

Tle2 Cas9-KO Strategy

Designer: Xueting Zhang

Reviewer: Yanhua Shen

Date: 2020-02-19

Project Overview

Project Name

Tle2

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tle2* gene. The schematic diagram is as follows:



- The *Tle2* gene has 16 transcripts. According to the structure of *Tle2* gene, exon5-exon12 of *Tle2-213* (ENSMUST00000146358.7) transcript is recommended as the knockout region. The region contains 787bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tle2* gene. The brief process is as follows: CRISPR/Cas9 system w

- The effect on transcript *Tle2*-201&203&204 is unknown.
- Transcript *Tle2*-208&210 may not be affected.
- The knockout region is near to the N-terminal of *Gm15917* gene, this strategy may influence the regulatory function of the N-terminal of *Gm15917* gene.
- The N-terminal of *Tle2* gene will remain several amino acids, it may remain the partial function of *Tle2* gene.
- The *Tle2* gene is located on the Chr10. 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)

Tle2 transducin-like enhancer of split 2 [*Mus musculus* (house mouse)]

Gene ID: 21886, updated on 10-Oct-2019

Summary

- Official Symbol** Tle2 provided by [MGI](#)
- Official Full Name** transducin-like enhancer of split 2 provided by [MGI](#)
- Primary source** [MGI:MGI:104635](#)
- See related** [Ensembl:ENSMUSG00000034771](#)
- 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** Grg2; mKIAA4188
- Expression** Broad expression in adrenal adult (RPKM 114.6), ovary adult (RPKM 111.1) and 21 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 10; 10 C1

See Tle2 in [Genome Data Viewer](#)

Exon count: 24

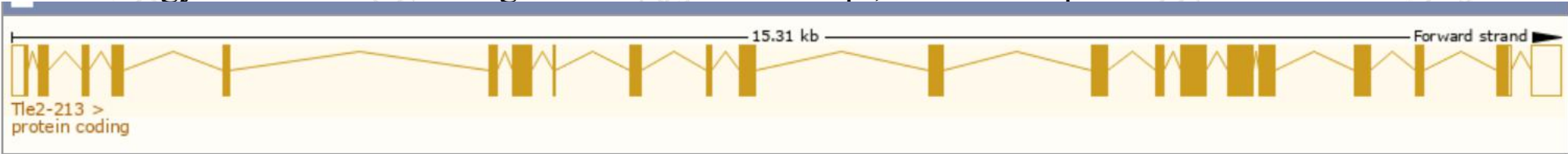
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	10	NC_000076.6 (81574739..81592581)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	10	NC_000076.5 (81038277..81053590)

Transcript information (Ensembl)

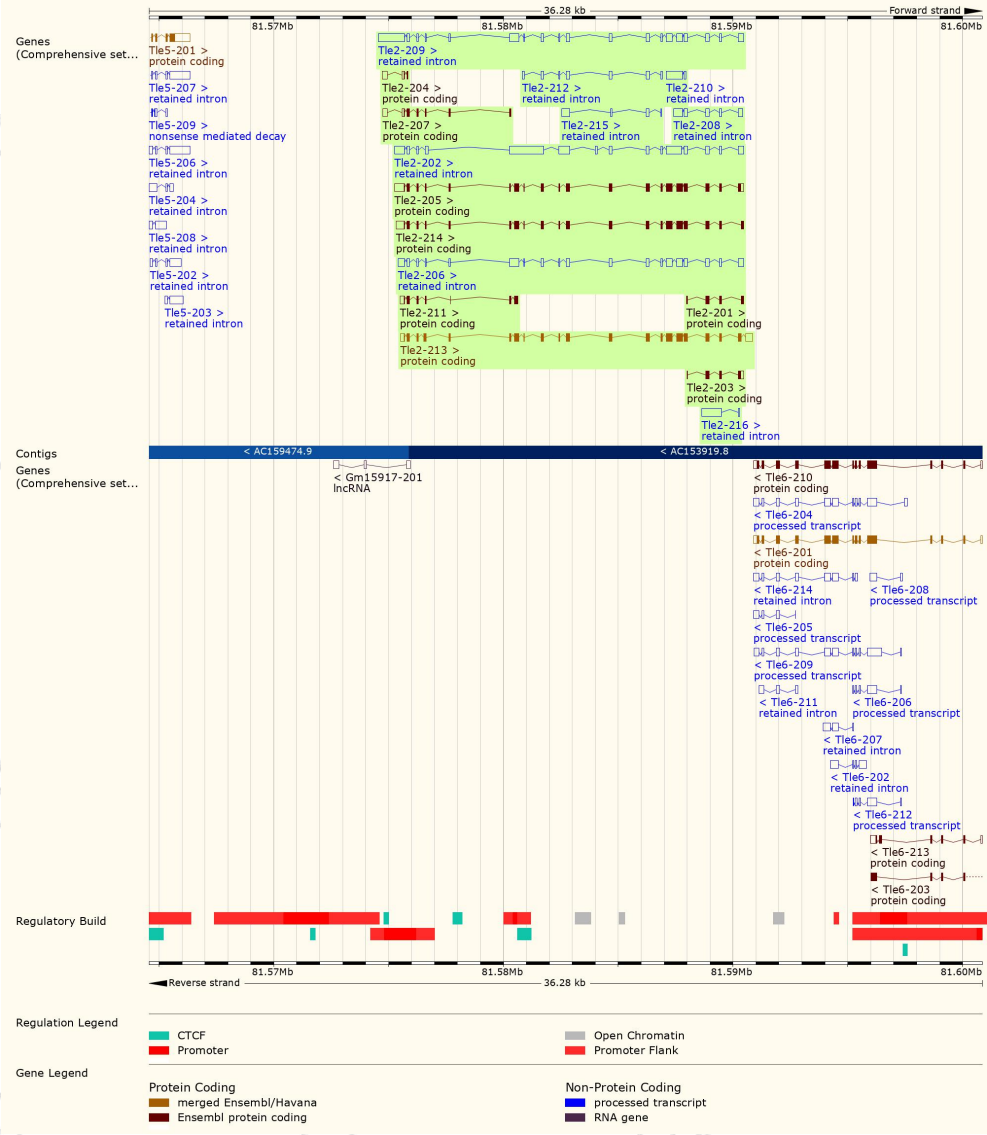
The gene has 16 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tle2-213	ENSMUST00000146358.7	2749	767aa	Protein coding	CCDS24063	Q9WVB2	TSL:1 GENCODE basic APPRIS P3
Tle2-205	ENSMUST00000135211.7	2746	732aa	Protein coding	CCDS56737	Q3UN01	TSL:1 GENCODE basic APPRIS ALT2
Tle2-214	ENSMUST00000146916.7	2546	736aa	Protein coding	-	E9PV07	CDS 3' incomplete TSL:2
Tle2-207	ENSMUST00000136341.7	663	121aa	Protein coding	-	D3Z2J7	CDS 3' incomplete TSL:5
Tle2-211	ENSMUST00000143285.7	630	153aa	Protein coding	-	D3Z1A4	CDS 3' incomplete TSL:5
Tle2-203	ENSMUST00000131411.1	500	119aa	Protein coding	-	F6YM15	CDS 5' incomplete TSL:5
Tle2-201	ENSMUST00000124854.7	402	134aa	Protein coding	-	F6X5U5	CDS 5' and 3' incomplete TSL:2
Tle2-204	ENSMUST00000131794.7	357	17aa	Protein coding	-	D3Z0X0	CDS 3' incomplete TSL:3
Tle2-202	ENSMUST00000129798.7	4388	No protein	Retained intron	-	-	TSL:5
Tle2-209	ENSMUST00000140433.7	3625	No protein	Retained intron	-	-	TSL:2
Tle2-206	ENSMUST00000136254.7	2735	No protein	Retained intron	-	-	TSL:2
Tle2-208	ENSMUST00000139135.1	950	No protein	Retained intron	-	-	TSL:2
Tle2-216	ENSMUST00000153812.1	933	No protein	Retained intron	-	-	TSL:5
Tle2-210	ENSMUST00000141913.1	782	No protein	Retained intron	-	-	TSL:2
Tle2-212	ENSMUST00000145878.1	757	No protein	Retained intron	-	-	TSL:5
Tle2-215	ENSMUST00000151470.1	578	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Tle2-213* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

