

Dctn3 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Dctn3

Project type

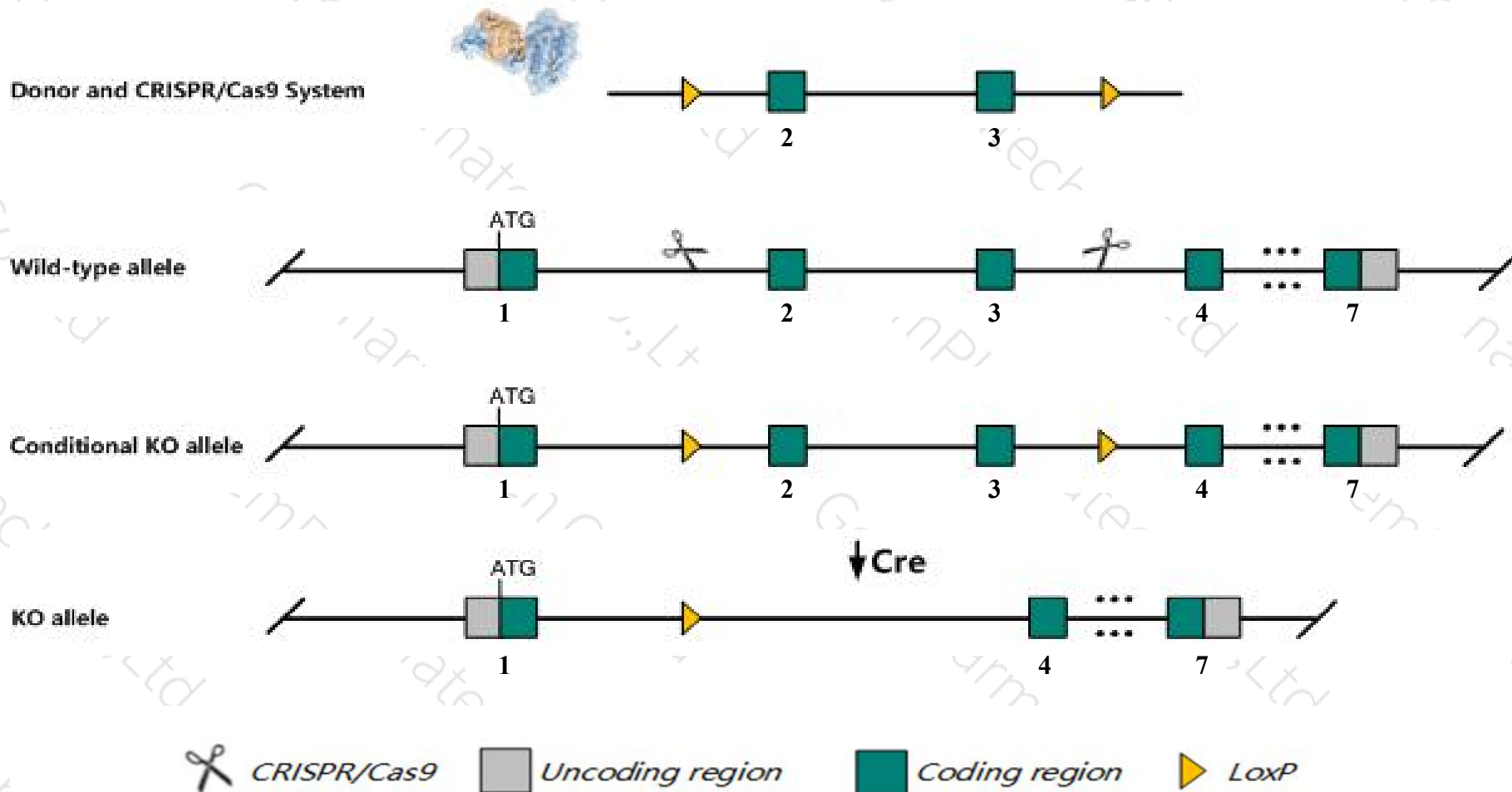
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dctn3* gene. The schematic diagram is as follows:



Technical routes

- The *Dctn3* gene has 3 transcripts. According to the structure of *Dctn3* gene, exon2-exon3 of *Dctn3-201* (ENSMUST00000030158.10) transcript is recommended as the knockout region. The region contains 172bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dctn3* 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 *Dctn3* gene is located on the Chr4. 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.

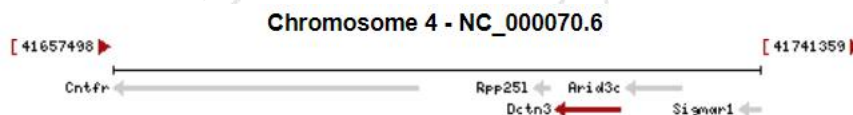
Gene information (NCBI)

Dctn3 dynactin 3 [*Mus musculus* (house mouse)]

Gene ID: 53598, updated on 12-Aug-2019

Summary

Official Symbol	Dctn3 provided by MGI
Official Full Name	dynactin 3 provided by MGI
Primary source	MGI:MGI:1859251
See related	Ensembl:ENSMUSG00000028447
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<i>Mus musculus</i>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	p24
Expression	Ubiquitous expression in CNS E18 (RPKM 56.9), CNS E14 (RPKM 43.8) and 28 other tissues See more
Orthologs	human all

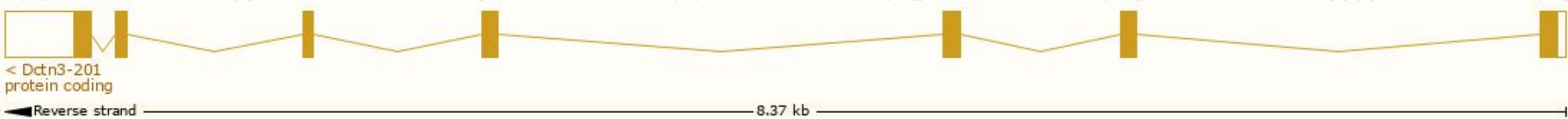


Transcript information (Ensembl)

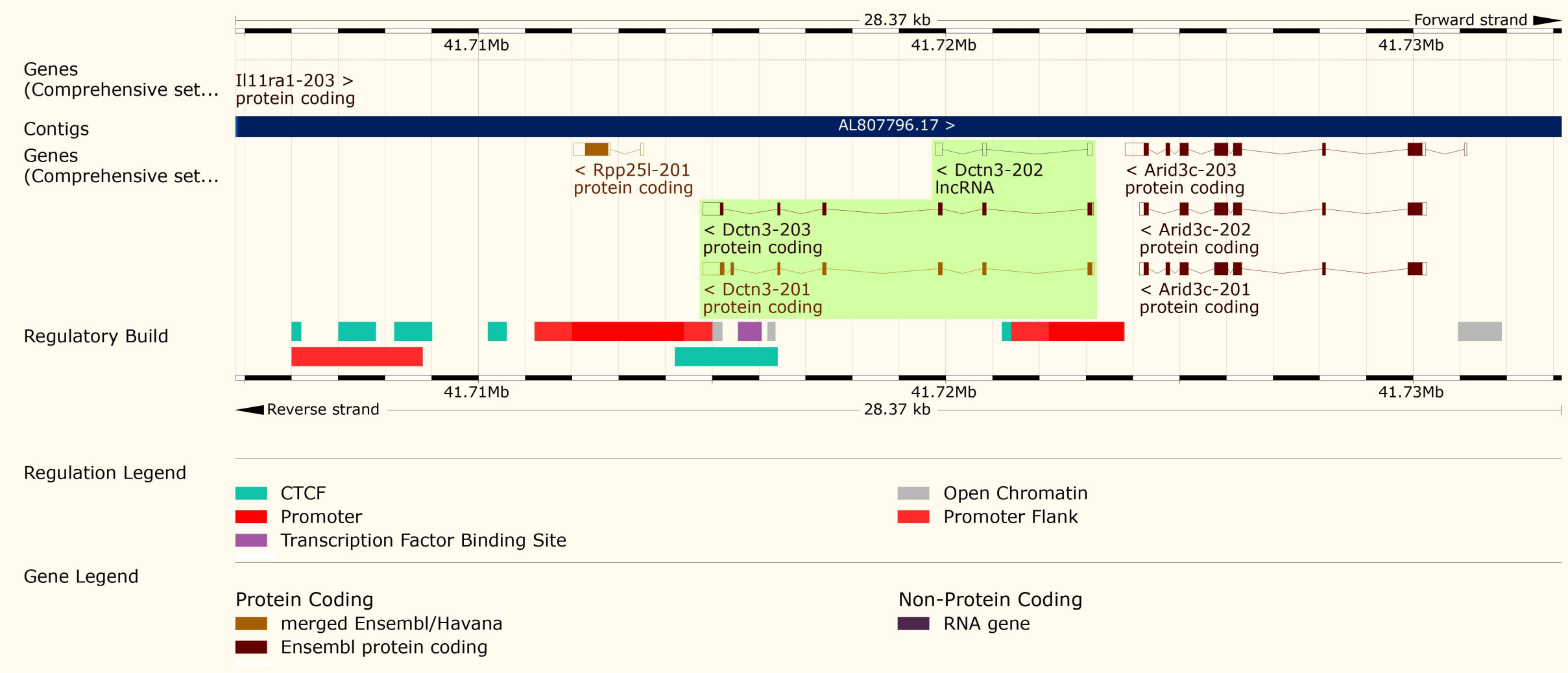
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Dctn3-201	ENSMUST00000030158.10	973	186aa	ENSMUSP00000030158.4	Protein coding	CCDS18069	Q9Z0Y1	TSL:1 GENCODE basic APPRIS P1
Dctn3-203	ENSMUST00000171641.1	885	159aa	ENSMUSP00000130988.1	Protein coding	CCDS51143	E9Q919	TSL:3 GENCODE basic
Dctn3-202	ENSMUST00000147120.1	344	No protein	-	lncRNA	-	-	TSL:2

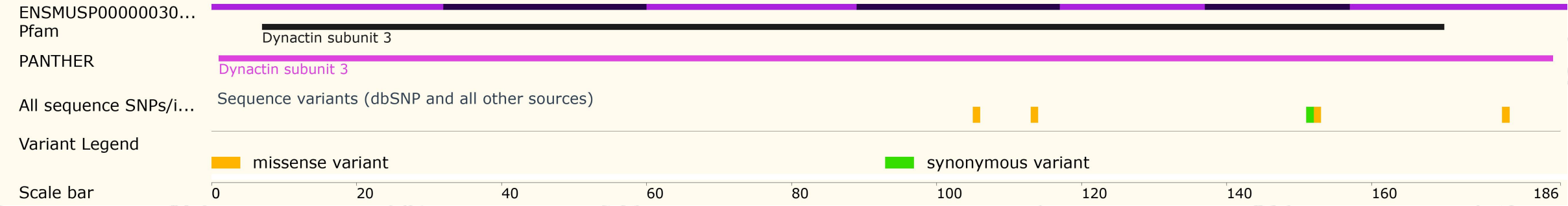
The strategy is based on the design of *Dctn3-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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