Nipa1 Cas9-KO Strategy

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Reviewer: Huimin Su

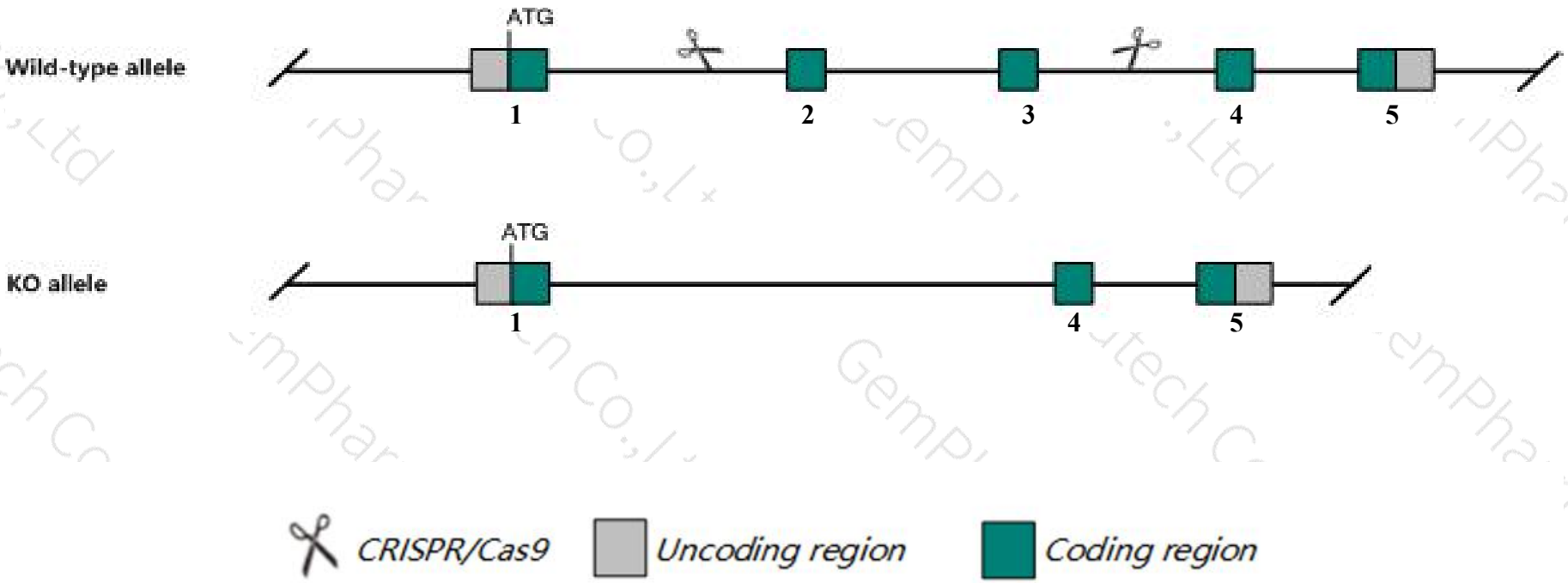
Design Date: 2019-9-28

Project Overview

Project Name	***Nipa1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nipa1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Nipa1* gene has 1 transcript. According to the structure of *Nipa1* gene, exon2-exon3 of *Nipa1-201* (ENSMUST00000052204.5) transcript is recommended as the knockout region.The region contains 139bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Nipa1* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ The *Nipa1* 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）

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Nipa1 non imprinted in Prader-Willi/Angelman syndrome 1 homolog (human) [Mus musculus (house mouse)]

Gene ID: 233280, updated on 31-Jan-2019

Summary

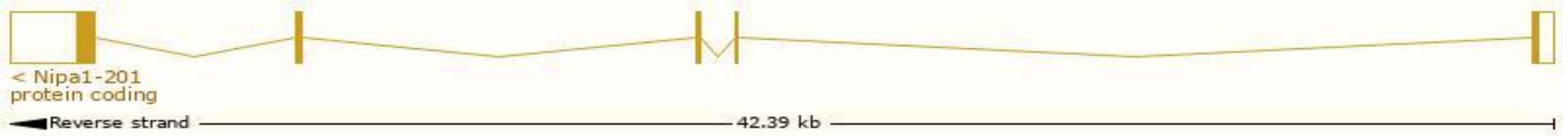
Official Symbol	Nipa1 provided by MGI
Official Full Name	non imprinted in Prader-Willi/Angelman syndrome 1 homolog (human) provided by MGI
Primary source	MGI:MGI:2442058
See related	Ensembl:ENSMUSG00000047037
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110027G09Rik, A830014A18Rik, FSP3, Spg6
Expression	Ubiquitous expression in CNS E18 (RPKM 14.8), cortex adult (RPKM 12.2) and 27 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

