

Dnmbp Cas9-CKO Strategy

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Reviewer:

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Design Date:

2020-2-20

Project Overview

Project Name

Dnmbp

Project type

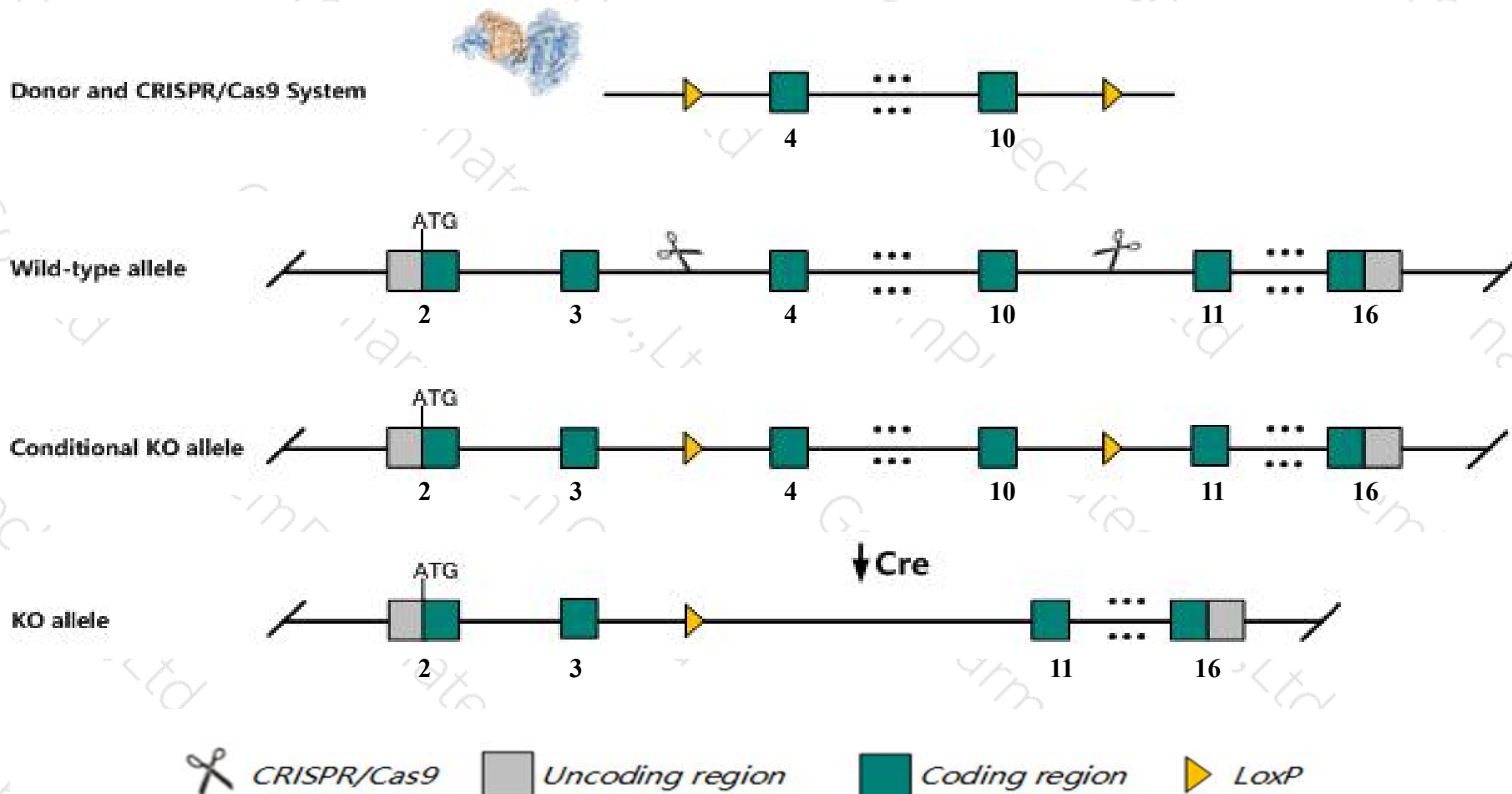
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Dnmbp* gene has 6 transcripts. According to the structure of *Dnmbp* gene, exon4-exon10 of *Dnmbp*-205 (ENSMUST00000212396.1) transcript is recommended as the knockout region. The region contains 2897bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnmbp* 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 *Dnmbp* gene is located on the Chr19. 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)

