

***Zw10* Cas9-KO Strategy**

Designer: Shuang Zhang

Reviewer: Yun Li

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Project Overview

Project Name

Zw10

Project type

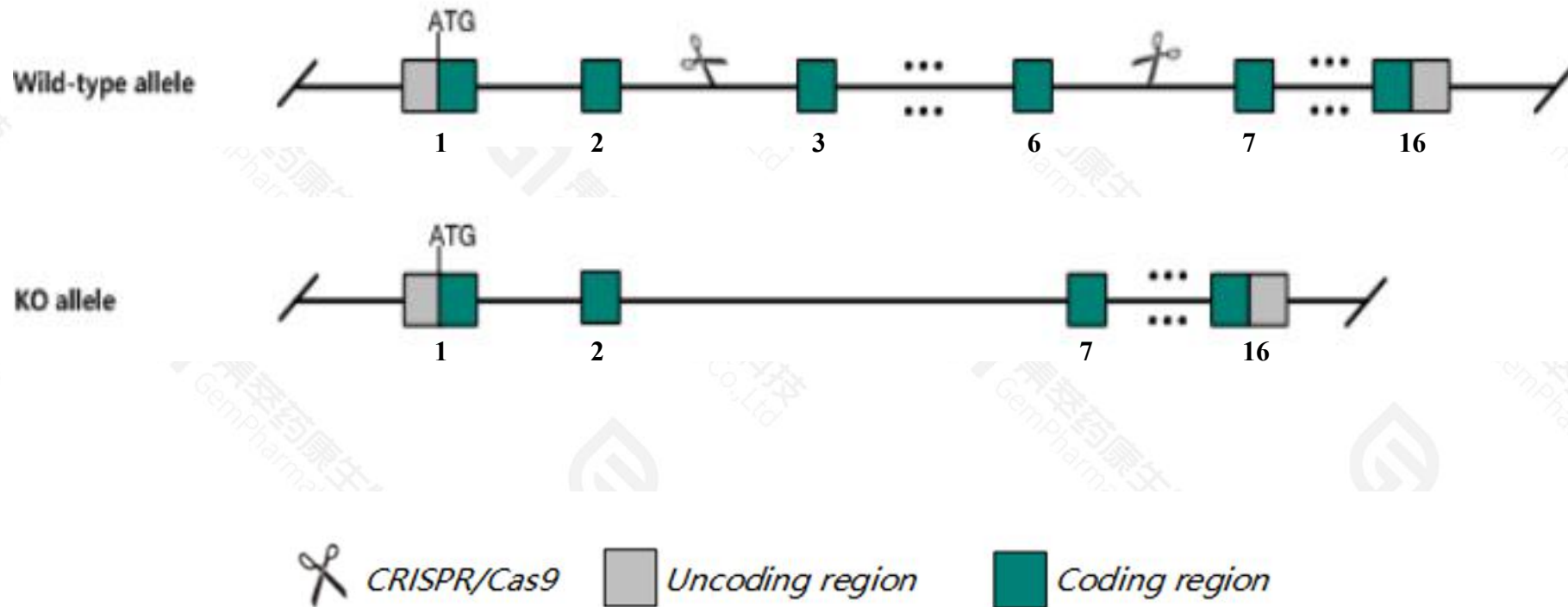
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zw10* gene. The schematic diagram is as follows:



- The *Zw10* gene has 3 transcripts. According to the structure of *Zw10* gene, exon3-exon6 of *Zw10-201*(ENSMUST00000034803.10) transcript is recommended as the knockout region. The region contains 493bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Zw10* gene. The brief process is as follows: CRISPR/Cas9 system 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 *Zw10* gene is located on the Chr9. 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.
- The KO region nears the *1700042D02Rik* gene. Knockout the region may affect the function of *1700042D02Rik* gene.

