

Dctn2 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Dctn2

Project type

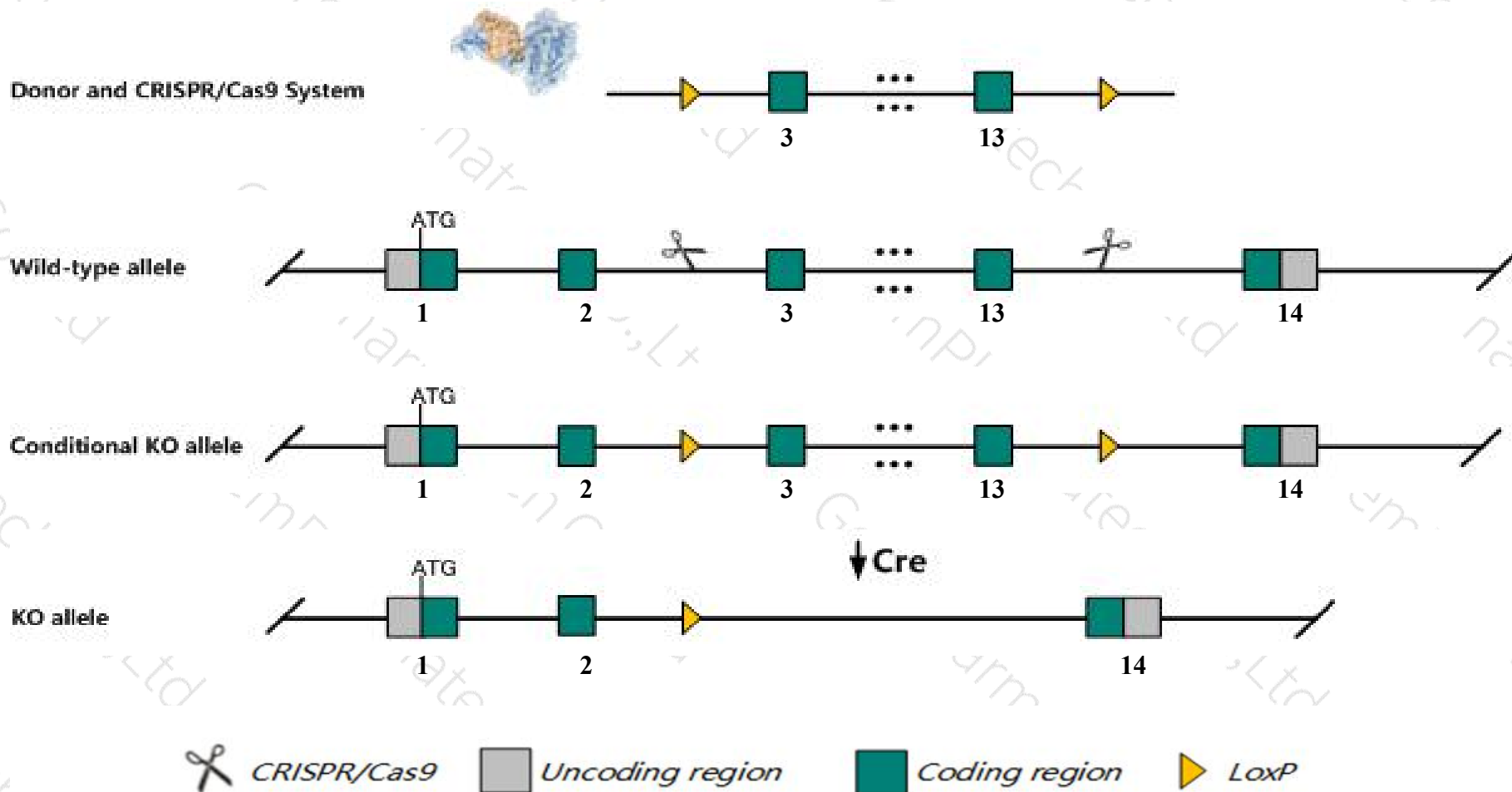
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dctn2* gene. The schematic diagram is as follows:



- The *Dctn2* gene has 5 transcripts. According to the structure of *Dctn2* gene, exon3-exon13 of *Dctn2-201* (ENSMUST00000026479.10) transcript is recommended as the knockout region. The region contains most 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 *Dctn2* 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 *Dctn2* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Dctn2 dynactin 2 [Mus musculus (house mouse)]

Gene ID: 69654, updated on 7-Apr-2019

Summary



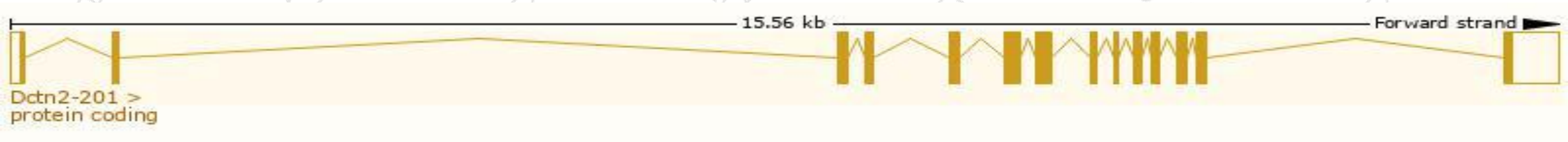
Official Symbol	Dctn2 provided by MGI
Official Full Name	dynactin 2 provided by MGI
Primary source	MGI:MGI:107733
See related	Ensembl:ENSMUSG000000025410
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310042E05Rik, C130077D06Rik, C87049, DCTN-50, GMP23-48K, RBP50, p50
Expression	Ubiquitous expression in testis adult (RPKM 150.2), adrenal adult (RPKM 99.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

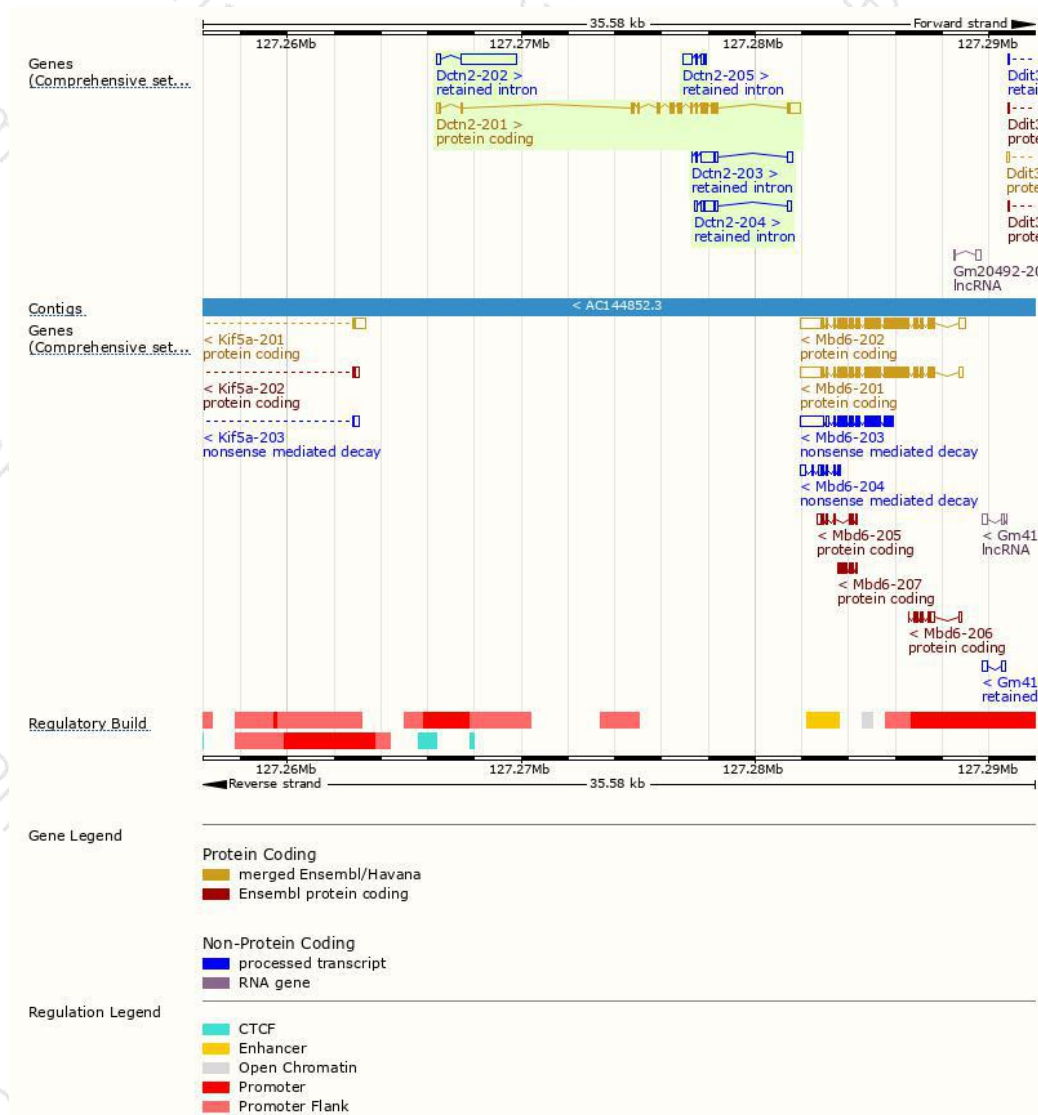
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dctn2-201	ENSMUST00000026479.10	1784	402aa	Protein coding	CCDS24234	Q3TPZ5 Q99KJ8	TSL:1 GENCODE basic APPRIS P1
Dctn2-202	ENSMUST00000217692.1	2557	No protein	Retained intron	-	-	TSL:1
Dctn2-203	ENSMUST00000218556.1	882	No protein	Retained intron	-	-	TSL:3
Dctn2-204	ENSMUST00000218752.1	820	No protein	Retained intron	-	-	TSL:2
Dctn2-205	ENSMUST00000220418.1	521	No protein	Retained intron	-	-	TSL:3

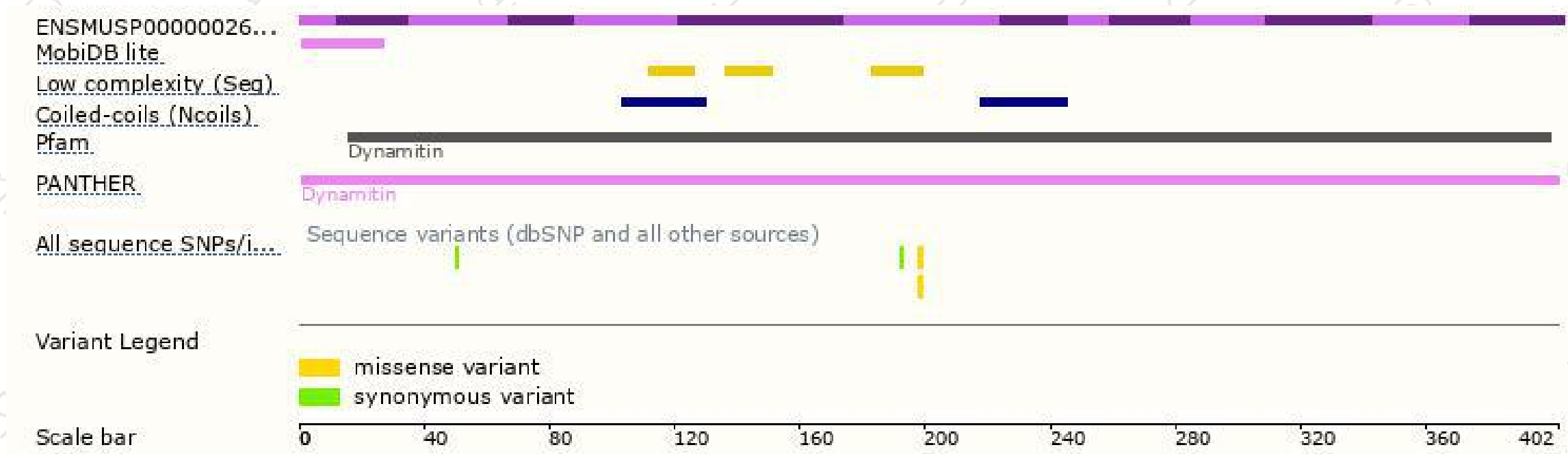
The strategy is based on the design of *Dctn2-201* transcript,The transcription is shown below



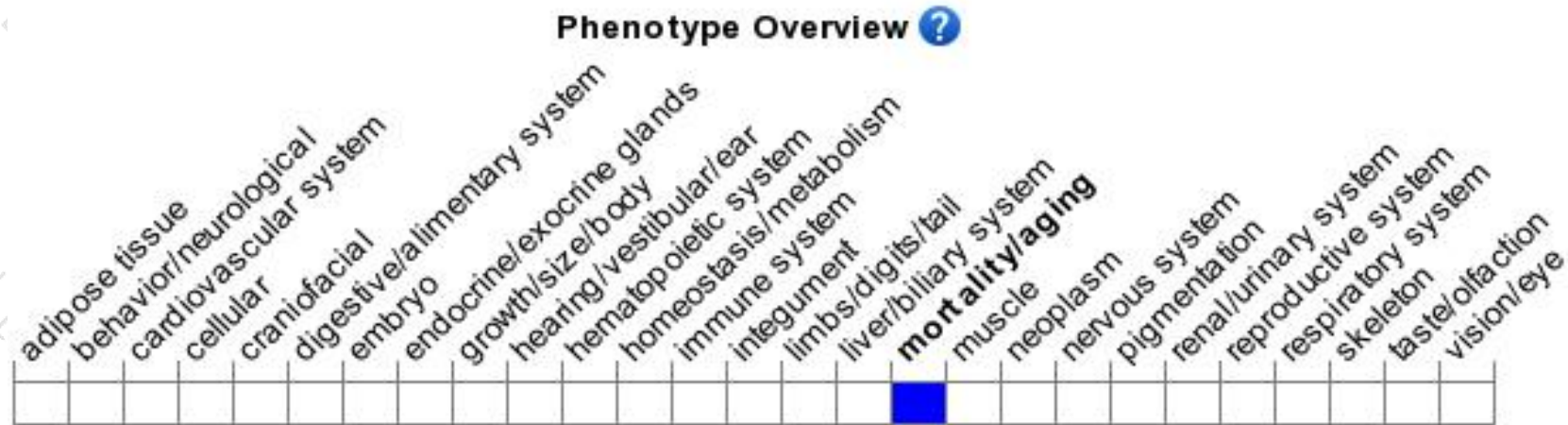
Genomic location distribution



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/>).

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

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