

***Gata6* Cas9-KO Strategy**

Designer:: Shilei Zhu

Reviewer: Huan Fan

Date: 2019-11-14

Project Overview

Project Name

Gata6

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gata6* gene. The schematic diagram is as follows:



- The *Gata6* gene has 6 transcripts. According to the structure of *Gata6* gene, exon2-exon6 of *Gata6-201* (ENSMUST00000047762.9) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gata6* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mutant E5.5 embryos lack parts of the visceral endoderm, show impaired embryonic ectoderm development, and die soon post-implantation, apparently of extraembryonic tissue defects.
- The *Gata6* 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.
- Deletion of the region may affect the 5-terminal regulation of the side genes (IncRNA 1010001N08Rik)

Gene information (NCBI)

Gata6 GATA binding protein 6 [Mus musculus (house mouse)]

Gene ID: 14465, updated on 19-Mar-2019

Summary



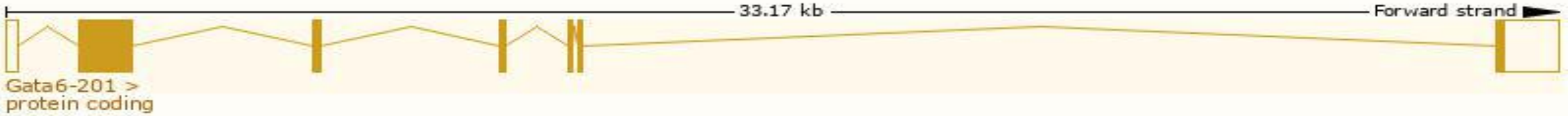
Official Symbol	Gata6 provided by MGI
Official Full Name	GATA binding protein 6 provided by MGI
Primary source	MGI:MGI:107516
See related	Ensembl:ENSMUSG000000005836
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA410133, GATA-6
Expression	Biased expression in adrenal adult (RPKM 88.8), ovary adult (RPKM 57.8) and 10 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

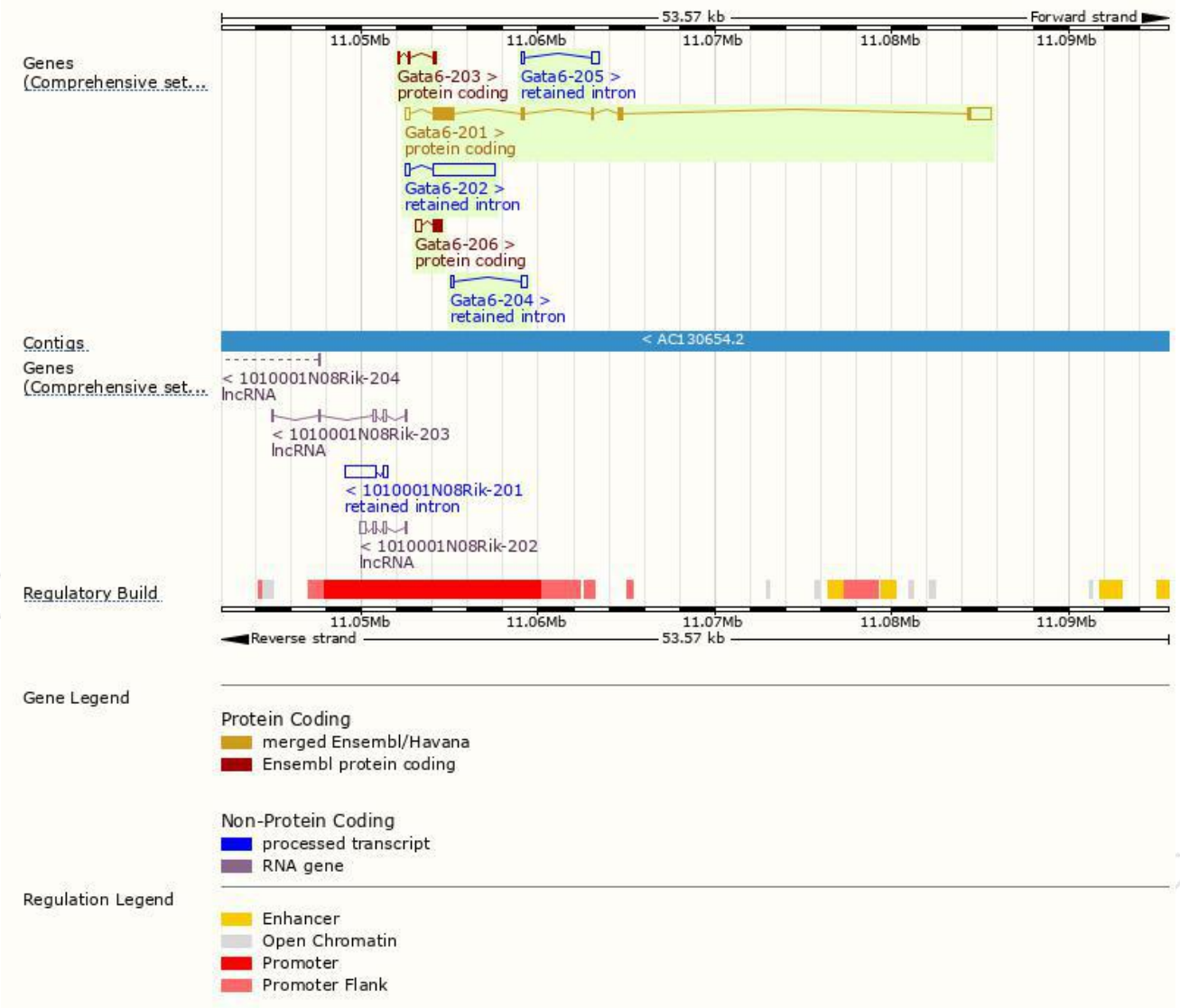
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gata6-201	ENSMUST00000047762.9	3234	589aa	Protein coding	CCDS29059	Q61169	TSL:1 GENCODE basic APPRIS P1
Gata6-206	ENSMUST00000235081.1	852	161aa	Protein coding	-	-	CDS 3' incomplete
Gata6-203	ENSMUST00000234512.1	428	63aa	Protein coding	-	-	CDS 3' incomplete
Gata6-202	ENSMUST00000231831.1	3784	No protein	Retained intron	-	-	
Gata6-205	ENSMUST00000234971.1	616	No protein	Retained intron	-	-	
Gata6-204	ENSMUST00000234722.1	451	No protein	Retained intron	-	-	

