

Zfand5 Cas9-CKO Strategy

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Reviewer:

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Design Date:

2020-2-18

Project Overview

Project Name

Zfand5

Project type

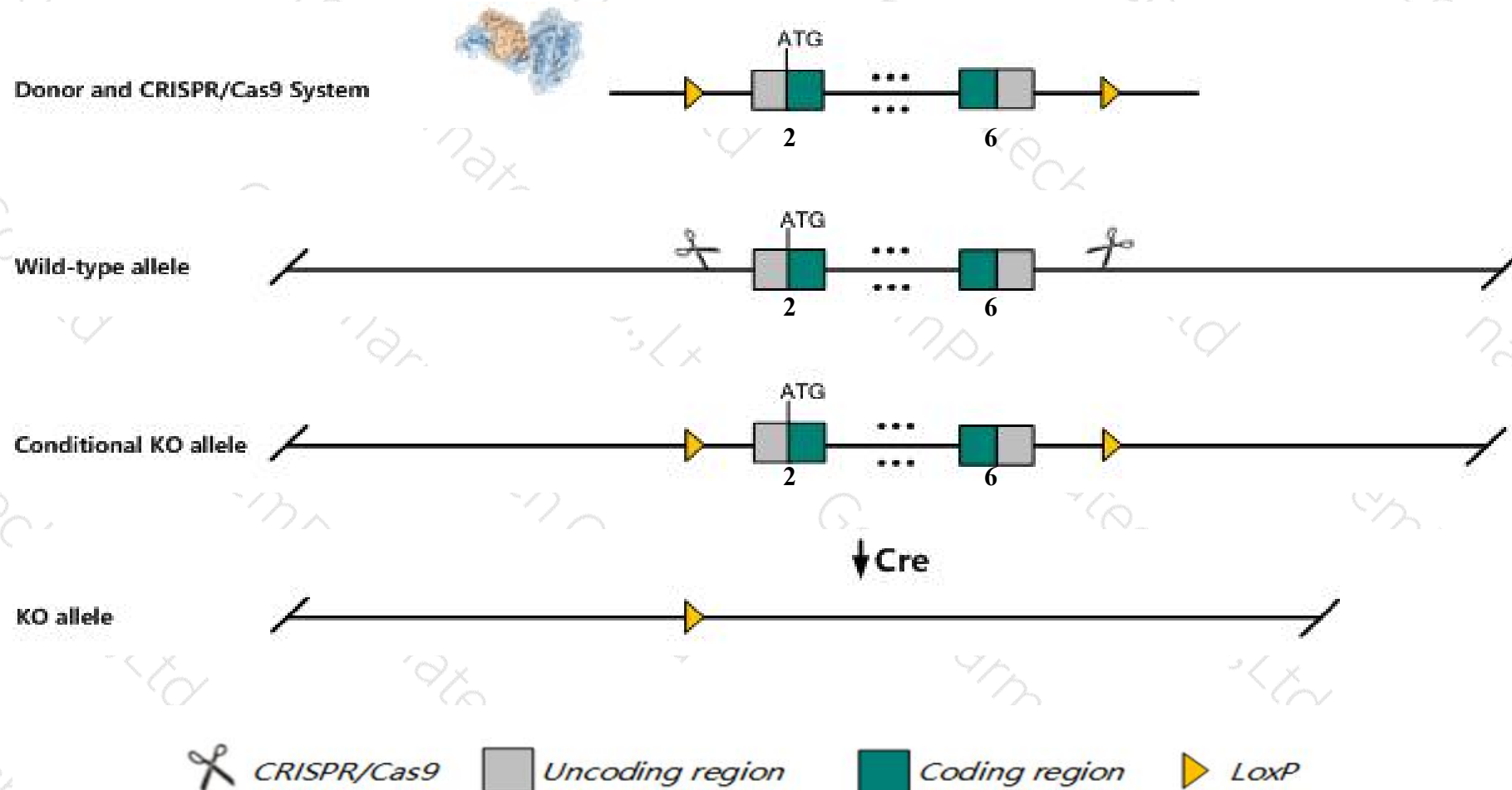
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zfand5* gene. The schematic diagram is as follows:



- The *Zfand5* gene has 5 transcripts. According to the structure of *Zfand5* gene, exon2-exon6 of *Zfand5*-205 (ENSMUST00000237651.1) 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 *Zfand5* 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.

- According to the existing MGI data, Homozygous null mice display resistance to age related obesity and resistance to induced muscular atrophy.
- The *Zfand5* gene is located on the Chr19. 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)

Zfand5 zinc finger, AN1-type domain 5 [Mus musculus (house mouse)]

Gene ID: 22682, updated on 31-Jan-2019

Summary



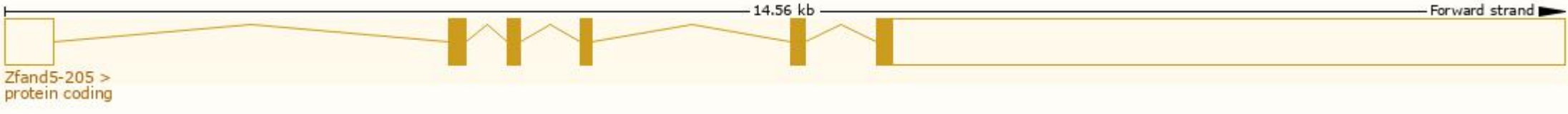
Official Symbol	Zfand5 provided by MGI
Official Full Name	zinc finger, AN1-type domain 5 provided by MGI
Primary source	MGI:MGI:1278334
See related	Ensembl:ENSMUSG000000024750
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310057A04Rik, 5830475F03Rik, AA415485, Za20d2, Zfp216
Expression	Ubiquitous expression in adrenal adult (RPKM 34.4), ovary adult (RPKM 17.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

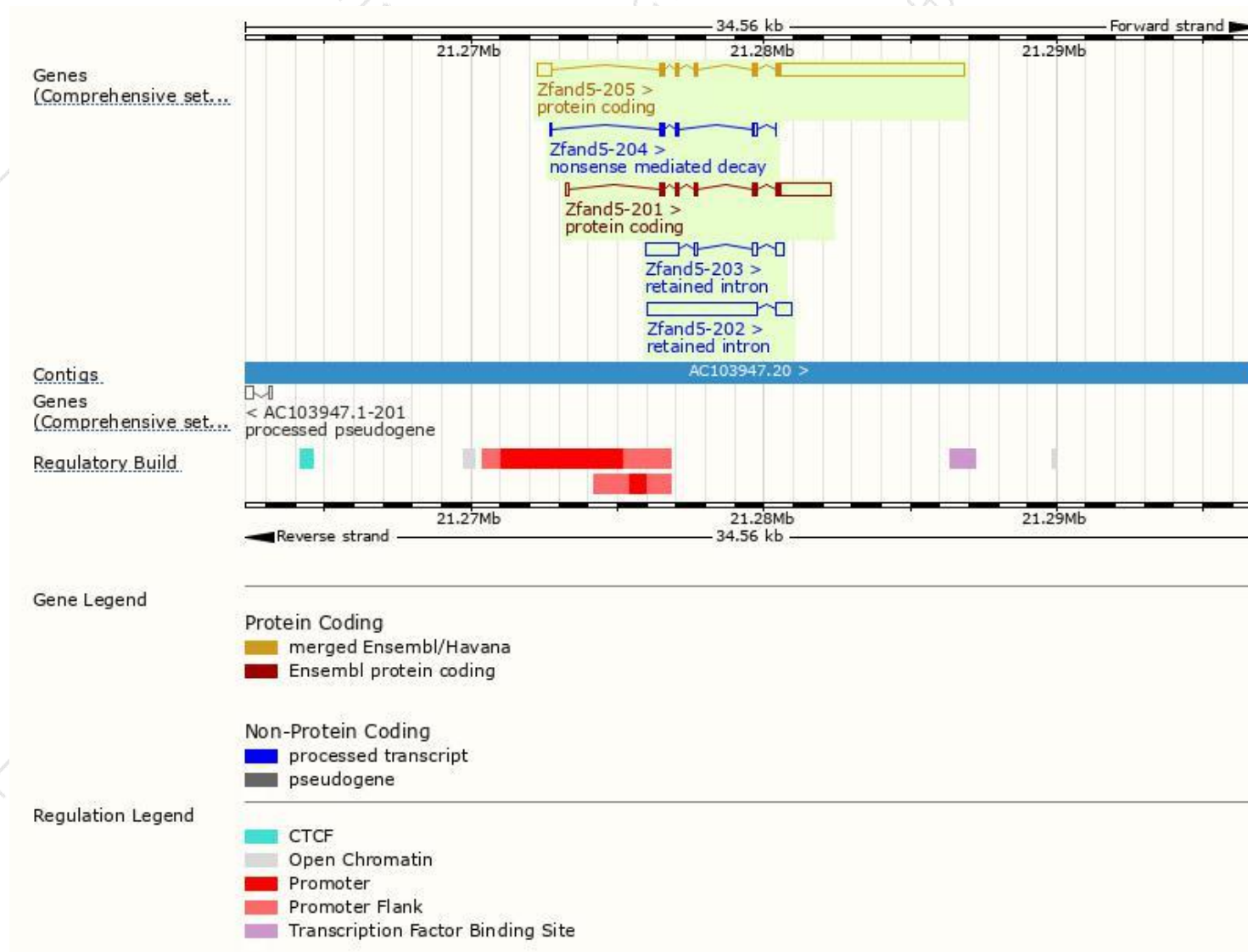
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zfand5-205	ENSMUST00000237651.1	7385	213aa	Protein coding	CCDS29697	-	GENCODE basic APPRIS P1
Zfand5-201	ENSMUST0000025659.11	2467	213aa	Protein coding	CCDS29697	O88878	TSL:1 GENCODE basic APPRIS P1
Zfand5-204	ENSMUST00000149144.7	465	104aa	Nonsense mediated decay	-	D6RFT9	TSL:3
Zfand5-202	ENSMUST00000133175.1	4260	No protein	Retained intron	-	-	TSL:1
Zfand5-203	ENSMUST00000141568.1	1582	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Zfand5-205* transcript,The transcription is shown below



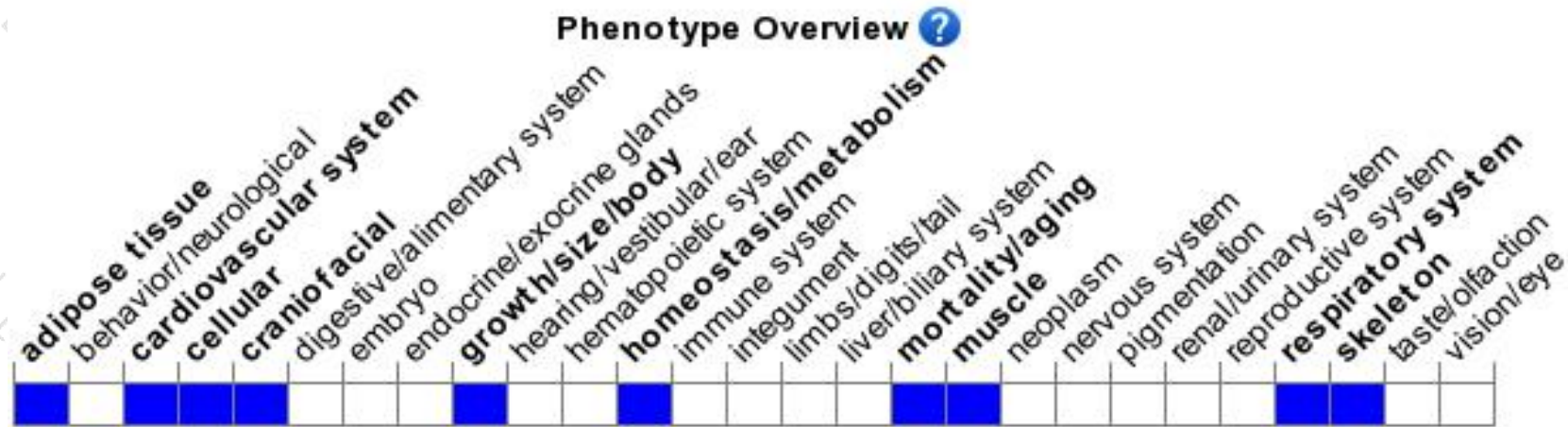
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Homozygous null mice display resistance to age related obesity and resistance to induced muscular atrophy.

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

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