

***Rab33a* Cas9-KO Strategy**

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Project Overview

Project Name

Rab33a

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rab33a* gene. The schematic diagram is as follows:



- The *Rab33a* gene has 1 transcript. According to the structure of *Rab33a* gene, exon2 of *Rab33a-201* (ENSMUST00000033430.2) 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 *Rab33a* gene. The brief process is as follows: CRISPR/Cas9 system

- The N-terminal of *Rab33a* gene will remain several amino acids ,it may remain the partial function of *Rab33a* gene.
- The *Rab33a* gene is located on the ChrX. 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)

Rab33a RAB33A, member RAS oncogene family [*Mus musculus* (house mouse)]

Gene ID: 19337, updated on 27-Feb-2020

Summary

- Official Symbol** Rab33a provided by [MGI](#)
- Official Full Name** RAB33A, member RAS oncogene family provided by [MGI](#)
- Primary source** [MGI:MGI:109493](#)
- See related** [Ensembl:ENSMUSG00000031104](#)
- Gene type** protein coding
- RefSeq status** REVIEWED
- Organism** [Mus musculus](#)
- Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as** Rabs10
- Summary** This gene encodes a member of the Ras-related small GTPases, which regulate membrane trafficking in organelles and transport vesicles. This protein has been reported to be expressed in lymphocytes and in regions of the mouse brain, specifically the cortex, hippocampus and also the olfactory bulb. The ortholog of this protein in rat has been characterized and may participate in anterograde trafficking of synaptophysin-positive vesicles to the plasma membrane. [provided by RefSeq, Jun 2013]
- Expression** Biased expression in CNS E18 (RPKM 32.4), CNS E14 (RPKM 23.2) and 7 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: X 25.68 cM; X A5 See Rab33a in [Genome Data Viewer](#)

Exon count: 3

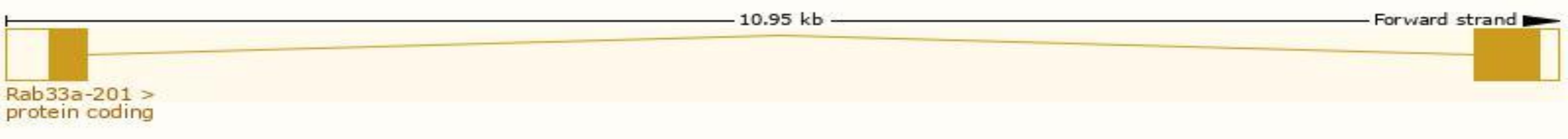
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	X	NC_000086.7 (48513663..48530240)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	X	NC_000086.6 (45872647..45883409)

Transcript information (Ensembl)

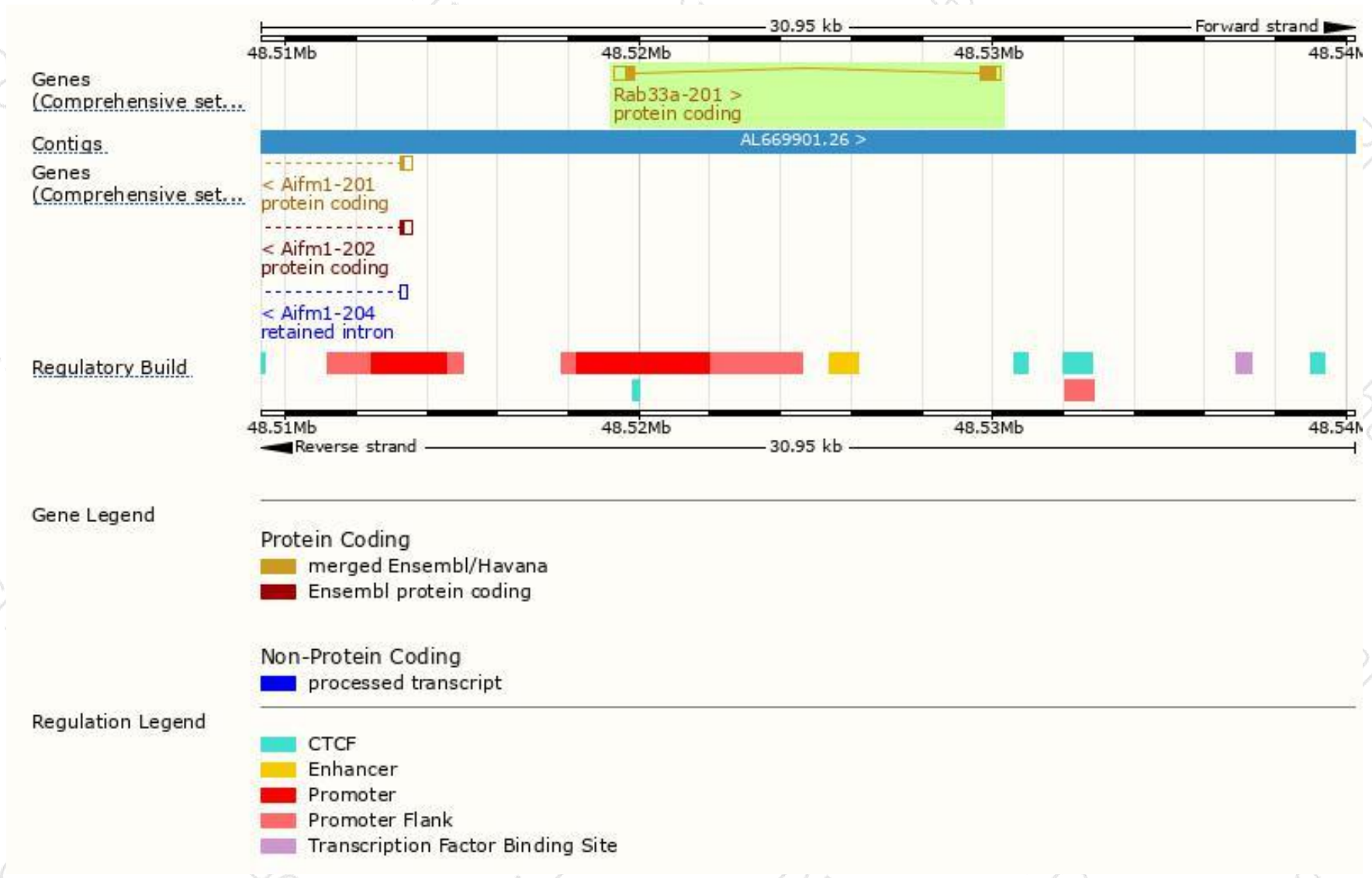
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rab33a-201	ENSMUST00000033430.2	1158	237aa	Protein coding	CCDS30110	P97950 Q3SXA7	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Rab33a-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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