The strategy is based on the design of *Gata6-201* transcript,The transcription is shown below



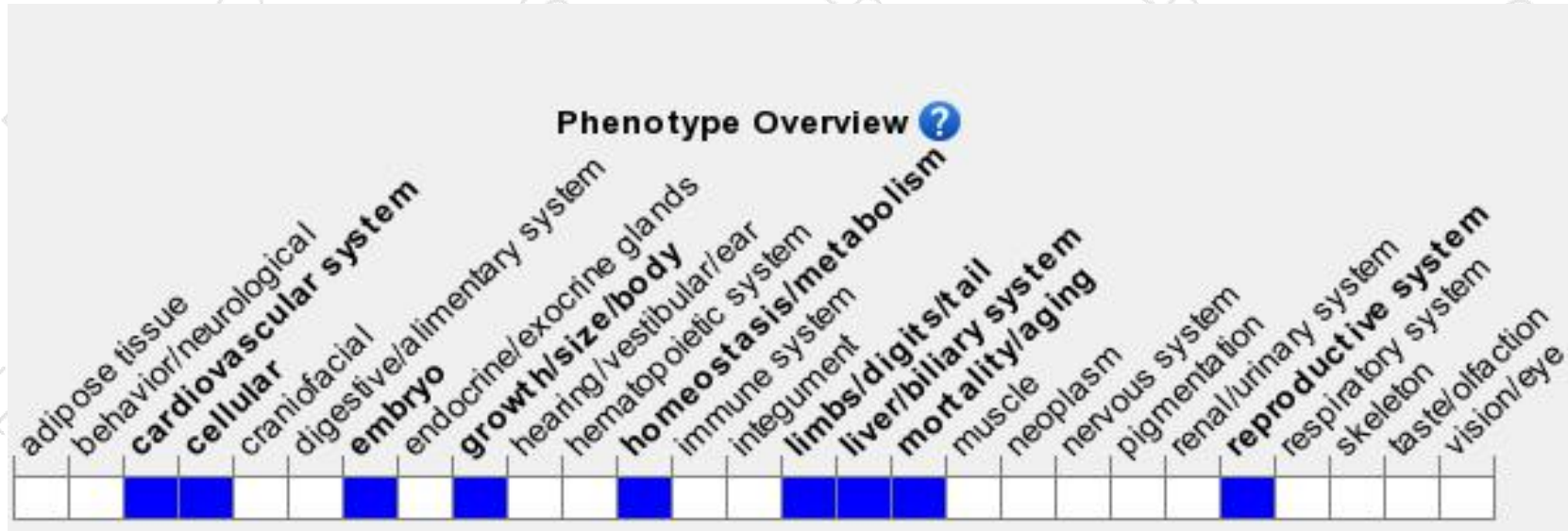
Genomic location distribution



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 mutant E5.5 embryos lack parts of the visceral endoderm, show impaired embryonic ectoderm development, and die soon post-implantation, apparently of extraembryonic tissue defects.

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

Tel: 400-9660890

