Asprv1 Cas9-CKO Strategy

Designer: Xueting Zhang

Reviewer: Daohua Xu

Design Date: 2020-8-12

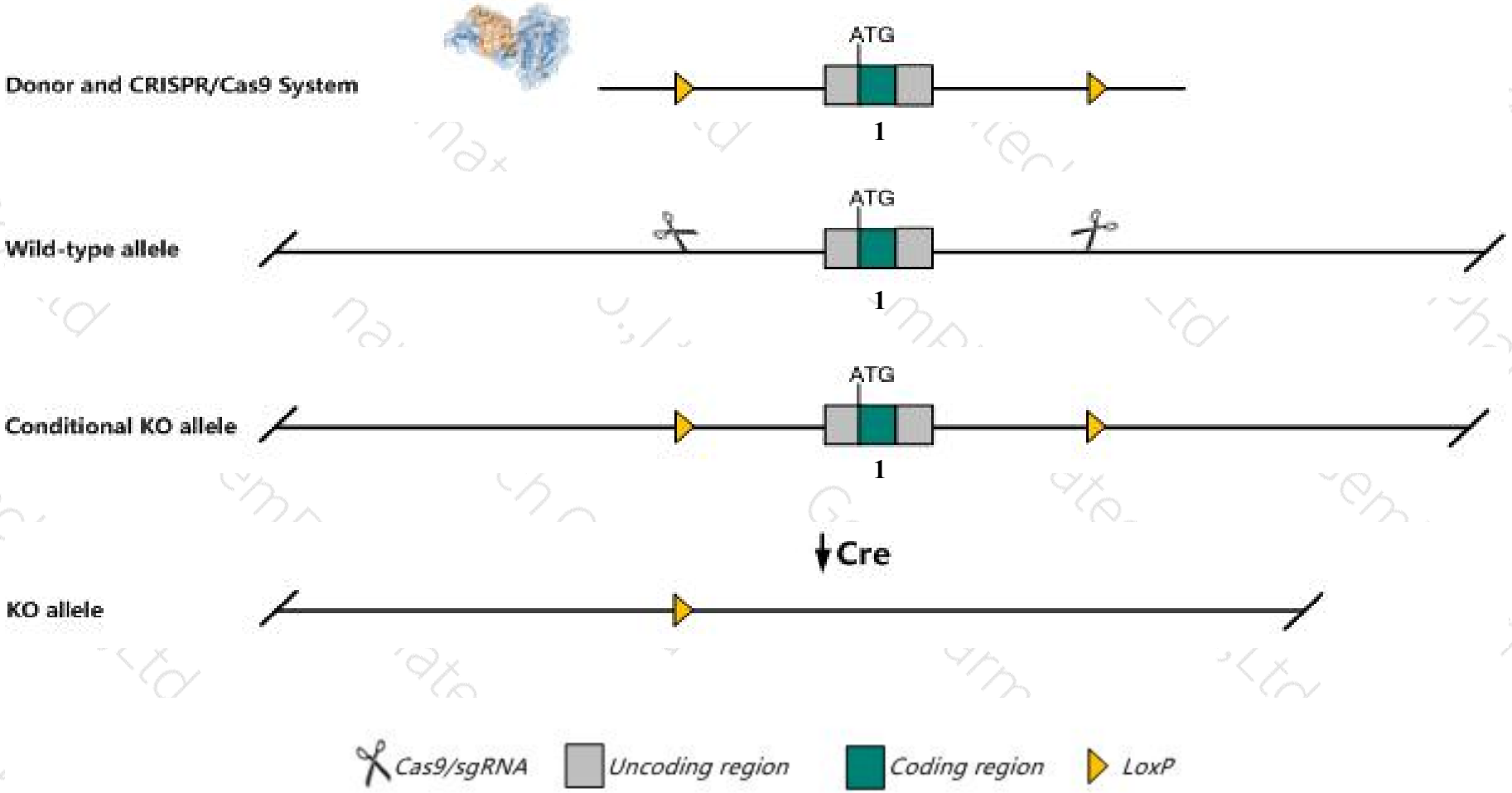
集萃药康 GemPharmatech

Project Overview

Project Name	***Asprv1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Asprv1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Asprv1* gene has 1 transcript. According to the structure of *Asprv1* gene, exon1 of *Asprv1-201*(ENSMUST00000043400.7) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Asprv1* 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/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 was 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 targeted null allele develop fine skin wrinkles at the side of their body without any apparent epidermal differentiation defect.

➢ The *Asprv1* gene is located on the Chr6. 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

Asprv1 aspartic peptidase, retroviral-like 1 [Mus musculus (house mouse)]

Gene ID: 67855, updated on 13-Mar-2020

Summary

Official Symbol	Asprv1 provided by MGI
Official Full Name	aspartic peptidase, retroviral-like 1 provided byMGI
Primary source	MGI:MGI:1915105
See related	Ensembl:ENSMUSG00000033508
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	2300003P22Rik, AA986851, SASP, SASPase, Taps
Orthologs	human all

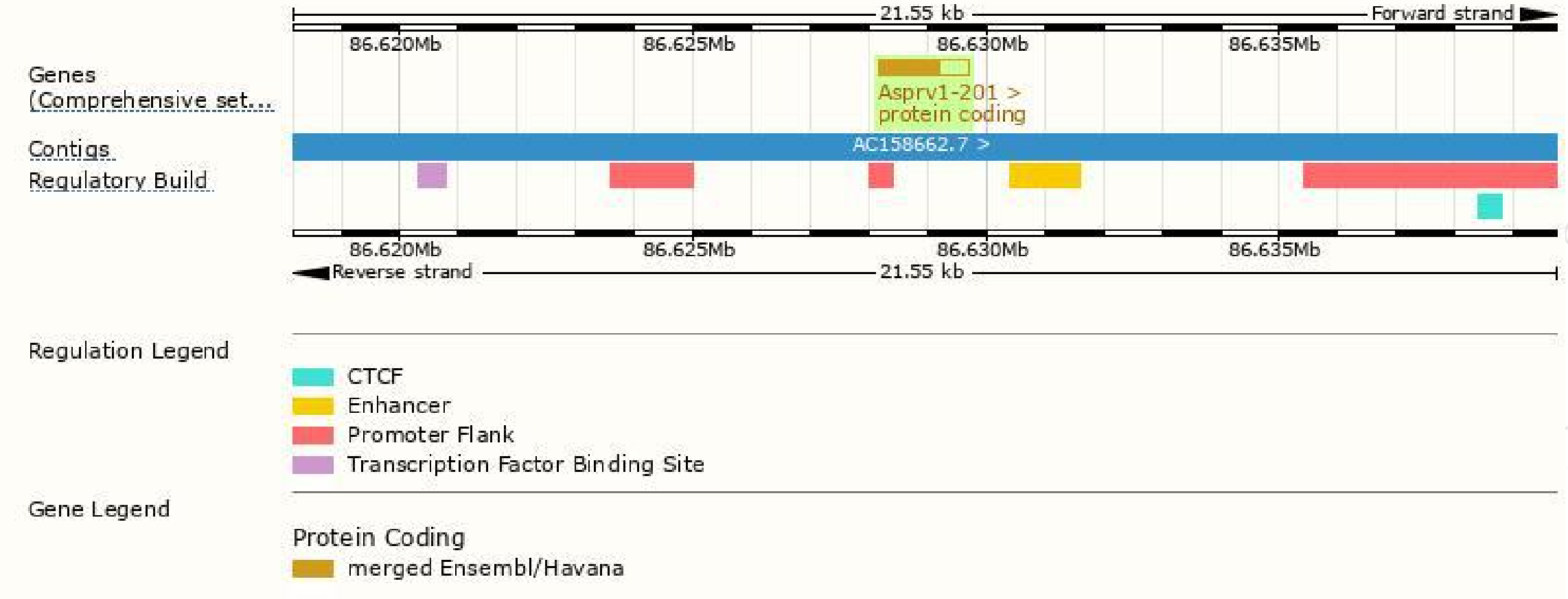
Transcript information（Ensembl）

The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Asprv1-201	ENSMUST00000043400.7	1547	339aa	Protein coding	CCDS39542	Q09PK2	TSL:NA GENCODE basic APPRIS P1

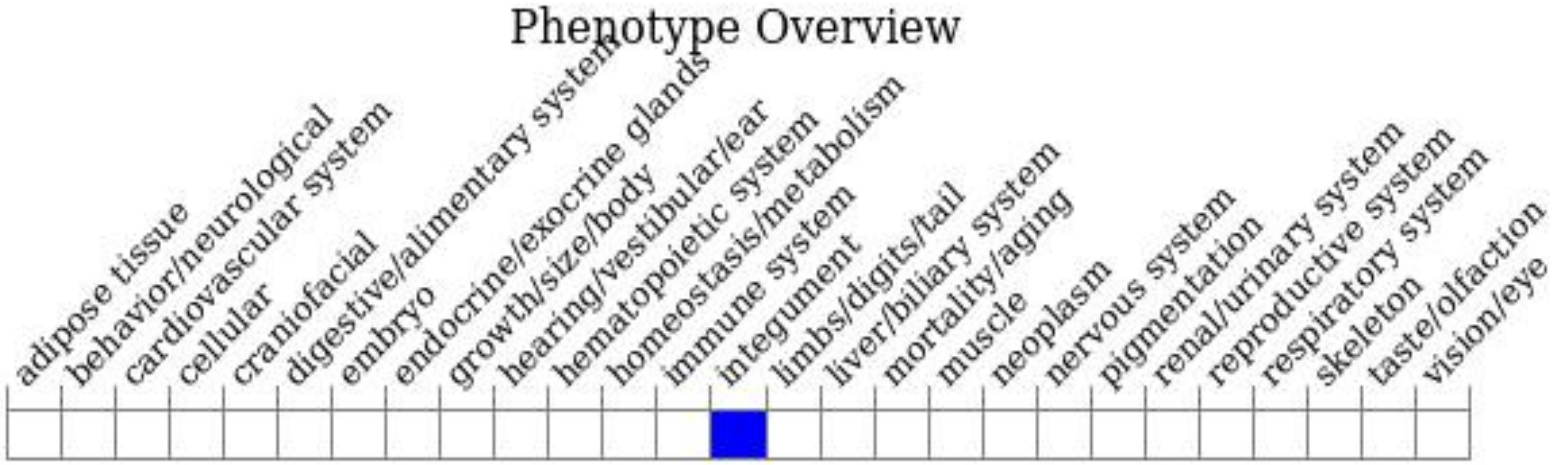
The strategy is based on the design of *Asprv1-201* transcript,the transcription is shown below:

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 targeted null allele develop fine skin wrinkles at the side of their body without any apparent epidermal differentiation defect.

集萃药康
GemPharmatech

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

Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd

GemPharmatech Co.,Ltd