Gene information (NCBI)

Zw10 zw10 kinetochore protein [Mus musculus (house mouse)]

Gene ID: 26951, updated on 17-Dec-2020

Summary



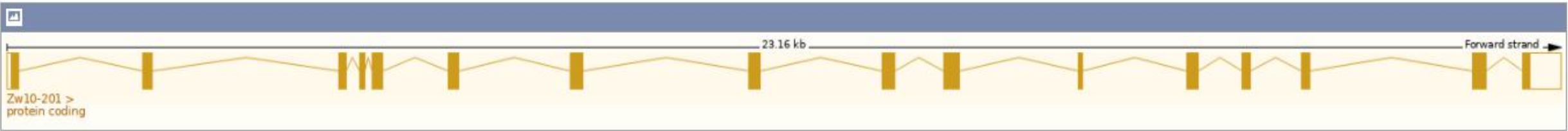
Official Symbol	Zw10 provided by MGI
Official Full Name	zw10 kinetochore protein provided by MGI
Primary source	MGI:MGI:1349478
See related	Ensembl:ENSMUSG00000032264
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	6330566F14Rik, MmZw10
Expression	Ubiquitous expression in CNS E11.5 (RPKM 15.1), limb E14.5 (RPKM 13.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

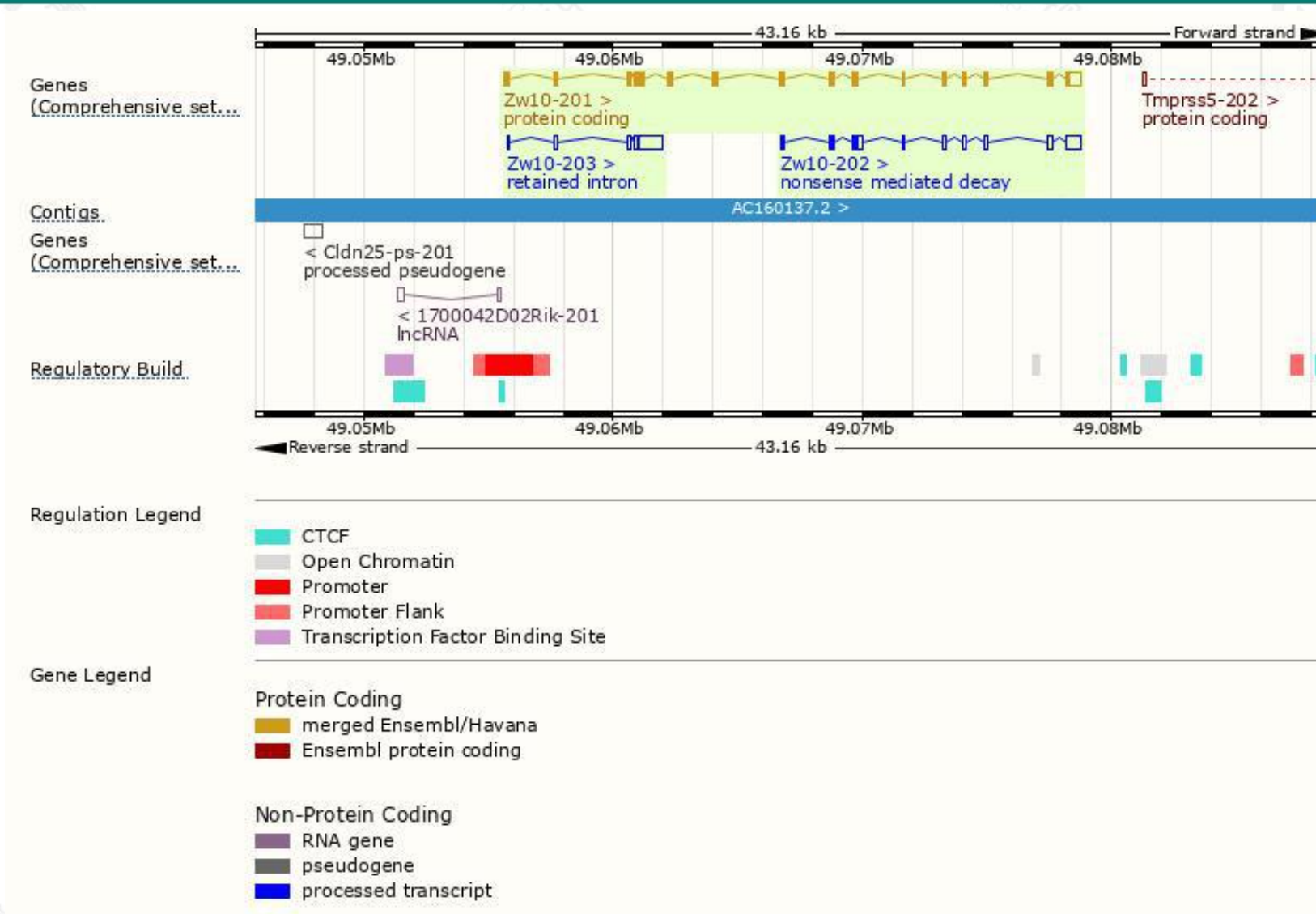
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zw10-201	ENSMUST00000034803.10	2863	779aa	Protein coding	CCDS23161		TSL:1 , GENCODE basic , APPRIS P1 ,
Zw10-202	ENSMUST00000213787.2	2013	187aa	Nonsense mediated decay	-		CDS 5' incomplete , TSL:1 ,
Zw10-203	ENSMUST00000215706.2	1272	No protein	Retained intron	-		TSL:2 ,