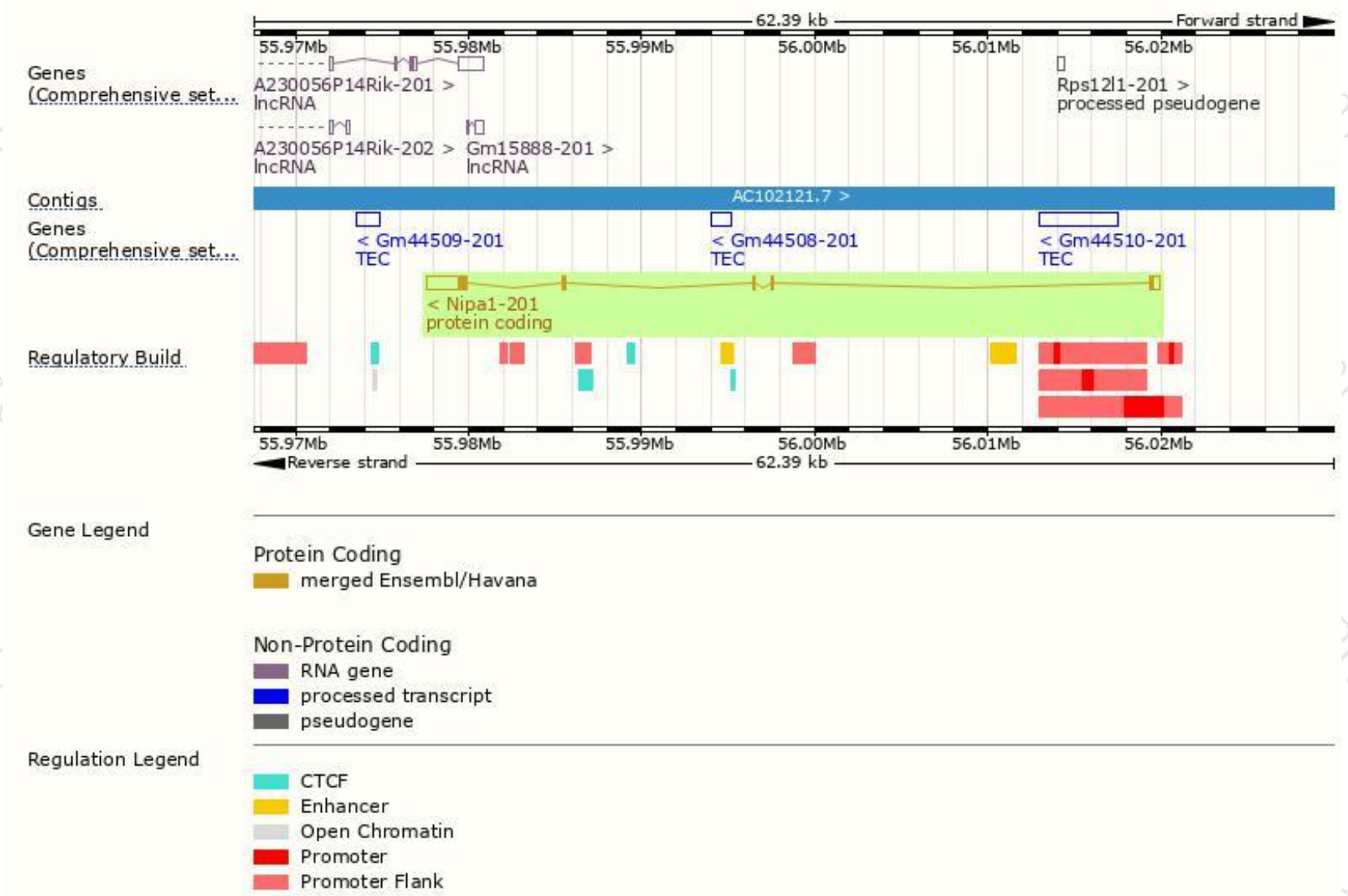
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nipa1-201	ENSMUST00000052204.5	3183	323aa	Protein coding	CCDS21317	Q8BHK1	TSL:1 GENCODE basic APPRIS P1

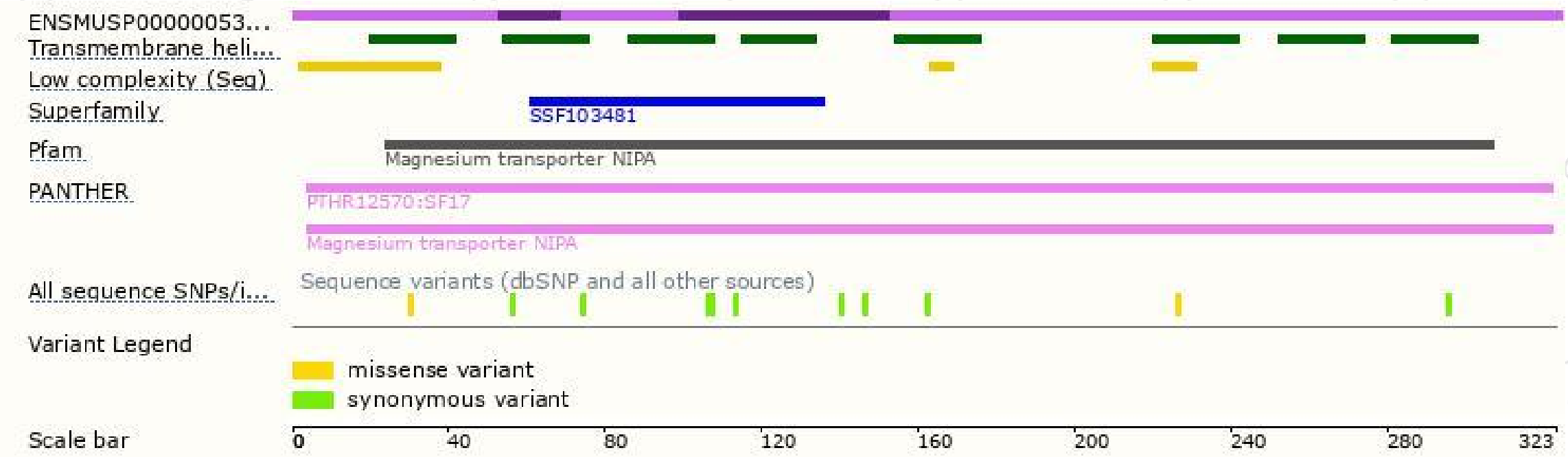
The strategy is based on the design of *Nipa1-201* transcript,The transcription is shown below



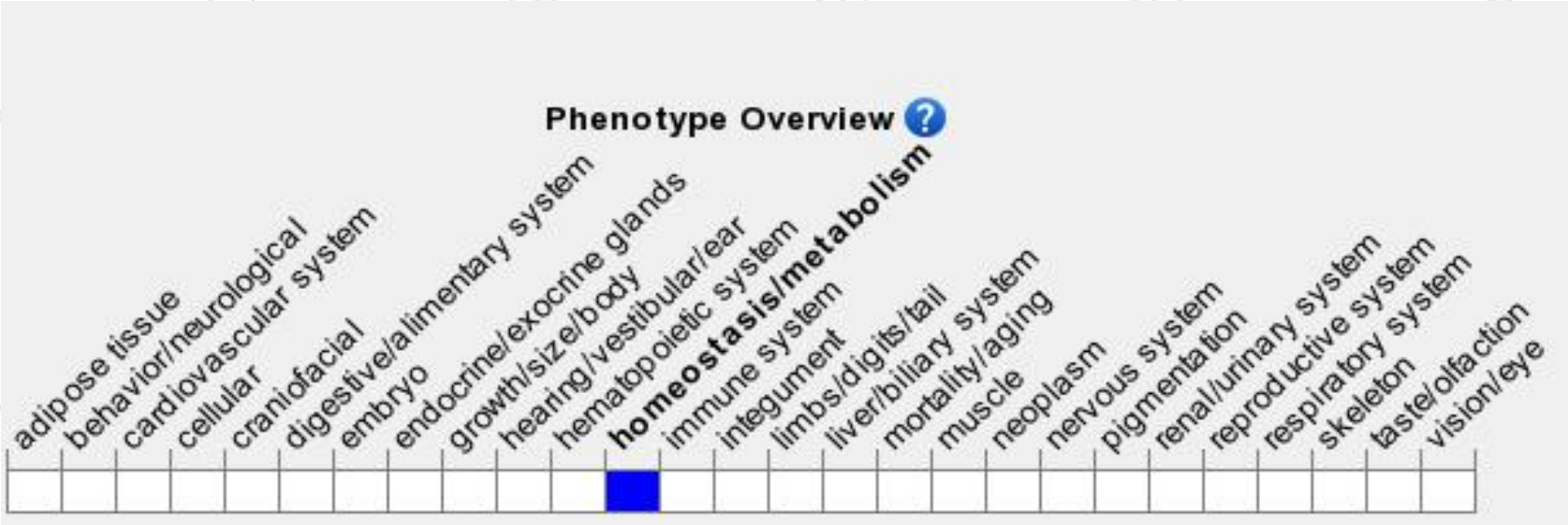
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



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

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

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