

# *Cenpq* Cas9-KO Strategy

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**Reviewer:**

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# Project Overview

**Project Name**

***Cenpq***

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

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



- The *Cenpq* gene has 3 transcripts. According to the structure of *Cenpq* gene, exon4 of *Cenpq-203* (ENSMUST00000239430.1) transcript is recommended as the knockout region. The region contains 127bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cenpq* gene. The brief process is as follows: CRISPR/Cas9 system

- Transcript 202 may not be affected.
- The knockout region is about 2.6 kb away from the 5th end of the *Mmut* gene, and its effect is unknown.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- The *Cenpq* gene is located on the Chr17. 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)

## Cenpq centromere protein Q [Mus musculus (house mouse)]

Gene ID: 83815, updated on 13-Mar-2020

### Summary



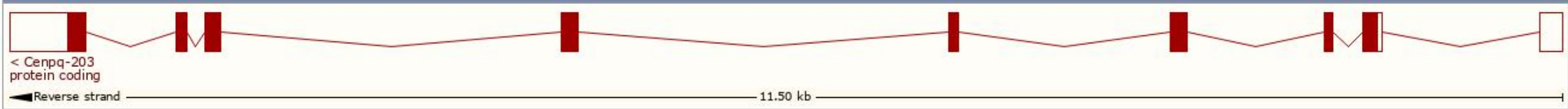
<b>Official Symbol</b>	Cenpq provided by <a href="#">MGI</a>
<b>Official Full Name</b>	centromere protein Q provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1933744</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000023919</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</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>	2610528M18Rik
<b>Expression</b>	Biased expression in liver E14 (RPKM 14.0), CNS E11.5 (RPKM 11.3) and 13 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

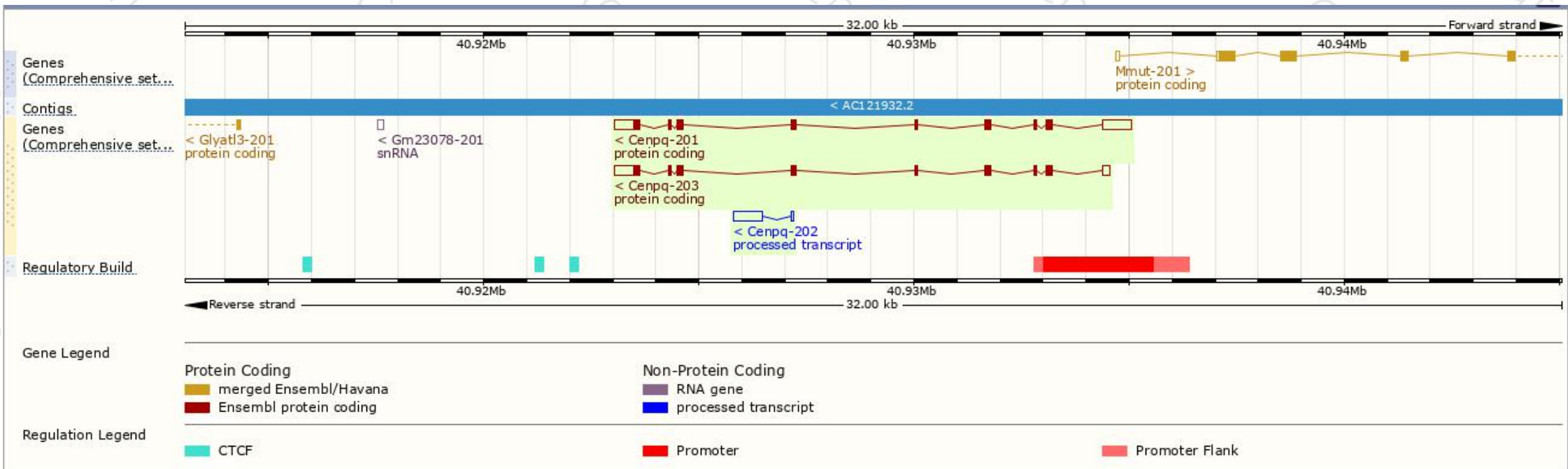
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cenpq-203	<a href="#">ENSMUST00000239430.1</a>	1442	<a href="#">269aa</a>	Protein coding	<a href="#">CCDS28789</a>	-	GENCODE basic APPRIS P2
Cenpq-201	<a href="#">ENSMUST00000087114.4</a>	1942	<a href="#">267aa</a>	Protein coding	-	<a href="#">A0A1I7Q4A6</a> <a href="#">Q9CPQ5</a>	TSL:1 GENCODE basic APPRIS ALT2
Cenpq-202	<a href="#">ENSMUST00000130890.1</a>	728	No protein	Processed transcript	-	-	TSL:3

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

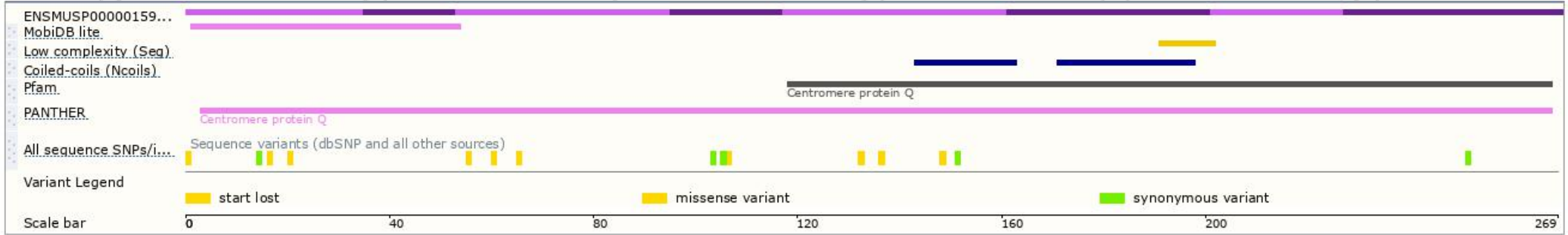


# Genomic location distribution





# Protein domain



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

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