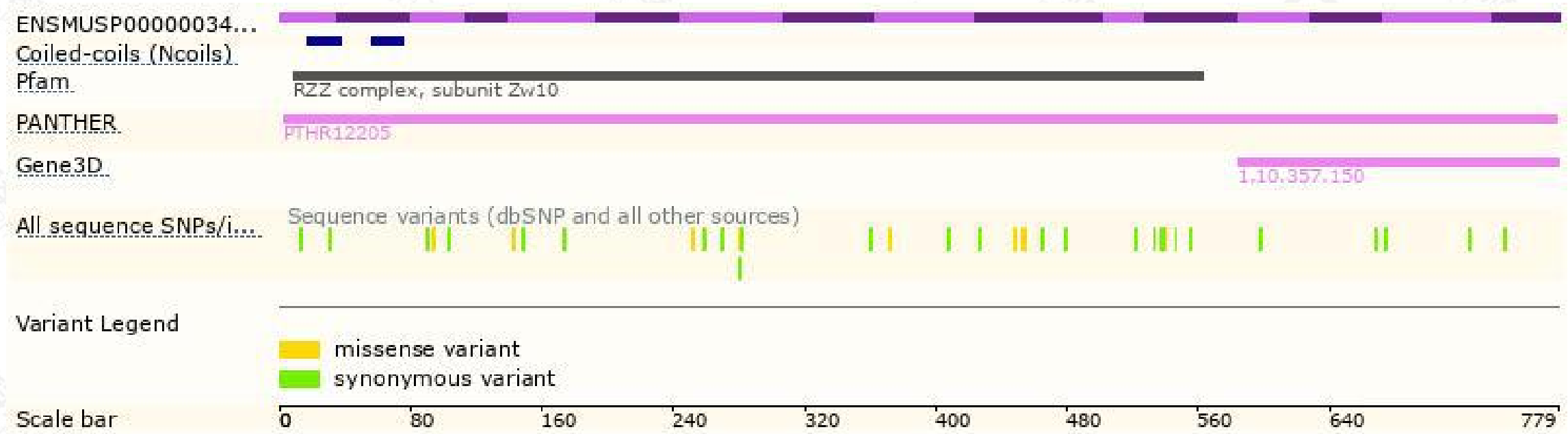
The strategy is based on the design of *Zw10-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



If you have any questions, you are welcome to inquire.
Tel: 400-9660890

