Zfp652 Cas9-CKO Strategy

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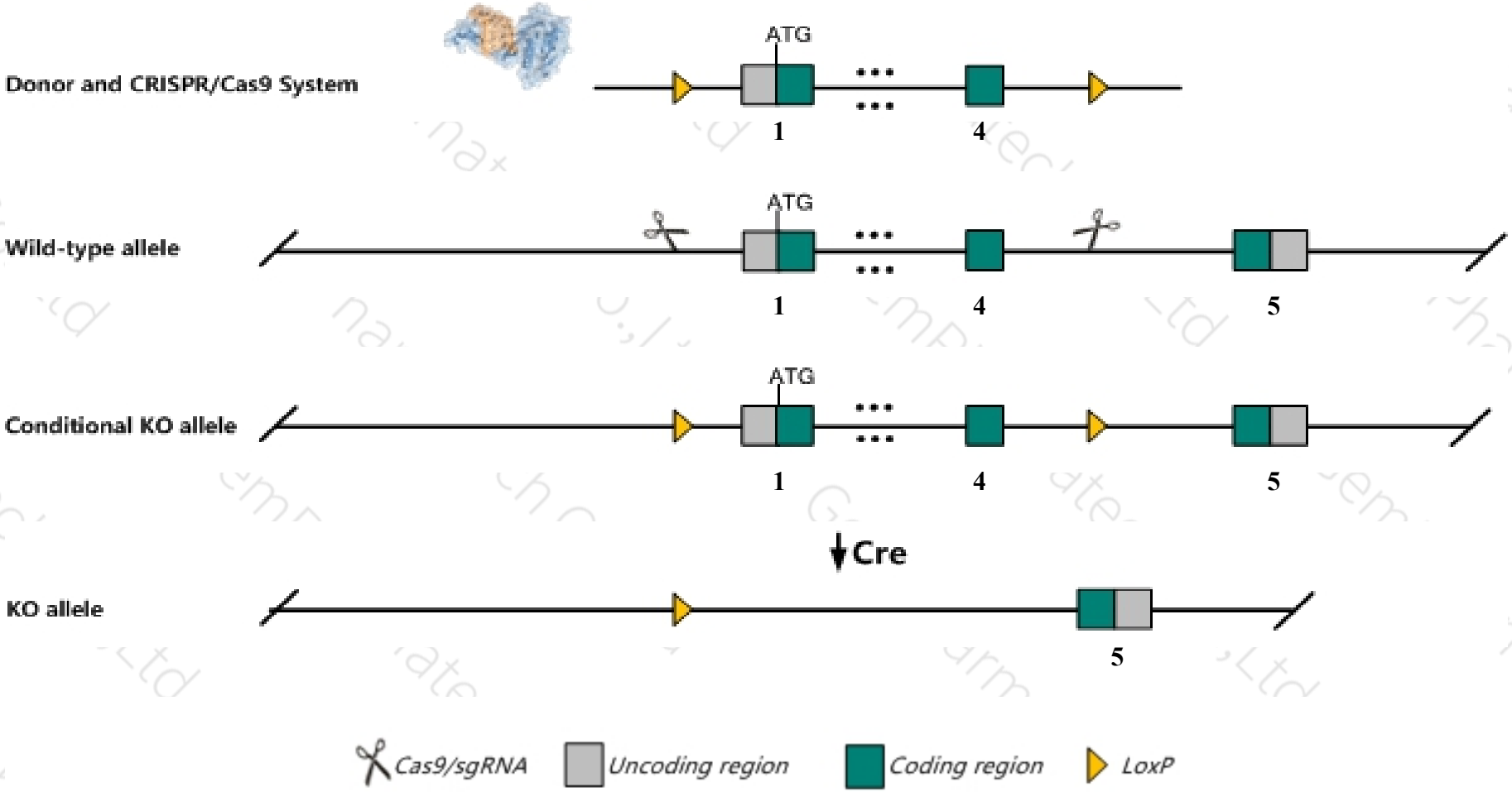
Project Overview

Project Name	***Zfp652***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zfp652* gene. The schematic diagram is as follows:



Technical routes

➢ The *Zfp652* gene has 4 transcripts. According to the structure of *Zfp652* gene, exon1-exon4 of *Zfp652-201*(ENSMUST00000091565.4) 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 *Zfp652* 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.

