Csk Cas9-KO Strategy

Designer: Huan Fan
Reviewer: Huan Wang

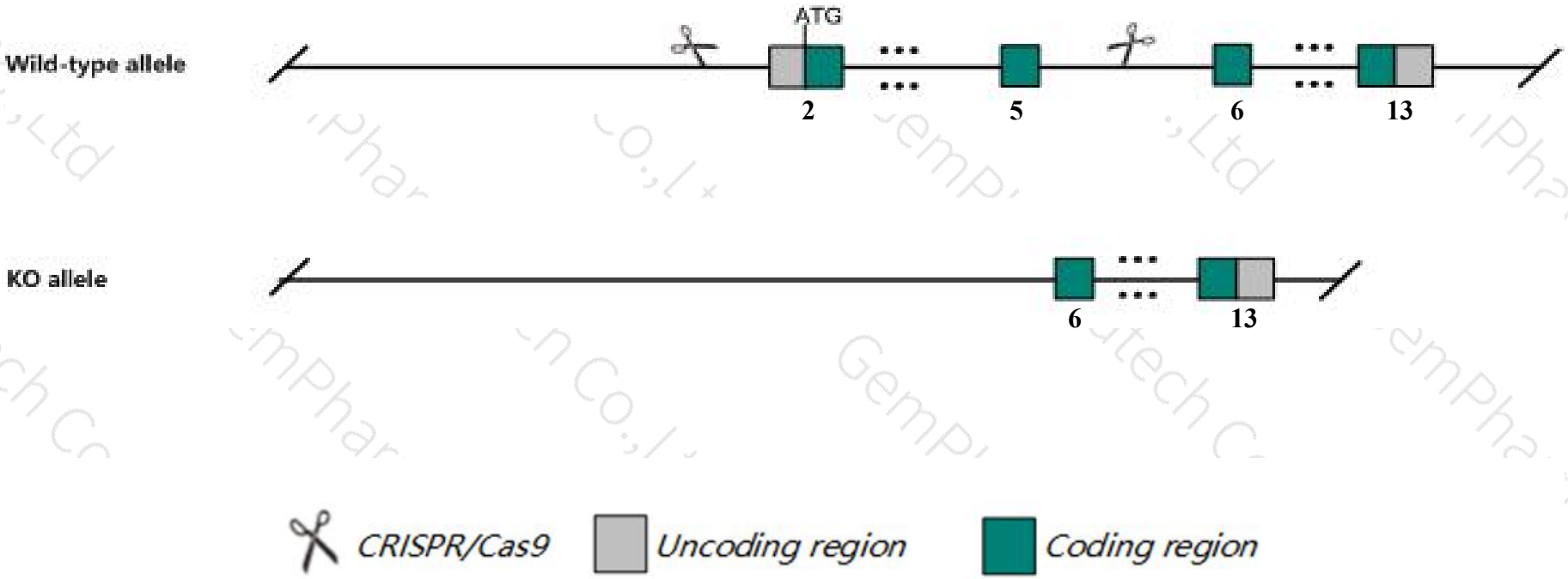
Design Date: 2019-12-11

Project Overview

Project Name	***Csk***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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



Technical routes

➢ The *Csk* gene has 9 transcripts. According to the structure of *Csk* gene, exon2-exon5 of *Csk-201* (ENSMUST00000034863.7) 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 *Csk* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

- According to the existing MGI data,Homozygotes for targeted null mutations exhibit growth retardation, neural tube defects, and developmental arrest at the 10-12 somite stage. Mutants die between embryonic days nine and ten.

