Dolpp1 Cas9-CKO Strategy

Designer: Xiaojing Li

Reviewer: JiaYu

Design Date: 2020-5-20

集萃药康 GemPharmatech

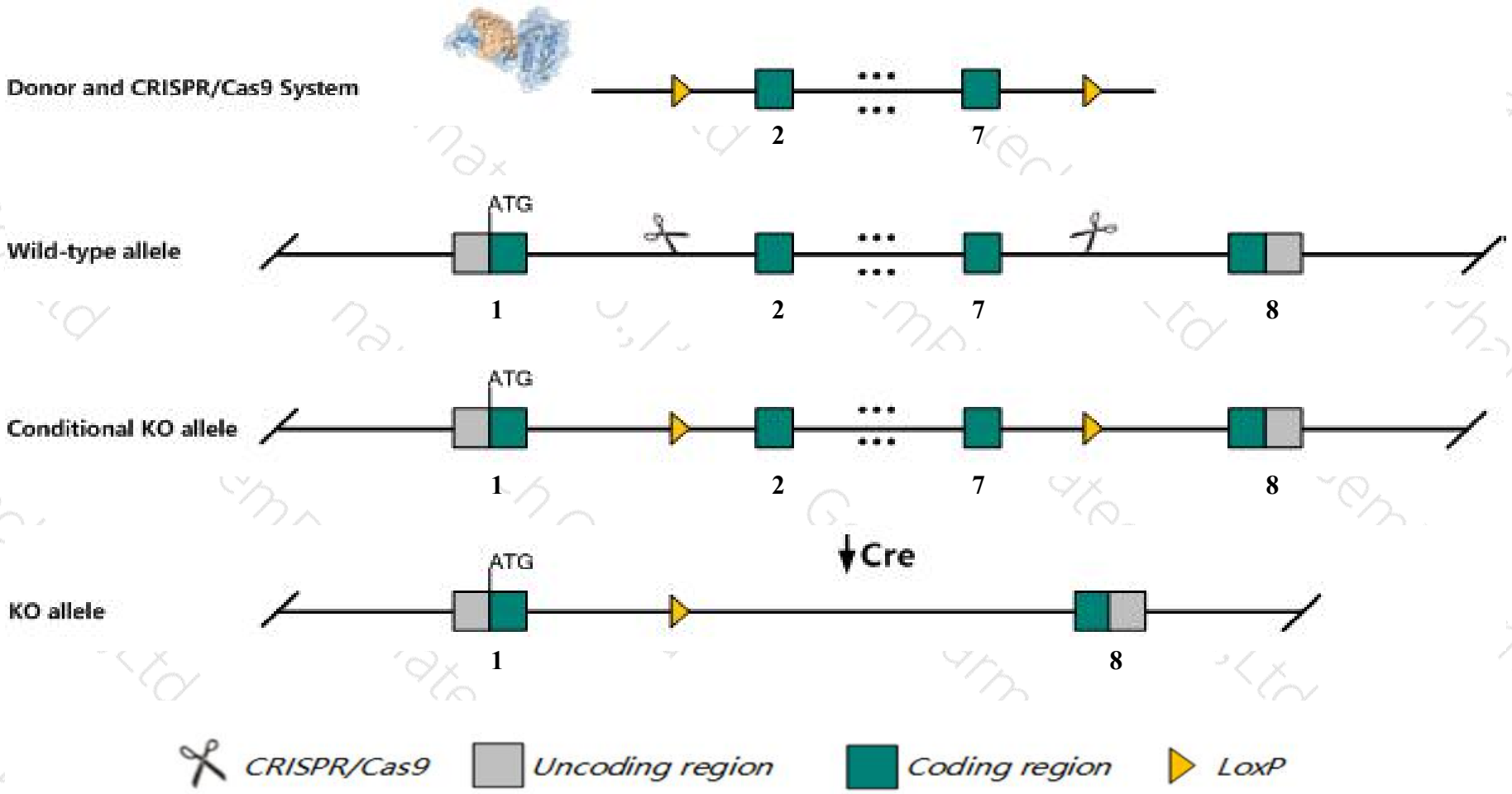
Project Overview

Project Name	***Dolpp1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

集萃药康 GemPharmatech

This model will use CRISPR/Cas9 technology to edit the *Dolpp1* gene. The schematic diagram is as follows:



Technical routes

集萃药康 GemPharmatech

- The *Dolpp1* gene has 11 transcripts. According to the structure of *Dolpp1* gene, exon2-exon7 of *Dolpp1-201* (ENSMUST00000028209.14) transcript is recommended as the knockout region.The region contains 604bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Dolpp1* 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