Notice

➢ The *Zfp652* gene is located on the Chr11. 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）

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Zfp652 zinc finger protein 652 [Mus musculus (house mouse)]

Gene ID: 268469, updated on 13-Mar-2020

Summary

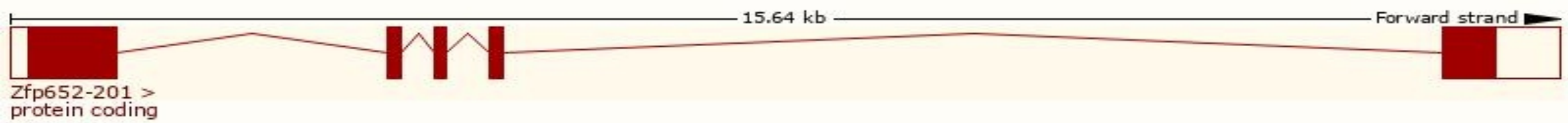
Official Symbol	Zfp652 provided by MGI
Official Full Name	zinc finger protein 652 provided byMGI
Primary source	MGI:MGI:2442221
See related	Ensembl:ENSMUSG00000075595
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9530033F24Rik, ZNF652
Expression	Ubiquitous expression in lung adult (RPKM 16.4), ovary adult (RPKM 12.3) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

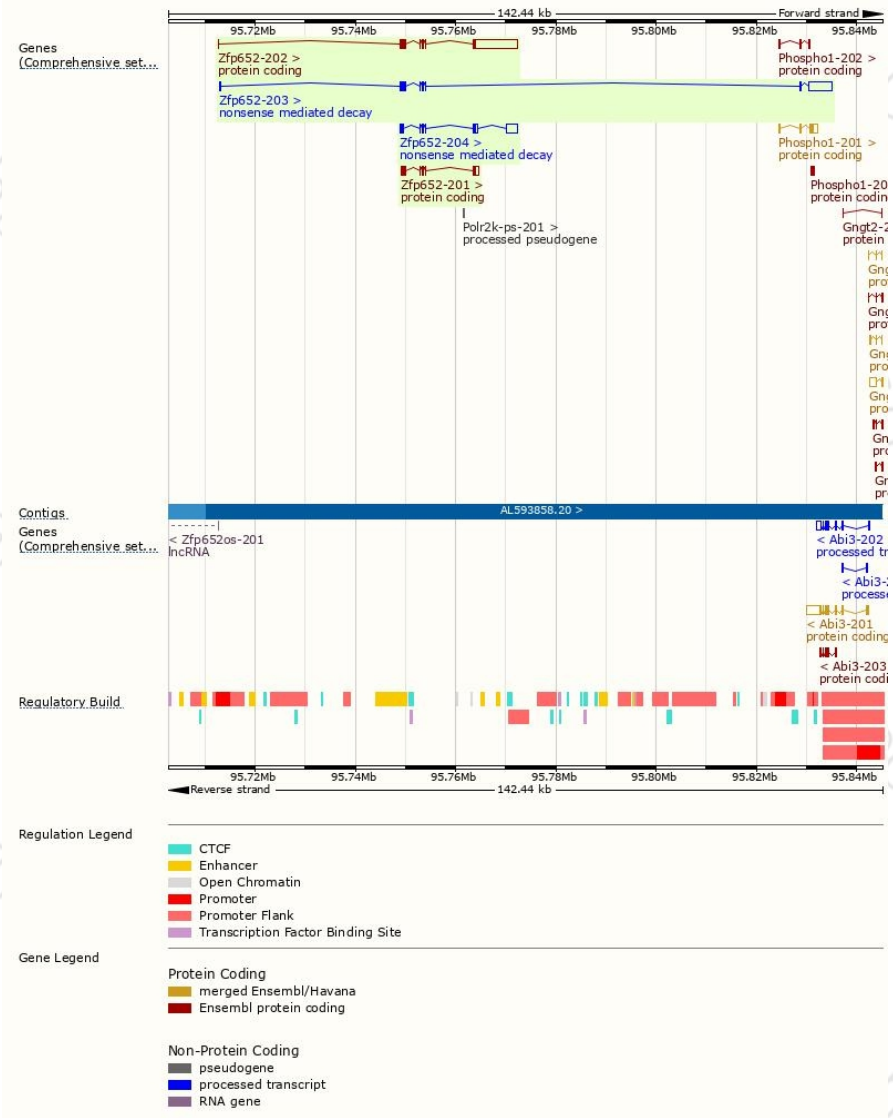
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zfp652-202	ENSMUST00000107717.7	10433	608aa	Protein coding	CCDS36287	Q5DU09	TSL:5 GENCODE basic APPRIS P1
Zfp652-201	ENSMUST00000091565.4	2663	608aa	Protein coding	CCDS36287	Q5DU09	TSL:1 GENCODE basic APPRIS P1
Zfp652-203	ENSMUST00000133070.7	6568	451aa	Nonsense mediated decay	-	F2Z443	TSL:2
Zfp652-204	ENSMUST00000148945.7	3982	428aa	Nonsense mediated decay	-	F2Z3V9	TSL:5

The strategy is based on the design of *Zfp652-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain

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

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