- The *Csk* gene is located on the Chr9. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

集萃药康 GemPharmatech

Csk c-src tyrosine kinase [Mus musculus (house mouse)]

Gene ID: 12988, updated on 23-Mar-2019

Summary

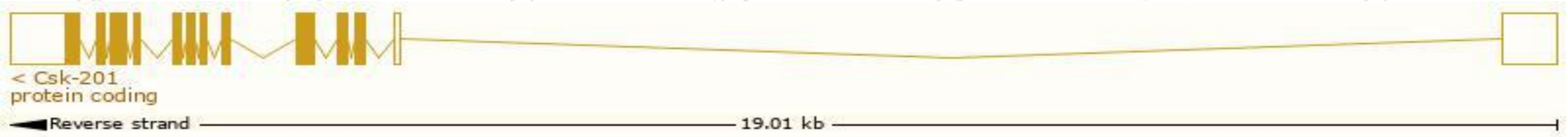
Official Symbol	Csk provided by MGI
Official Full Name	c-src tyrosine kinase provided by MGI
Primary source	MGI:MGI:88537
See related	Ensembl:ENSMUSG00000032312
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW212630, p50CSK
Expression	Ubiquitous expression in spleen adult (RPKM 65.3), thymus adult (RPKM 53.3) and 27 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

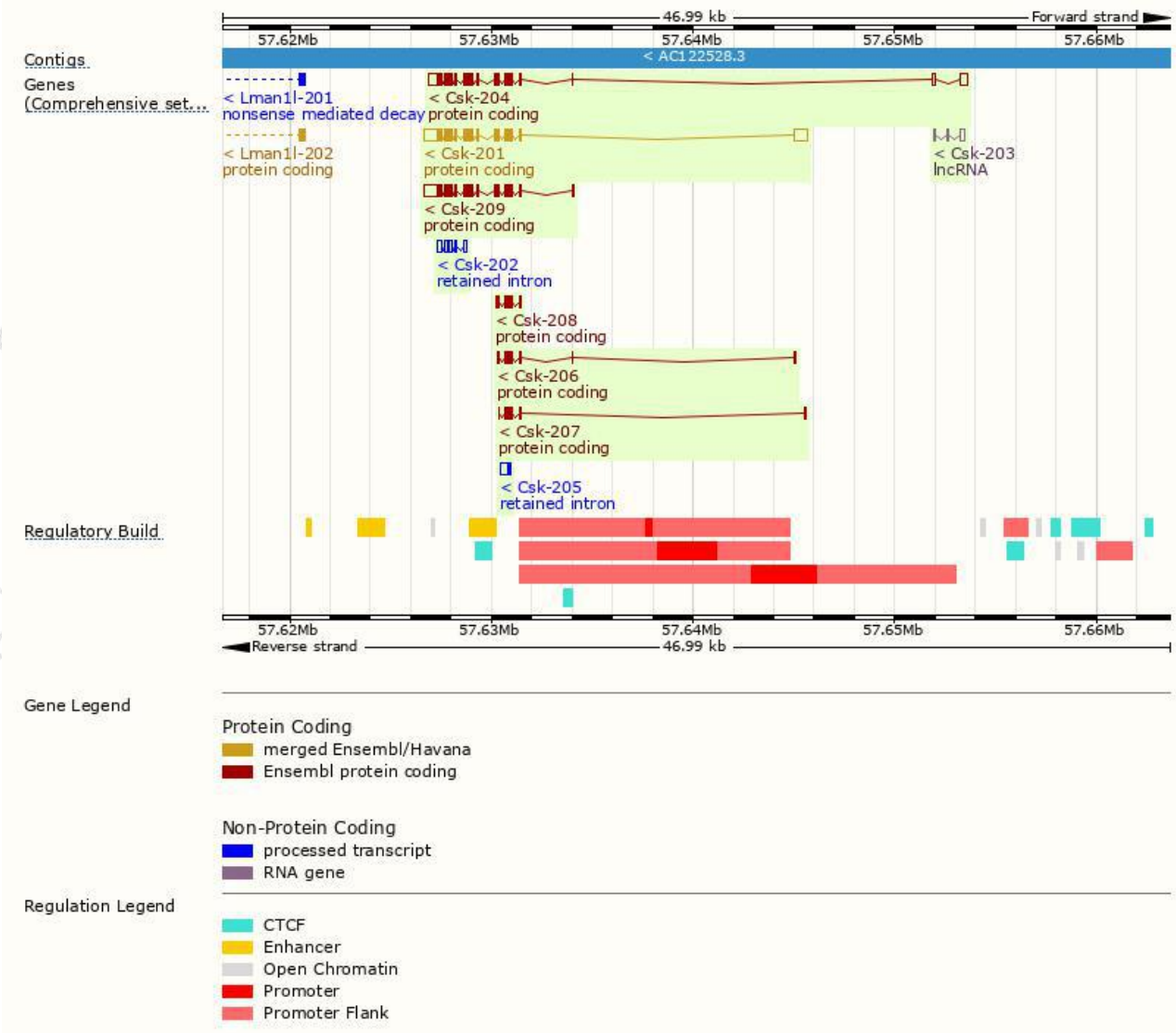
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Csk-201	ENSMUST00000034863.7	2749	450aa	Protein coding	CCDS23228	P41241	TSL:1 GENCODE basic APPRIS P1
Csk-204	ENSMUST00000215396.1	2390	450aa	Protein coding	CCDS23228	P41241	TSL:1 GENCODE basic APPRIS P1
Csk-209	ENSMUST00000217314.1	2162	450aa	Protein coding	CCDS23228	P41241	TSL:1 GENCODE basic APPRIS P1
Csk-206	ENSMUST00000216934.1	554	108aa	Protein coding	-	A0A1L1SR46	CDS 3' incomplete TSL:2
Csk-208	ENSMUST00000217128.1	521	139aa	Protein coding	-	A0A1L1STA1	CDS 3' incomplete TSL:2
Csk-207	ENSMUST00000216979.1	389	91aa	Protein coding	-	A0A1L1SQQ5	CDS 3' incomplete TSL:5
Csk-202	ENSMUST00000213660.1	652	No protein	Retained intron	-	-	TSL:2
Csk-205	ENSMUST00000215958.1	392	No protein	Retained intron	-	-	TSL:3
Csk-203	ENSMUST00000213943.1	393	No protein	lncRNA	-	-	TSL:5

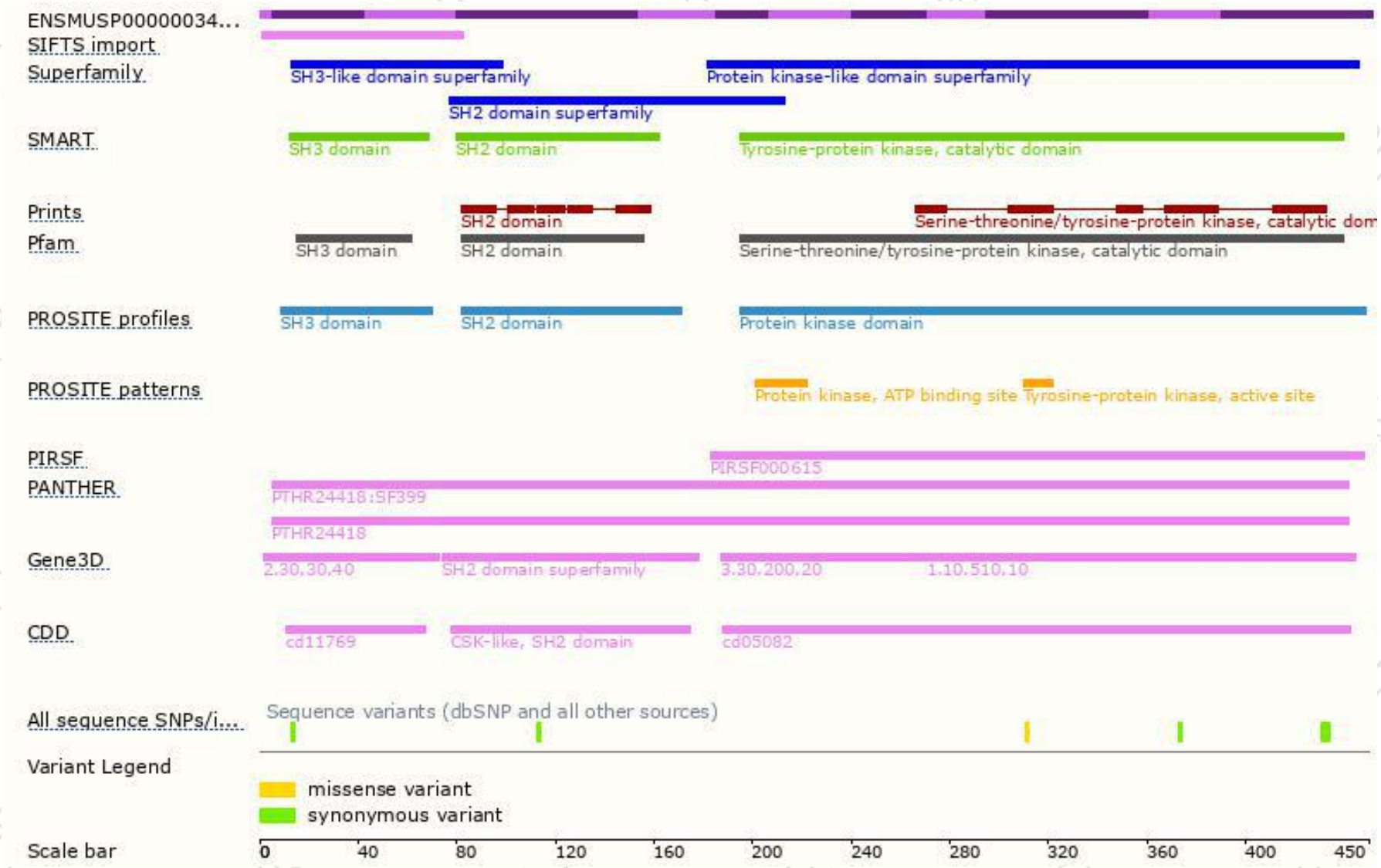
The strategy is based on the design of *Csk-201* transcript,The transcription is shown below



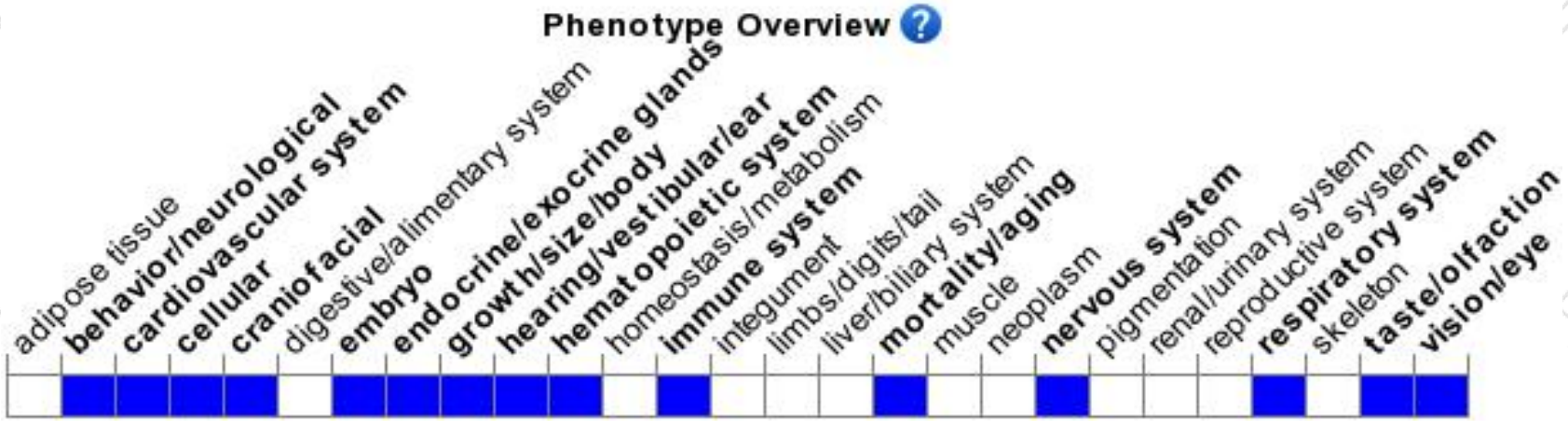
Genomic location distribution



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,Homozygotes for targeted null mutations exhibit growth retardation, neural tube defects, and developmental arrest at the 10-12 somite stage. Mutants die between embryonic days nine and ten.

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