- The *Dolpp1* gene is located on the Chr2. 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.
- The insertion of 5-terminal loxP may affect the 5-terminal regulatory function of *Dolpp1*-203.
- 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

Dolpp1 dolichyl pyrophosphate phosphatase 1 [Mus musculus (house mouse)]

Gene ID: 57170, updated on 13-Mar-2020

Summary

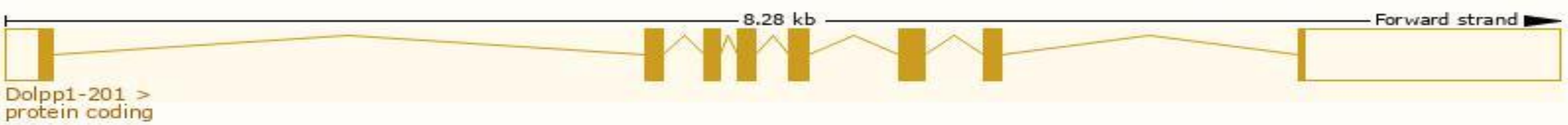
Official Symbol	Dolpp1 provided by MGI
Official Full Name	dolichyl pyrophosphate phosphatase 1 provided byMGI
Primary source	MGI:MGI:1914093
See related	Ensembl:ENSMUSG00000026856
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	0610011H20Rik, AB030189, LSFR2
Expression	Ubiquitous expression in large intestine adult (RPKM 22.0), duodenum adult (RPKM 19.9) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

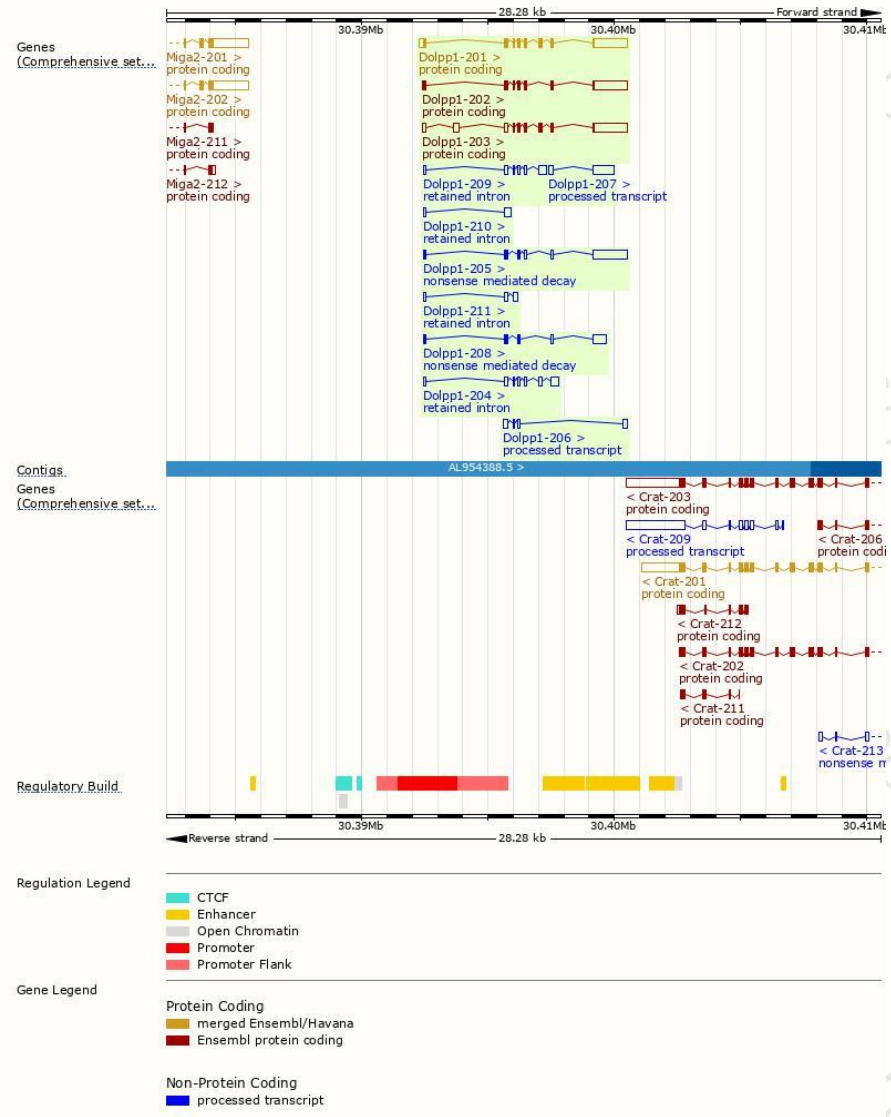
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dolpp1-201	ENSMUST00000028209.14	2251	238aa	Protein coding	CCDS15881	Q9JMF7	TSL:1 GENCODE basic APPRIS P1
Dolpp1-202	ENSMUST00000113612.9	1958	195aa	Protein coding	CCDS79768	A2AWJ3	TSL:3 GENCODE basic
Dolpp1-203	ENSMUST00000123202.7	2294	140aa	Protein coding	CCDS71022	A0A140T8S3	TSL:1 GENCODE basic
Dolpp1-204	ENSMUST00000133991.7	919	No protein	Retained intron	-	-	TSL:2
Dolpp1-205	ENSMUST00000137248.7	1851	91aa	Nonsense mediated decay	-	F6QGX7	CDS 5' incomplete TSL:5
Dolpp1-206	ENSMUST00000151018.1	537	No protein	Processed transcript	-	-	TSL:5
Dolpp1-207	ENSMUST00000152303.1	984	No protein	Processed transcript	-	-	TSL:1
Dolpp1-208	ENSMUST00000155196.1	902	89aa	Nonsense mediated decay	-	F6T220	CDS 5' incomplete TSL:3
Dolpp1-209	ENSMUST00000156059.7	767	No protein	Retained intron	-	-	TSL:2
Dolpp1-210	ENSMUST00000156704.1	336	No protein	Retained intron	-	-	TSL:3
Dolpp1-211	ENSMUST00000156984.7	354	No protein	Retained intron	-	-	TSL:2

