Naa15 Cas9-KO Strategy

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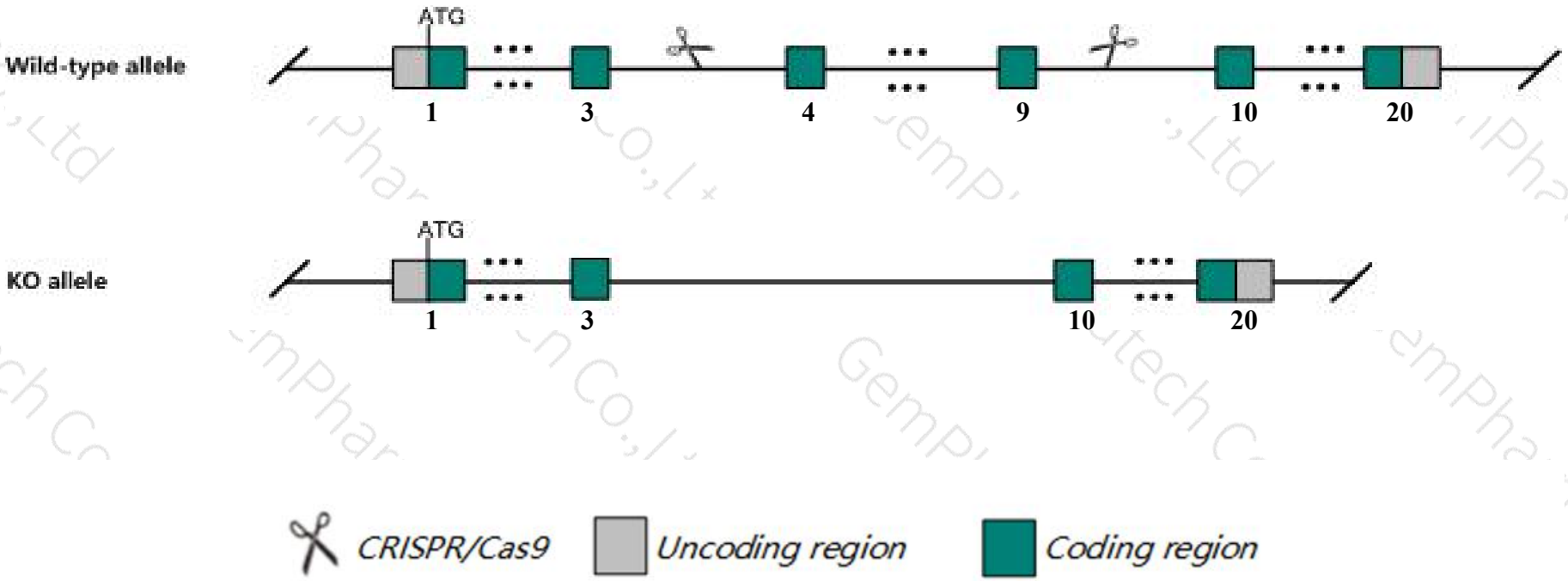
Project Overview

Project Name	***Naa15***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Naa15* gene. The schematic diagram is as follows:



Technical routes

➢ The *Naa15* gene has 9 transcripts. According to the structure of *Naa15* gene, exon4-exon9 of *Naa15-201* (ENSMUST00000029303.12) transcript is recommended as the knockout region.The region contains 770bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Naa15* gene. The brief process is as follows: gRNA was transcribed in vitro.Cas9 and gRNA 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

➢ The *Naa15* 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）

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Naa15 N(alpha)-acetyltransferase 15, NatA auxiliary subunit [Mus musculus (house mouse)]

Gene ID: 74838, updated on 31-Jan-2019

Summary

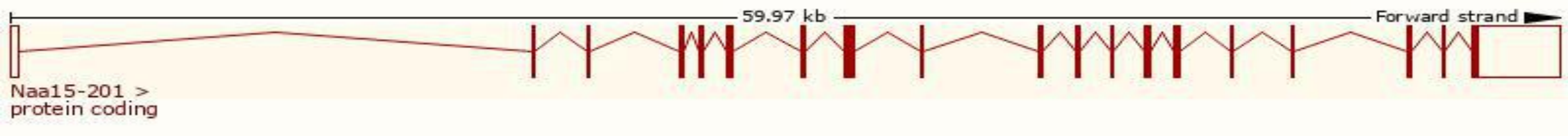
Official Symbol	Naa15 provided by MGI
Official Full Name	N(alpha)-acetyltransferase 15, NatA auxiliary subunit provided by MGI
Primary source	MGI:MGI:1922088
See related	Ensembl:ENSMUSG00000063273
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5730450D16Rik, 6330400I15, ASTBDN, Narg1, Tbdn-1, mNAT1
Expression	Broad expression in CNS E11.5 (RPKM 15.4), placenta adult (RPKM 10.3) and 22 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