Dnmbp dynamin binding protein [Mus musculus (house mouse)]

Gene ID: 71972, updated on 19-Mar-2019

Summary



Official Symbol Dnmbp provided by [MGI](#)

Official Full Name dynamin binding protein provided by [MGI](#)

Primary source [MGI:MGI:1917352](#)

See related [Ensembl:ENSMUSG00000025195](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as 2410003L07Rik, 2410003M15Rik, TUBA

Summary This gene encodes a member of the DBL family of guanine nucleotide exchange factors. The encoded protein has been proposed to regulate the actin cytoskeleton by specifically activating the Rho-family GTPase Cdc42. An interaction between the encoded protein and a Listeria protein has been shown to mediate Listeria infection. Alternative splicing results in multiple transcript variants. [provided by RefSeq, Apr 2015]

Expression Ubiquitous expression in colon adult (RPKM 15.1), large intestine adult (RPKM 10.7) and 27 other tissues [See more](#)

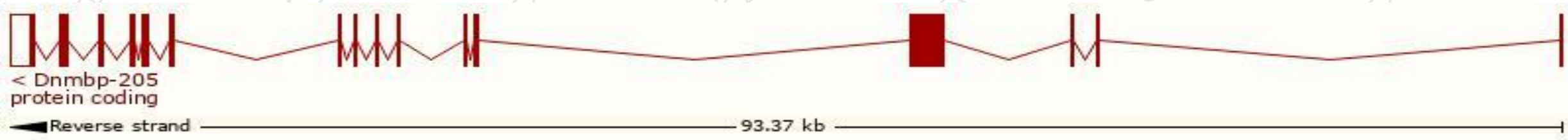
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

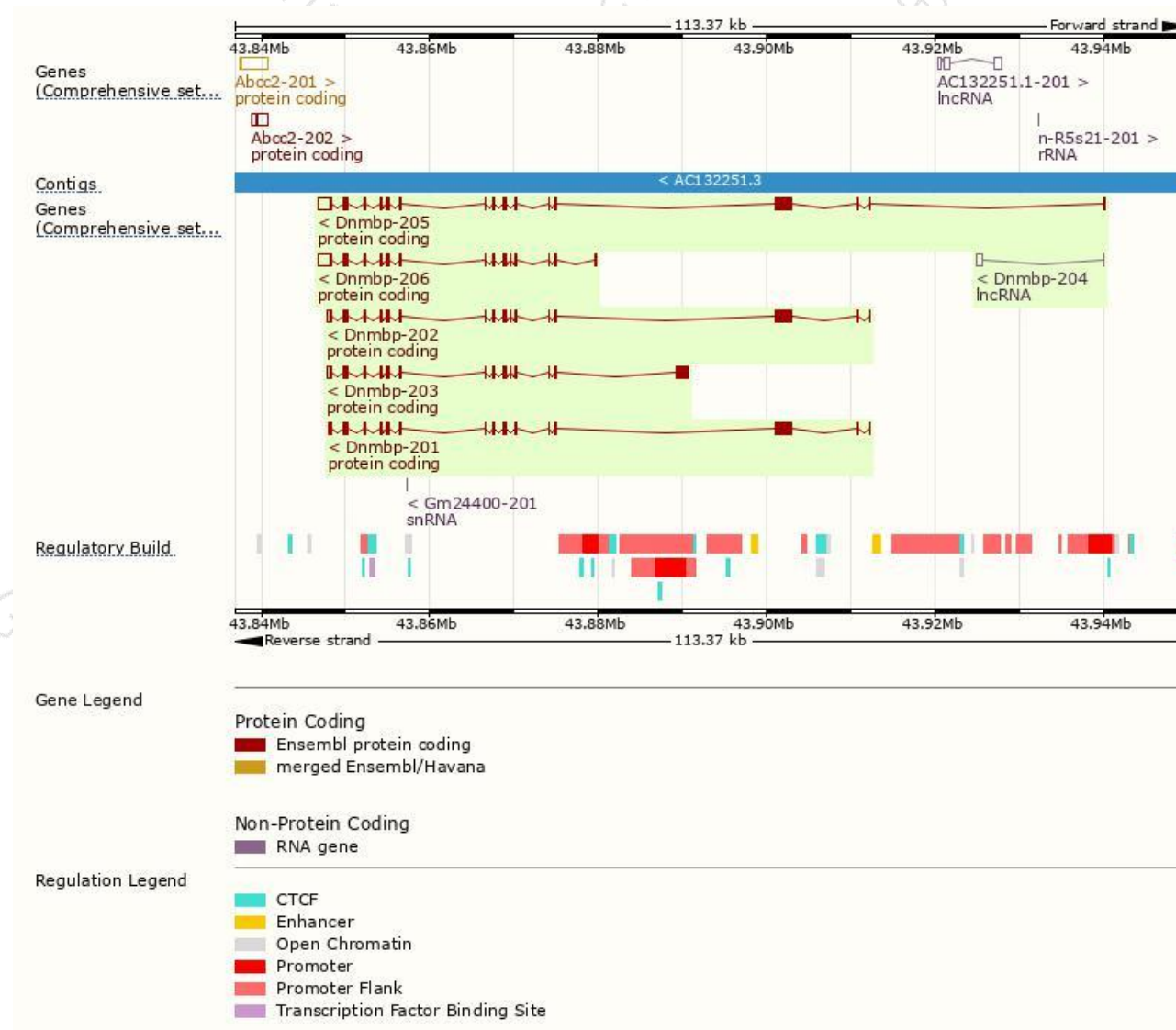
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnmbp-205	ENSMUST00000212396.1	6100	1580aa	Protein coding	CCDS29839	A0A0R4J055	TSL:5 GENCODE basic APPRIS P2
Dnmbp-201	ENSMUST00000026209.4	4882	1580aa	Protein coding	CCDS29839	A0A0R4J055	TSL:2 GENCODE basic APPRIS P2
Dnmbp-206	ENSMUST00000212592.1	3901	823aa	Protein coding	CCDS84442	A0A1D5RLL6	TSL:1 GENCODE basic
Dnmbp-202	ENSMUST00000212032.1	5074	1576aa	Protein coding	-	A0A1D5RMB5	TSL:5 GENCODE basic APPRIS ALT 2
Dnmbp-203	ENSMUST00000212048.1	4186	1264aa	Protein coding	-	A0A1D5RLY0	TSL:5 GENCODE basic
Dnmbp-204	ENSMUST00000212157.1	661	No protein	lncRNA	-	-	TSL:1