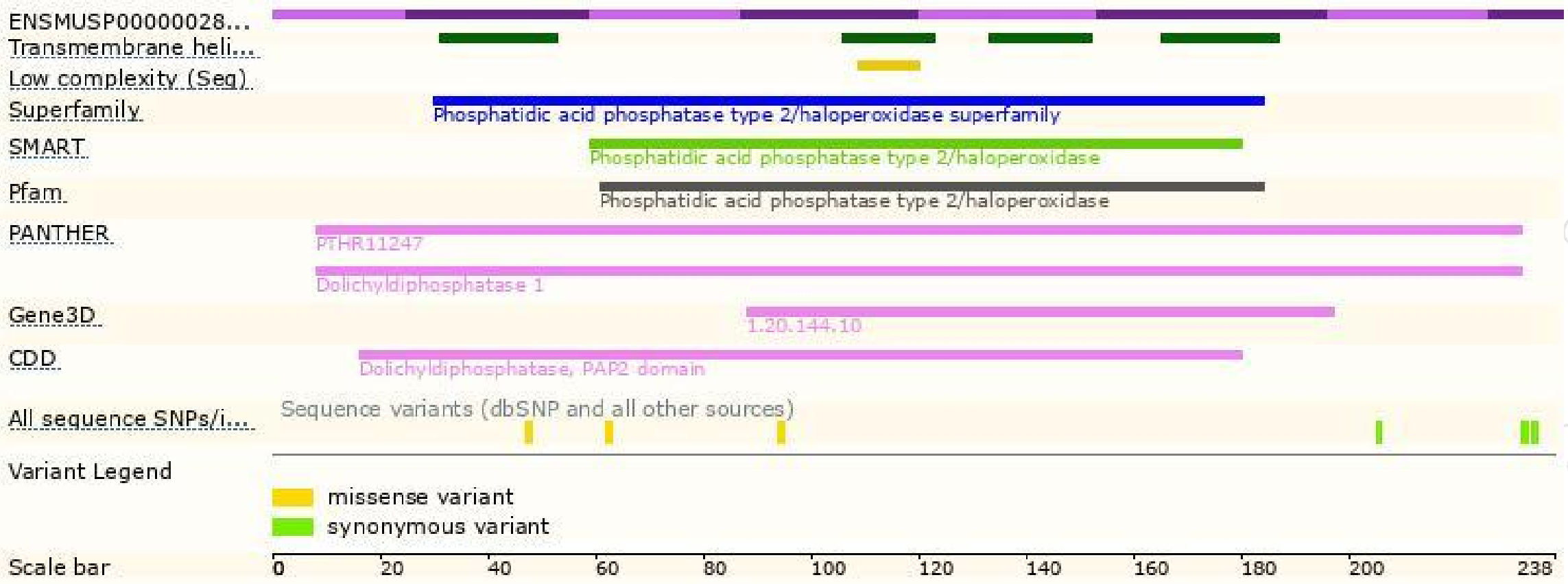
The strategy is based on the design of *Dolpp1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



集萃药康
GemPharmatech

If you have any questions, you are welcome to inquire.
Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd