

Lingo4 Cas9-CKO Strategy

Designer: Jia Yu

Reviewer: Xiaojing Li

Design Date: 2020-10-12

Project Overview

Project Name

Lingo4

Project type

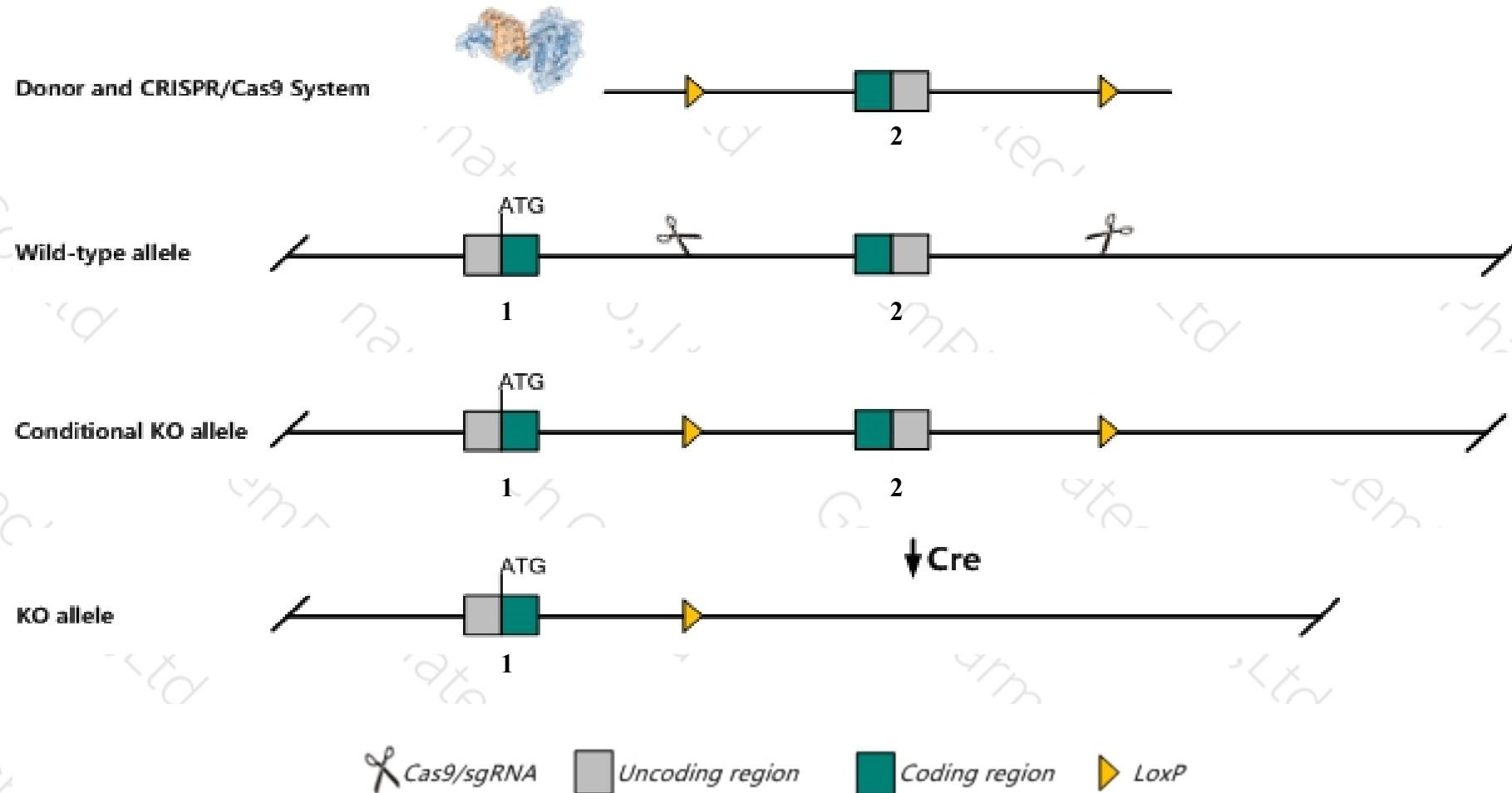
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lingo4* gene. The schematic diagram is as follows:



- The *Lingo4* gene has 1 transcript. According to the structure of *Lingo4* gene, exon2 of *Lingo4-201*(ENSMUST00000050975.5) transcript is recommended as the knockout region. The region contains 1792bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lingo4* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA and Donor 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 flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- The *Lingo4* gene is located on the Chr3. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Lingo4 leucine rich repeat and Ig domain containing 4 [Mus musculus (house mouse)]

Gene ID: 320747, updated on 13-Mar-2020

Summary



Official Symbol	Lingo4 provided by MGI
Official Full Name	leucine rich repeat and Ig domain containing 4 provided by MGI
Primary source	MGI:MGI:2444651
See related	Ensembl:ENSMUSG00000044505
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	A530050P17Rik, LERN4, Lrn6d
Expression	Biased expression in thymus adult (RPKM 2.3), cerebellum adult (RPKM 2.1) and 13 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

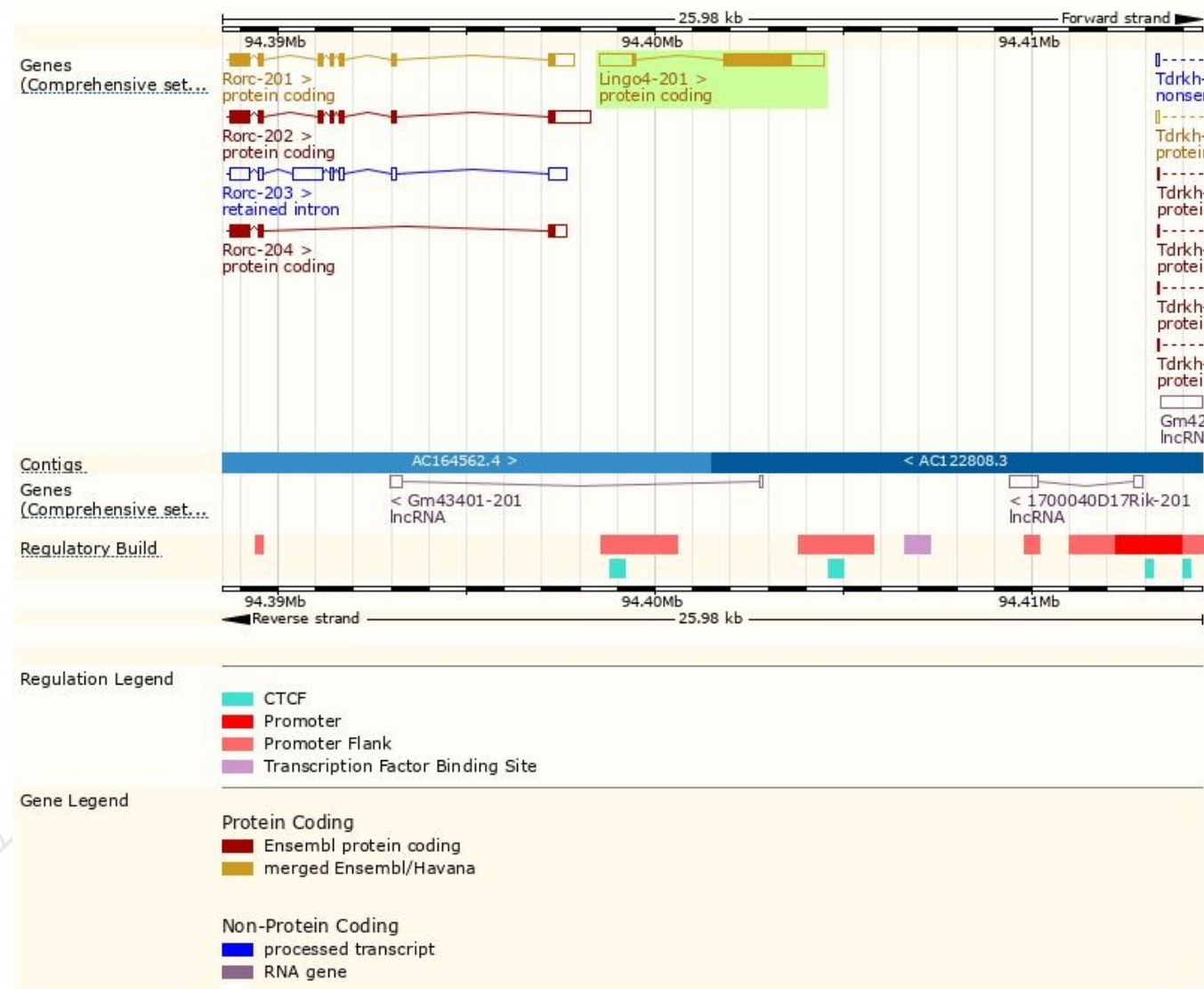
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lingo4-201	ENSMUST00000050975.5	3645	618aa	Protein coding	CCDS17592	A0A0R4J0Q7	TSL:1 GENCODE basic APPRIS P1

