

Lgals3bp Cas9-CKO Strategy

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Design Date: 2020-1-23
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Project Overview

Project Name

Lgals3bp

Project type

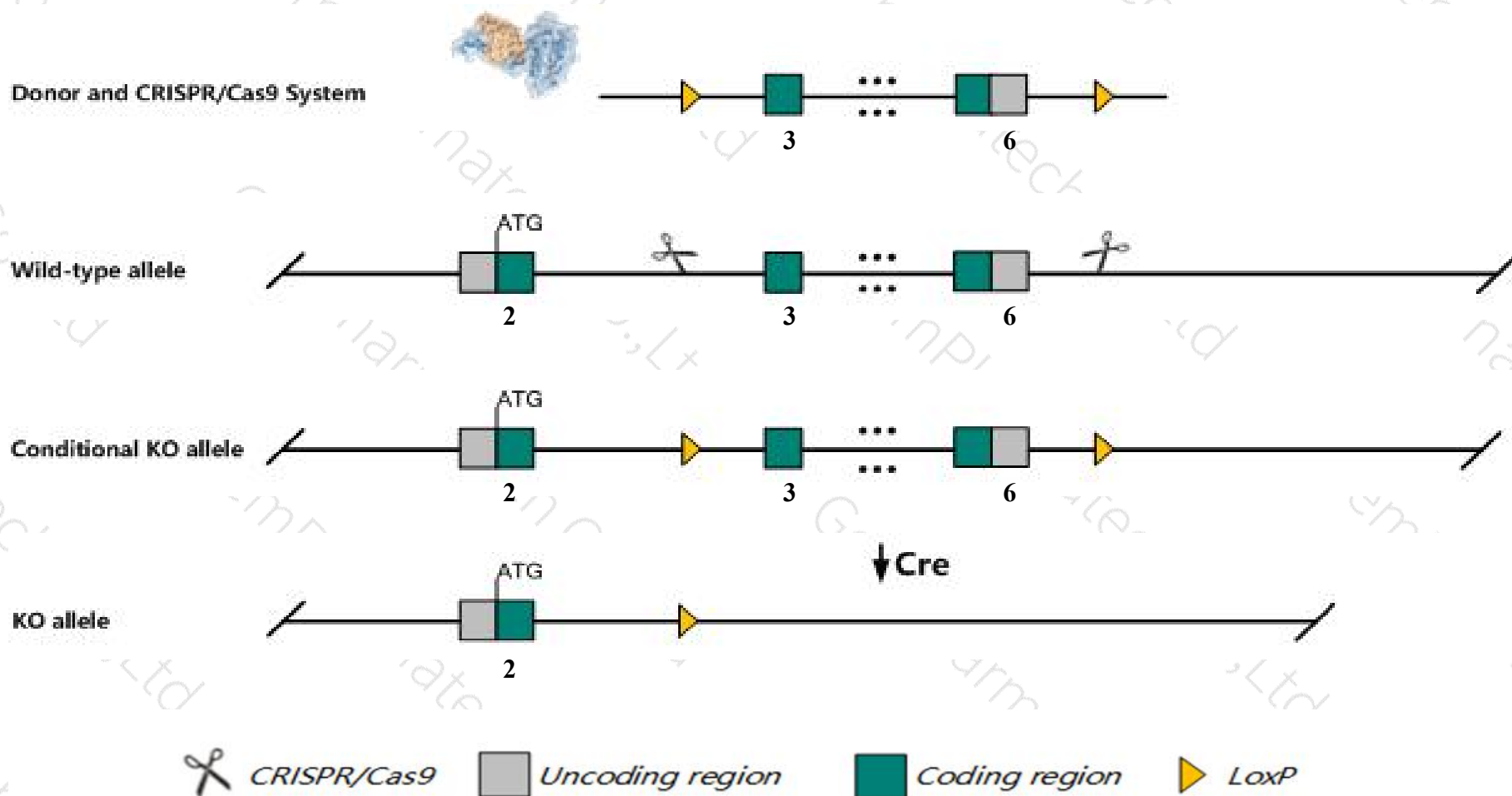
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lgals3bp* gene. The schematic diagram is as follows:



Technical routes

- The *Lgals3bp* gene has 5 transcripts. According to the structure of *Lgals3bp* gene, exon3-exon6 of *Lgals3bp-201* (ENSMUST00000043722.9) transcript is recommended as the knockout region. The region contains 1682bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lgals3bp* 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.

- According to the existing MGI data, Homozygous mutants are more susceptible to bacterial infection and overproduce IL-12, interferon-gamma and TNF-alpha.
- The *Lgals3bp* gene is located on the Chr11. 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)

Lgals3bp lectin, galactoside-binding, soluble, 3 binding protein [*Mus musculus* (house mouse)]

Gene ID: 19039, updated on 12-Aug-2019

Summary

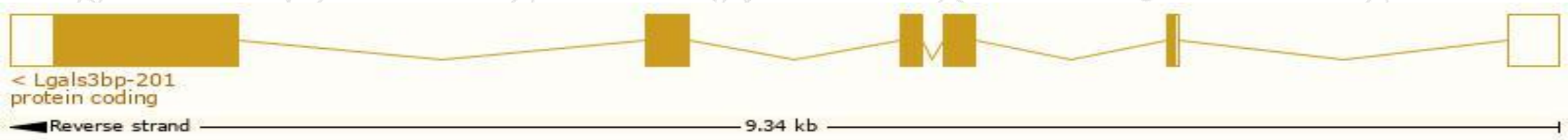
Official Symbol	Lgals3bp provided by MGI
Official Full Name	lectin, galactoside-binding, soluble, 3 binding protein provided by MGI
Primary source	MGI:MGI:99554
See related	Ensembl:ENSMUSG00000033880
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	90K; CyCAP; Ppicap; MAC-2BP; Tango10b
Expression	Broad expression in mammary gland adult (RPKM 204.1), duodenum adult (RPKM 185.6) and 19 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

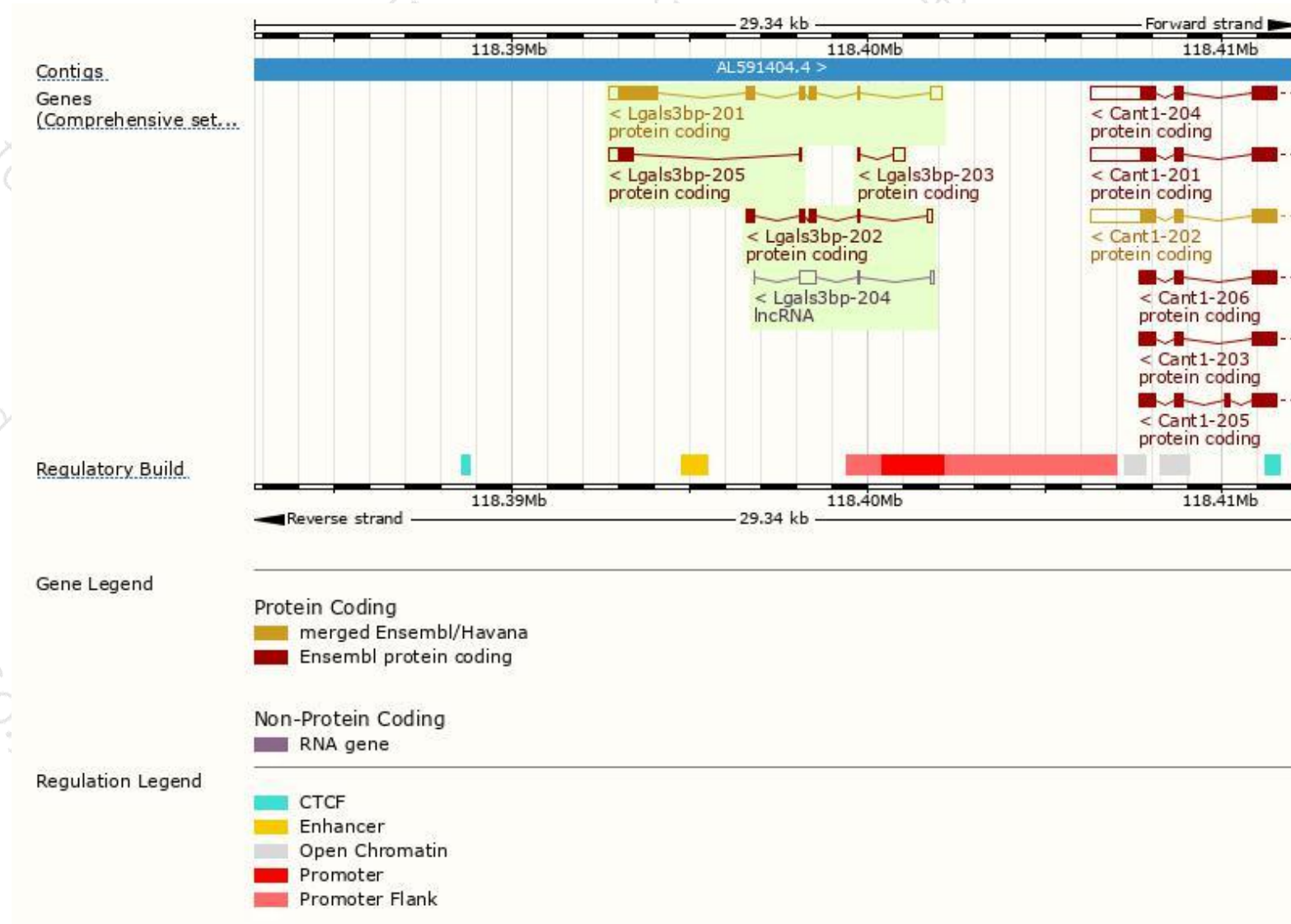
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lgals3bp-201	ENSMUST00000043722.9	2330	577aa	Protein coding	CCDS25701	Q07797	TSL:1 GENCODE basic APPRIS P1
Lgals3bp-202	ENSMUST00000106290.3	798	204aa	Protein coding	-	E9Q5X5	CDS 3' incomplete TSL:3
Lgals3bp-205	ENSMUST00000144529.1	686	139aa	Protein coding	-	F6VRP8	CDS 5' incomplete TSL:5
Lgals3bp-203	ENSMUST00000127054.1	335	6aa	Protein coding	-	-	CDS 3' incomplete TSL:5
Lgals3bp-204	ENSMUST00000141459.1	647	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Lgals3bp-201* transcript,The transcription is shown below



