Matn2 Cas9-CKO Strategy

Designer: Daohua Xu

Reviewer: Huimin Su

Design Date: 2020-2-17

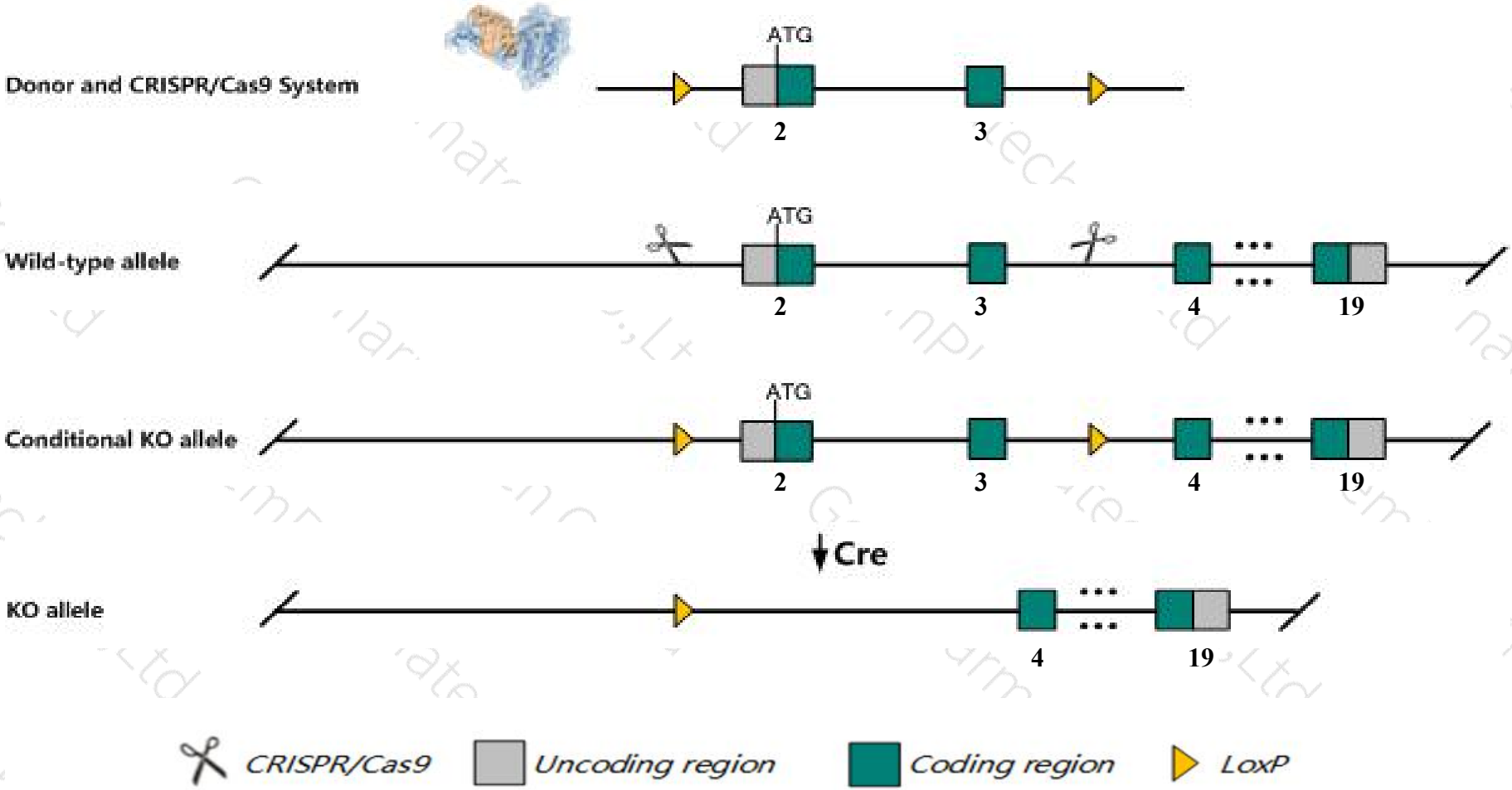
集萃药康 GemPharmatech

Project Overview

Project Name	***Matn2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Matn2* gene. The schematic diagram is as follows:



Technical routes

- The *Matn2* gene has 6 transcripts. According to the structure of *Matn2* gene, exon2-exon3 of *Matn2-201* (ENSMUST00000022947.6) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Matn2* 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,Homozygous null mice are healthy and fertile with no obvious abnormalities.

- The *Matn2* 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

Matn2 matrilin 2 [Mus musculus (house mouse)]

Gene ID: 17181, updated on 28-Mar-2019

Summary

Official Symbol	Matn2 provided by MGI
Official Full Name	matrilin 2 provided by MGI
Primary source	MGI:MGI:109613
See related	Ensembl:ENSMUSG00000022324
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	Crtm2, matrilin-2
Expression	Biased expression in bladder adult (RPKM 46.5), subcutaneous fat pad adult (RPKM 34.4) and 14 other tissues See more
Orthologs	human all

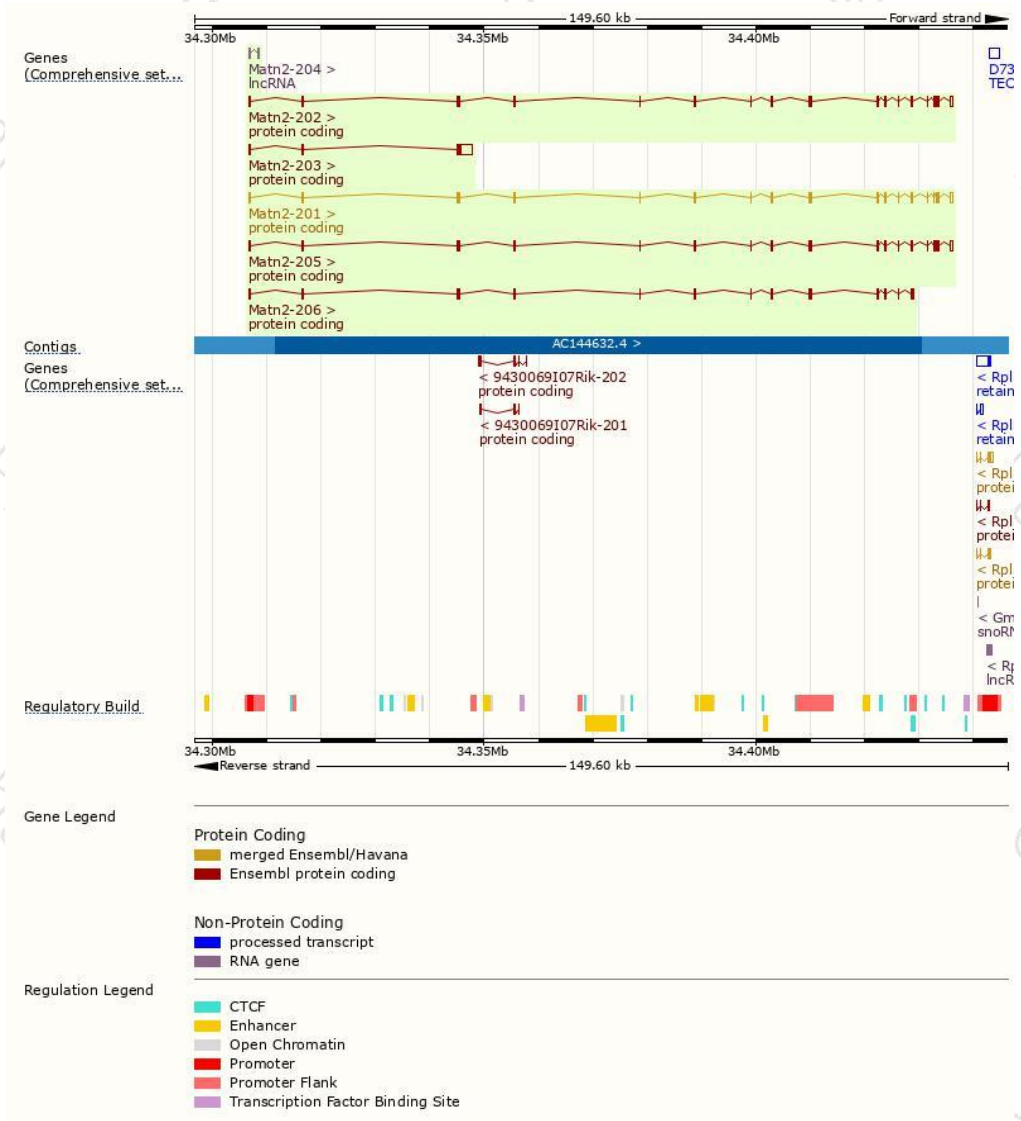
Transcript information（Ensembl）

The gene has 6 transcripts,all transcripts are shown below:

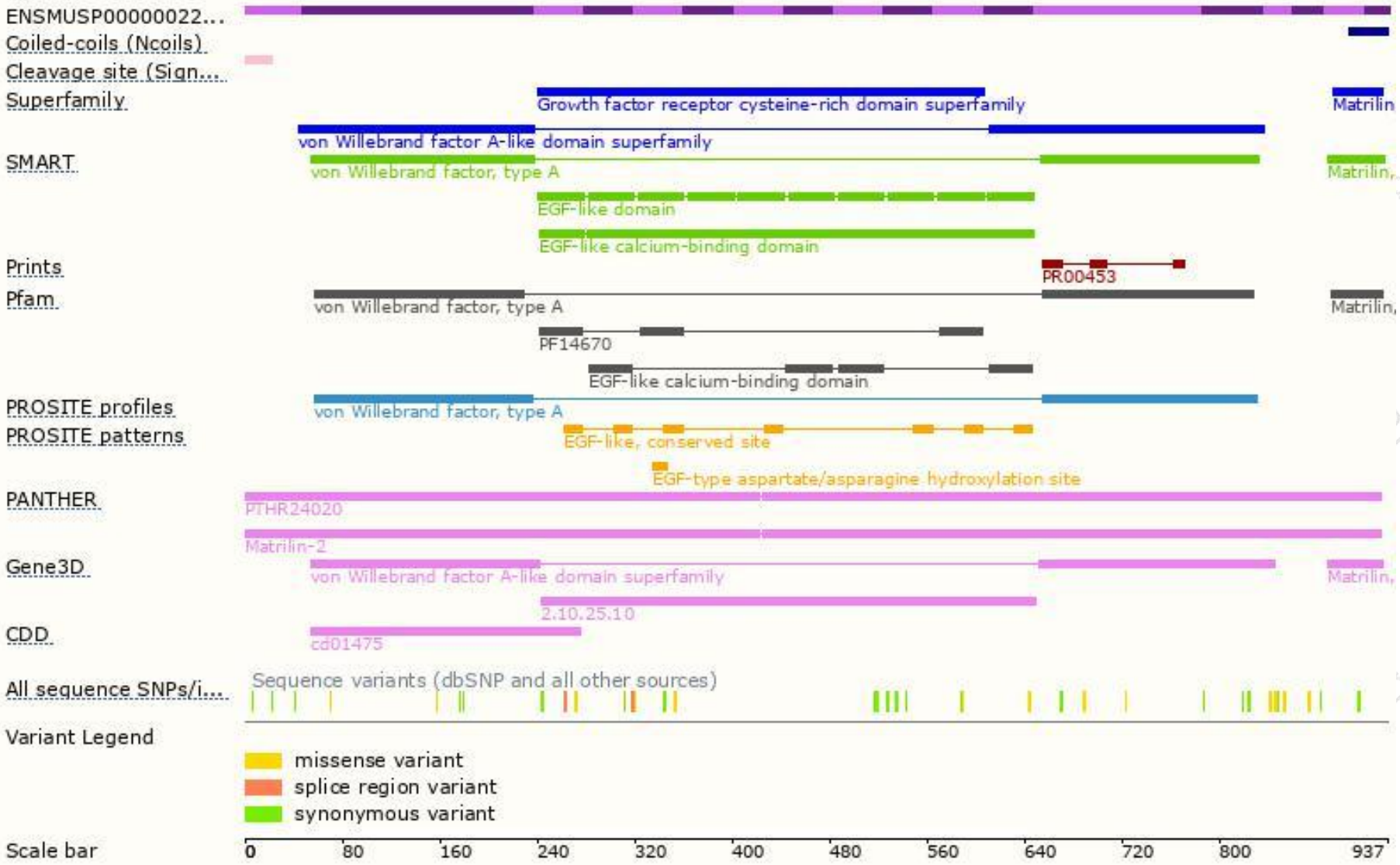
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Matn2-201	ENSMUST00000022947.6	3551	937aa	Protein coding	CCDS37056	O08746	TSL:1 GENCODE basic APPRIS P2
Matn2-202	ENSMUST00000163455.8	3577	957aa	Protein coding	-	A0A0A0MQM7	TSL:5 GENCODE basic APPRIS ALT2
Matn2-205	ENSMUST00000227759.1	3569	956aa	Protein coding	-	O08746	GENCODE basic APPRIS ALT2
Matn2-203	ENSMUST00000226766.1	3252	280aa	Protein coding	-	A0A2I3BRV5	GENCODE basic
Matn2-206	ENSMUST00000228570.1	2798	810aa	Protein coding	-	A0A2I3BRF3	GENCODE basic
Matn2-204	ENSMUST00000227119.1	395	No protein	lncRNA	-	-	

The strategy is based on the design of *Matn2-201* 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

GemPharmatech Co.,Ltd