

Dzip3 Cas9-CKO Strategy

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Overview

Target Gene Name

- Dzip3

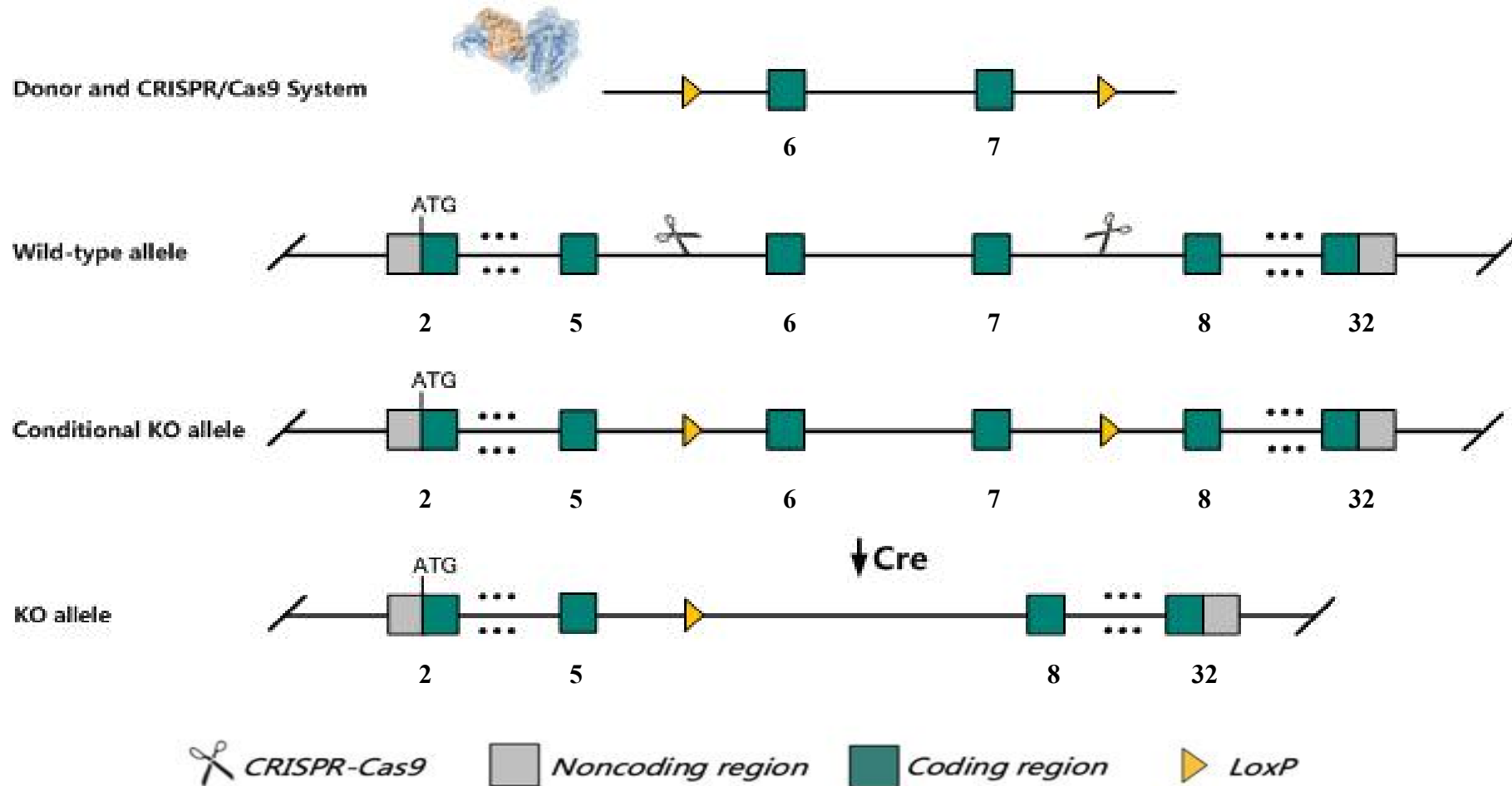
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Dzip3* gene.

Technical Information

- The *Dzip3* gene has 7 transcripts. According to the structure of *Dzip3* gene, exon6-exon7 of *Dzip3*-202 (ENSMUST00000121869.8) transcript is recommended as the knockout region. The region contains 206 bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Dzip3* 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.
- 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.

Gene Information

Dzip3 DAZ interacting protein 3, zinc finger [*Mus musculus* (house mouse)]

Gene ID: 224170, updated on 5-Aug-2023

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Summary

Official Symbol Dzip3 provided by [MGI](#)
Official Full Name DAZ interacting protein 3, zinc finger provided by [MGI](#)
Primary source [MGI:MGI:1917433](#)
See related [Ensembl:ENSMUSG00000064061](#) [AllianceGenome:MGI:1917433](#)
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 2A-HUB; A230104G20; 2310047C04Rik; 6430549P11Rik
Summary Predicted to enable several functions, including phosphatase binding activity; polyubiquitin modification-dependent protein binding activity; and ubiquitin-protein transferase activity. Predicted to be involved in protein polyubiquitination. Predicted to be active in cytoplasm. Orthologous to human DZIP3 (DAZ interacting zinc finger protein 3). [provided by Alliance of Genome Resources, Apr 2022]
Expression Broad expression in CNS E18 (RPKM 15.0), CNS E14 (RPKM 12.5) and 15 other tissues [See more](#)
Orthologs [human](#) [all](#)
NEW Try the new [Gene table](#)
Try the new [Transcript table](#)

Genomic context

Location: 16 B5; 16 30.75 cM

See Dzip3 in [Genome Data Viewer](#)

Exon count: 33

Annotation release	Status	Assembly	Chr	Location
RS_2023_04	current	GRCm39 (GCF_000001635.27)	16	NC_000082.7 (48744591..48814505, complement)
108.20200622	previous assembly	GRCm38.p6 (GCF_000001635.26)	16	NC_000082.6 (48924228..48994142, complement)

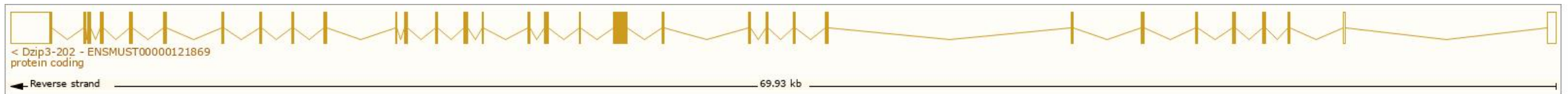
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

The gene has 7 transcripts, all transcripts are shown below:

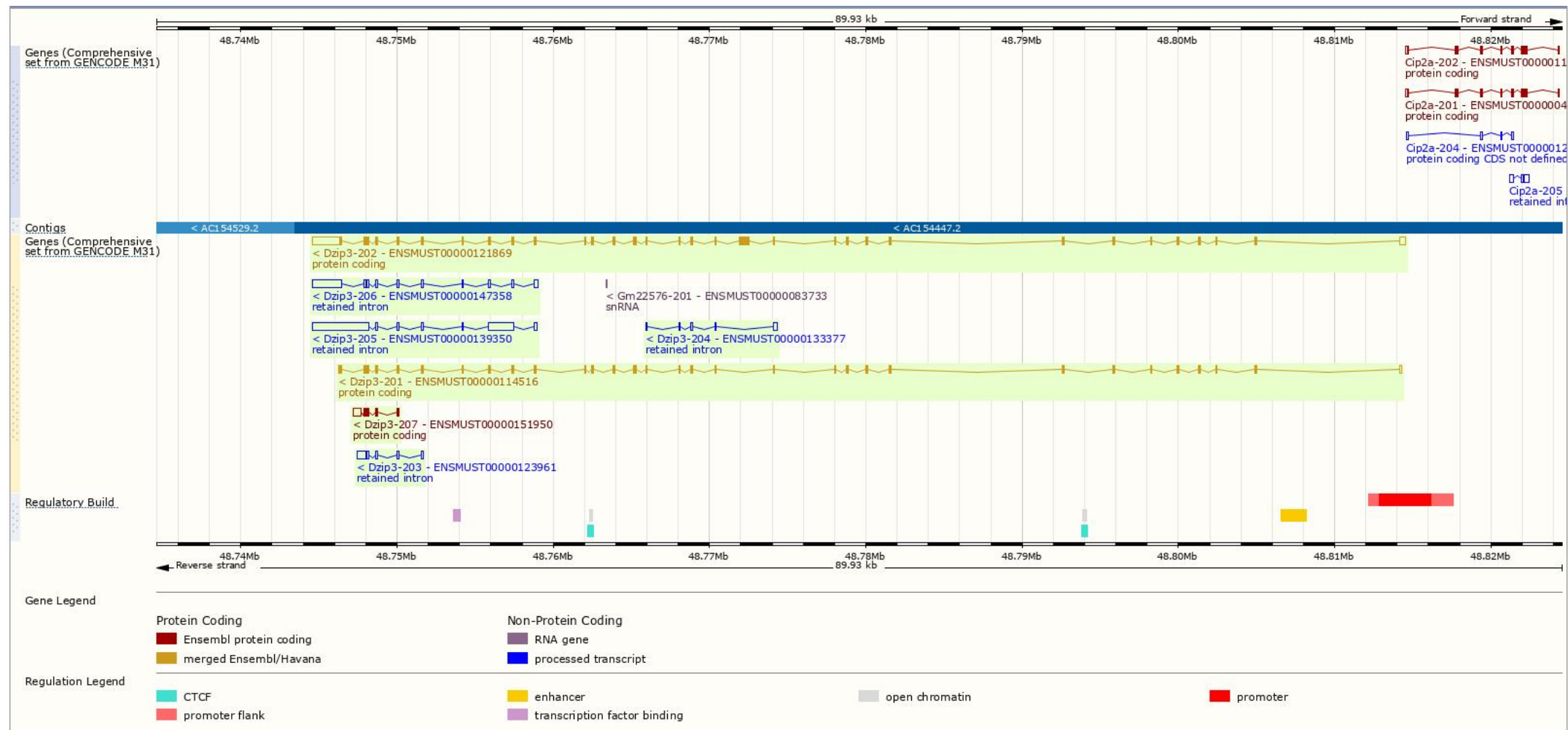
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000114516.8	Dzip3-201	3331	998aa	Protein coding	CCDS37353	Q7TPV2-2	GENCODE basic APPRIS ALT2 TSL:1
ENSMUST00000121869.8	Dzip3-202	5820	1204aa	Protein coding	CCDS49866	E9QNZ2	Ensembl Canonical GENCODE basic APPRIS P2 TSL:5
ENSMUST00000123961.2	Dzip3-203	1071	No protein	Retained intron		-	TSL:2
ENSMUST00000133377.2	Dzip3-204	563	No protein	Retained intron		-	TSL:3
ENSMUST00000139350.8	Dzip3-205	5835	No protein	Retained intron		-	TSL:1
ENSMUST00000147358.8	Dzip3-206	3021	No protein	Retained intron		-	TSL:5
ENSMUST00000151950.2	Dzip3-207	961	167aa	Protein coding		F6Z1P8	TSL:2 CDS 5' incomplete

The strategy is based on the design of *Dzip3-202* transcript, the transcription is shown below:



Source: <https://www.ensembl.org>

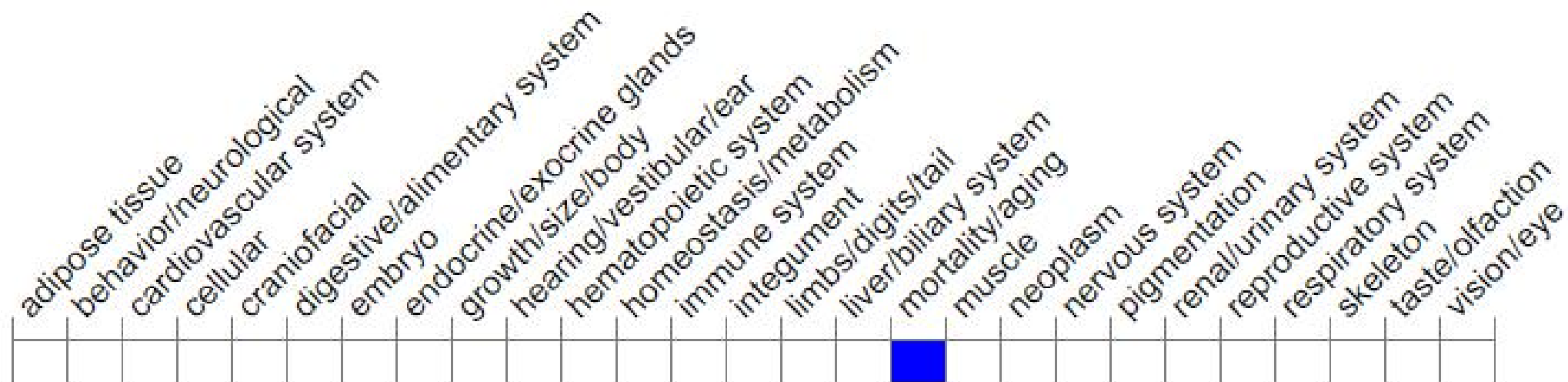
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



- Mice homozygous for an ENU-induced allele exhibit embryonic lethality.

Important Information

- *Dzip3* is located on Chr16. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.
- There are 126 amino acids remaining in the N-terminal, and the effect is unknown.
- The effect on *Dzip3*-207 is unknown.
- 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 the existing technology level.