Acp7 Cas9-KO Strategy

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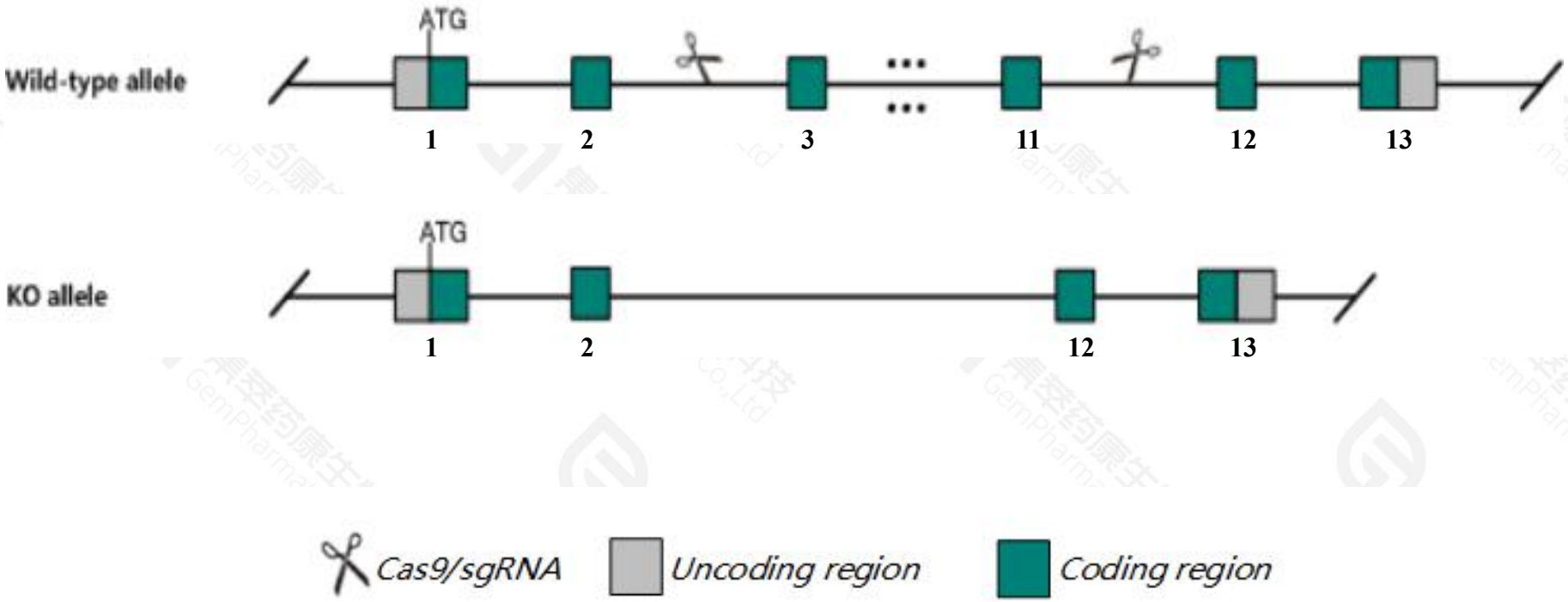
Project Overview

Project Name	***Acp7***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Acp7* gene. The schematic diagram is as follows:



Technical routes

➢ The *Acp7* gene has 6 transcripts. According to the structure of *Acp7* gene, exon3-exon11 of *Acp7-201*(ENSMUST00000040112.5) transcript is recommended as the knockout region.The region contains 992bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Acp7* 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.

Notice

➢ Transcript *Acp7*-202&205 may not be affected.

➢ The *Acp7* gene is located on the Chr7. 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）

集萃药康 GemPharmatech

Acp7 acid phosphatase 7, tartrate resistant [Mus musculus (house mouse)]

Gene ID: 101744, updated on 17-Feb-2021

Summary

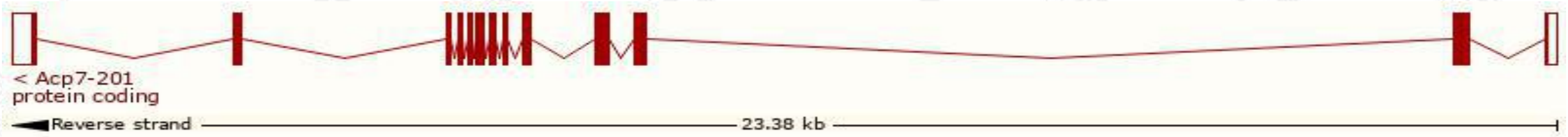
Official Symbol	Acp7 provided by MGI
Official Full Name	acid phosphatase 7, tartrate resistant provided by MGI
Primary source	MGI:MGI:2142121
See related	Ensembl:ENSMUSG00000037469
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AU017076, C330005M16Rik, Papl
Expression	Biased expression in stomach adult (RPKM 3.5), testis adult (RPKM 2.1) and 5 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

