

Sall3 Cas9-KO Strategy

Designer: Longyun Hu

Reviewer: Shanhong Tao

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Project Overview

Project Name

Sall3

Project type

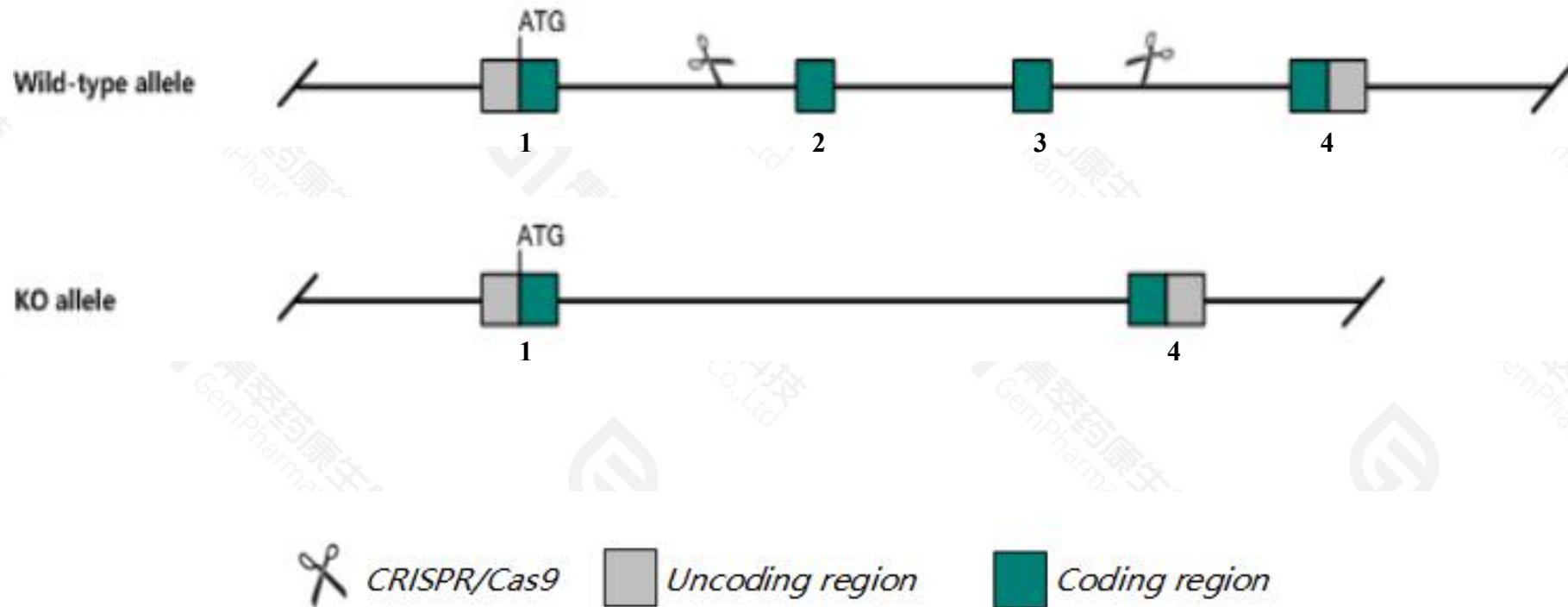
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sall3* gene. The schematic diagram is as follows:



- The *Sall3* gene has 3 transcripts. According to the structure of *Sall3* gene, exon2-exon3 of *Sall3*-201(ENSMUST00000057950.9) transcript is recommended as the knockout region. The region contains 3233bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Sall3* 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.

- According to the existing MGI data, homozygous null mice display neonatal lethality with an impaired suckling ability, truncated soft palate, small epiglottis, and abnormal cranial nerve morphology.
- The *Sall3* gene is located on the Chr18. 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.

Sall3 spalt like transcription factor 3 [Mus musculus (house mouse)]

Gene ID: 20689, updated on 17-Nov-2020

Summary



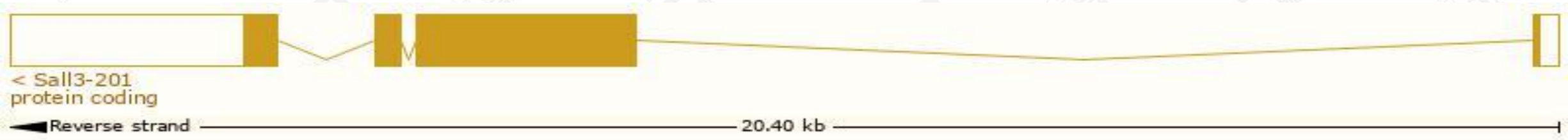
Official Symbol	Sall3 provided by MGI
Official Full Name	spalt like transcription factor 3 provided by MGI
Primary source	MGI:MGI:109295
See related	Ensembl:ENSMUSG00000024565
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B130022O04Rik, M, Msa, Msal, Msal-1, S, Sal, Salt, Spalt
Expression	Biased expression in whole brain E14.5 (RPKM 3.6), frontal lobe adult (RPKM 3.4) and 7 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

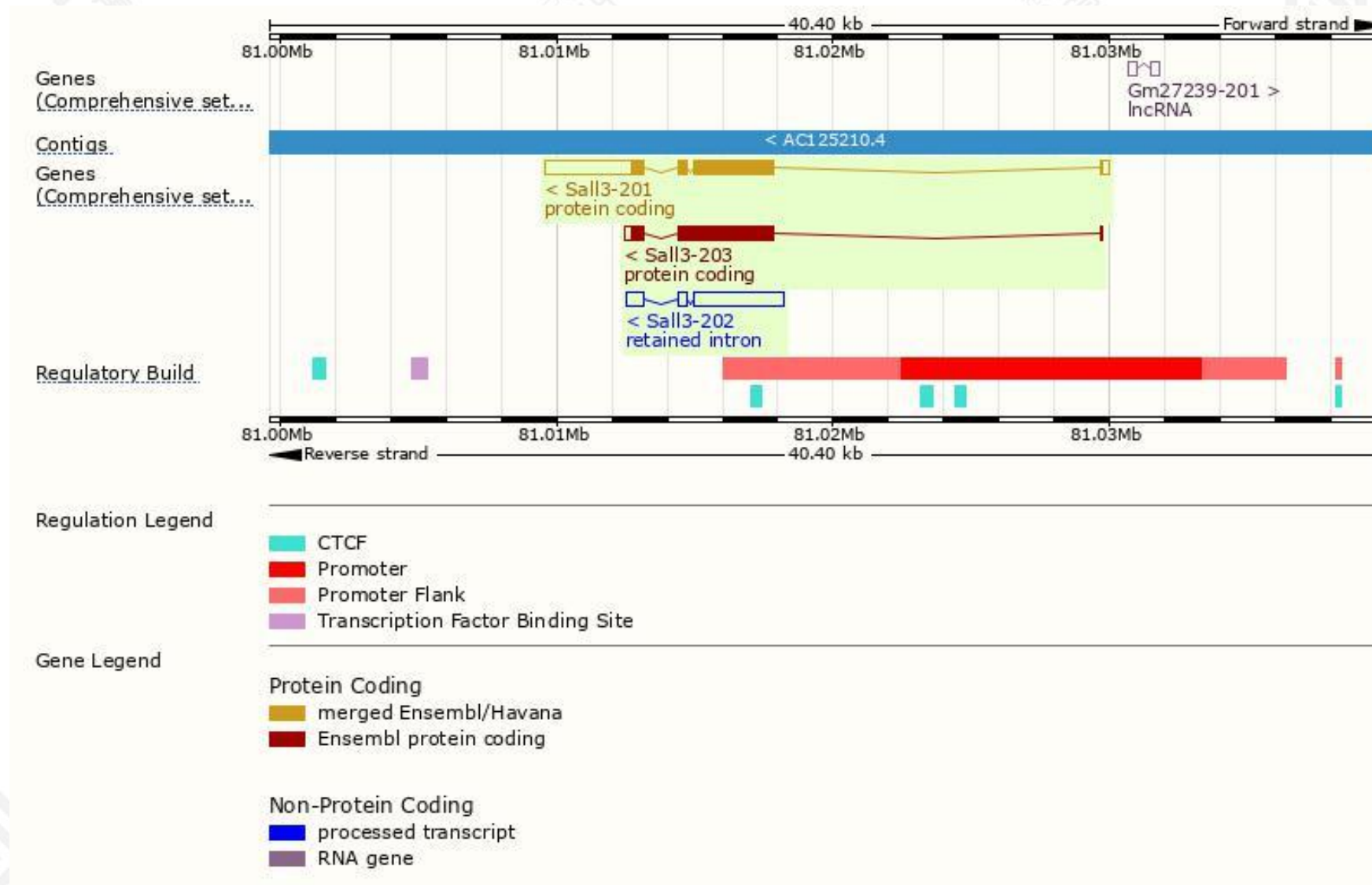
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sall3-201	ENSMUST00000057950.9	7079	1248aa	Protein coding	CCDS29371		TSL:1 , GENCODE basic ,
Sall3-203	ENSMUST00000238808.2	4214	1320aa	Protein coding	-		GENCODE basic , APPRIS P1 ,
Sall3-202	ENSMUST00000235746.2	4254	No protein	Retained intron	-		

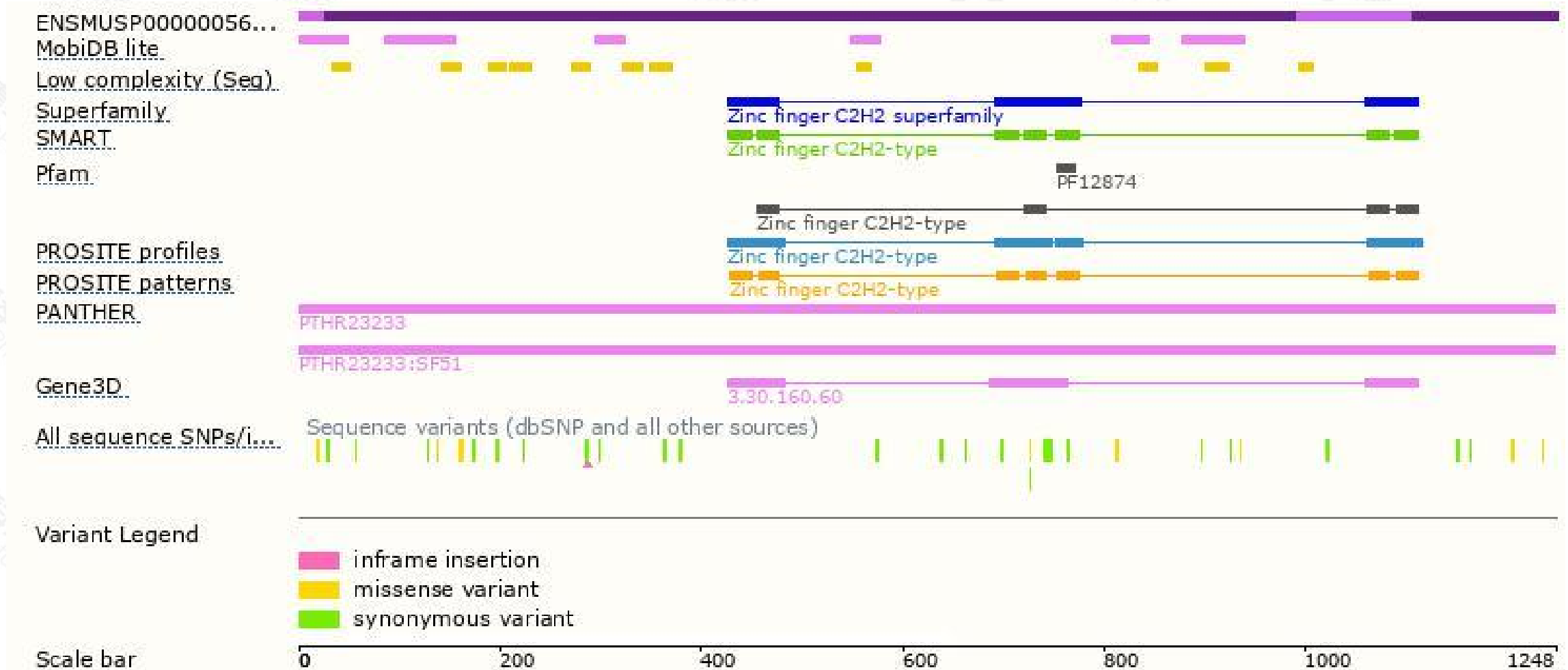
The strategy is based on the design of *Sall3-201* transcript,the transcription is shown below:



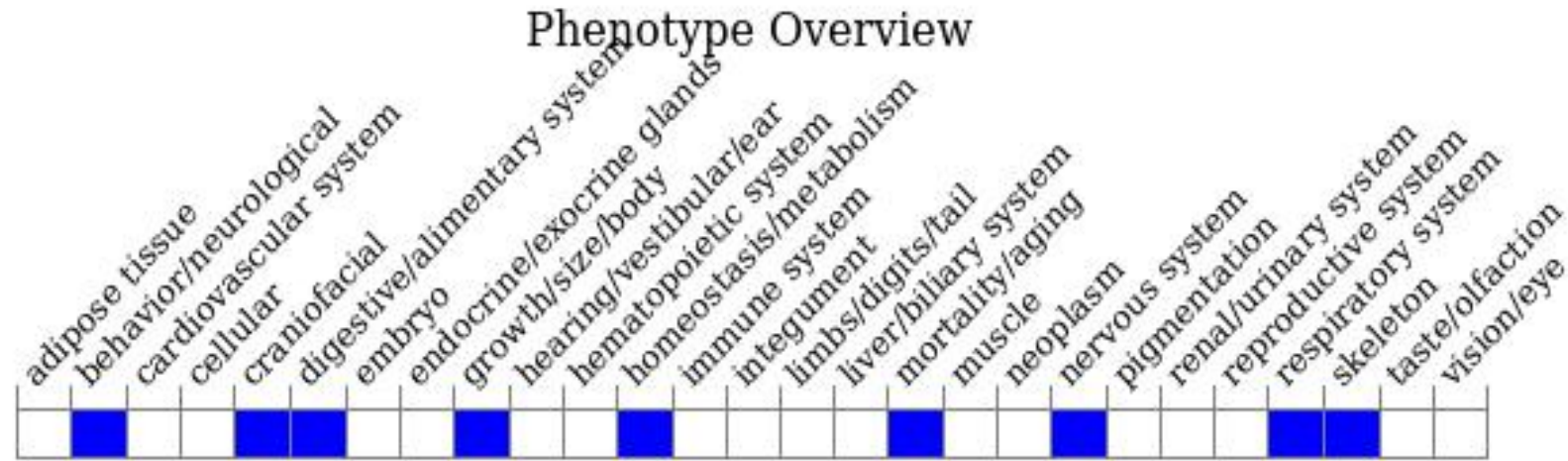
Genomic location distribution



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/>).

According to the existing MGI data, homozygous null mice display neonatal lethality with an impaired suckling ability, truncated soft palate, small epiglottis, and abnormal cranial nerve morphology.

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