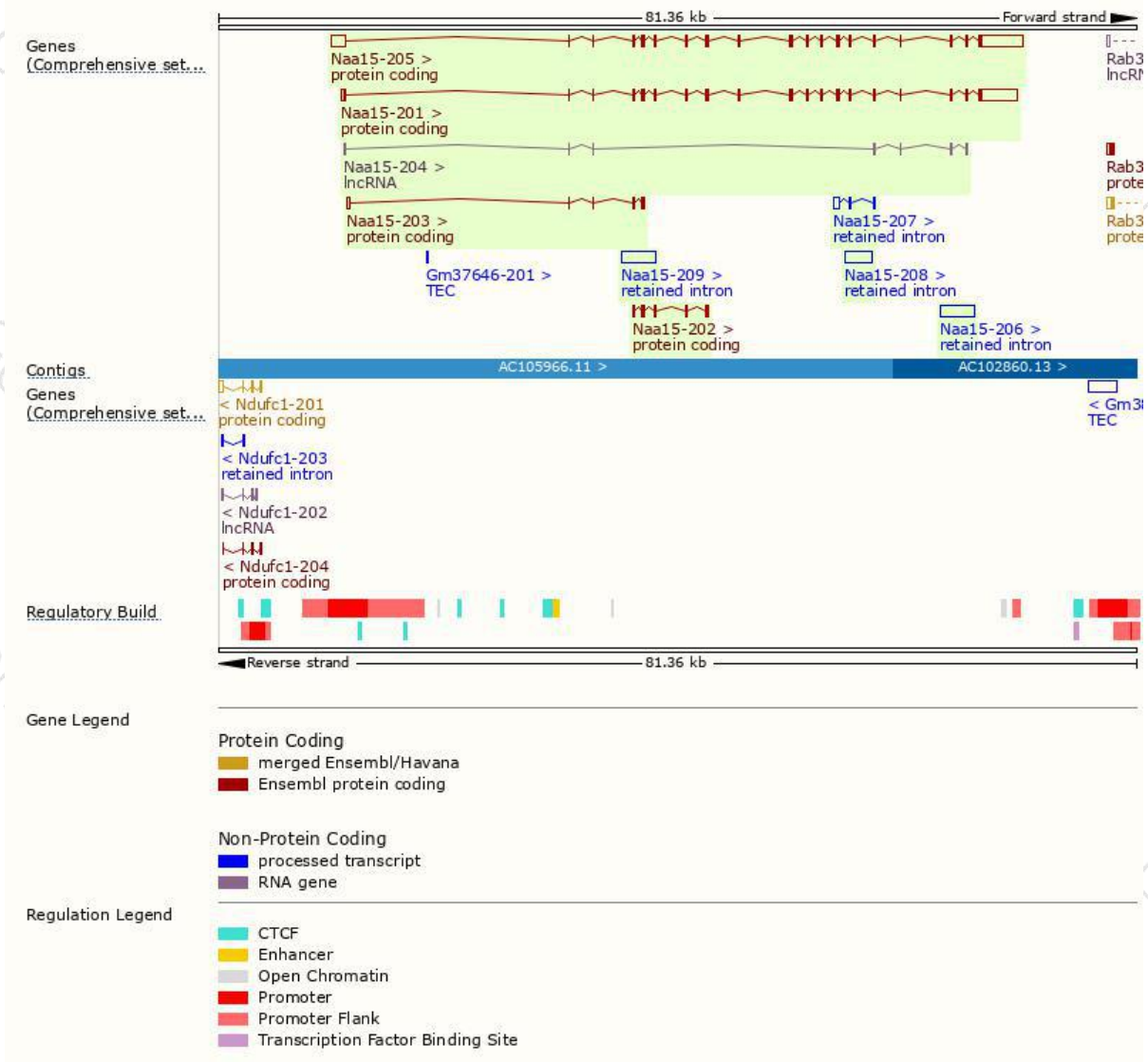
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Naa15-201	ENSMUST00000029303.12	6090	865aa	Protein coding	CCDS17340	G3X8Y3	TSL:1 GENCODE basic APPRIS P1
Naa15-205	ENSMUST00000193266.5	7480	815aa	Protein coding	-	A0A0A6YW80	TSL:1 GENCODE basic
Naa15-202	ENSMUST00000192197.1	712	237aa	Protein coding	-	A0A0A6YX86	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3
Naa15-203	ENSMUST00000192419.5	637	126aa	Protein coding	-	A0A0A6YXF4	CDS 3' incomplete TSL:5
Naa15-206	ENSMUST00000193267.1	3073	No protein	Retained intron	-	-	TSL:NA
Naa15-209	ENSMUST00000195430.1	2975	No protein	Retained intron	-	-	TSL:NA
Naa15-208	ENSMUST00000194685.1	2319	No protein	Retained intron	-	-	TSL:NA
Naa15-207	ENSMUST00000193694.1	667	No protein	Retained intron	-	-	TSL:3
Naa15-204	ENSMUST00000192523.5	629	No protein	lncRNA	-	-	TSL:3