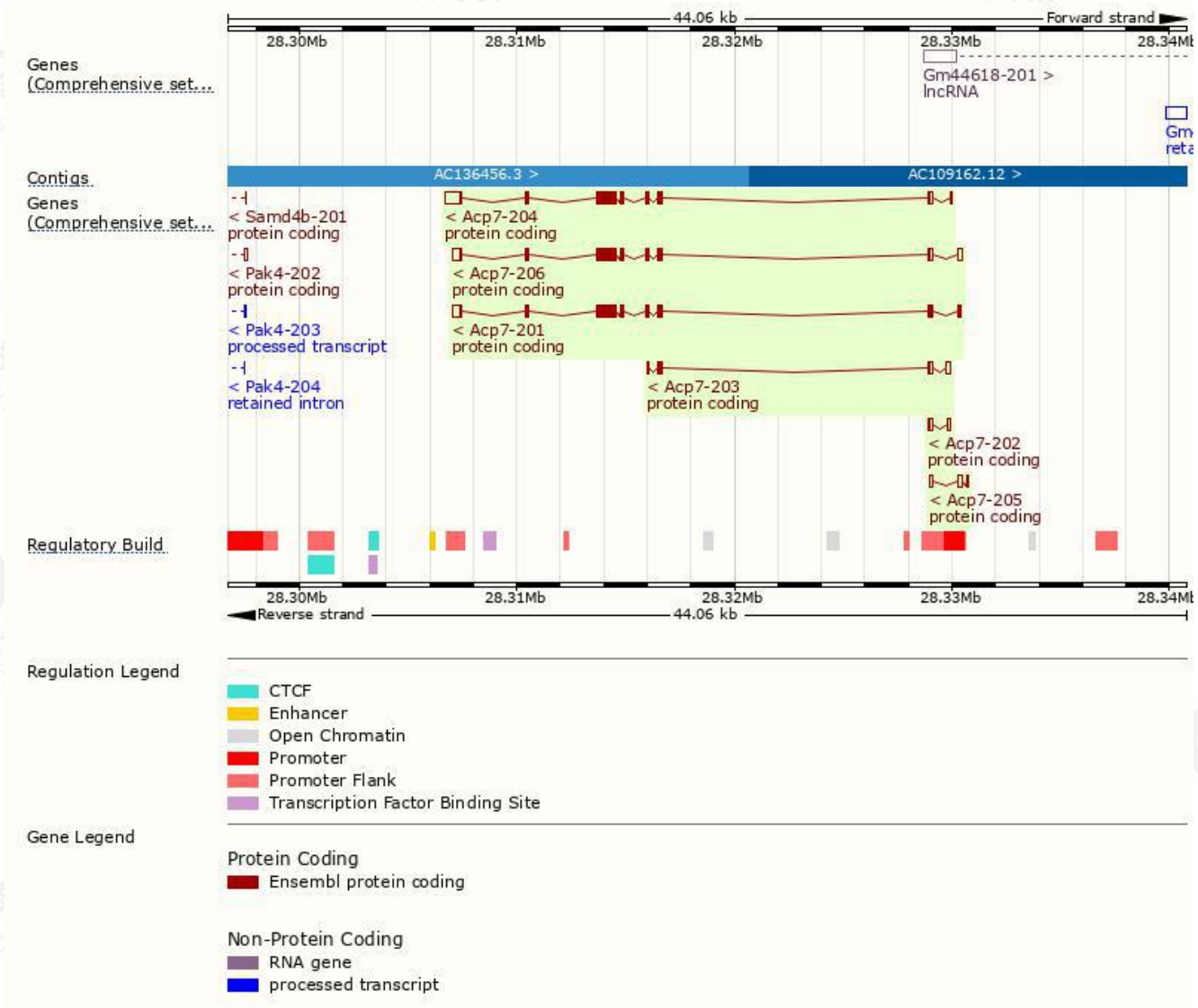
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Acp7-201	ENSMUST00000040112.5	1923	496aa	Protein coding	CCDS21050		TSL:1 , GENCODE basic , APPRIS P2 ,
Acp7-204	ENSMUST00000159560.3	2207	438aa	Protein coding	-		TSL:3 , GENCODE basic , APPRIS ALT2 ,
Acp7-206	ENSMUST00000239470.2	1978	438aa	Protein coding	-		GENCODE basic , APPRIS ALT2 ,
Acp7-203	ENSMUST00000159418.8	764	140aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Acp7-205	ENSMUST00000162880.3	454	18aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Acp7-202	ENSMUST00000159095.2	344	29aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,

