

***Zscan22* Cas9-CKO Strategy**

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Project Overview

Project Name

Zscan22

Project type

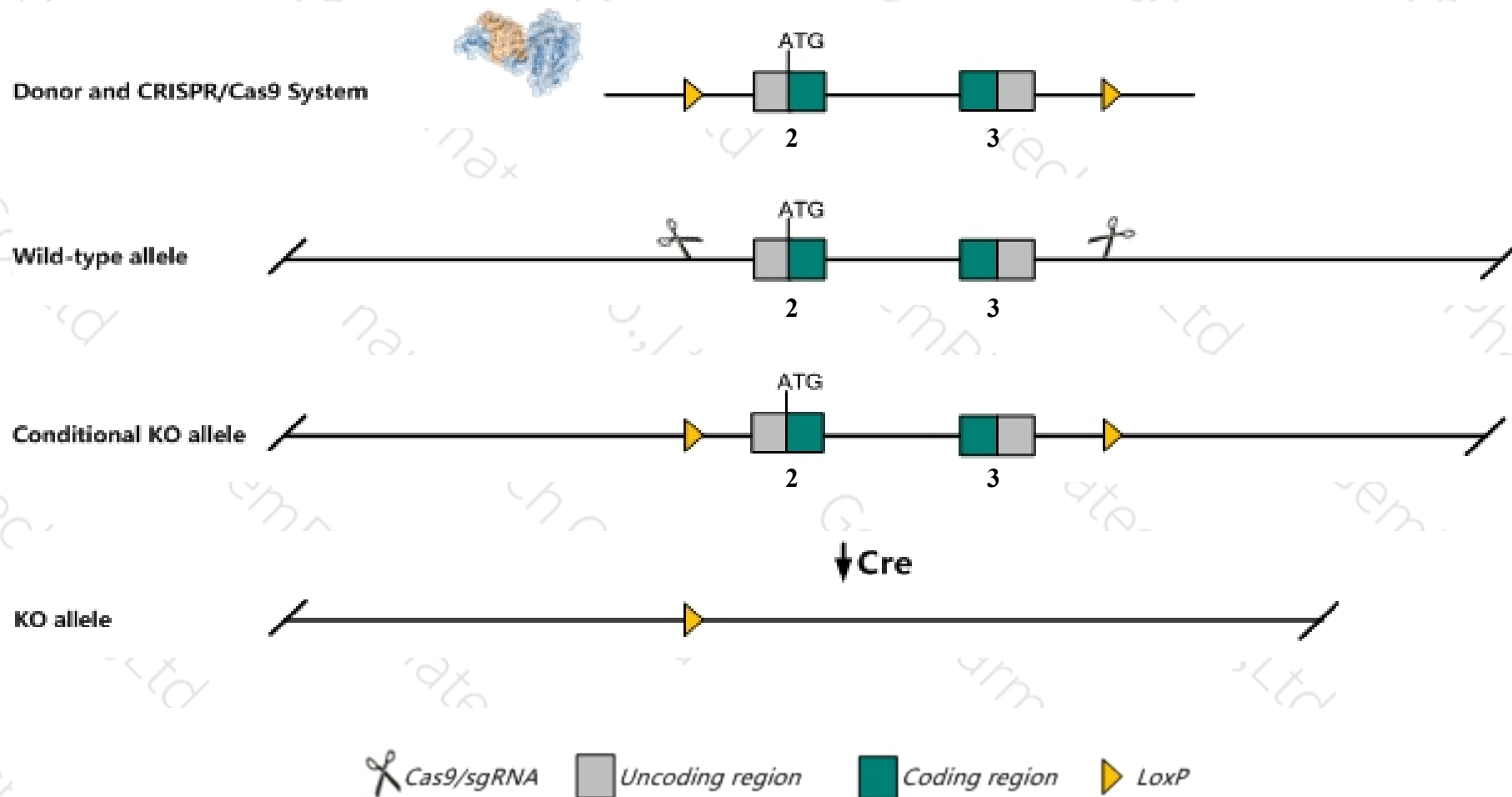
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zscan22* gene. The schematic diagram is as follows:



- The *Zscan22* gene has 4 transcripts. According to the structure of *Zscan22* gene, exon2-exon3 of *Zscan22-201*(ENSMUST00000055528.10) 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 *Zscan22* 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 and cell types.

- The *Zscan22* gene is located on the Chr7. 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)

Zscan22 zinc finger and SCAN domain containing 22 [Mus musculus (house mouse)]

Gene ID: 232878, updated on 13-Mar-2020

Summary



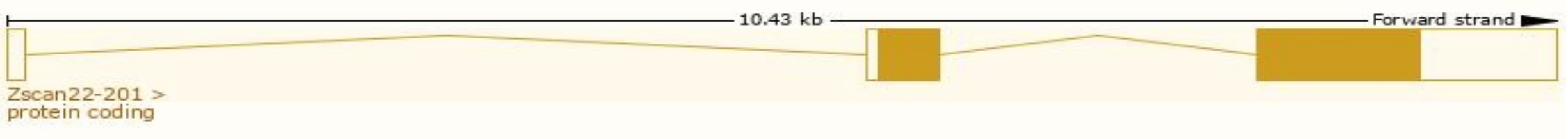
Official Symbol	Zscan22 provided by MGI
Official Full Name	zinc finger and SCAN domain containing 22 provided by MGI
Primary source	MGI:MGI:2443312
See related	Ensembl:ENSMUSG00000054715
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW227621, D530006B18Rik, Hkr2
Expression	Ubiquitous expression in testis adult (RPKM 7.4), ovary adult (RPKM 6.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