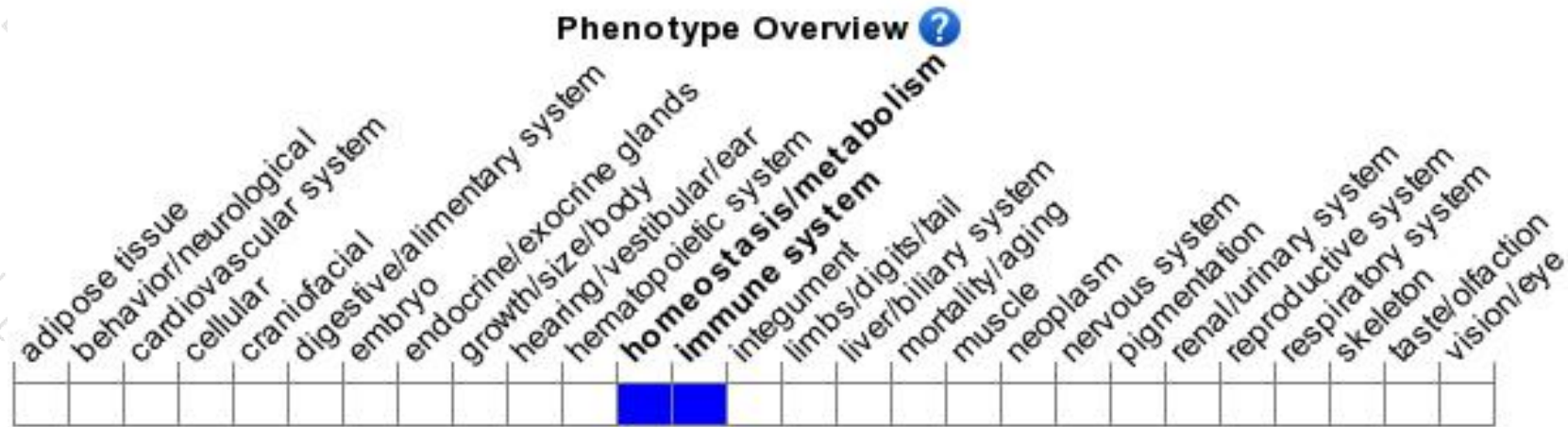
Genomic location distribution



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, Homozygous mutants are more susceptible to bacterial infection and overproduce IL-12, interferon-gamma and TNF-alpha.

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

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