Cd300lf Cas9-CKO *Strategy*

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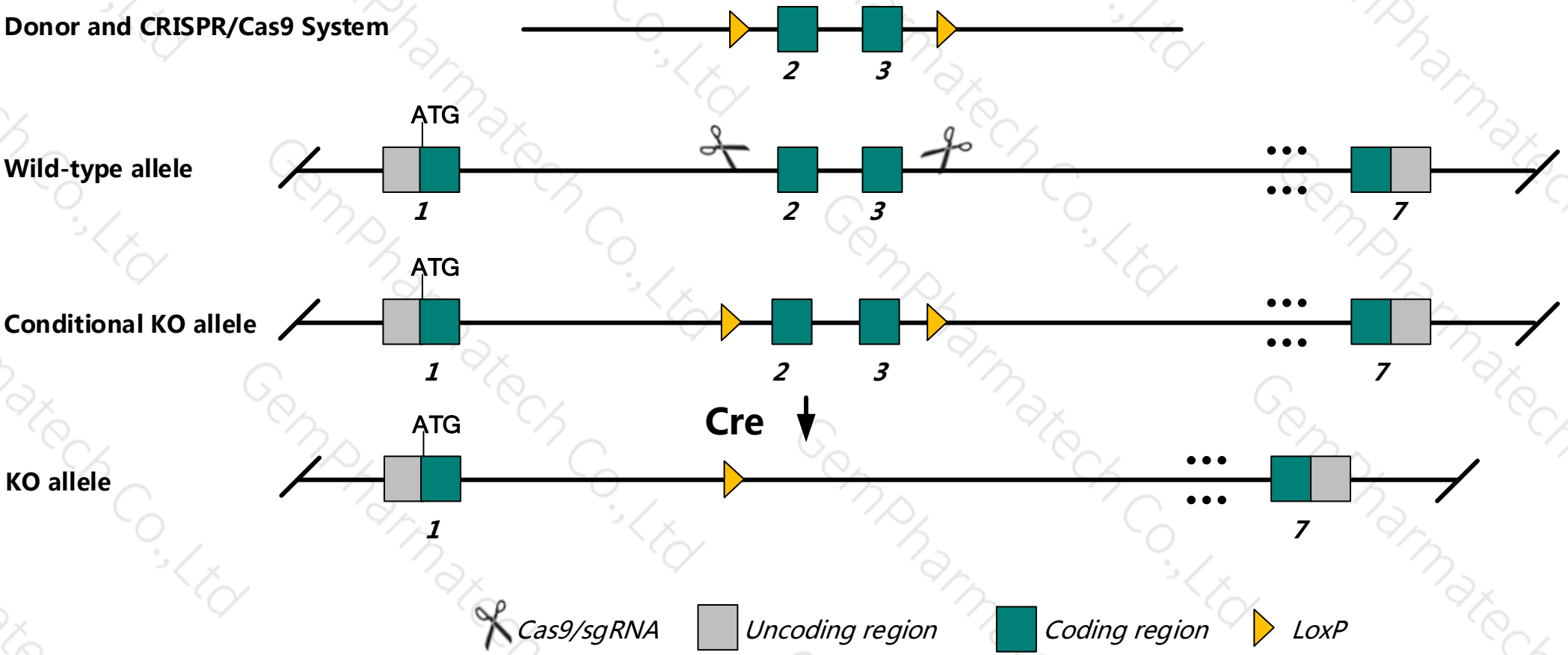
Date: **2019-7-30**

Project Overview

Project Name	***Cd300lf***
Project type	**Cas9-CKO**
Strain background	**C57BL/6J**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cd300lf* gene. The schematic diagram is as follows:



Technical routes

- The *Cd300lf* gene has 7 transcripts. According to the structure of *Cd300lf* gene, exon2-3 of *Cd300lf-202* (ENSMUST00000106561.7) transcript is recommended as the knockout region. The region contains 472bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Cd300lf* 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/6J 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/6J 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 or cell types.

Notice

- According to the existing MGI data，mice homozygous for a knock-out allele exhibit increased severity of experimental autoimmune encephalomyelitis with increased demyelination.

- The KO region contains functional region of the *Rab37* gene. Knockout the region may affect the function of *Rab37* gene.

- The *Cd300lf* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

Cd300lf CD300 molecule like family member F [*Mus musculus* (house mouse)]

Gene ID: 246746, updated on 4-Jun-2019

Summary

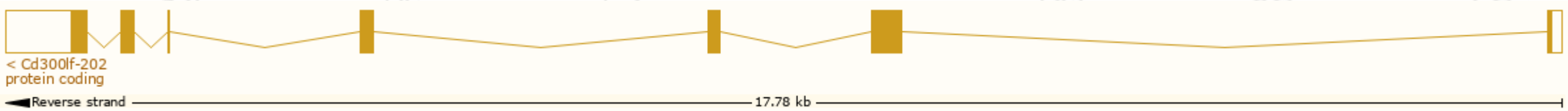
Official Symbol	Cd300lf provided by MGI
Official Full Name	CD300 molecule like family member F provided by MGI
Primary source	MGI:MGI:2442359
See related	Ensembl:ENSMUSG00000047798
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	CLM1; CLIM1; CLM-1; Digr2; IREM1; LMIR3; Pigr3; IgSF13; F730004D16Rik
Expression	Biased expression in spleen adult (RPKM 7.7), liver E18 (RPKM 5.1) and 12 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

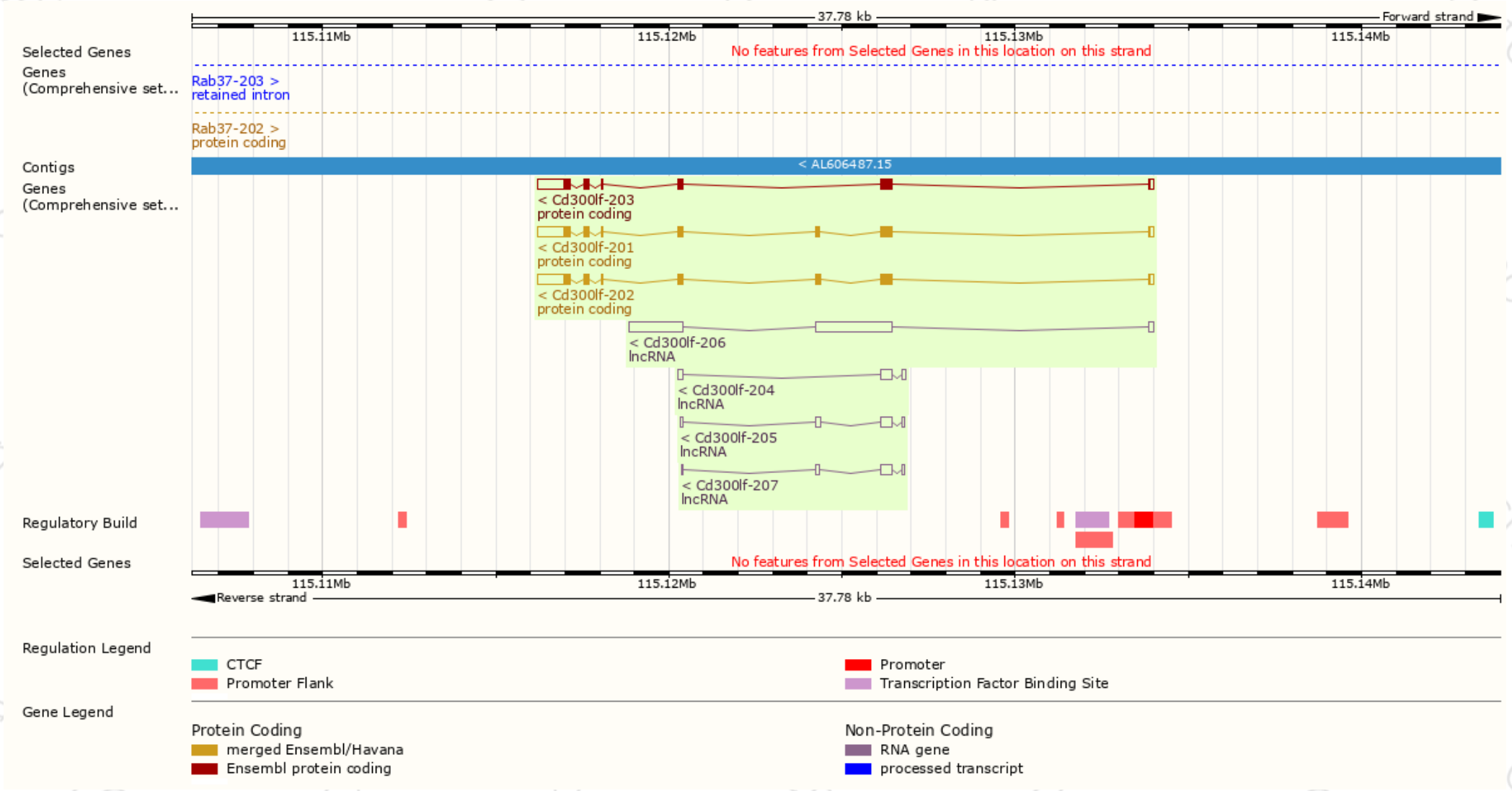
The gene has 7 transcripts, and all transcripts are shown below:：

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cd300lf-201	ENSMUST00000051264.13	1864	330aa	Protein coding	CCDS25619	Q6SJQ7	TSL:1 GENCODE basic APPRIS P3
Cd300lf-203	ENSMUST00000106562.2	1762	296aa	Protein coding	CCDS83925	A2A6Z2	TSL:1 GENCODE basic
Cd300lf-202	ENSMUST00000106561.7	1885	337aa	Protein coding	CCDS48980	A0A1C9ZQ14 Q6SJQ7	TSL:1 GENCODE basic APPRIS ALT2
Cd300lf-206	ENSMUST00000146254.1	3929	No protein	lncRNA	-	-	TSL:1
Cd300lf-204	ENSMUST00000124083.7	615	No protein	lncRNA	-	-	TSL:3
Cd300lf-205	ENSMUST00000127927.7	608	No protein	lncRNA	-	-	TSL:3
Cd300lf-207	ENSMUST00000149335.1	569	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Cd300lf-202* transcript,The transcription is shown below

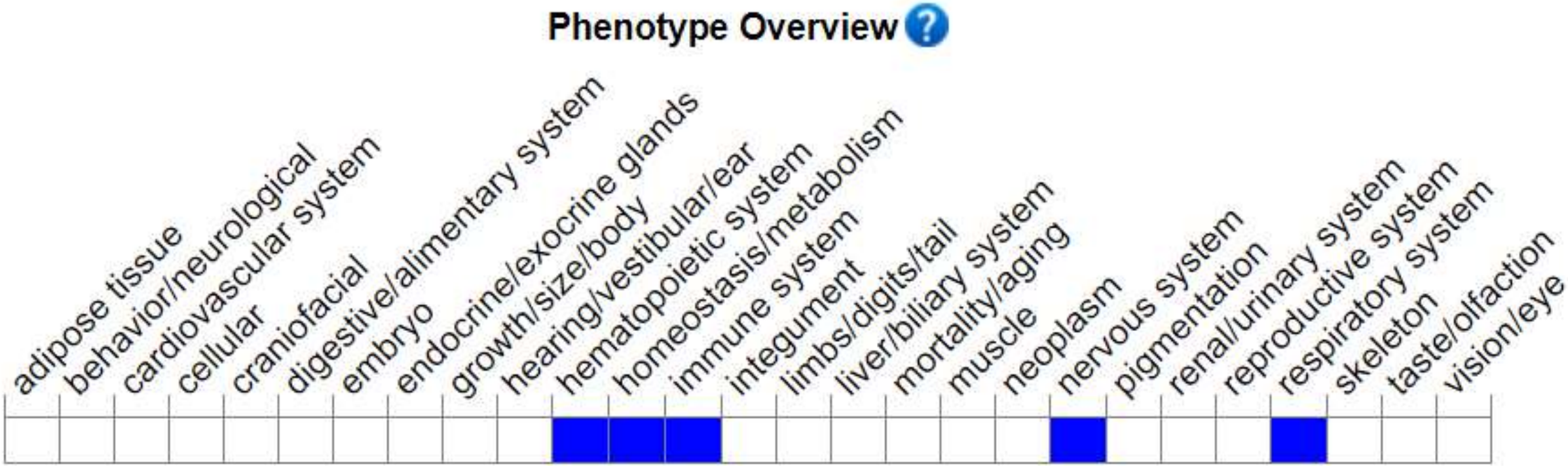


Genomic location (Ensembl)



Protein domain（Ensembl）

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 increased severity of experimental autoimmune encephalomyelitis with increased demyelination.

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

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