The strategy is based on the design of *Dnmbp-205* transcript,The transcription is shown below



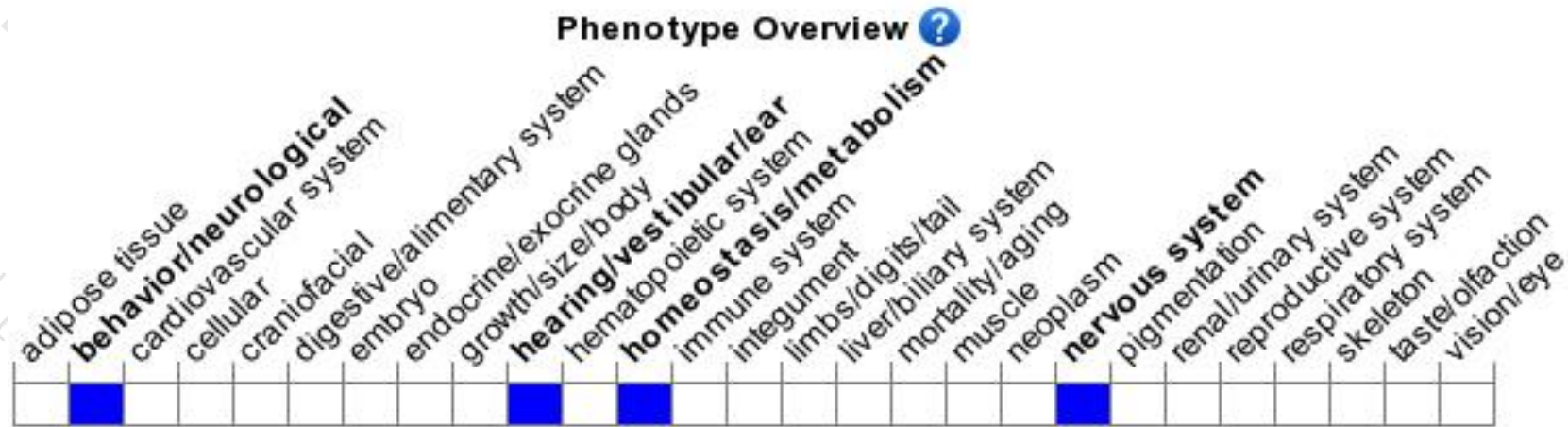
Genomic location distribution



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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