

Cenpl Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Cenpl

Project type

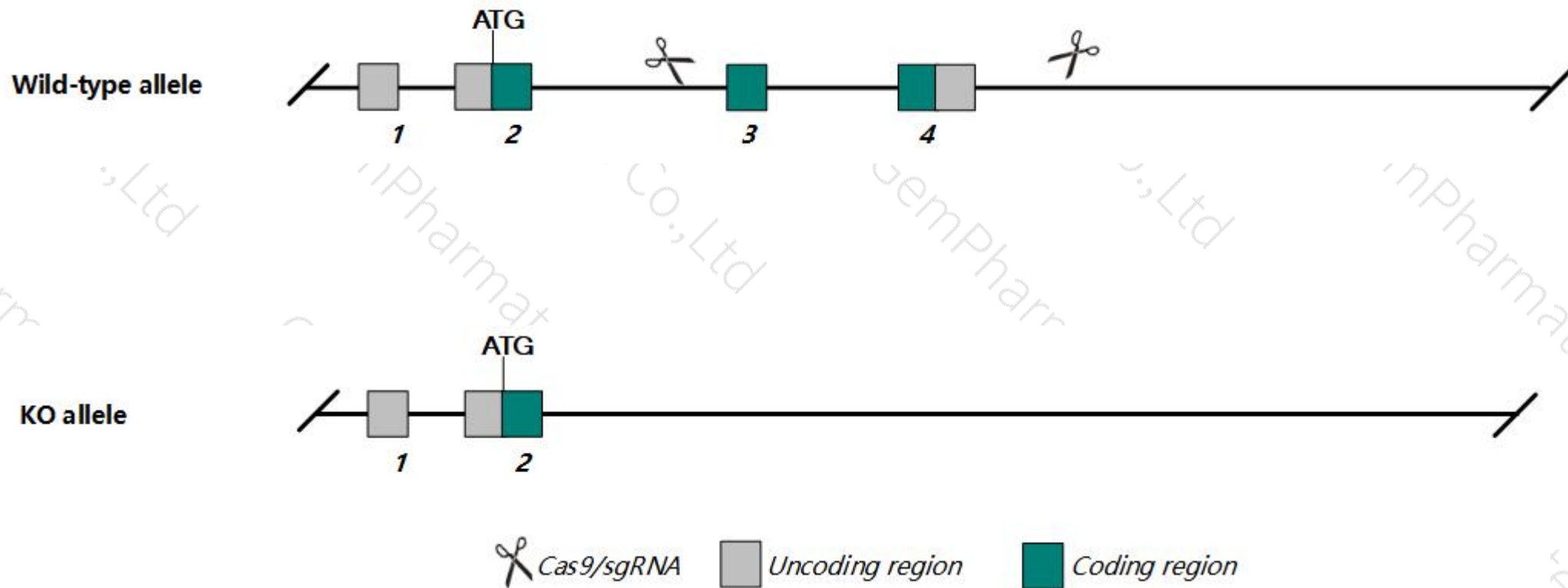
Cas9-KO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Cenpl* gene has 10 transcript. According to the structure of *Cenpl* gene, exon3-4 of *Cenpl*-201 (ENSMUST00000028035.13) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cenpl* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9, gRNA and Donor 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.

- The *Cenpl* gene is located on the Chr1. 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)

Cenpl centromere protein L [*Mus musculus* (house mouse)]

Gene ID: 70454, updated on 27-Jan-2018

Summary



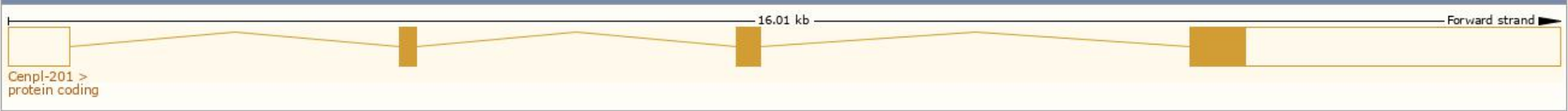
Official Symbol	Cenpl provided by MGI
Official Full Name	centromere protein L provided by MGI
Primary source	MGI:MGI:1917704
See related	Ensembl:ENSMUSG00000026708 Vega:OTTMUSG00000022157
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	CENP-L; AW121806; AW550697; 2610300B10Rik
Expression	Biased expression in liver E14 (RPKM 9.0), liver E14.5 (RPKM 6.7) and 11 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

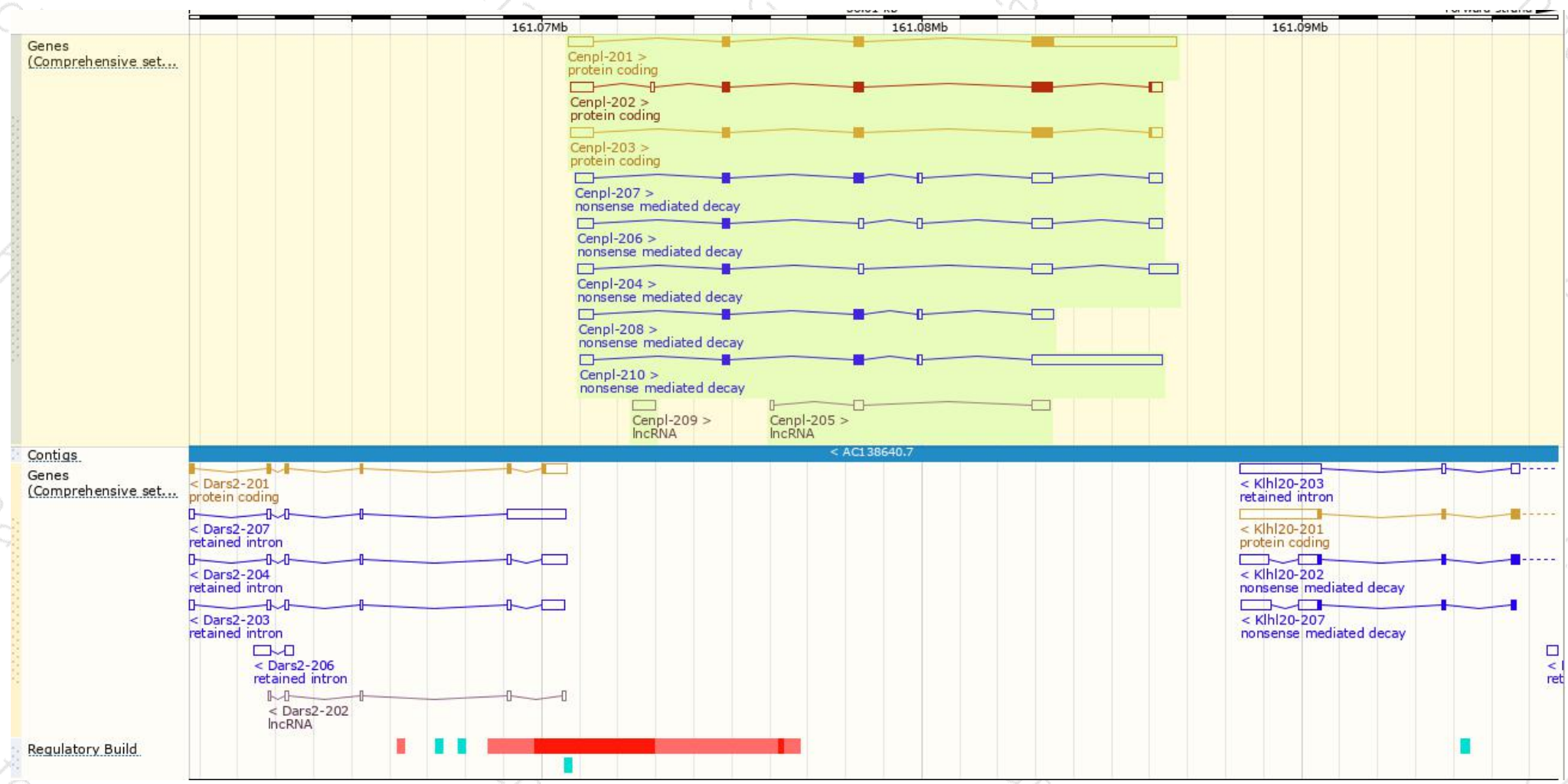
The gene has 10 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Cenpl-202	ENSMUST00000111618.7	1996	345aa	Protein coding	CCDS48413	Q14A61	-	TSL:5 GENCODE basic APPRIS P1
Cenpl-203	ENSMUST00000111620.9	1910	345aa	Protein coding	CCDS48413	Q14A61	NM_001159930 NP_001153402	TSL:1 GENCODE basic APPRIS P1
Cenpl-201	ENSMUST00000028035.13	4883	329aa	Protein coding	-	Q3U3S3	-	TSL:1 GENCODE basic
Cenpl-210	ENSMUST00000195571.1	4341	155aa	Nonsense mediated decay	-	Q05CX4	-	TSL:2
Cenpl-204	ENSMUST00000143486.6	1997	62aa	Nonsense mediated decay	-	M0QWX6	NR_131030	TSL:1
Cenpl-207	ENSMUST00000192850.5	1914	155aa	Nonsense mediated decay	-	Q05CX4	NR_131028	TSL:1
Cenpl-206	ENSMUST00000192150.5	1756	62aa	Nonsense mediated decay	-	M0QWX6	NR_131029	TSL:2
Cenpl-208	ENSMUST00000194855.5	1504	155aa	Nonsense mediated decay	-	Q05CX4	-	TSL:2
Cenpl-205	ENSMUST00000155808.1	802	No protein	Processed transcript	-	-	-	TSL:3
Cenpl-209	ENSMUST00000195212.1	589	No protein	Processed transcript	-	-	-	TSL:NA

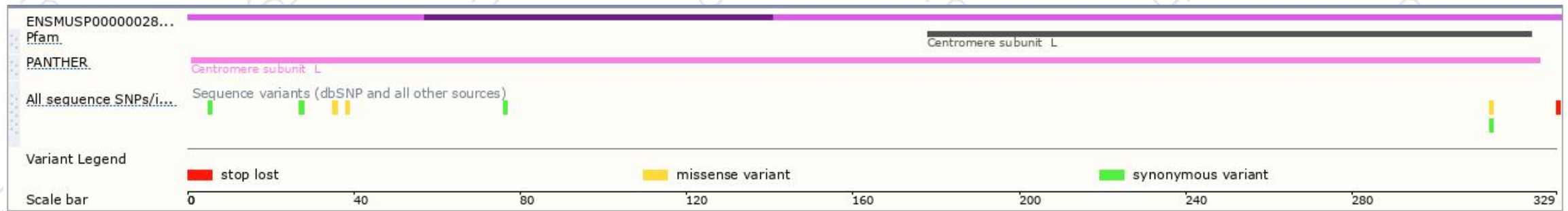
The strategy is based on the design of *Cenpl-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



Statistics

Ave. residue weight: 114.666 g/mol

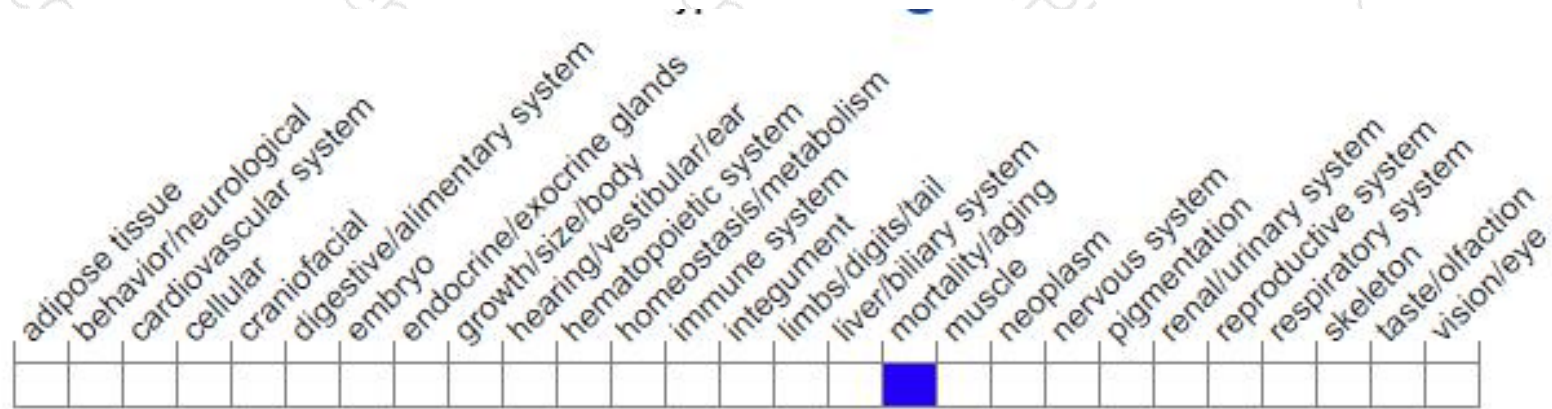
Charge: 9.0

Isoelectric point: 8.1798

Molecular weight: 37,725.11 g/mol

Number of residues: 329 aa

Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>) .

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