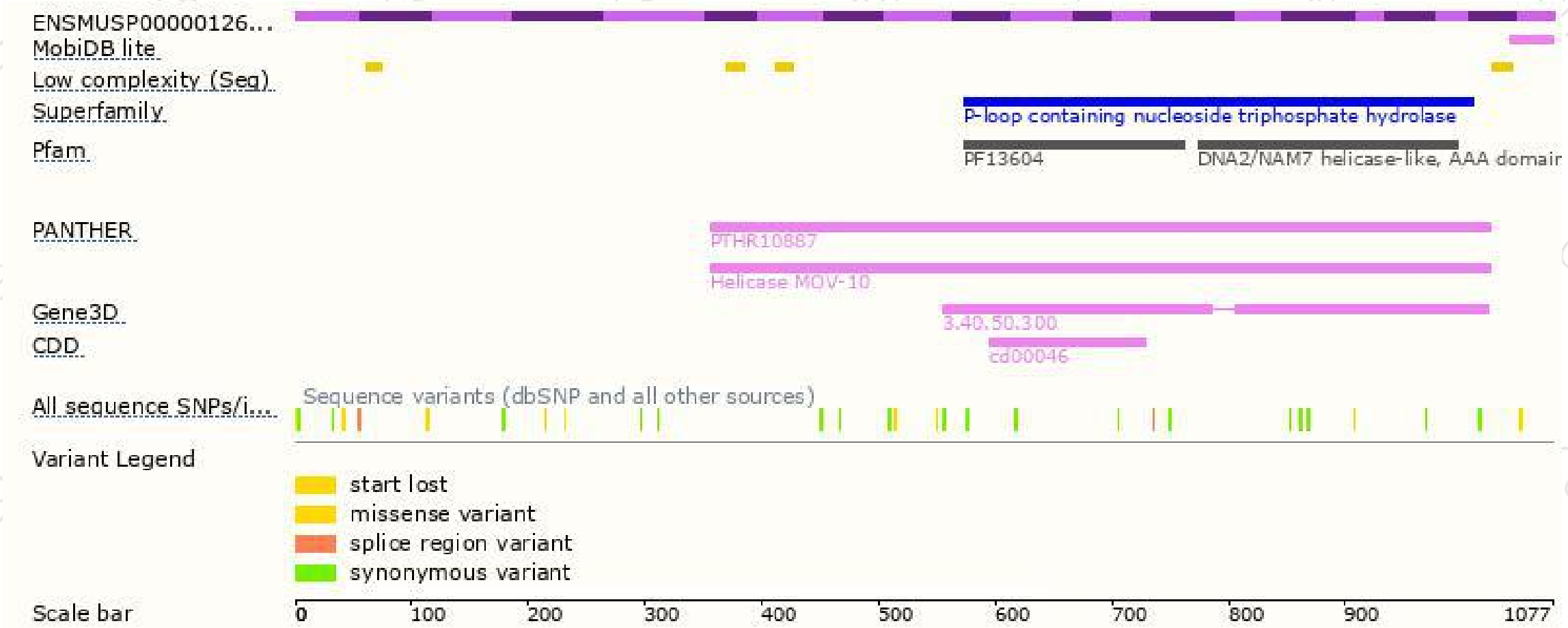


# Genomic location distribution

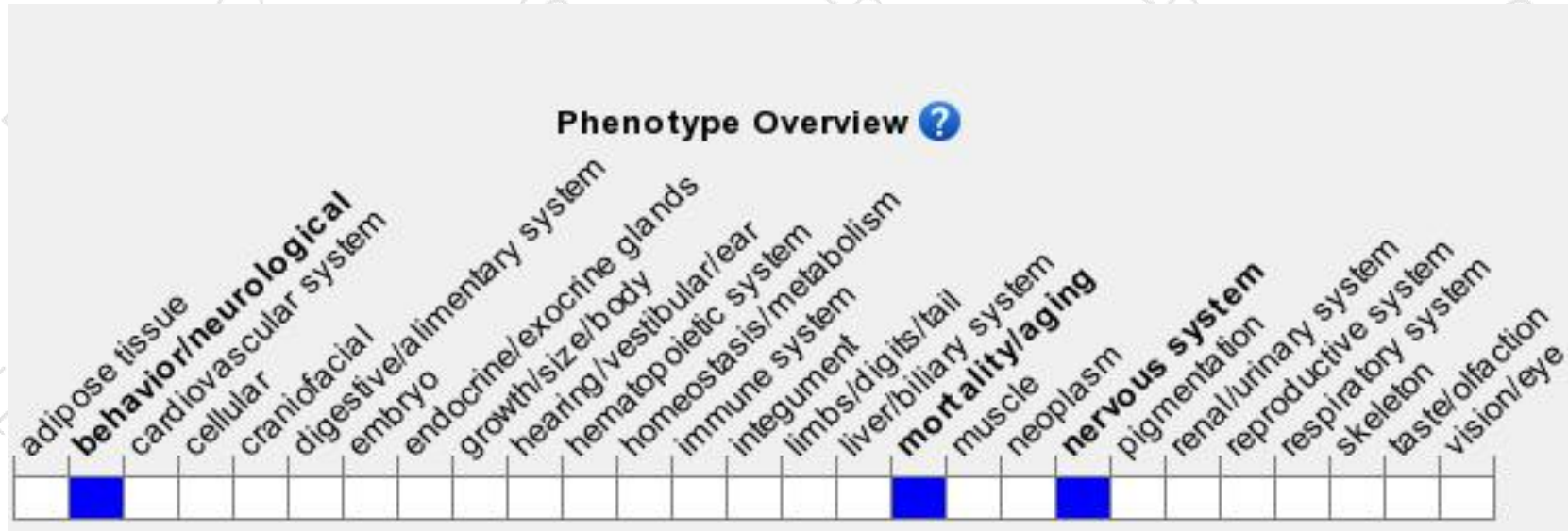




# Protein domain



# 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, Homozygous knockout is embryonic lethal. Heterozygous knockout leads to reduced dendritic branching of neurons, which affects anxiety- and/or activity-related behavior.

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

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