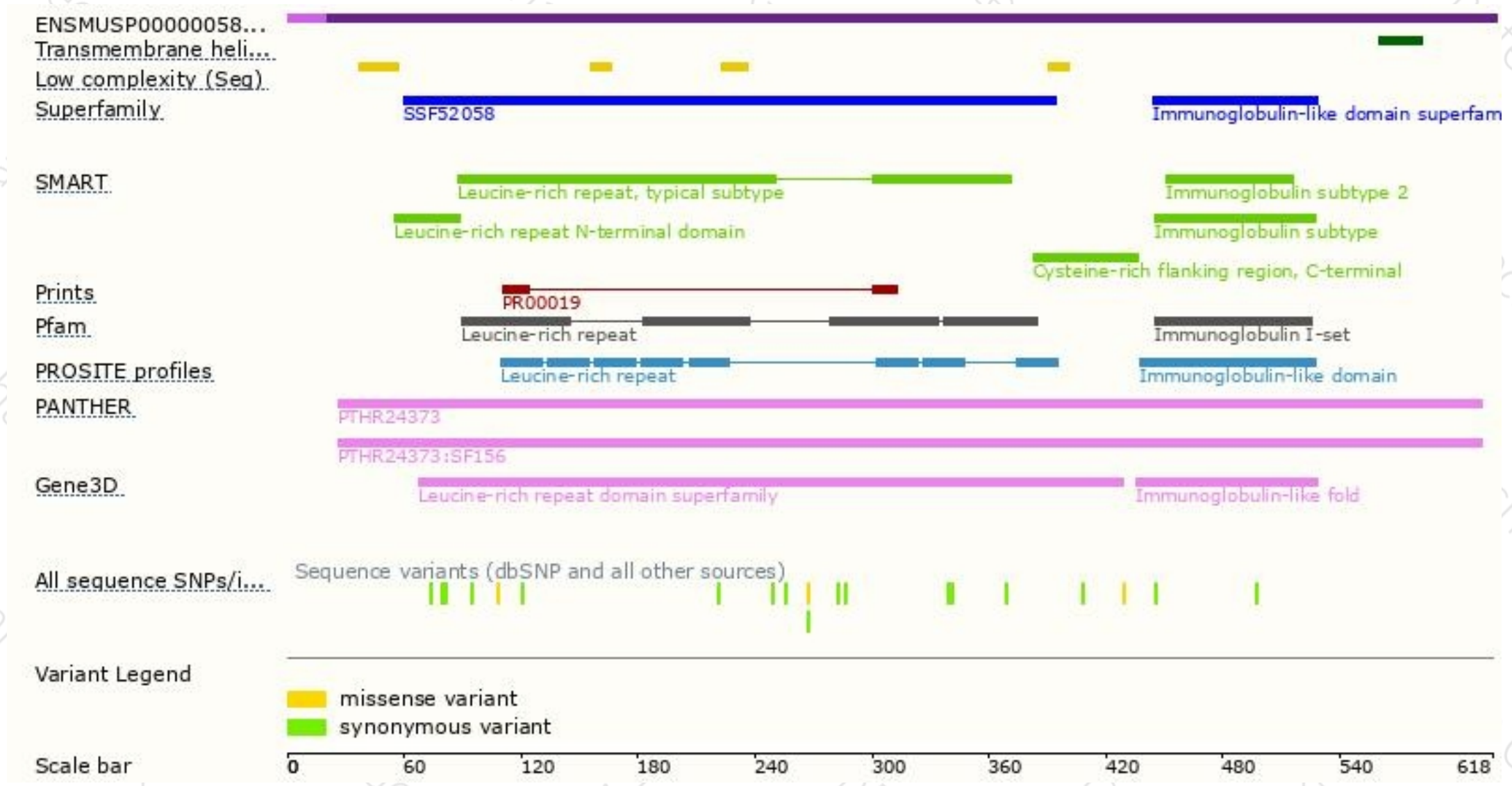
The strategy is based on the design of *Lingo4-201* transcript, the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

