

Zer1 Cas9-CKO Strategy

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Project Overview

Project Name

Zer1

Project type

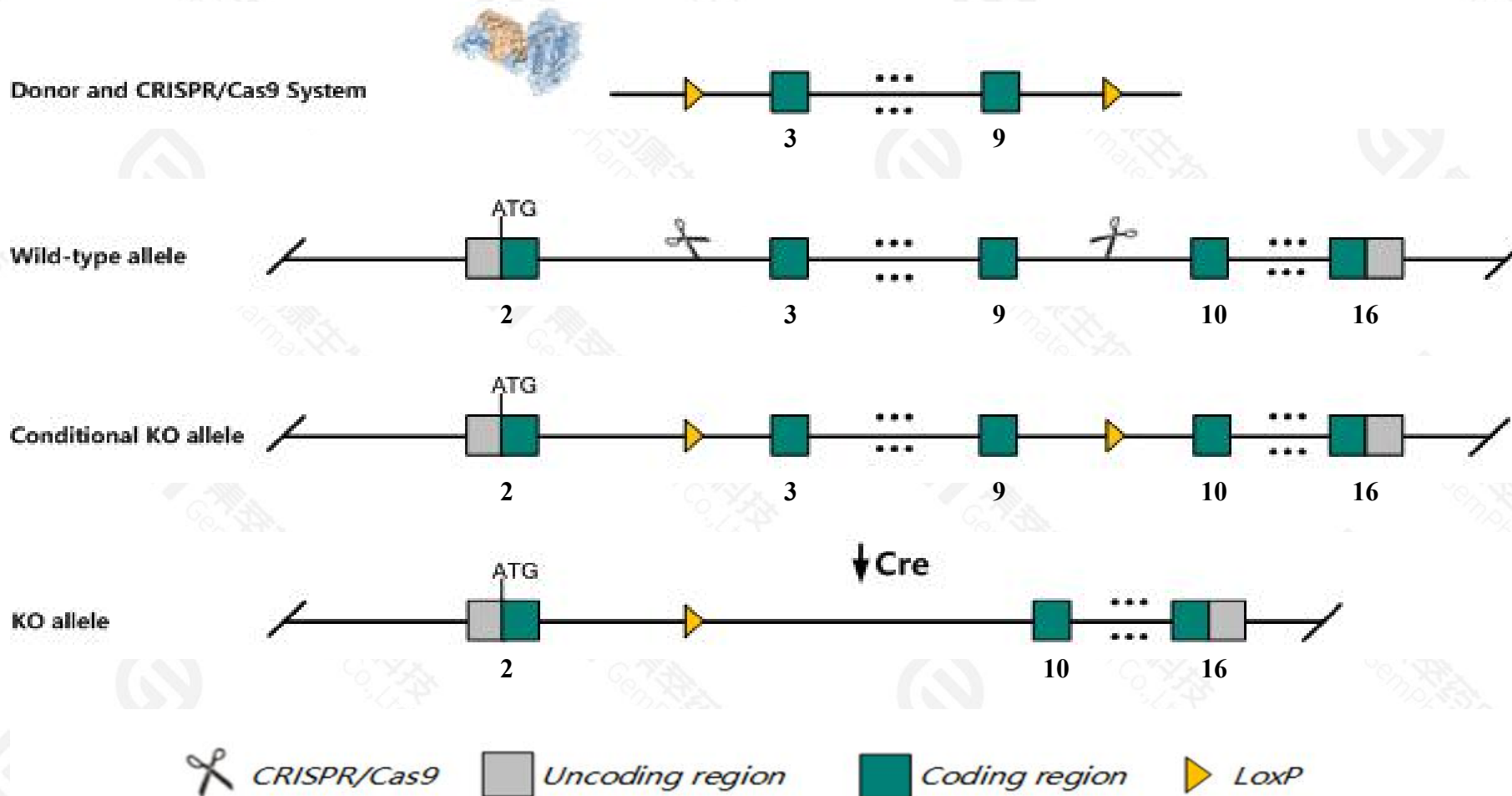
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zer1* gene. The schematic diagram is as follows:



- The *Zer1* gene has 9 transcripts. According to the structure of *Zer1* gene, exon3-exon9 of *Zer1-201*(ENSMUST00000044751.14) transcript is recommended as the knockout region. The region contains 1456bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Zer1* 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.

Notice

- The *Zer1* gene is located on the Chr2. 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)

Zer1 zyg-11 related, cell cycle regulator [Mus musculus (house mouse)]

Gene ID: 227693, updated on 17-Dec-2020

Summary



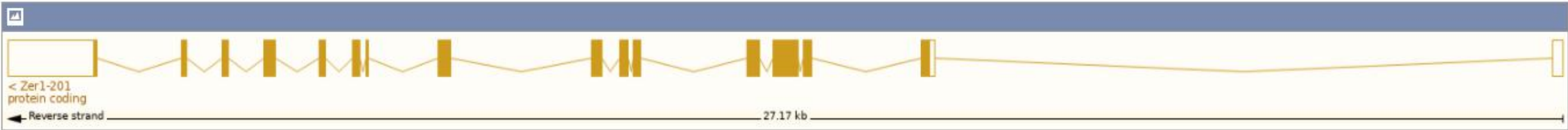
Official Symbol	Zer1 provided by MGI
Official Full Name	zyg-11 related, cell cycle regulator provided by MGI
Primary source	MGI:MGI:2442511
See related	Ensembl:ENSMUSG00000039686
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C230075L19Rik, Zyg11b, Zyg11bl
Expression	Ubiquitous expression in adrenal adult (RPKM 30.7), thymus adult (RPKM 30.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

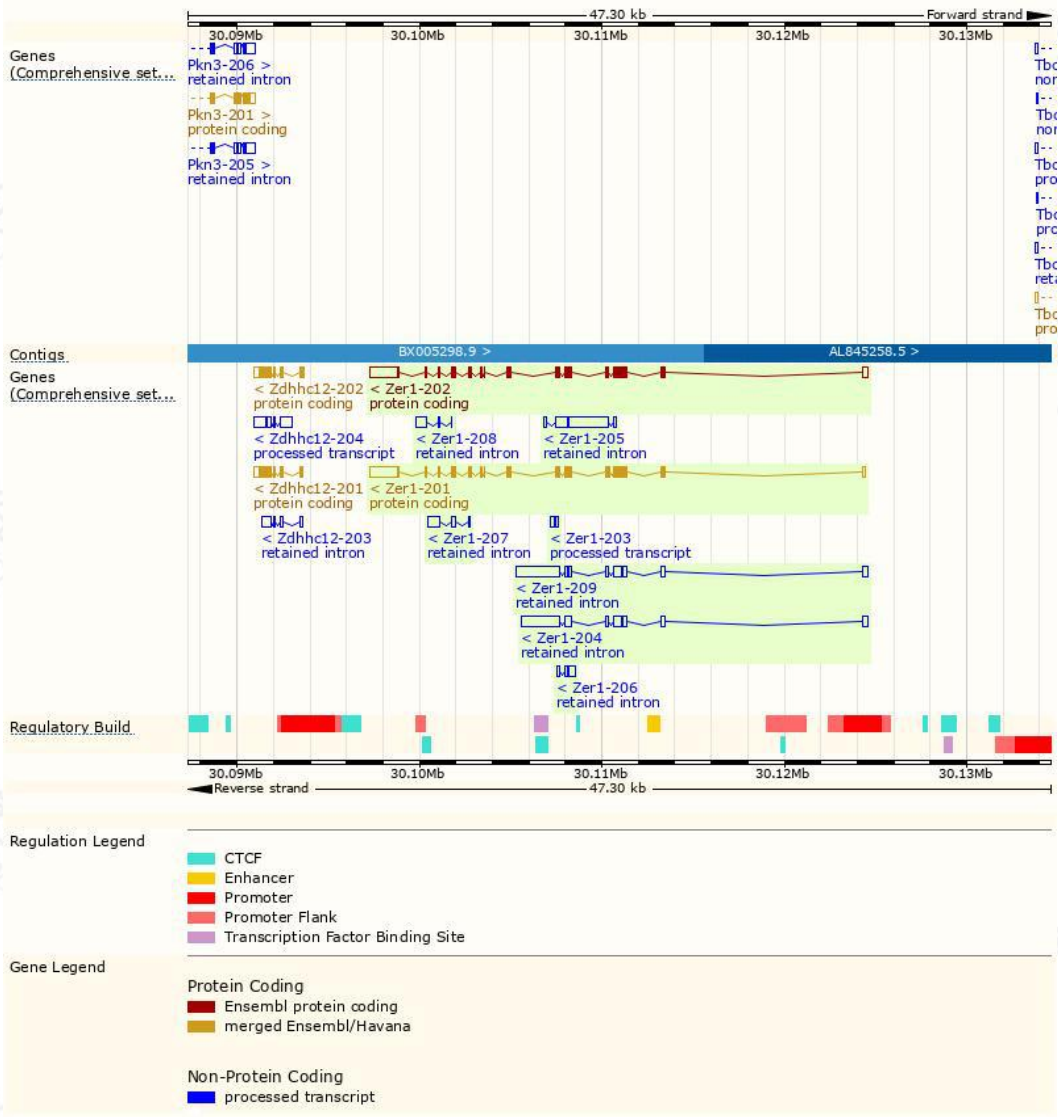
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zer1-202	ENSMUST00000113677.3	4189	766aa	Protein coding	CCDS71017		TSL:1 , GENCODE basic , APPRIS P1 ,
Zer1-201	ENSMUST00000044751.14	4100	779aa	Protein coding	CCDS15870		TSL:1 , GENCODE basic ,
Zer1-203	ENSMUST00000131858.2	363	No protein	Processed transcript	-		TSL:3 ,
Zer1-209	ENSMUST00000154231.8	3934	No protein	Retained intron	-		TSL:1 ,
Zer1-204	ENSMUST00000133354.2	3765	No protein	Retained intron	-		TSL:2 ,
Zer1-205	ENSMUST00000139128.2	3097	No protein	Retained intron	-		TSL:2 ,
Zer1-207	ENSMUST00000152068.2	880	No protein	Retained intron	-		TSL:5 ,
Zer1-208	ENSMUST00000152285.2	721	No protein	Retained intron	-		TSL:5 ,
Zer1-206	ENSMUST00000149818.2	623	No protein	Retained intron	-		TSL:3 ,

The strategy is based on the design of *Zer1-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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