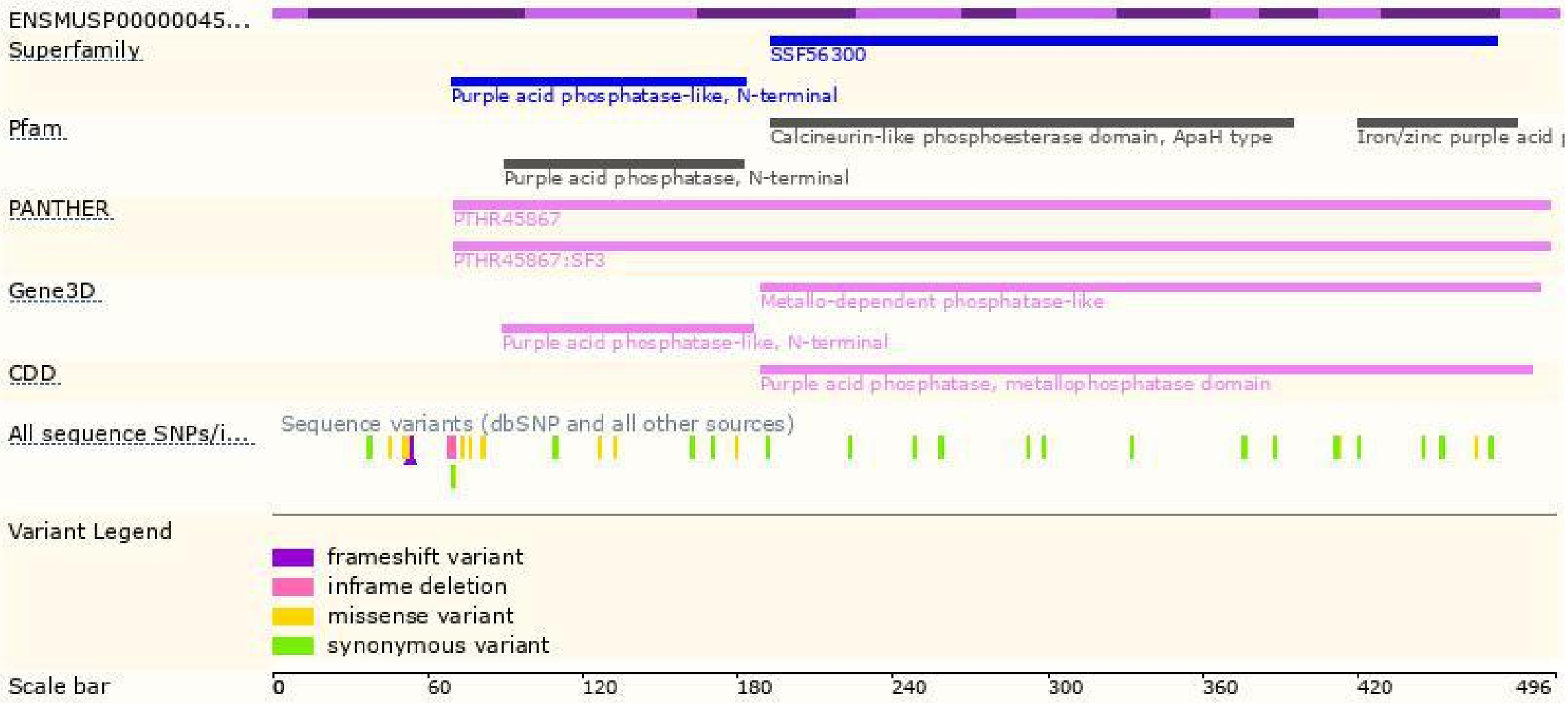
The strategy is based on the design of *Acp7-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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