

Steap1 Cas9-CKO Strategy

Designer: Yanhua Shen
Reviewer: Xueting Zhang
Design Date: 2019-09-03

Project Overview

Project Name

Steap1

Project type

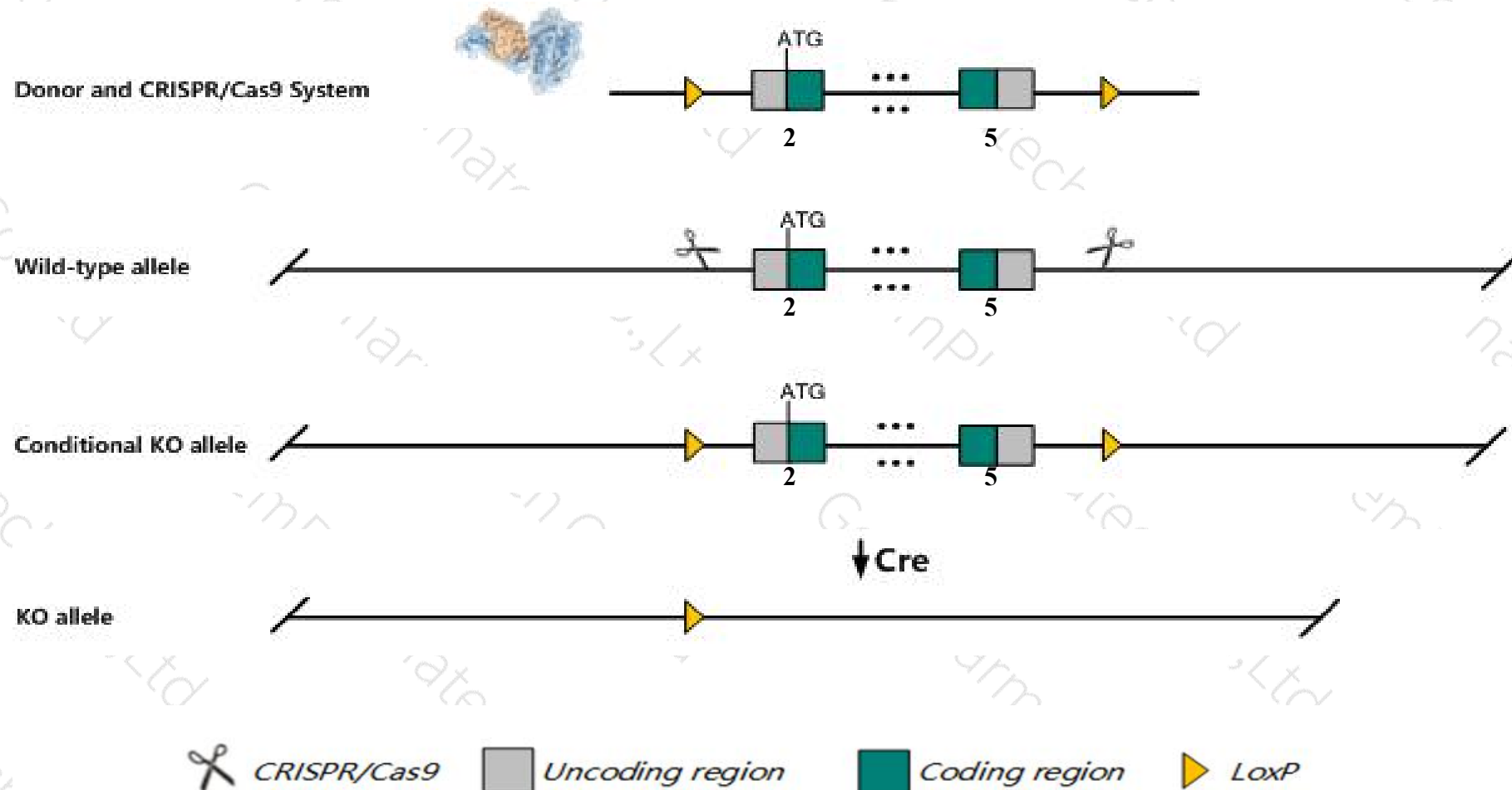
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Steap1* gene. The schematic diagram is as follows:



Technical routes

- The *Steap1* gene has 2 transcripts. According to the structure of *Steap1* gene, exon2-exon5 of *Steap1*-201 (ENSMUST00000015796.8) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Steap1* 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 effects of transcripts 202 is unknown.
- The *Steap1* 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)

Steap1 six transmembrane epithelial antigen of the prostate 1 [*Mus musculus* (house mouse)]

Gene ID: 70358, updated on 12-Aug-2019

Summary

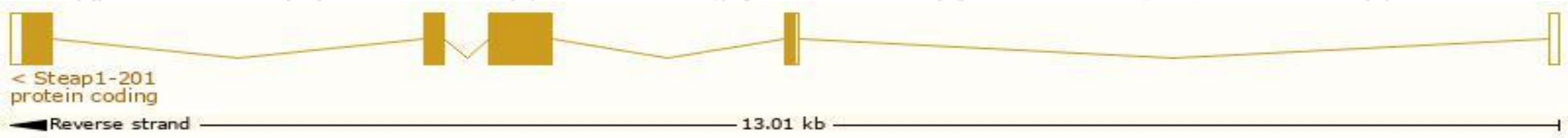
Official Symbol	Steap1 provided by MGI
Official Full Name	six transmembrane epithelial antigen of the prostate 1 provided by MGI
Primary source	MGI:MGI:1917608
See related	Ensembl:ENSMUSG00000015652
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Steap; Prss24; 2410007B19Rik
Expression	Broad expression in adrenal adult (RPKM 2.8), placenta adult (RPKM 2.5) and 23 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

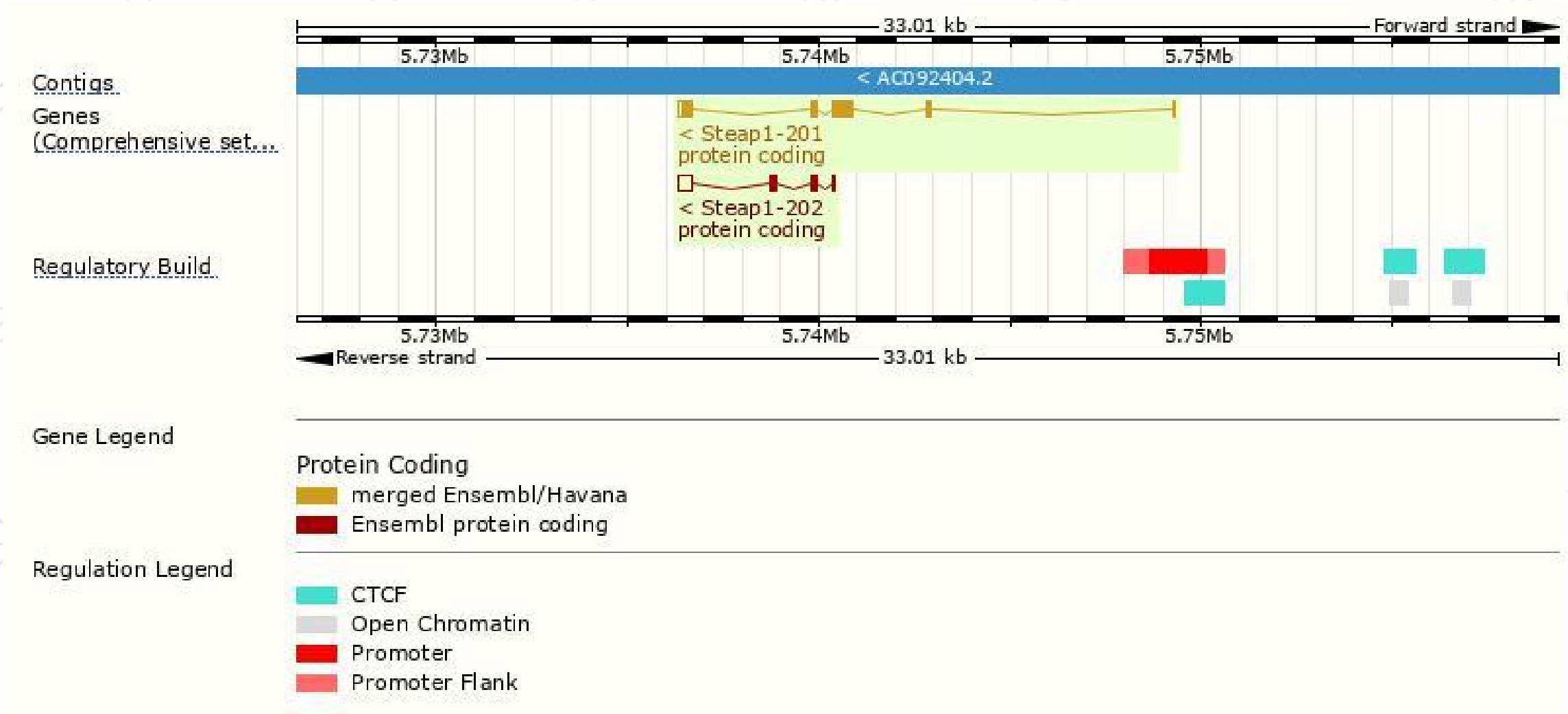
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Steap1-201	ENSMUST00000015796.8	1230	339aa	Protein coding	CCDS19077	Q9CWR7	TSL:1 GENCODE basic APPRIS P1
Steap1-202	ENSMUST00000169542.1	713	109aa	Protein coding	-	F7AFI0	CDS 5' incomplete TSL:5

