Derl1 Cas9-CKO Strategy

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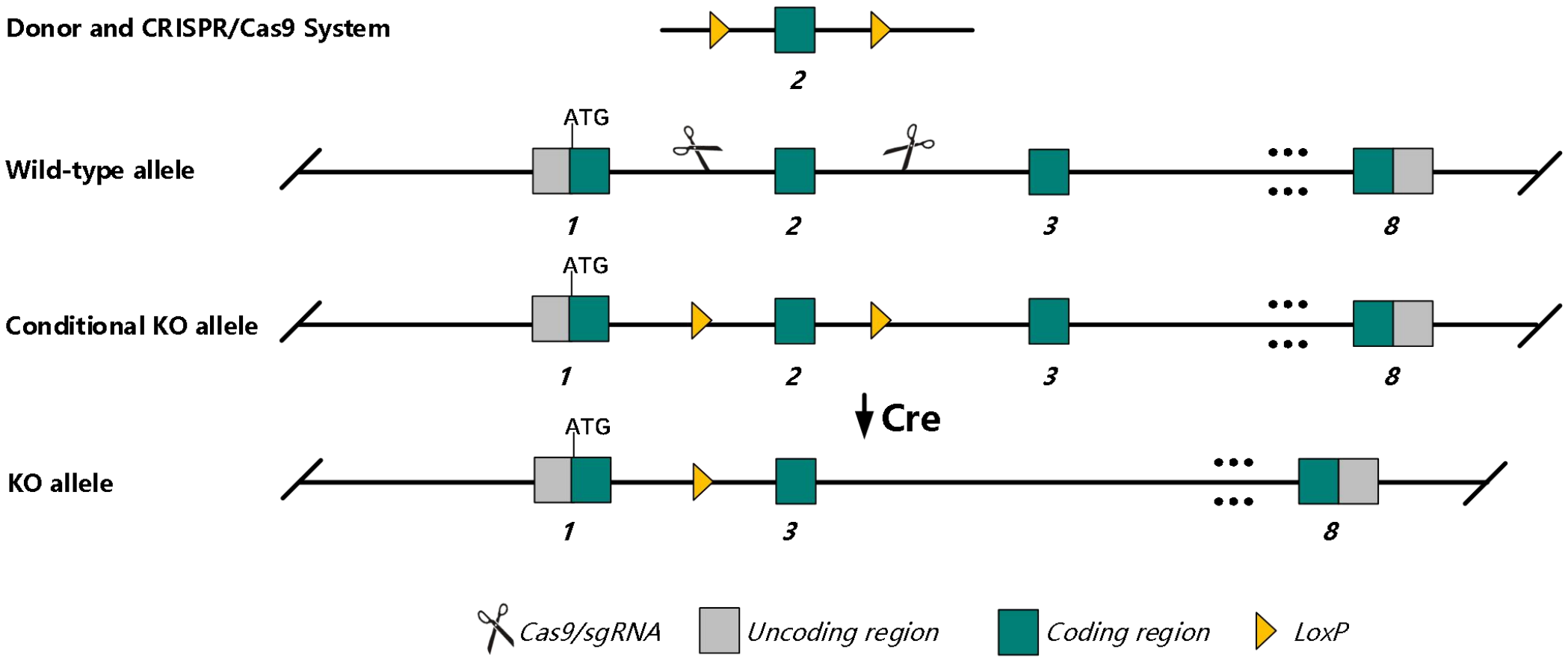
Project Overview

Project Name	***Derl1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Derl1* gene. The schematic diagram is as follows:



Technical routes

- The *Derl1* gene has 2 transcripts. According to the structure of *Derl1* gene, exon2 of *Derl1-201* (ENSMUST00000022993.6) transcript is recommended as the knockout region.The region contains 112bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Derl1* 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 lethality during embryogenesis.

