

Setd1b Cas9-KO Strategy

Designer:

JiaYu

Reviewer:

Xiaojing Li

Design Date:

2020-2-28

Project Overview

Project Name

Setd1b

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Setd1b* gene. The schematic diagram is as follows:



- The *Setd1b* gene has 6 transcripts. According to the structure of *Setd1b* gene, exon5-exon7 of *Setd1b-204* (ENSMUST00000163030.8) transcript is recommended as the knockout region. The region contains 2147bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Setd1b* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous mutant animals died during organogenesis by E11.5.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- Transcript 203 CDS 5' incomplete the influences is unknown.
- The *Setd1b* gene is located on the Chr5. 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)

Setd1b SET domain containing 1B [Mus musculus (house mouse)]

Gene ID: 208043, updated on 31-Jan-2019

Summary



Official Symbol	Setd1b provided by MGI
Official Full Name	SET domain containing 1B provided by MGI
Primary source	MGI:MGI:2652820
See related	Ensembl:ENSMUSG00000038384
Gene type	protein coding
RefSeq status	INFERRED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA516740, BC035291, KMT2G, mKIAA1076
Expression	Ubiquitous expression in thymus adult (RPKM 17.1), adrenal adult (RPKM 12.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

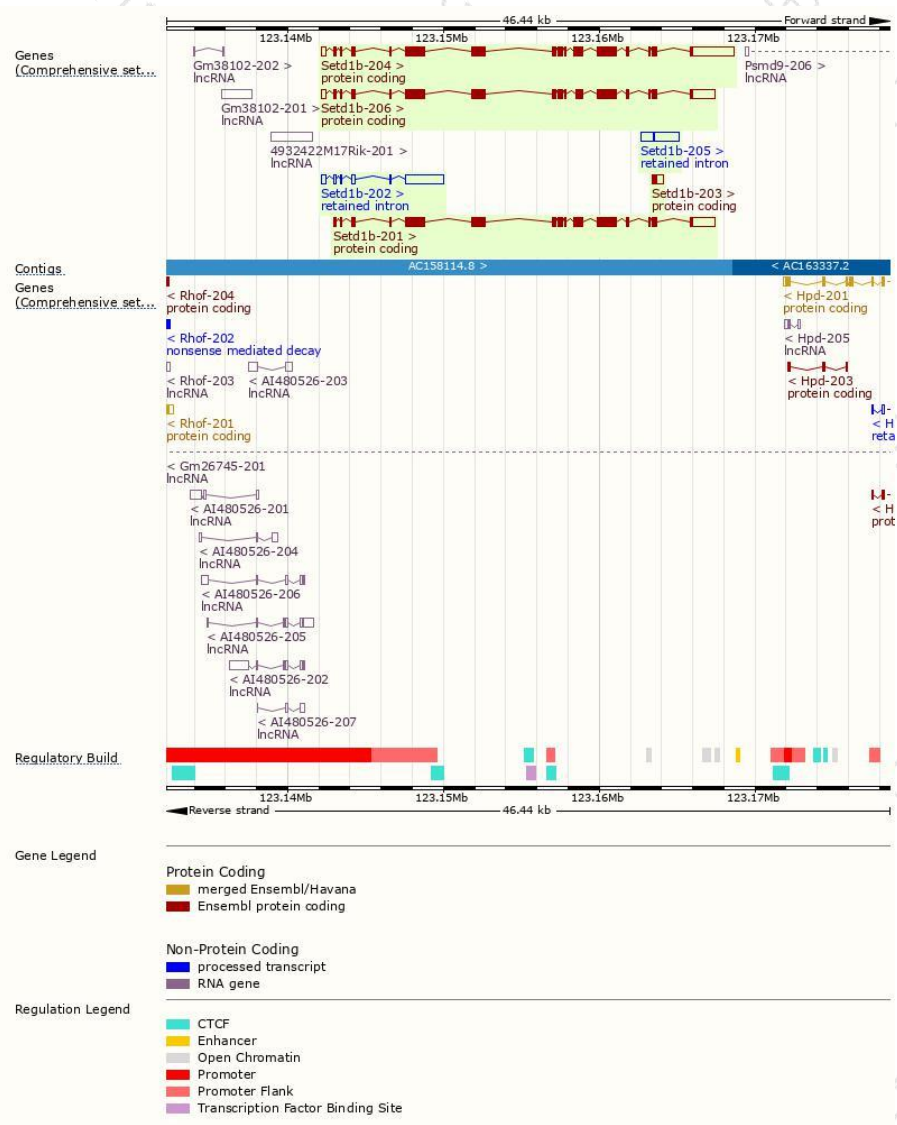
The gene has 6 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Setd1b-204	ENSMUST00000163030.8	8857	1985aa	Protein coding	CCDS59684	Q8CFT2	TSL:5 GENCODE basic APPRIS P2
Setd1b-201	ENSMUST00000056053.8	7362	1985aa	Protein coding	CCDS59684	Q8CFT2	TSL:5 GENCODE basic APPRIS P2
Setd1b-206	ENSMUST00000174836.7	7515	1944aa	Protein coding	-	Q8CFT2	TSL:5 GENCODE basic APPRIS ALT2
Setd1b-203	ENSMUST00000162839.2	648	87aa	Protein coding	-	G3UZ56	CDS 5' incomplete TSL:2
Setd1b-202	ENSMUST00000100731.8	3365	No protein	Retained intron	-	-	TSL:1
Setd1b-205	ENSMUST00000173221.1	2375	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Setd1b-204* transcript, The transcription is shown below



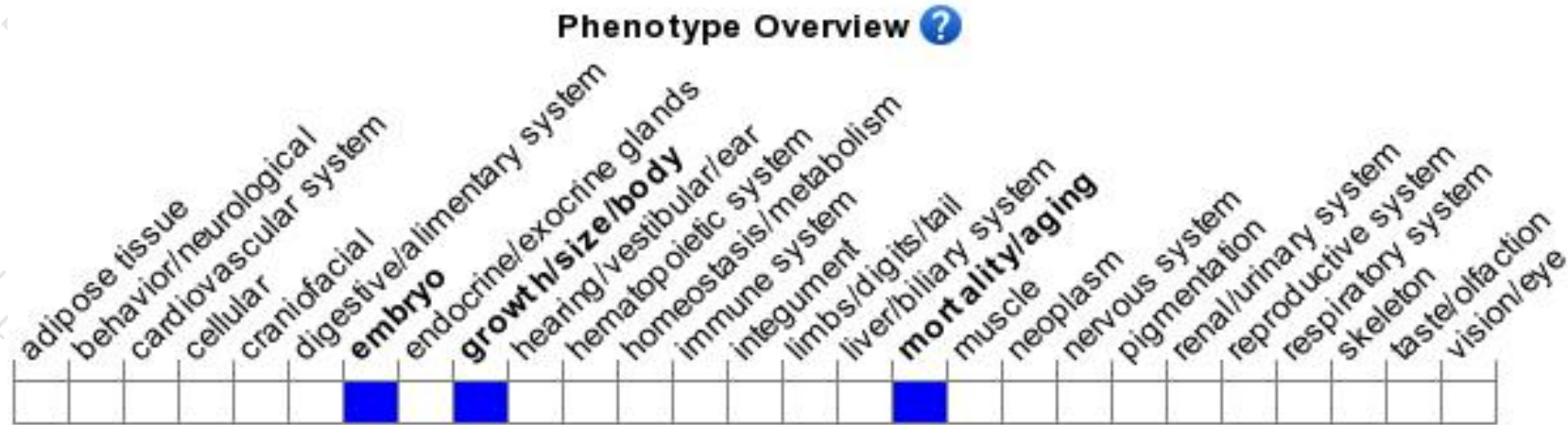
Genomic location distribution



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 mutant animals died during organogenesis by E11.5.

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

Tel: 400-9660890

