

Cd101 Cas9-CKO Strategy

Designer: Daohua Xu

Reviewer: Huimin Su

Design Date: 2020-5-19

Project Overview

Project Name

Cd101

Project type

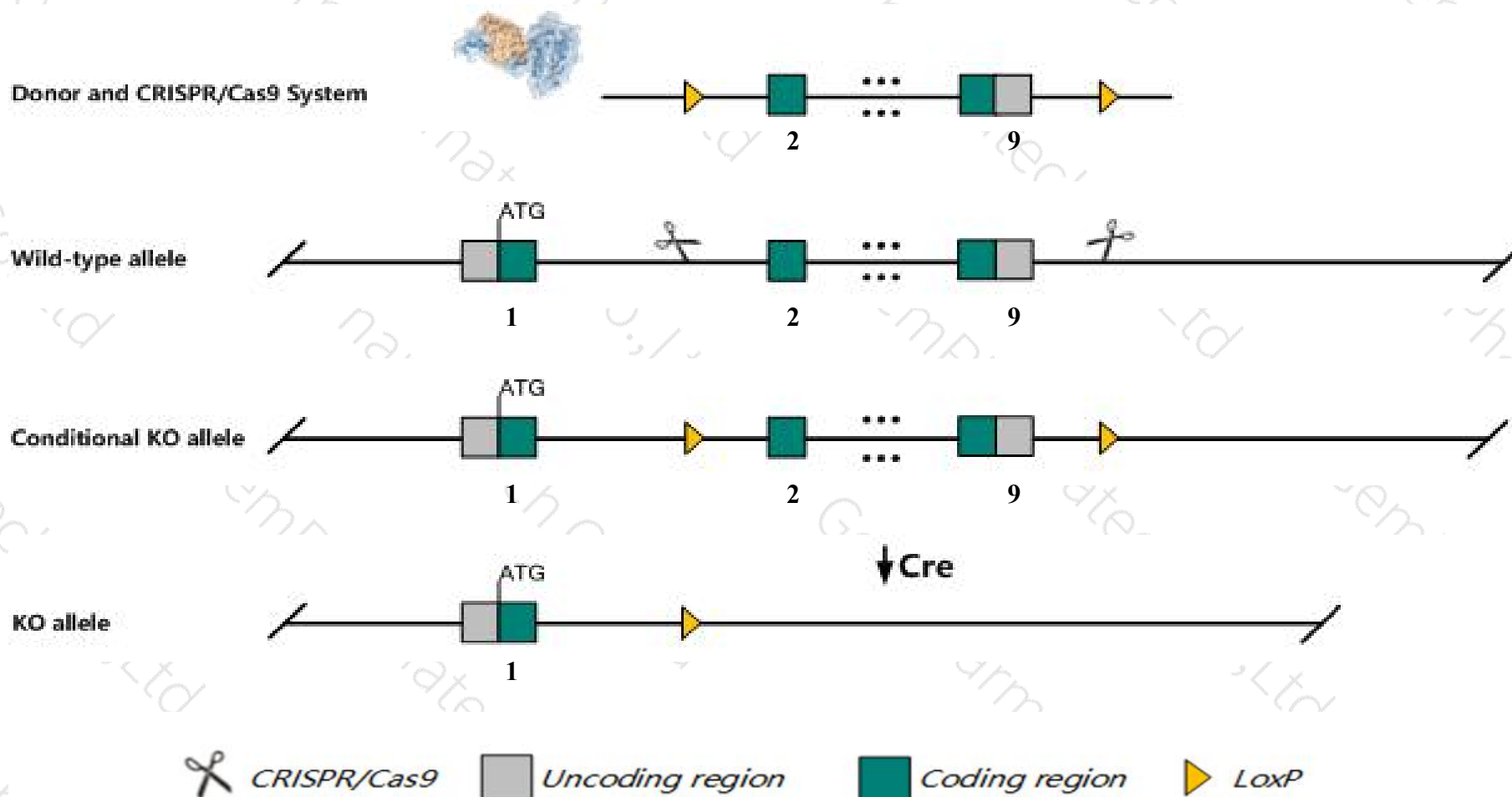
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cd101* gene. The schematic diagram is as follows:



- The *Cd101* gene has 2 transcripts. According to the structure of *Cd101* gene, exon2-exon9 of *Cd101-201* (ENSMUST00000147399.8) transcript is recommended as the knockout region. The region contains 3059bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cd101* gene. The brief process is as follows: CRISPR/Cas9 system 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 will be 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.

