Sri Cas9-CKO Strategy

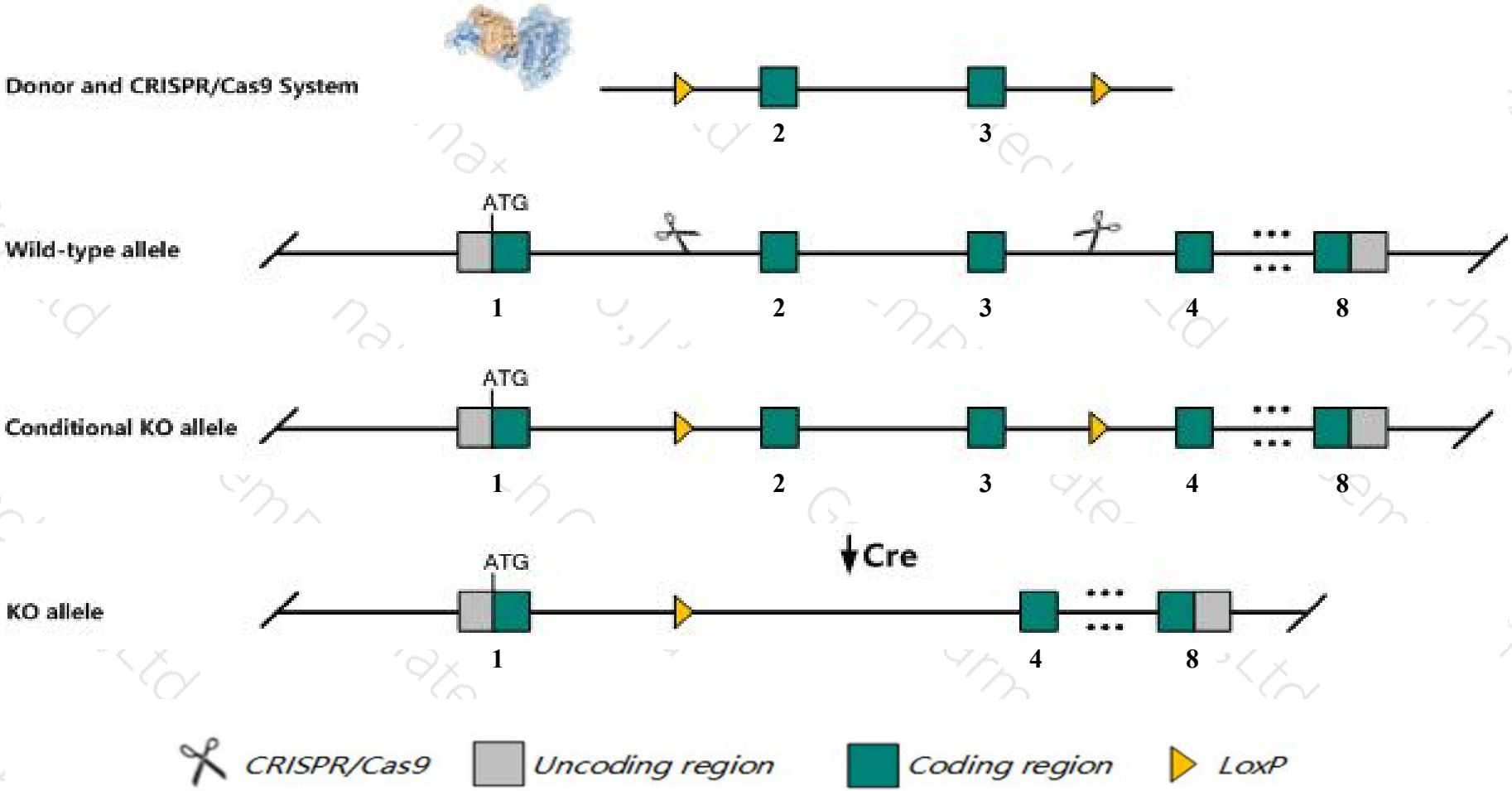
Designer: Jinling Wang
Reviewer: Shilei Zhu
Design Date: 2019/3/13

Project Overview

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

Conditional Knockout strategy

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



Technical routes

➢ The *Sri* gene has 7 transcripts. According to the structure of *Sri* gene, exon2-exon3 of *Sri-205*(ENSMUST00000148633.3) transcript is recommended as the knockout region.The region contains 154bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Sri* 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 homozgyous for a knock-out allele exhibit impaired glucose tolerance and decreased circulating insulin levels.

➢ The *Sri* gene is located on the Chr5. 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

Sri sorcin [Mus musculus (house mouse)]

Gene ID: 109552, updated on 13-Mar-2020

Summary

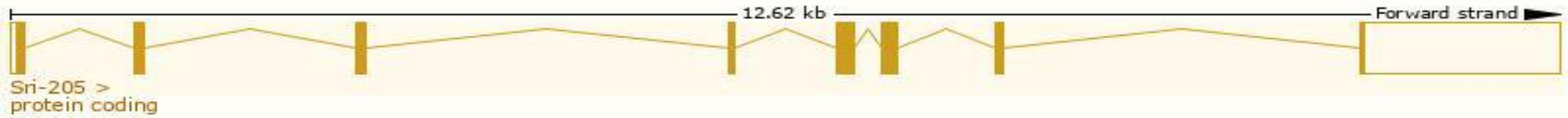
Official Symbol	Sri provided by MGI
Official Full Name	sorcin provided byMGI
Primary source	MGI:MGI:98419
See related	Ensembl:ENSMUSG00000003161
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2210417O06Rik, 2900070H08Rik, Sor
Expression	Ubiquitous expression in placenta adult (RPKM 54.9), large intestine adult (RPKM 37.3) and 27 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

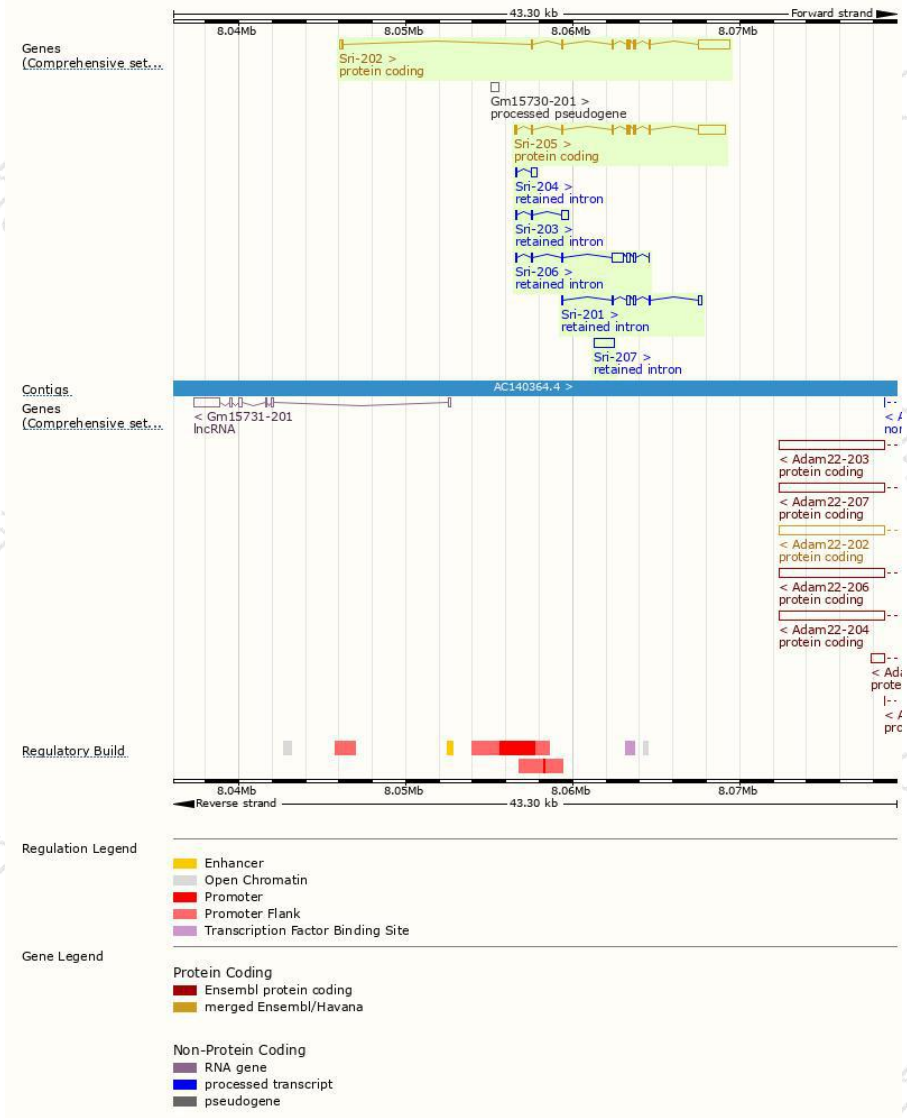
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sri-202	ENSMUST00000088786.10	2504	183aa	Protein coding	CCDS19079	Q6P069	TSL:1 GENCODE basic APPRIS P3
Sri-205	ENSMUST00000148633.3	2251	198aa	Protein coding	CCDS39009	Q6P069	TSL:1 GENCODE basic APPRIS ALT1
Sri-207	ENSMUST00000197065.1	1206	No protein	Retained intron	-	-	TSL:NA
Sri-206	ENSMUST00000149420.7	1111	No protein	Retained intron	-	-	TSL:5
Sri-201	ENSMUST00000003245.9	640	No protein	Retained intron	-	-	TSL:2
Sri-203	ENSMUST00000144265.5	531	No protein	Retained intron	-	-	TSL:2
Sri-204	ENSMUST00000145119.1	400	No protein	Retained intron	-	-	TSL:2

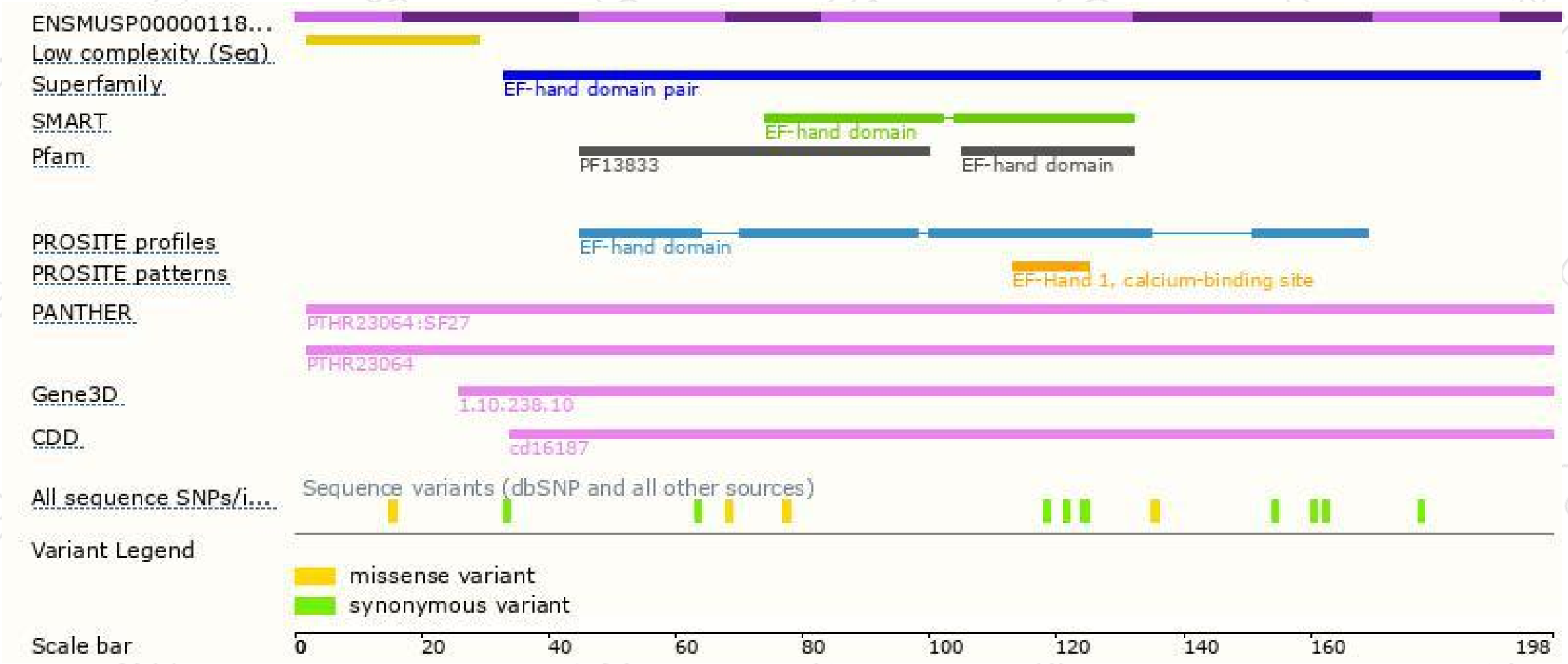
The strategy is based on the design of *Sri-205* transcript,the transcription is shown below:



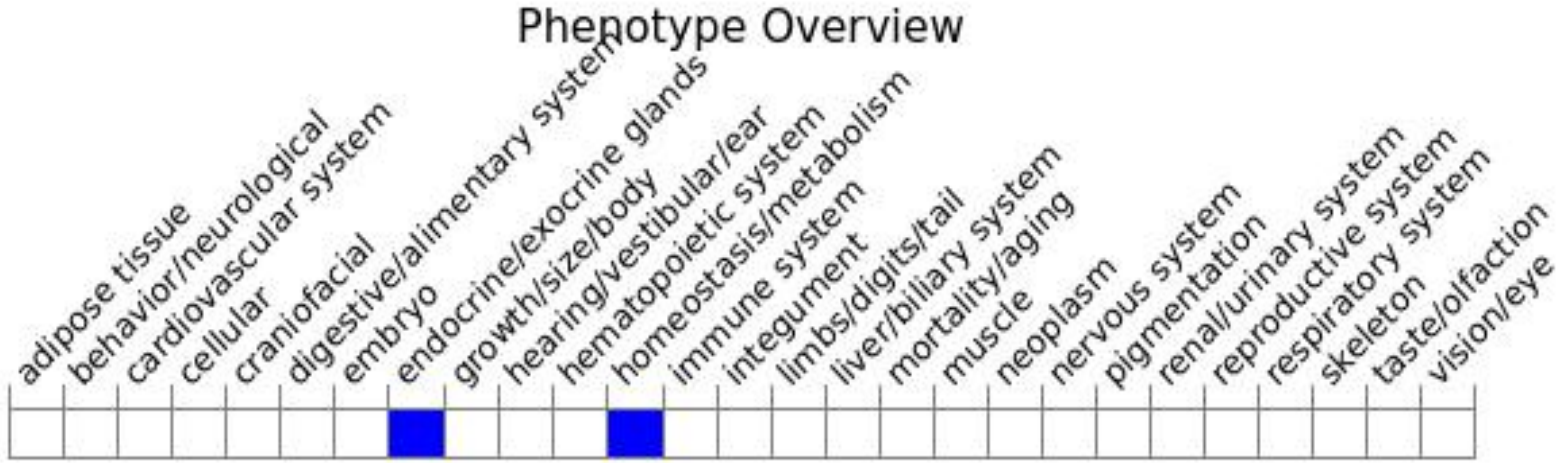
Genomic location distribution



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 homozgyous for a knock-out allele exhibit impaired glucose tolerance and decreased circulating insulin levels.

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd