

Sox4 Cas9-CKO Strategy

Designer:

Qiong Zhou

Project Overview



Project Name

Sox4

Project type

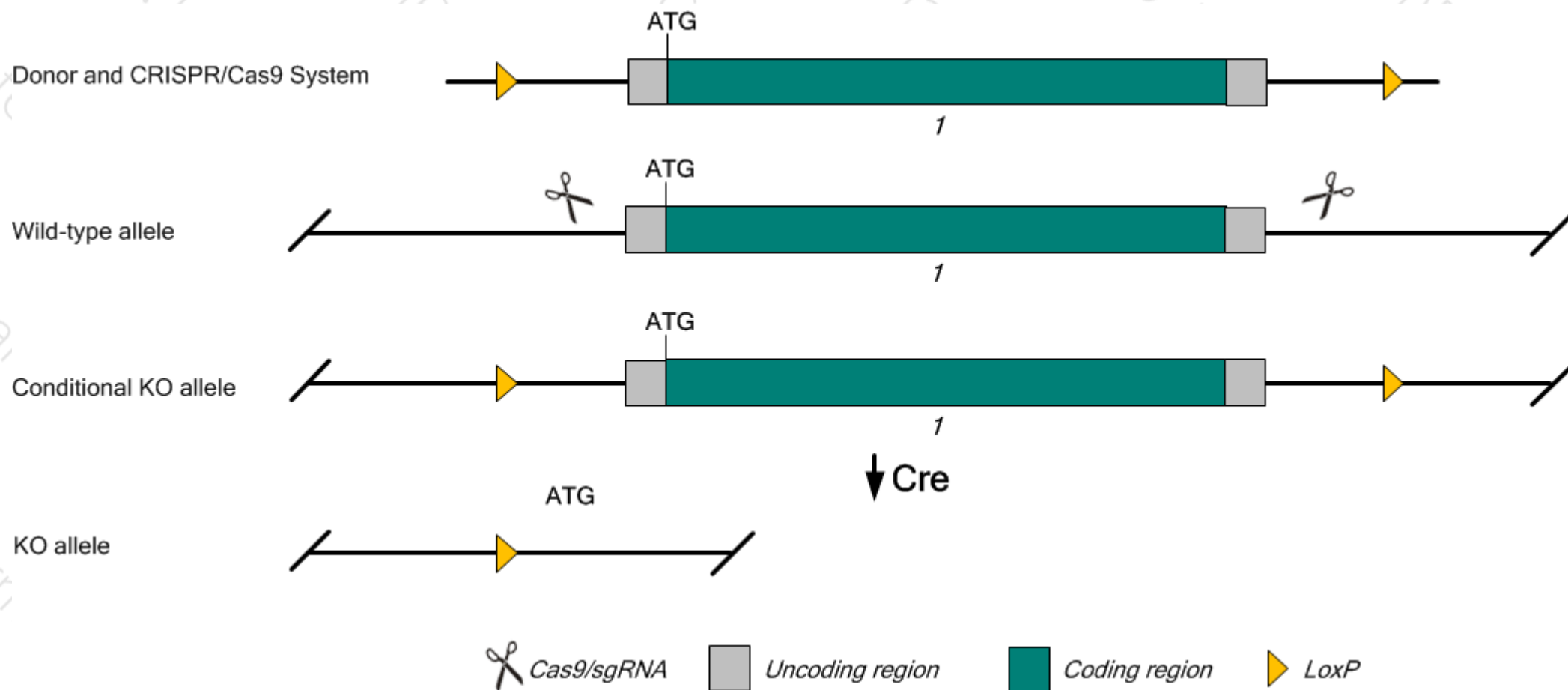
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sox4* gene. The schematic diagram is as follows:



Technical routes

- The Sox4 gene has 1 transcripts, According to the structure of *Sox4* gene, exon1 of Sox4-201 transcript is recommended as the knockout region. The region contains all coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Sox4* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- According to the existing MGI data , Homozygous targeted null mutants die at embryonic day 14 due to circulatory failure and showing impaired development of the semilunar valves and the muscular ventricular septum. Null fetal liver cells are unable to develop into B-cells in chimeric mice.
- The *Sox4* gene is located in the Chr13. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Sox4 SRY (sex determining region Y)-box 4 [*Mus musculus* (house mouse)]

Gene ID: 20677, updated on 12-Feb-2019

Summary

Official Symbol	Sox4 provided by MGI
Official Full Name	SRY (sex determining region Y)-box 4 provided by MGI
Primary source	MGI:MGI:98366
See related	Ensembl:ENSMUSG000000076431
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	Sox-4; AA682046
Orthologs	human all

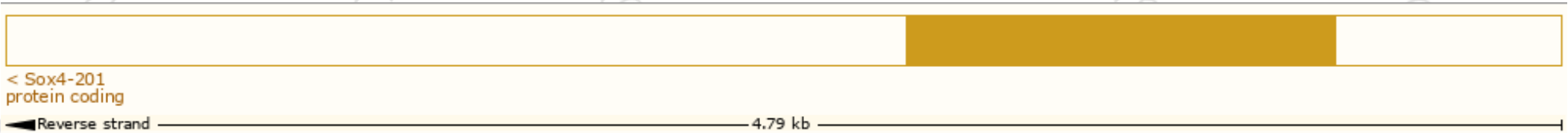
Transcript information (Ensembl)



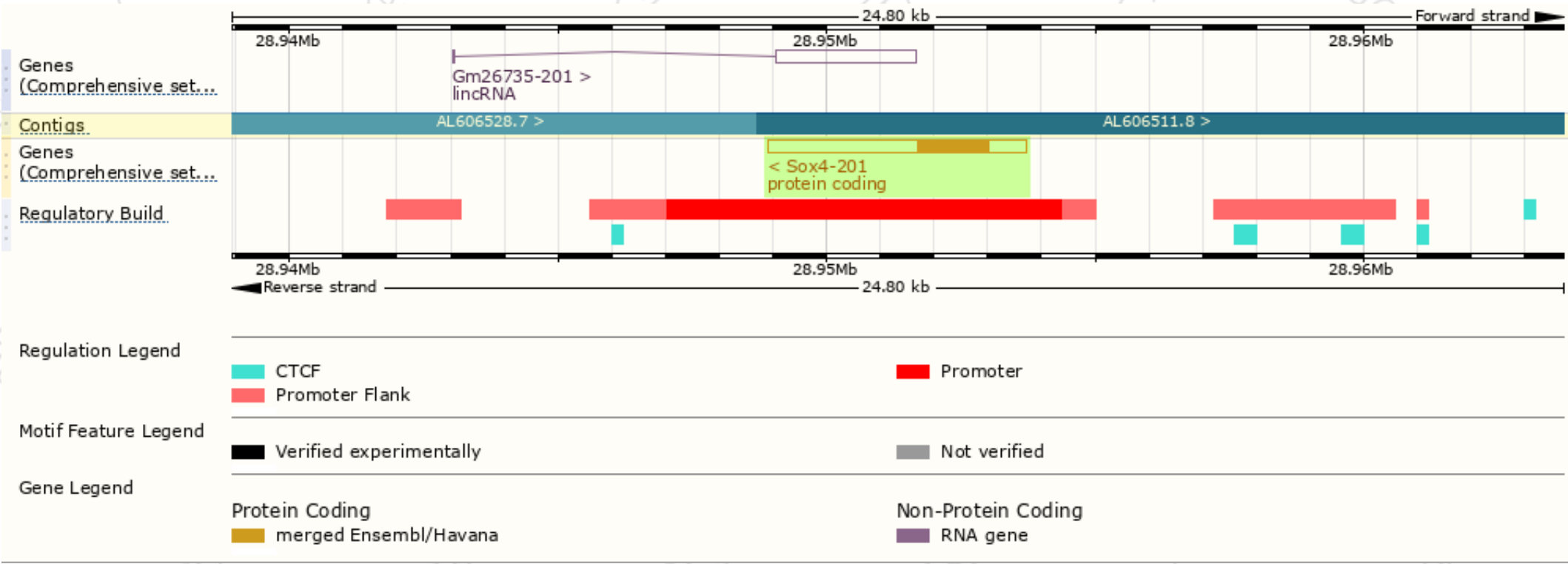
The gene has 1 transcripts, and the transcript is shown below :

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Sox4-201	ENSMUST00000067230.5	4795	440aa	Protein coding	CCDS26411	Q06831	NM_009238 NP_033264	TSL:NA GENCODE basic APPRIS P1

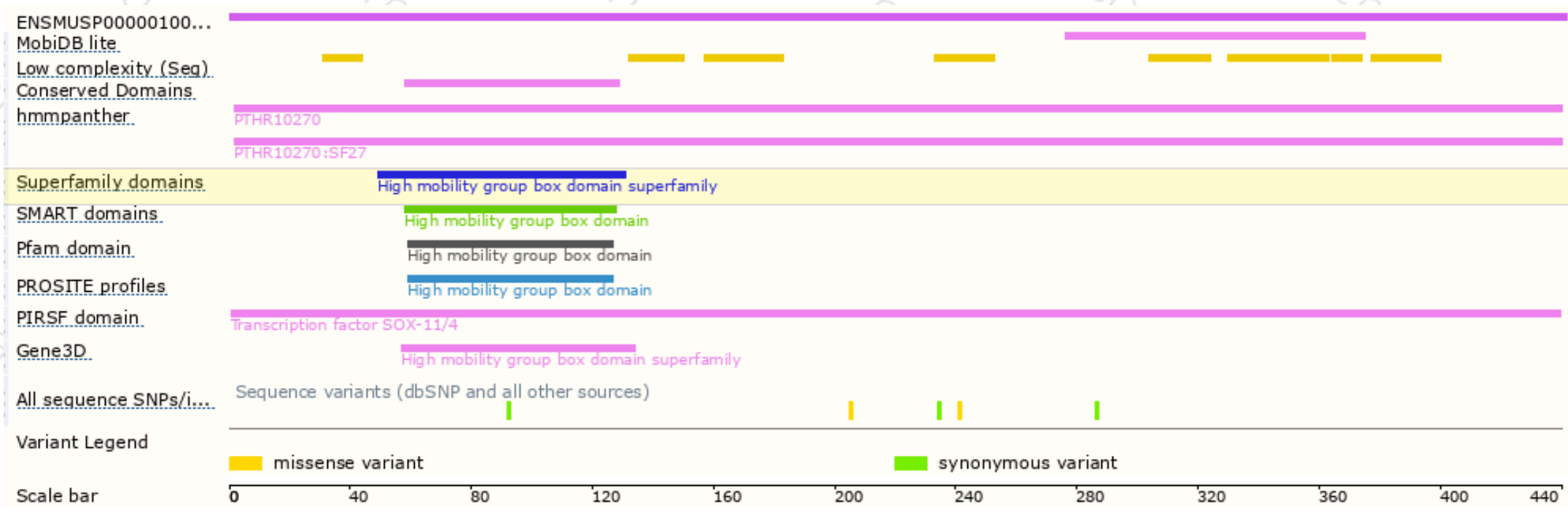
The strategy is based on the design of Sox4-201 transcript,The transcription is shown below



Genomic location distribution



Protein domain



If you have any questions, you are welcome to inquire.
Tel: 025-5864 1534



集萃药康生物科技
GemPharmatech Co.,Ltd