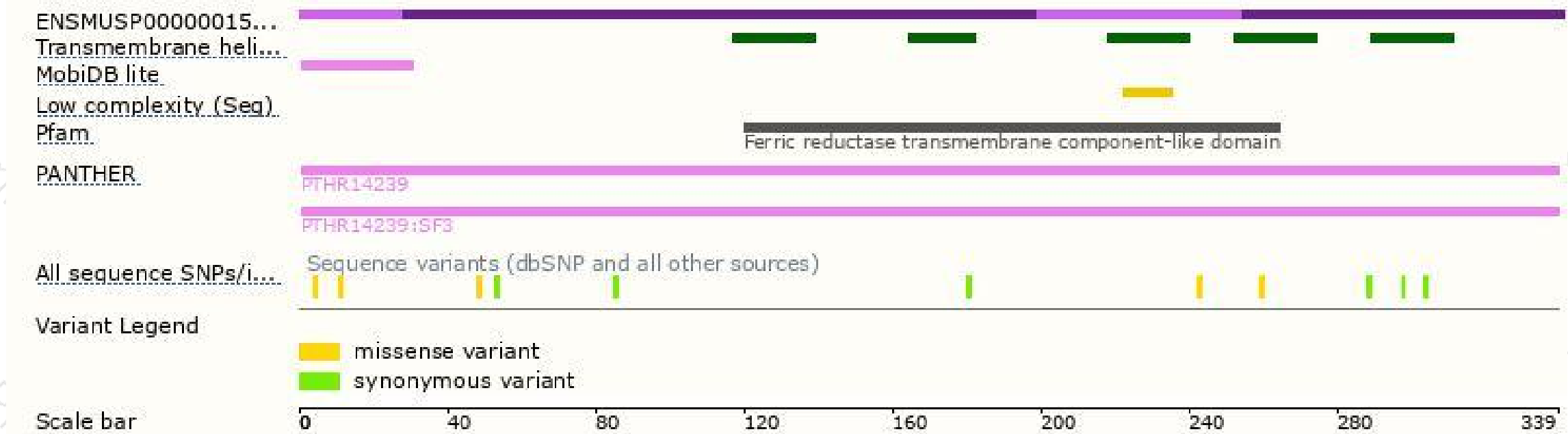
The strategy is based on the design of *Steap1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

