

***Lingo3* Cas9-KO Strategy**

Designer: Daohua Xu

Reviewer: Xueting Zhang

Design Date: 2020-12-17

Project Overview

Project Name

Lingo3

Project type

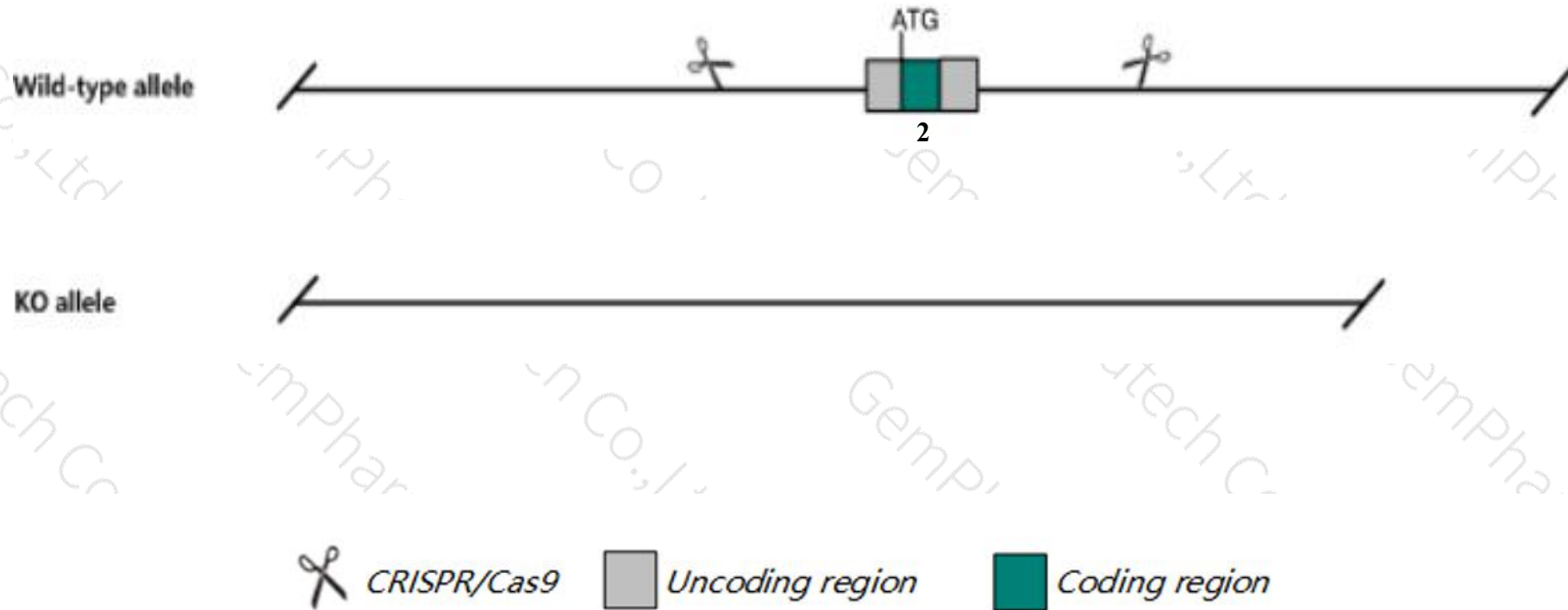
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lingo3* gene. The schematic diagram is as follows:



- The *Lingo3* gene has 2 transcripts. According to the structure of *Lingo3* gene, exon2 of *Lingo3*-201(ENSMUST00000053986.8) transcript is recommended as the knockout region. The region contains all 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 *Lingo3* 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.

