Calm2 Cas9-CKO Strategy

Designer: **Daohua Xu**

Reviewer：   **Huimin Su**

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Project Overview

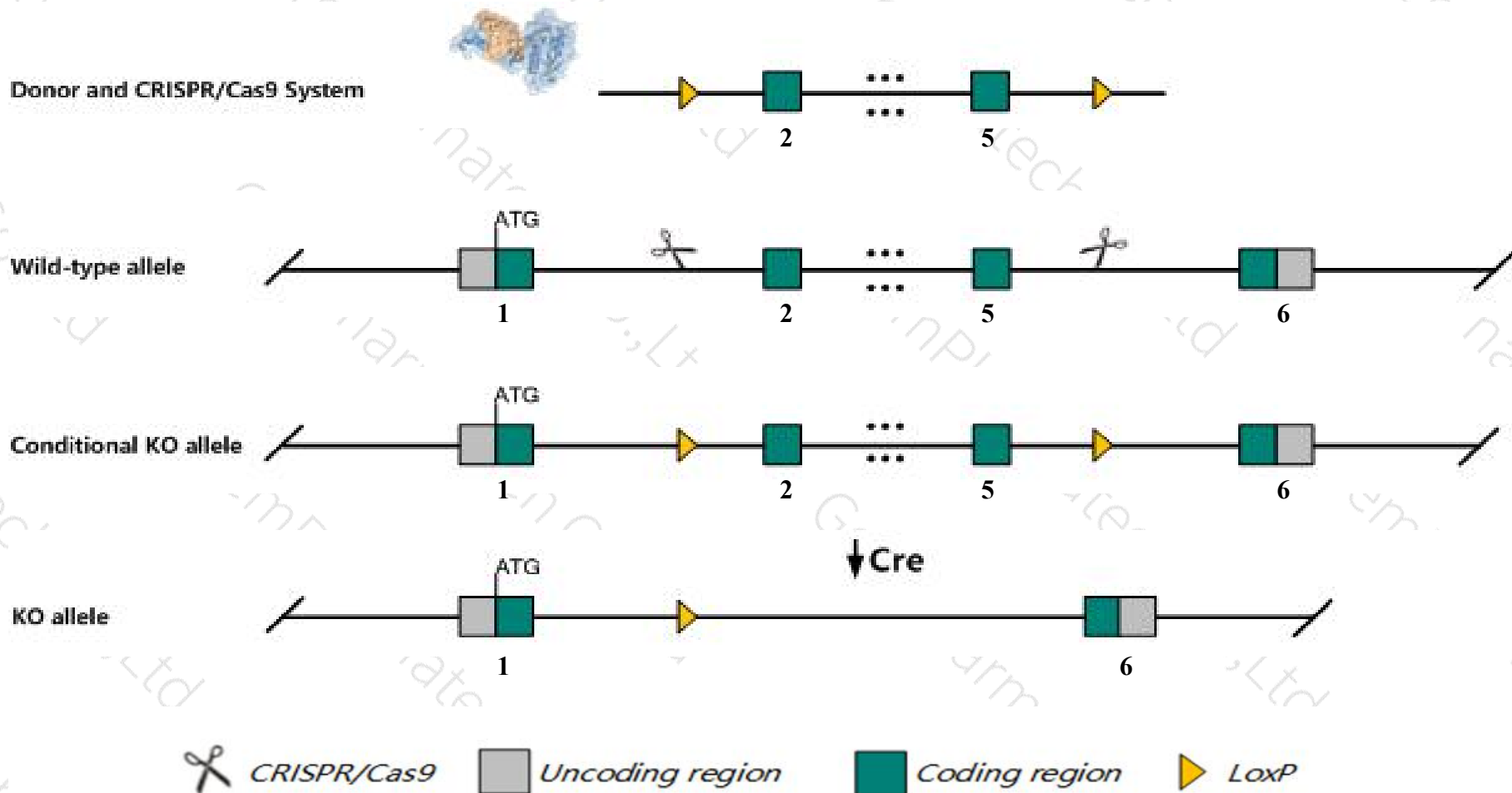|	
Project Name	*Calm2*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Calm2* gene. The schematic diagram is as follows:

Technical routes

➤ The *Calm2* gene has 5 transcripts. According to the structure of *Calm2* gene, exon2-exon5 of *Calm2-201* (ENSMUST00000040440.6) transcript is recommended as the knockout region. The region contains Ens 418bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Calm2* 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.

➢ The *Calm2* gene is located on the Chr17. 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）

Calm2 calmodulin 2 [Mus musculus (house mouse)]

Gene ID: 12314, updated on 31-Jan-2019

Summary

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Official Symbol	Calm2 provided by MGI
Official Full Name	calmodulin 2 provided byMGI
Primary source	MGI:MGI:103250
See related	Ensembl:ENSMUSG00000036438
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	1500001E21Rik, AL024017, Cam2, CamC
Expression	Biased expression in frontal lobe adult (RPKM 625.9), cortex adult (RPKM 540.2) and 13 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Calm2-201	ENSMUST00000040440.6	1205	149aa	Protein coding	CCDS37716	P0DP26 P0DP27 P0DP28	TSL:1 GENCODE basic APPRIS P1
Calm2-204	ENSMUST00000234406.1	842	113aa	Protein coding	-	-	GENCODE basic
Calm2-205	ENSMUST00000238271.1	403	37aa	Nonsense mediated decay	-	-	
Calm2-202	ENSMUST00000143965.7	890	No protein	Retained intron	-	-	TSL:3
Calm2-203	ENSMUST00000150137.1	657	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Calm2-201* transcript,The transcription is shown below

< Calm2-201
protein coding

◄— Reverse strand

———————————————— 13.52 kb ————————————————
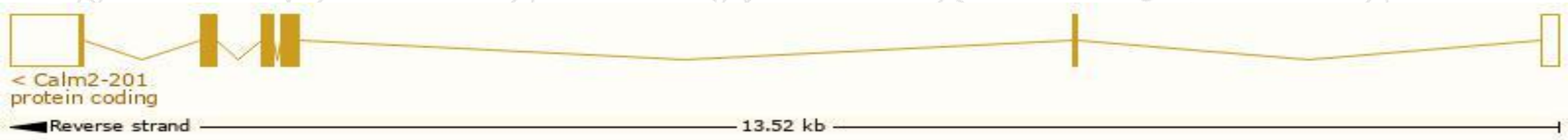
Genomic location distribution
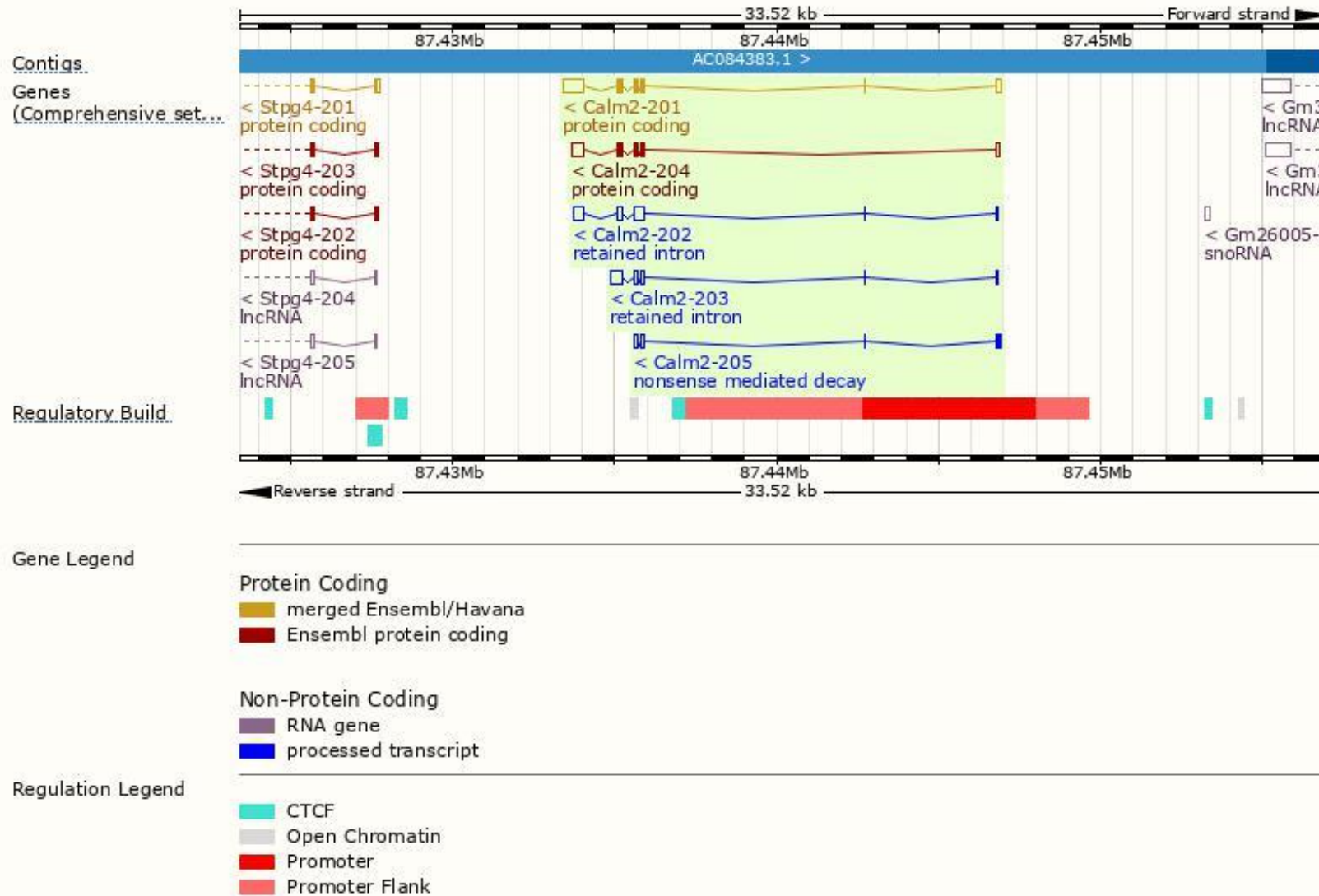
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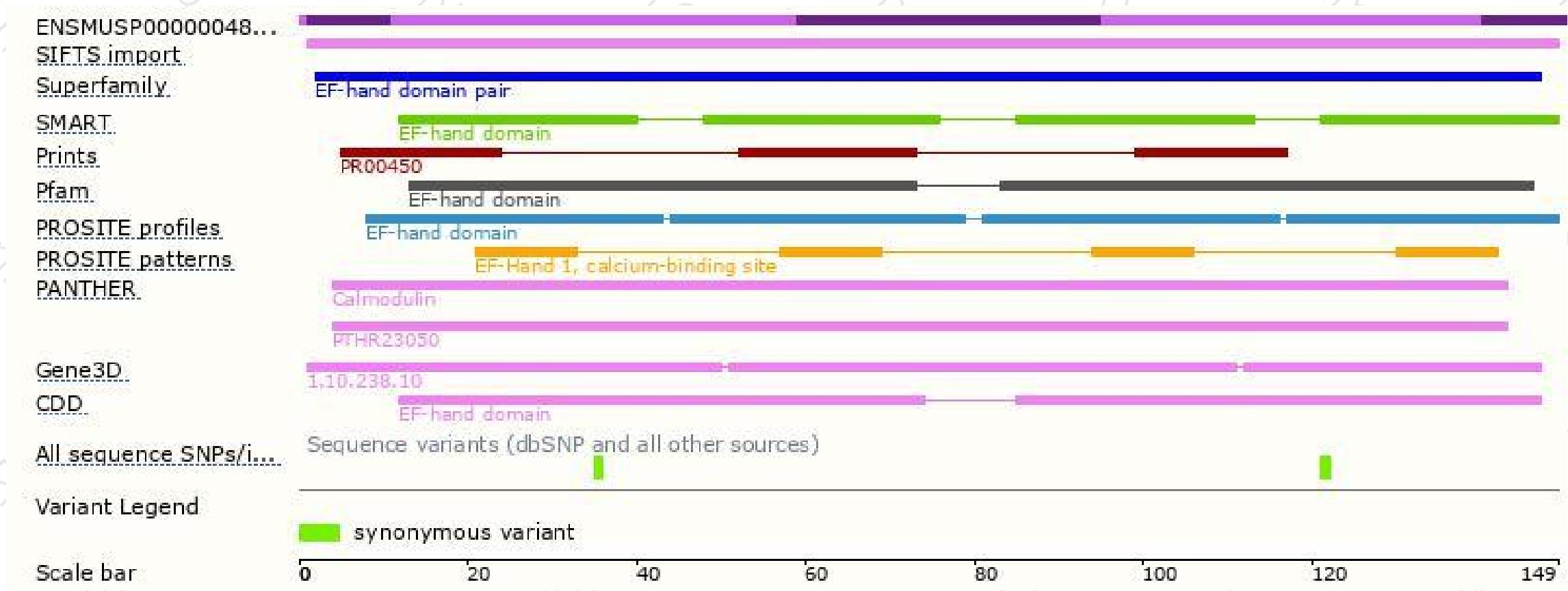
If you have any questions, you are welcome to inquire.
Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd