Cd19 Cas9-KO Strategy

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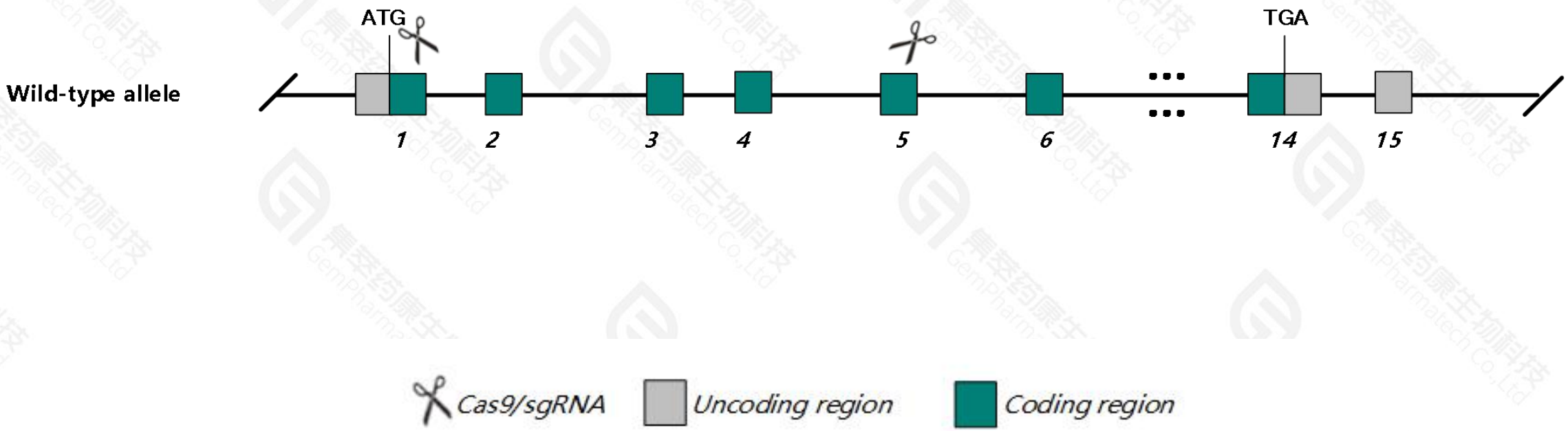
Project Overview

Project Name	***Cd19***
Project type	**Cas9-KO**
Strain background	**NCG/Gpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cd19* gene. The schematic diagram is as follows:



Technical routes

➢ The *Cd19* gene has 5 transcripts. According to the structure of *Cd19* gene, exon1-exon5 of MGP_NODShiLtJ_T0086069.1 transcript is recommended as the knockout region.

➢ In this project we use CRISPR/Cas9 technology to modify *Cd19* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of NCG/Gpt 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 NCG/Gpt mice.

Notice

➢ According to the existing MGI data,mice homozygous for a knock-out allele exhibit abnormal B lymphocyte development, activation and differentiation, altered mast cell activation in a model for acute septic peritonitis, inhibition of bleomycin-induced fibrosis and autoantibody production, and increased susceptibility to EAE.

➢ The *Cd19* gene is located on the Chr7. 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）

集萃药康 GemPharmatech

Cd19 CD19 antigen [Mus musculus (house mouse)]

Gene ID: 12478, updated on 20-Mar-2020

Summary

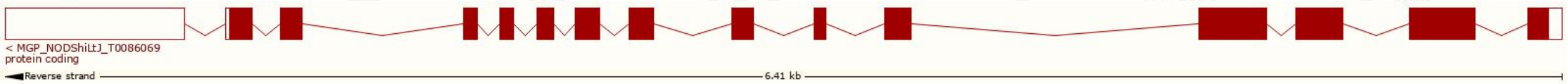
Official Symbol	Cd19 provided by MGI
Official Full Name	CD19 antigen provided by MGI
Primary source	MGI:MGI:88319
See related	Ensembl:ENSMUSG00000030724
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW495831
Expression	Biased expression in spleen adult (RPKM 117.1), mammary gland adult (RPKM 26.5) and 2 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

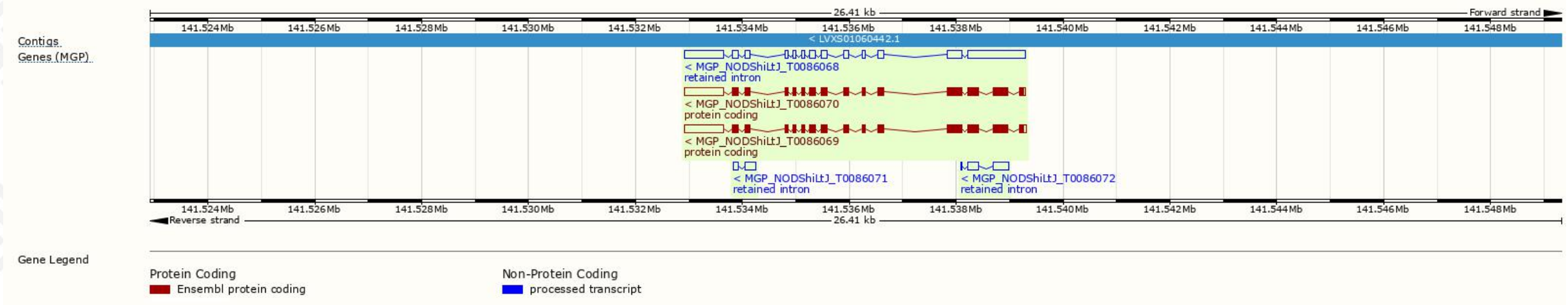
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	Flags
-	MGP_NODShiLtJ_T0086069.1	2452	547aa	Protein coding	-	-
-	MGP_NODShiLtJ_T0086070.1	2432	546aa	Protein coding	-	-
-	MGP_NODShiLtJ_T0086068.1	2924	No protein	Retained intron	-	-
-	MGP_NODShiLtJ_T0086072.1	493	No protein	Retained intron	-	-
-	MGP_NODShiLtJ_T0086071.1	315	No protein	Retained intron	-	-

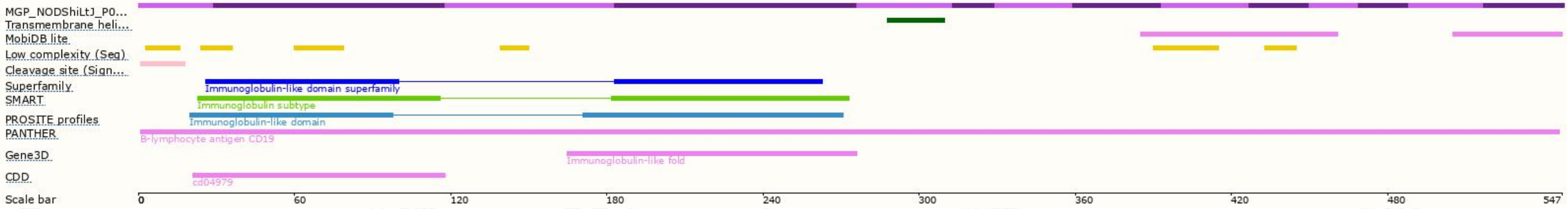
The strategy is based on the design of MGP_NODShiLtJ_T0086069.1 transcript,the transcription is shown below:



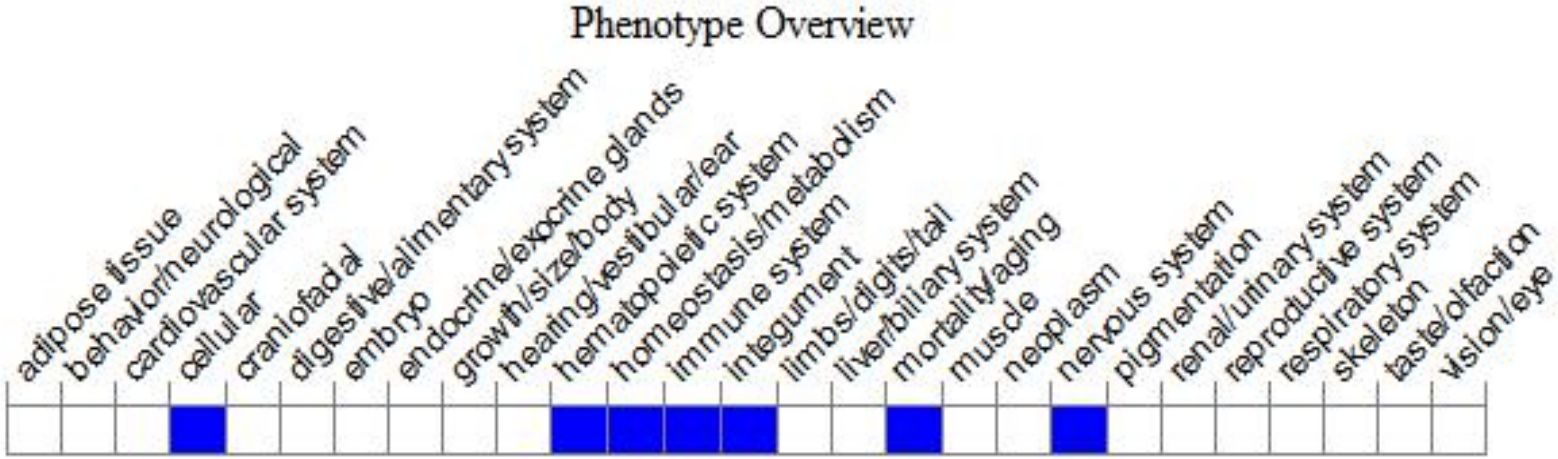
Genomic location distribution



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/).

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

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