- The *Lingo3* 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)

Lingo3 leucine rich repeat and Ig domain containing 3 [Mus musculus (house mouse)]

Gene ID: 237403, updated on 13-Mar-2020

Summary



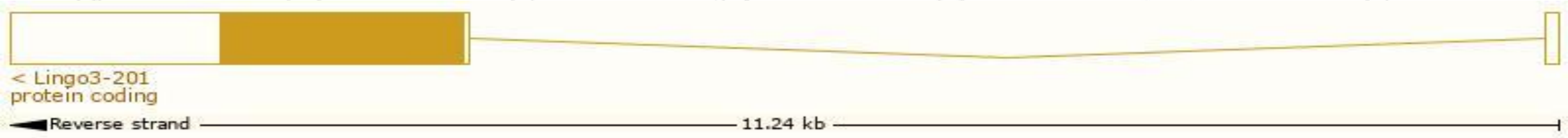
Official Symbol	Lingo3 provided by MGI
Official Full Name	leucine rich repeat and Ig domain containing 3 provided by MGI
Primary source	MGI:MGI:3609246
See related	Ensembl:ENSMUSG00000051067
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI851712, LERN2
Expression	Biased expression in cerebellum adult (RPKM 10.8), adrenal adult (RPKM 5.6) and 6 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

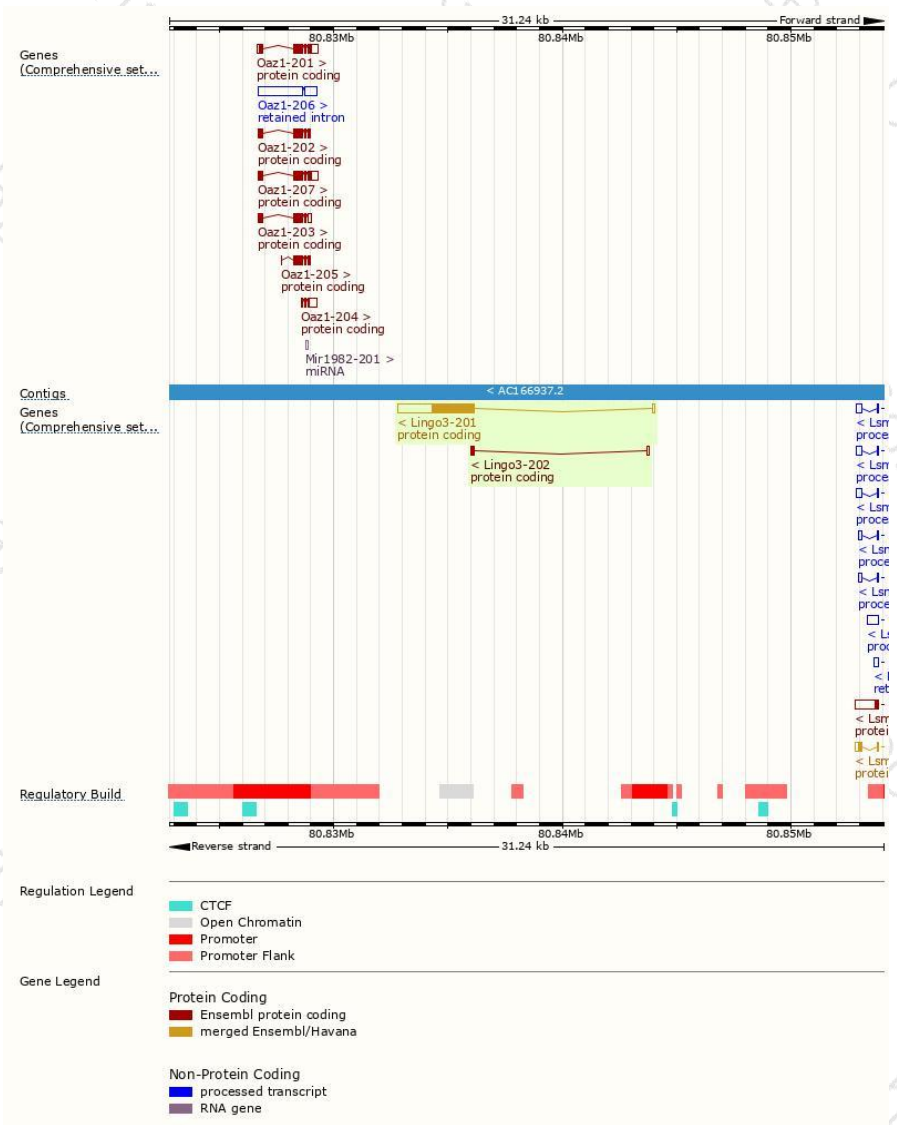
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lingo3-201	ENSMUST00000053986.8	3439	589aa	Protein coding	CCDS24035	Q6GQU6	TSL:1 GENCODE basic APPRIS P1
Lingo3-202	ENSMUST00000219924.1	271	34aa	Protein coding	-	A0A1W2P6P2	CDS 3' incomplete TSL:3