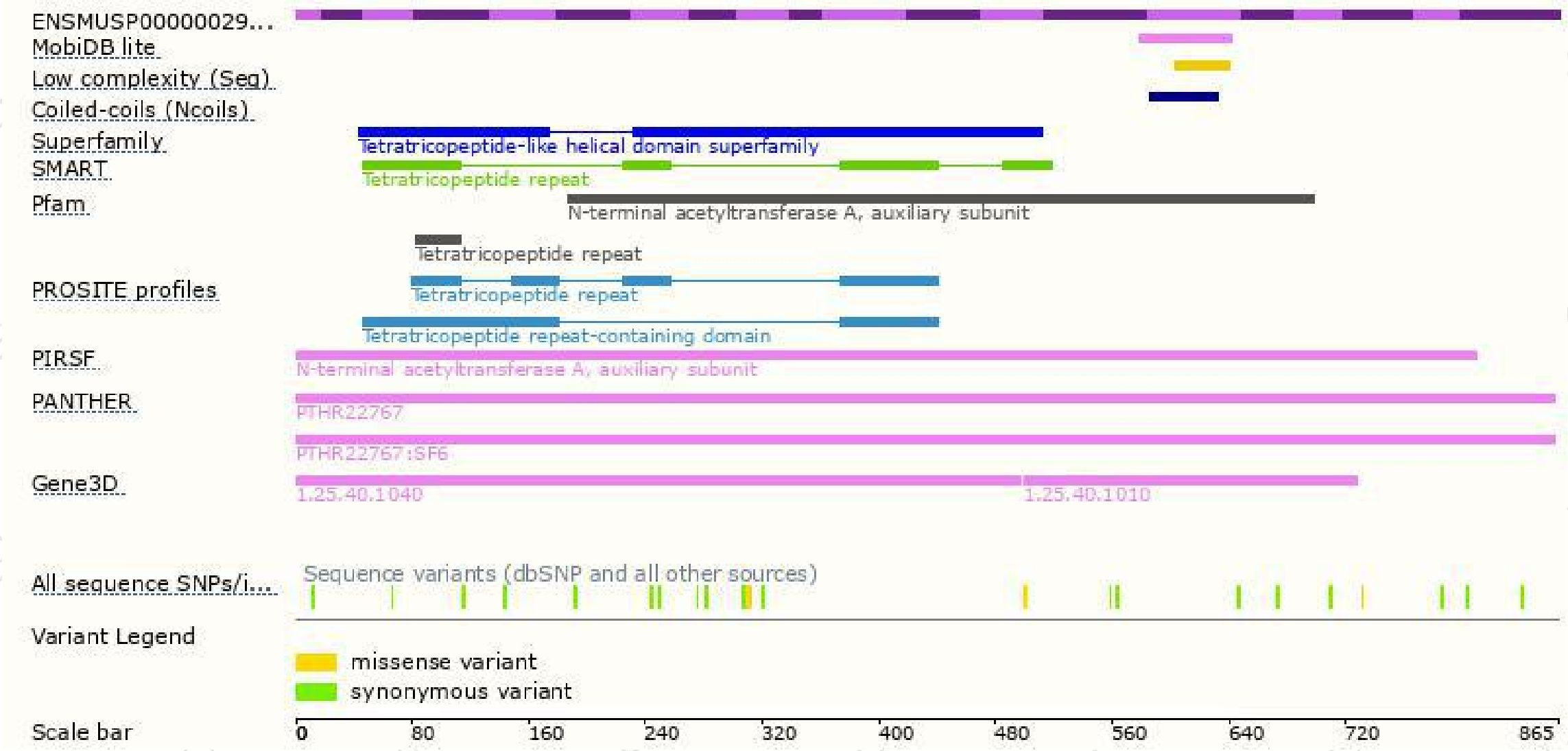
The strategy is based on the design of *Naa15-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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