➢ The *Derl1* gene is located on the Chr15. 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）

集萃药康 GemPharmatech

Derl1 Der1-like domain family, member 1 [*Mus musculus* (house mouse)]

Gene ID: 67819, updated on 13-Mar-2020

Summary

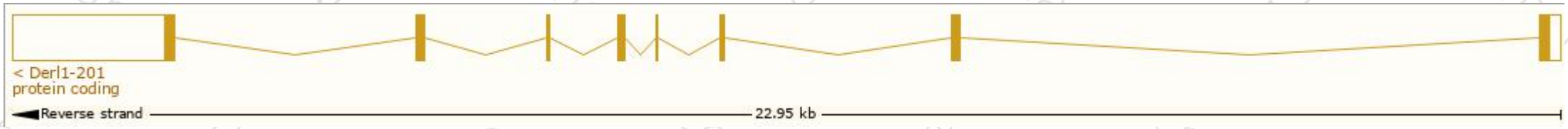
Official Symbol	Derl1 provided by MGI
Official Full Name	Der1-like domain family, member 1 provided by MGI
Primary source	MGI:MGI:1915069
See related	Ensembl:ENSMUSG00000022365
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI195141; AW551338; Derlin-1; 1110021N07Rik
Expression	Ubiquitous expression in adrenal adult (RPKM 131.2), mammary gland adult (RPKM 73.3) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

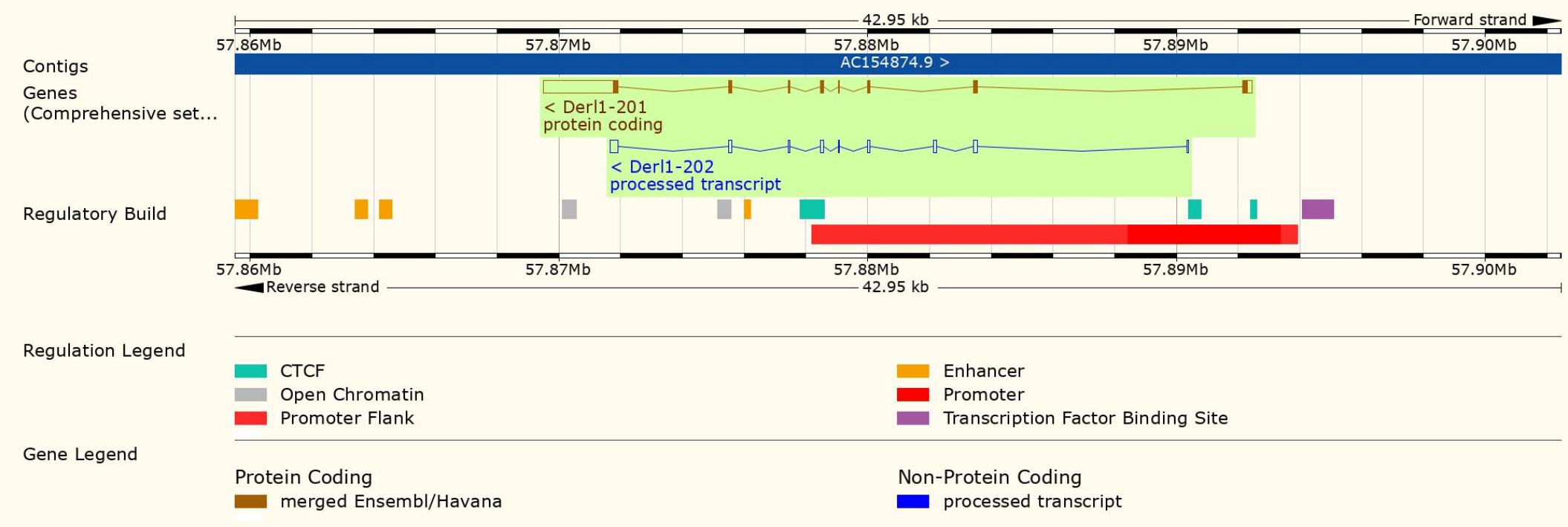
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Derl1-201	ENSMUST00000022993.6	3175	251aa	Protein coding	CCDS27484	Q99J56	TSL:1 GENCODE basic APPRIS P1
Derl1-202	ENSMUST00000226911.1	861	No protein	Processed transcript	-	-	-

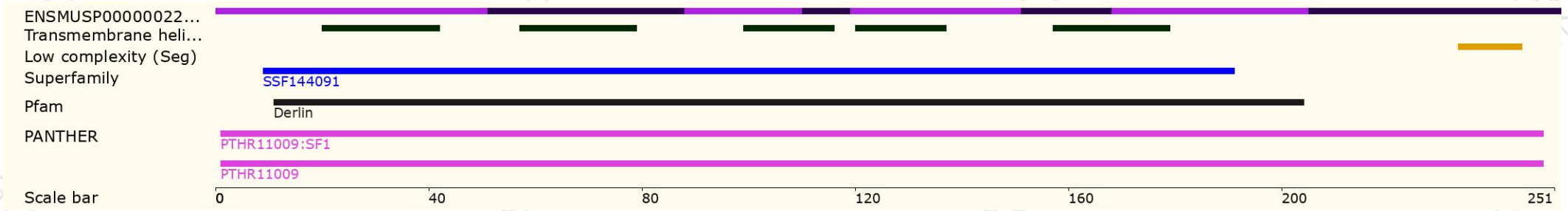
The strategy is based on the design of *Derl1-201* transcript,The transcription is shown below



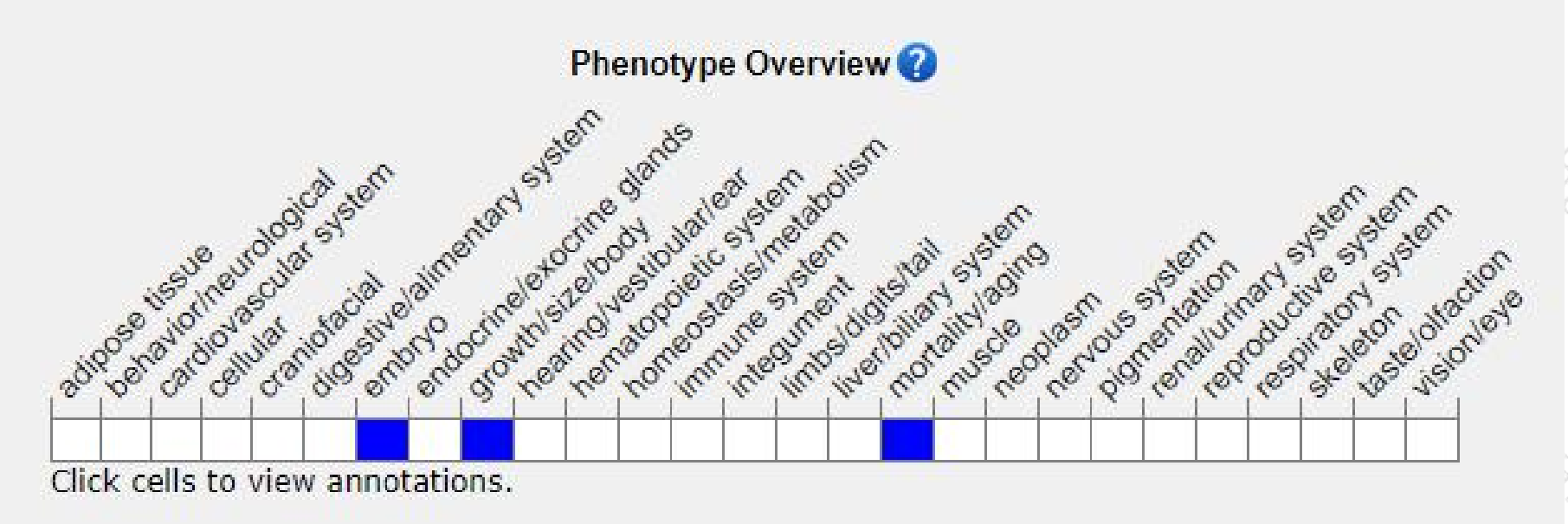
Genomic location distribution



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/).

Mice homozygous for a knock-out allele exhibit lethality during embryogenesis.

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

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