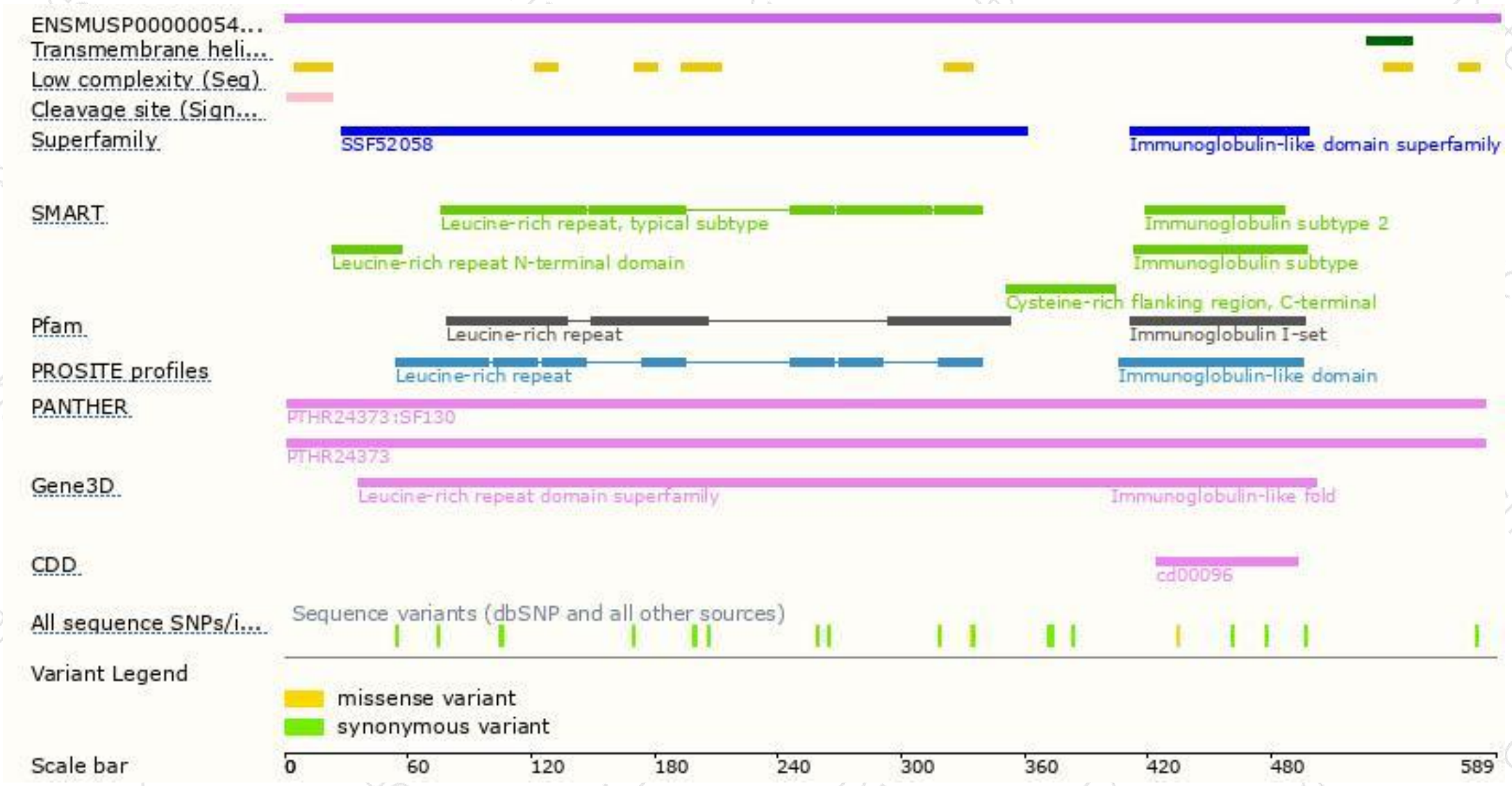
The strategy is based on the design of *Lingo3-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 400-9660890