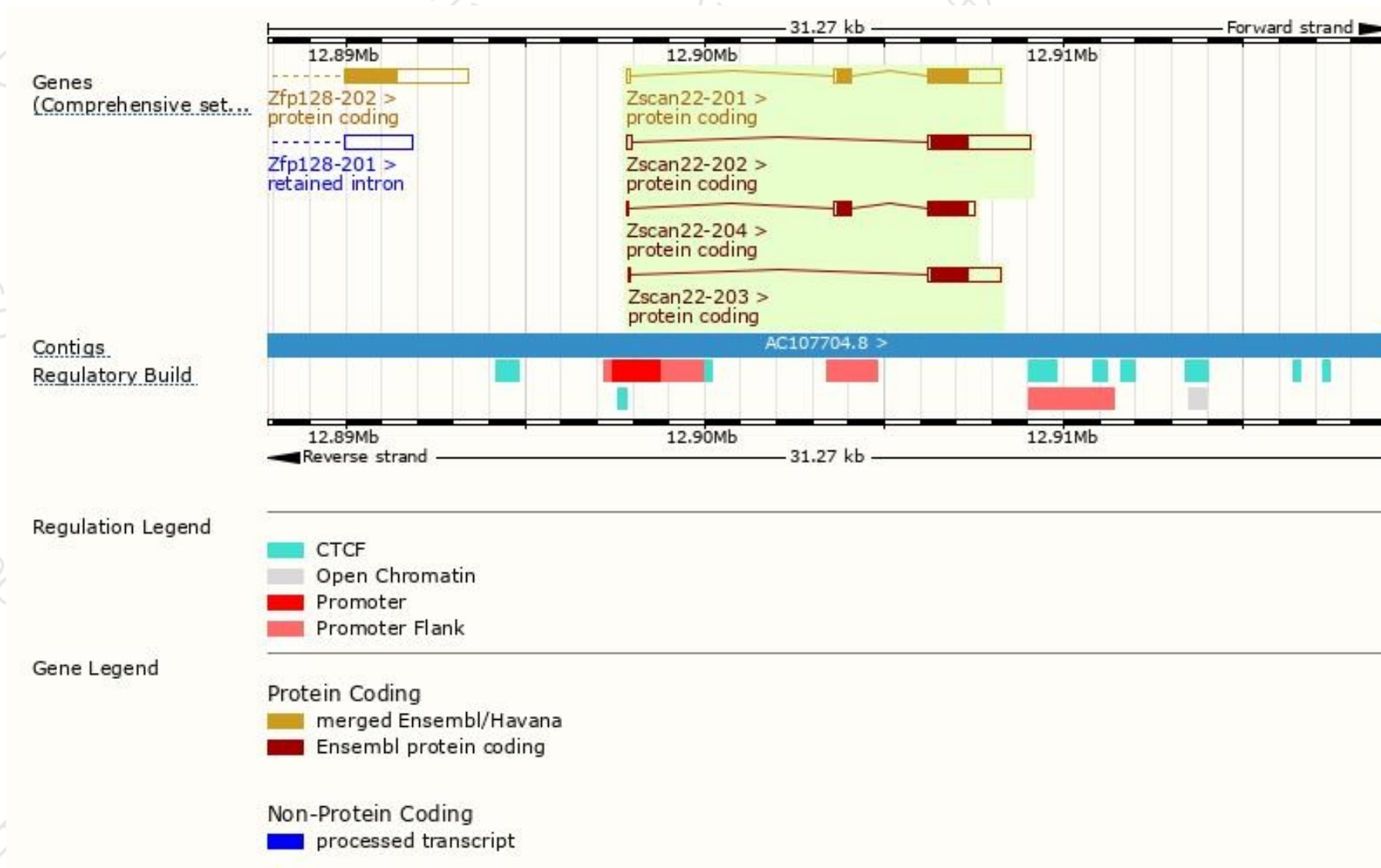
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zscan22-202	ENSMUST00000117189.1	2995	337aa	Protein coding	CCDS71889	Q3TQC3	TSL:1 GENCODE basic
Zscan22-201	ENSMUST00000055528.10	2620	496aa	Protein coding	CCDS20816	Q8BG55	TSL:1 GENCODE basic APPRIS P1
Zscan22-203	ENSMUST00000119989.2	2087	337aa	Protein coding	CCDS71889	Q3TQC3	TSL:1 GENCODE basic
Zscan22-204	ENSMUST00000120809.1	1826	496aa	Protein coding	CCDS20816	Q8BG55	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Zscan22-201* transcript,the transcription is shown below:



Genomic location distribution





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

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