

***Ddit3* Cas9-KO Strategy**

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Project Overview

Project Name

Ddit3

Project type

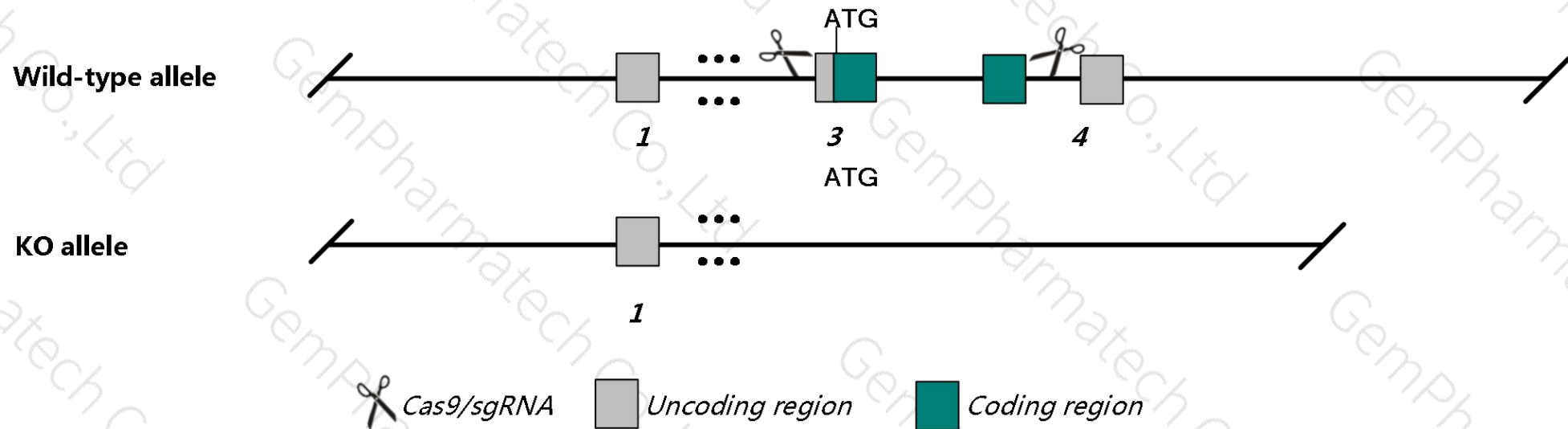
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ddit3* gene. The schematic diagram is as follows:



- The *Ddit3* gene has 3 transcripts. According to the structure of *Ddit3* gene, exon3-exon4 of *Ddit3*-201(ENSMUST00000026475.14) 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 *Ddit3* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit decreased apoptosis in different cell types.
- The KO region contains functional region of the *Ddit3* gene. Knockout the region may affect the function of *Mars1* gene.
- The *Ddit3* gene is located on the Chr10. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Ddit3 DNA-damage inducible transcript 3 [Mus musculus (house mouse)]

Gene ID: 13198, updated on 13-Mar-2020

Summary



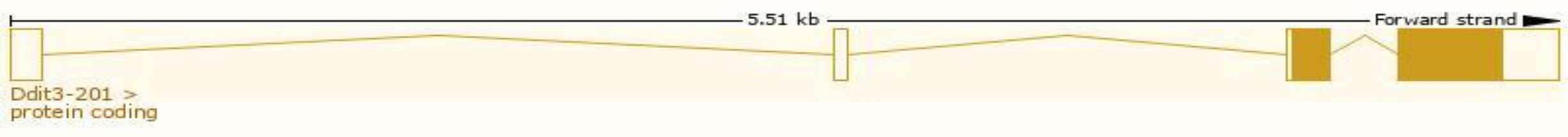
Official Symbol	Ddit3 provided by MGI
Official Full Name	DNA-damage inducible transcript 3 provided by MGI
Primary source	MGI:MGI:109247
See related	Ensembl:ENSMUSG00000025408
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	CHOP-10, CHOP10, chop, gadd153
Expression	Ubiquitous expression in testis adult (RPKM 13.2), ovary adult (RPKM 9.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

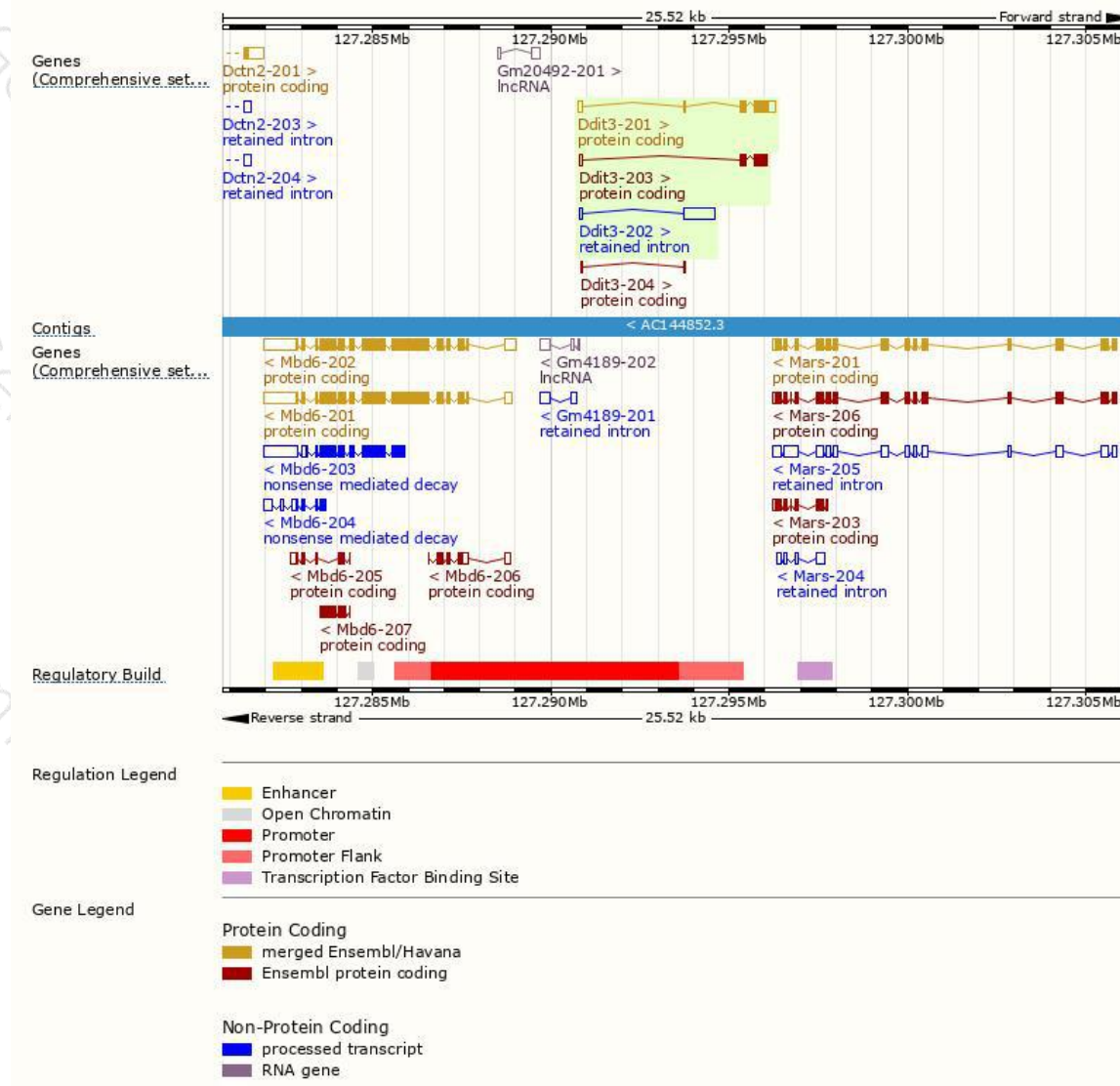
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ddit3-201	ENSMUST00000026475.14	890	168aa	Protein coding	CCDS24236	P35639	TSL:1 GENCODE basic APPRIS P1
Ddit3-203	ENSMUST00000139091.1	600	160aa	Protein coding	-	D3YX14	CDS 3' incomplete TSL:2
Ddit3-202	ENSMUST00000134686.1	969	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Ddit3-201* transcript,the transcription is shown below:



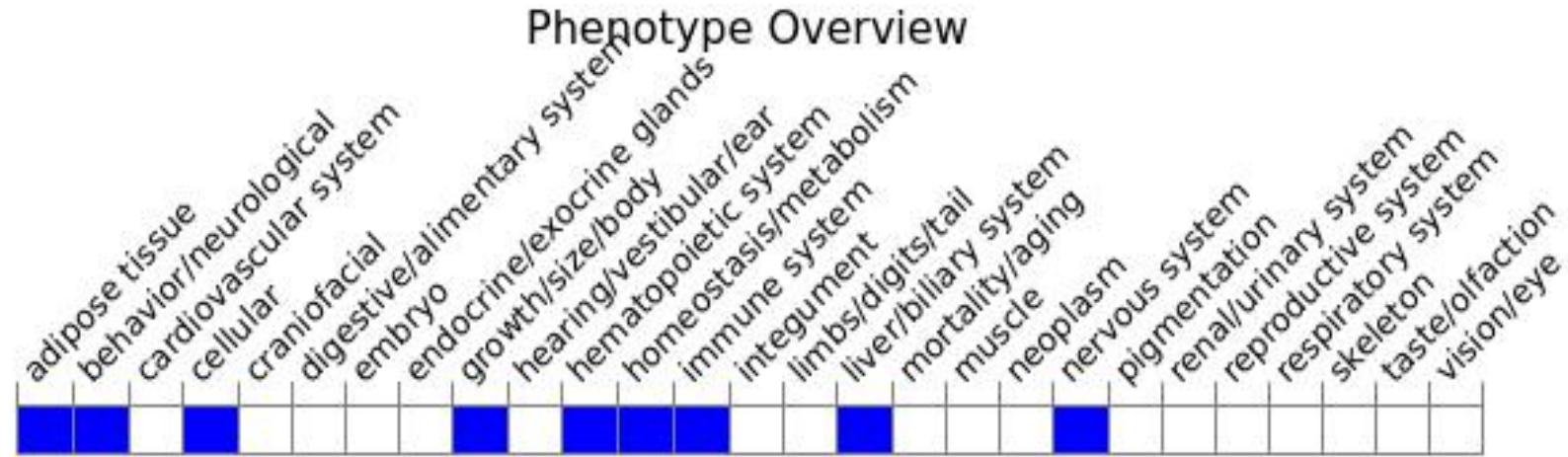
Genomic location distribution



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, mice homozygous for a knock-out allele exhibit decreased apoptosis in different cell types.

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

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