Notice

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit reduced gr-1+ cells.
- The *Cd101* 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)

Cd101 CD101 antigen [Mus musculus (house mouse)]

Gene ID: 630146, updated on 13-Mar-2020

Summary



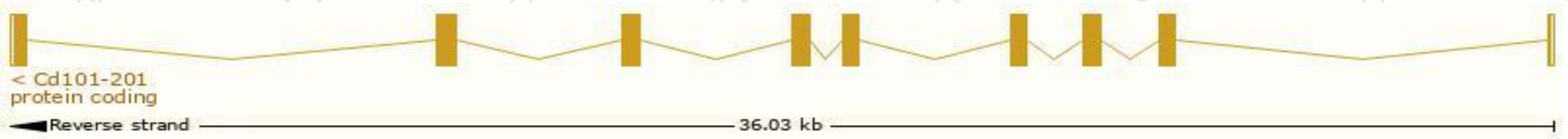
Official Symbol	Cd101 provided by MGI
Official Full Name	CD101 antigen provided by MGI
Primary source	MGI:MGI:2685862
See related	Ensembl:ENSMUSG00000086564
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	EWI-101, Gm1016, Gm734, Igsf2
Expression	Biased expression in spleen adult (RPKM 1.1), lung adult (RPKM 0.8) and 12 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

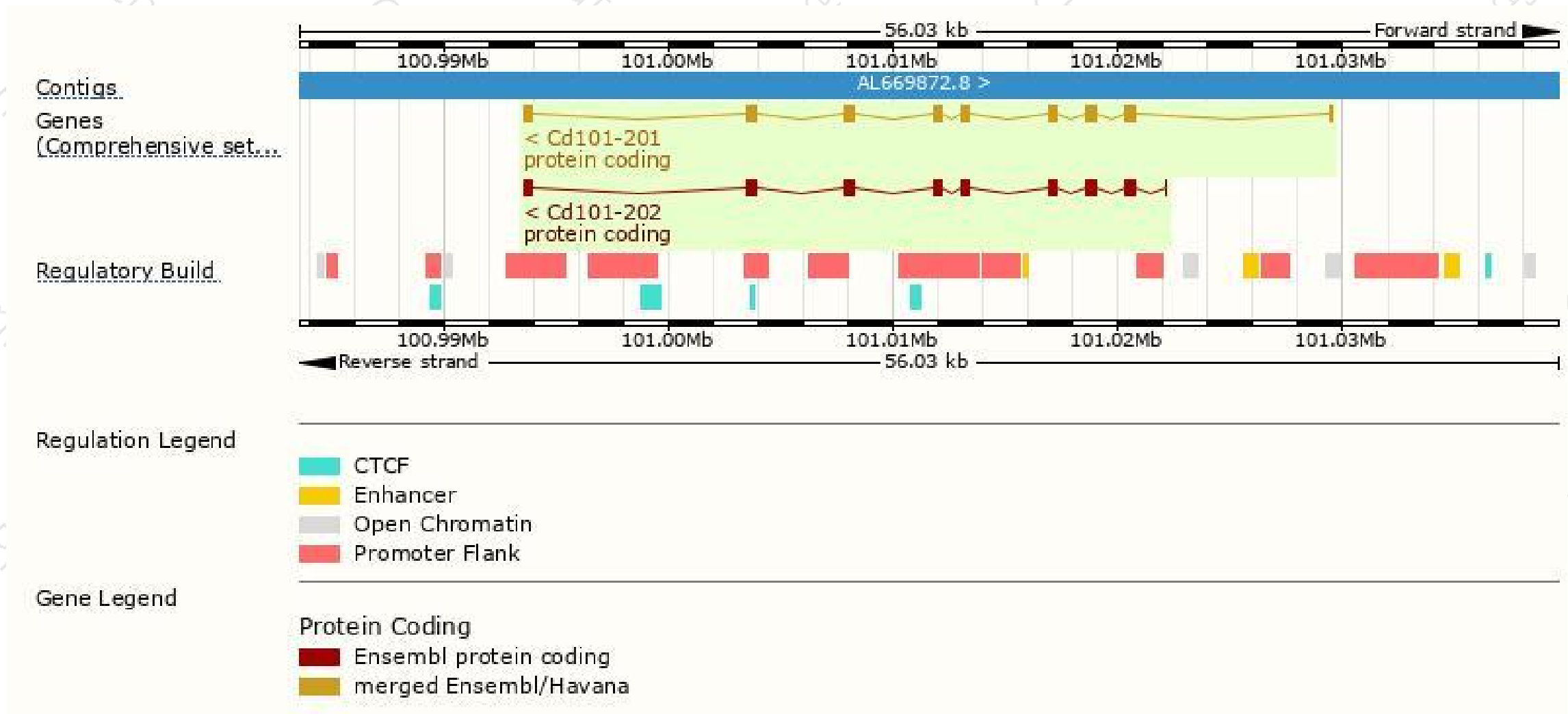
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cd101-201	ENSMUST00000147399.8	3299	1033aa	Protein coding	CCDS51020	A8E0Y8	TSL:1 GENCODE basic APPRIS P2
Cd101-202	ENSMUST00000167086.1	3223	1029aa	Protein coding	-	A0A0B4J1L8	TSL:5 GENCODE basic APPRIS ALT2

The strategy is based on the design of *Cd101-201* transcript,The transcription is shown below



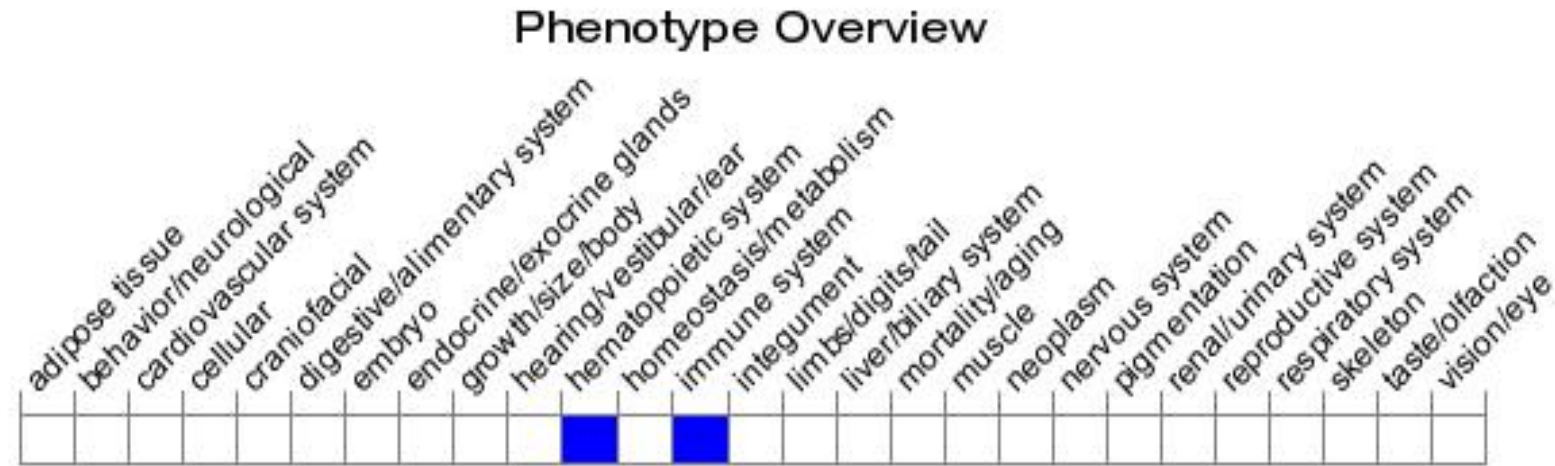
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit reduced Gr-1⁺ cells.

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

Tel: 400-9660890

