

Zic5 Cas9-CKO Strategy

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Project Overview

Project Name

Zic5

Project type

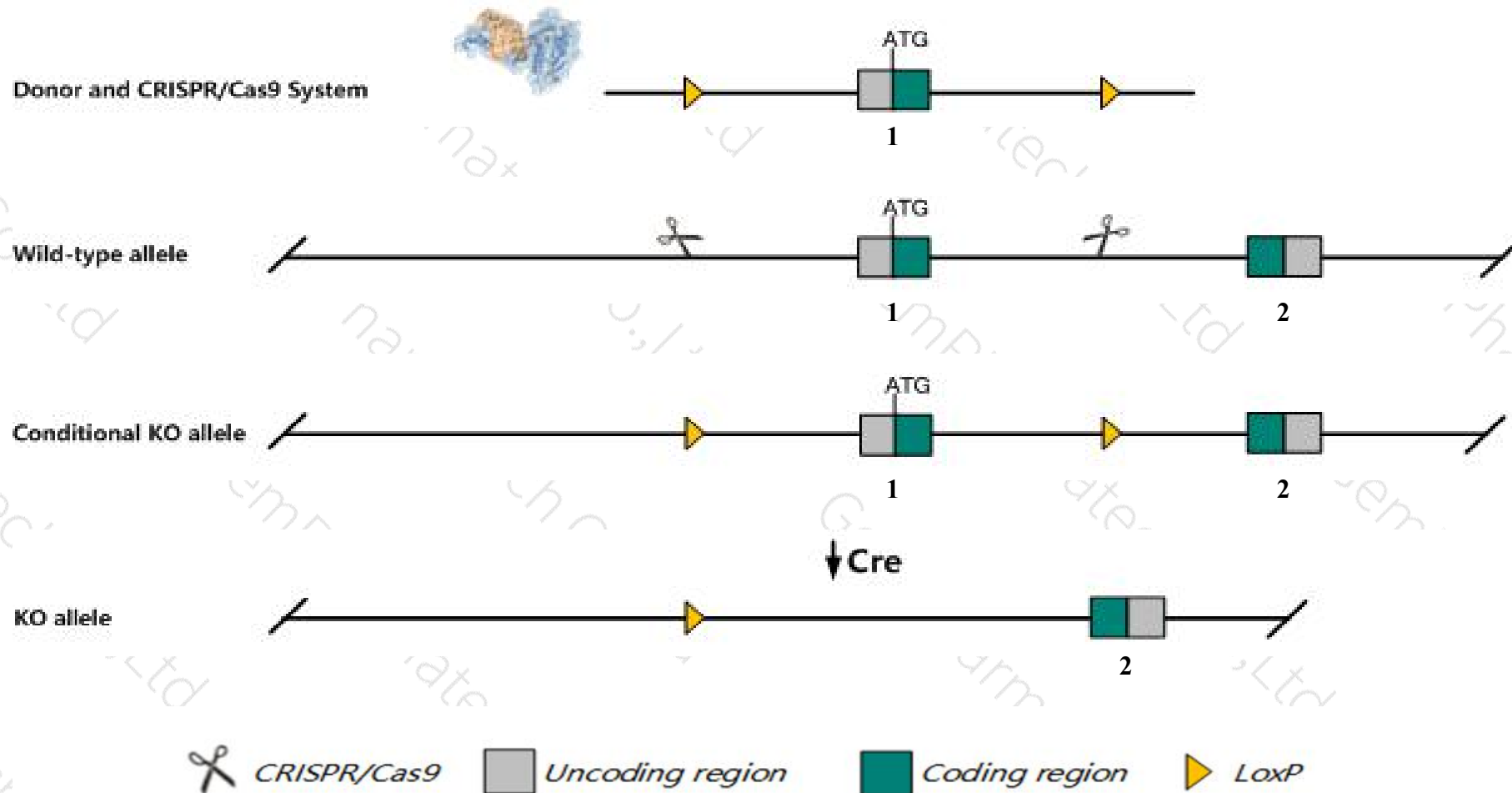
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zic5* gene. The schematic diagram is as follows:



- The *Zic5* gene has 2 transcripts. According to the structure of *Zic5* gene, exon1 of *Zic5-201*(ENSMUST00000039118.6) 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 *Zic5* 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 postnatal lethality and reduced life spans with exencephaly, abnormal cerebral cortex and diencephalon morphology, abnormal gait and posture, and impaired growth.
- The *Zic5* gene is located on the Chr14. 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)

Zic5 zinc finger protein of the cerebellum 5 [Mus musculus (house mouse)]

Gene ID: 65100, updated on 13-Mar-2020

Summary



Official Symbol [Zic5](#) provided by [MGI](#)

Official Full Name [zinc finger protein of the cerebellum 5](#) provided by [MGI](#)

Primary source [MGI:MGI:1929518](#)

See related [Ensembl:ENSMUSG00000041703](#)

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 [1700049L20Rik](#), [Opr](#)

Expression Biased expression in testis adult (RPKM 7.5), cerebellum adult (RPKM 5.7) and 6 other tissues [See more](#)

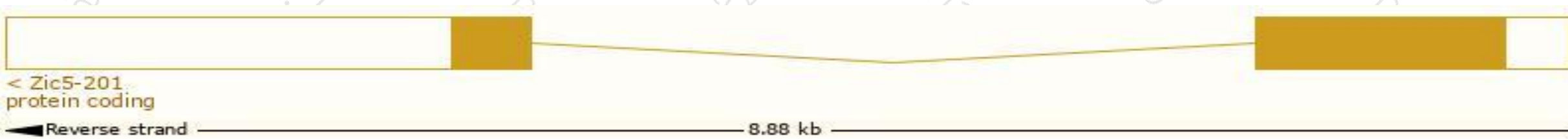
Orthologs [human all](#)

Transcript information (Ensembl)

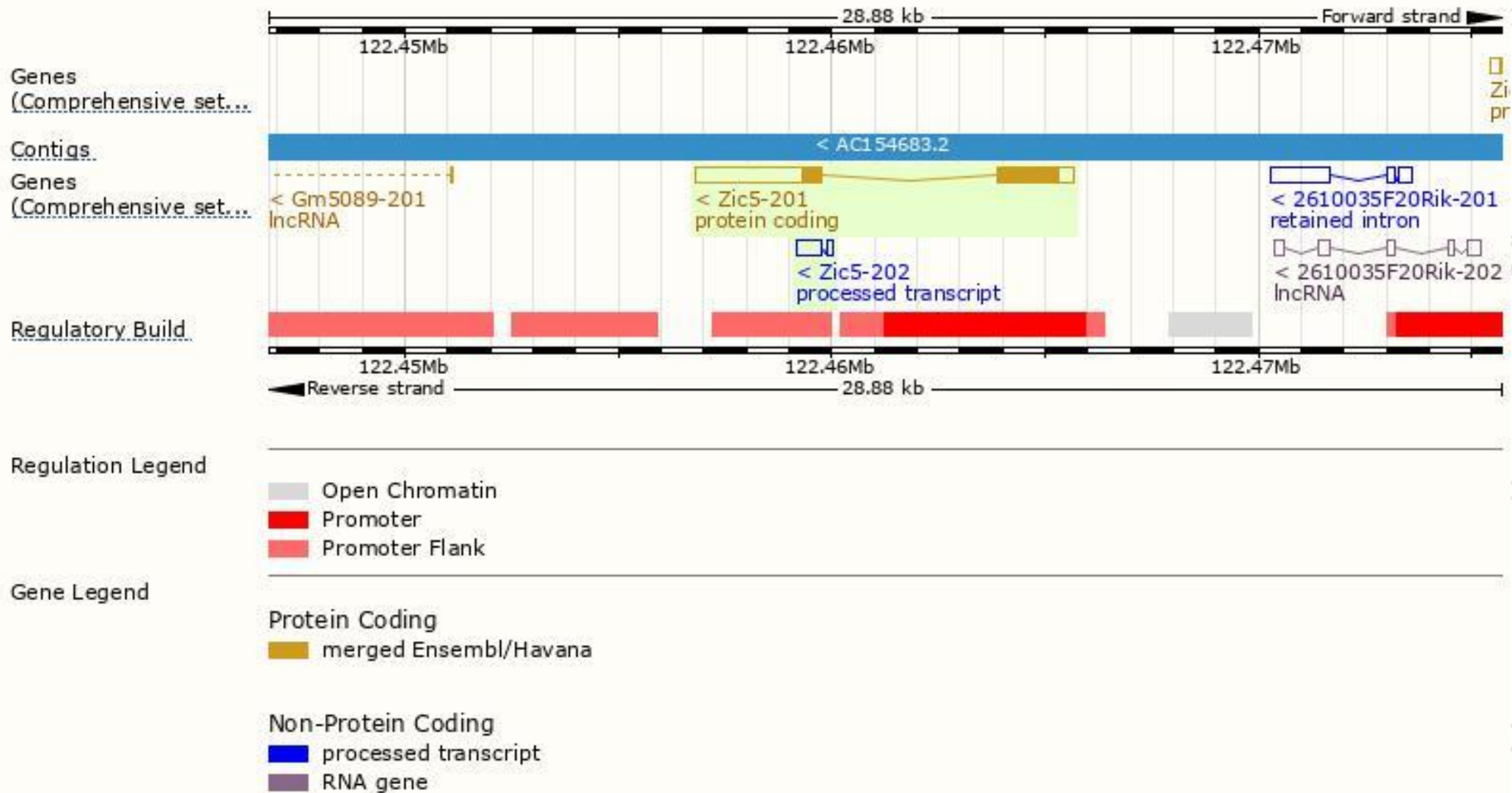
The gene has 2 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zic5-201	ENSMUST00000039118.6	4767	622aa	Protein coding	CCDS27348	A0A0R4J0E2	TSL:1 GENCODE basic APPRIS P1
Zic5-202	ENSMUST00000143084.1	705	No protein	Processed transcript	-	-	TSL:3

The strategy is based on the design of *Zic5-201* transcript, the transcription is shown below:

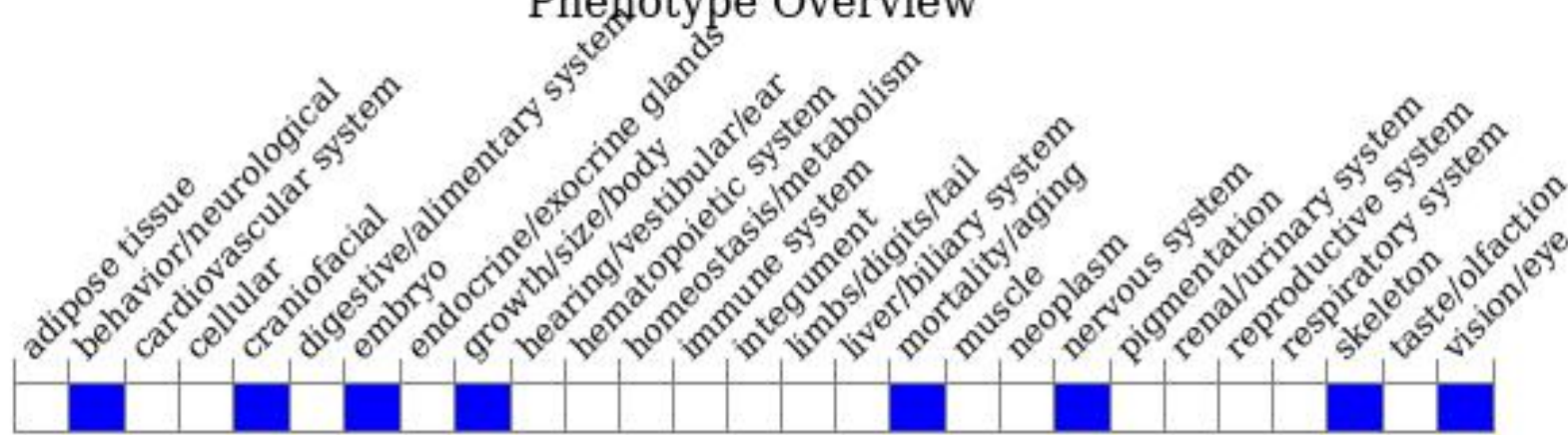


Genomic location distribution



Mouse phenotype description(MGI)

Phenotype Overview



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 postnatal lethality and reduced life spans with exencephaly, abnormal cerebral cortex and diencephalon morphology, abnormal gait and posture, and impaired growth.

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

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