

***Dctn4* Cas9-CKO Strategy**

Designer: Xiaojing Li
Design Date: 2019-9-11
Reviewer: Jia Yu

Project Overview

Project Name

Dctn4

Project type

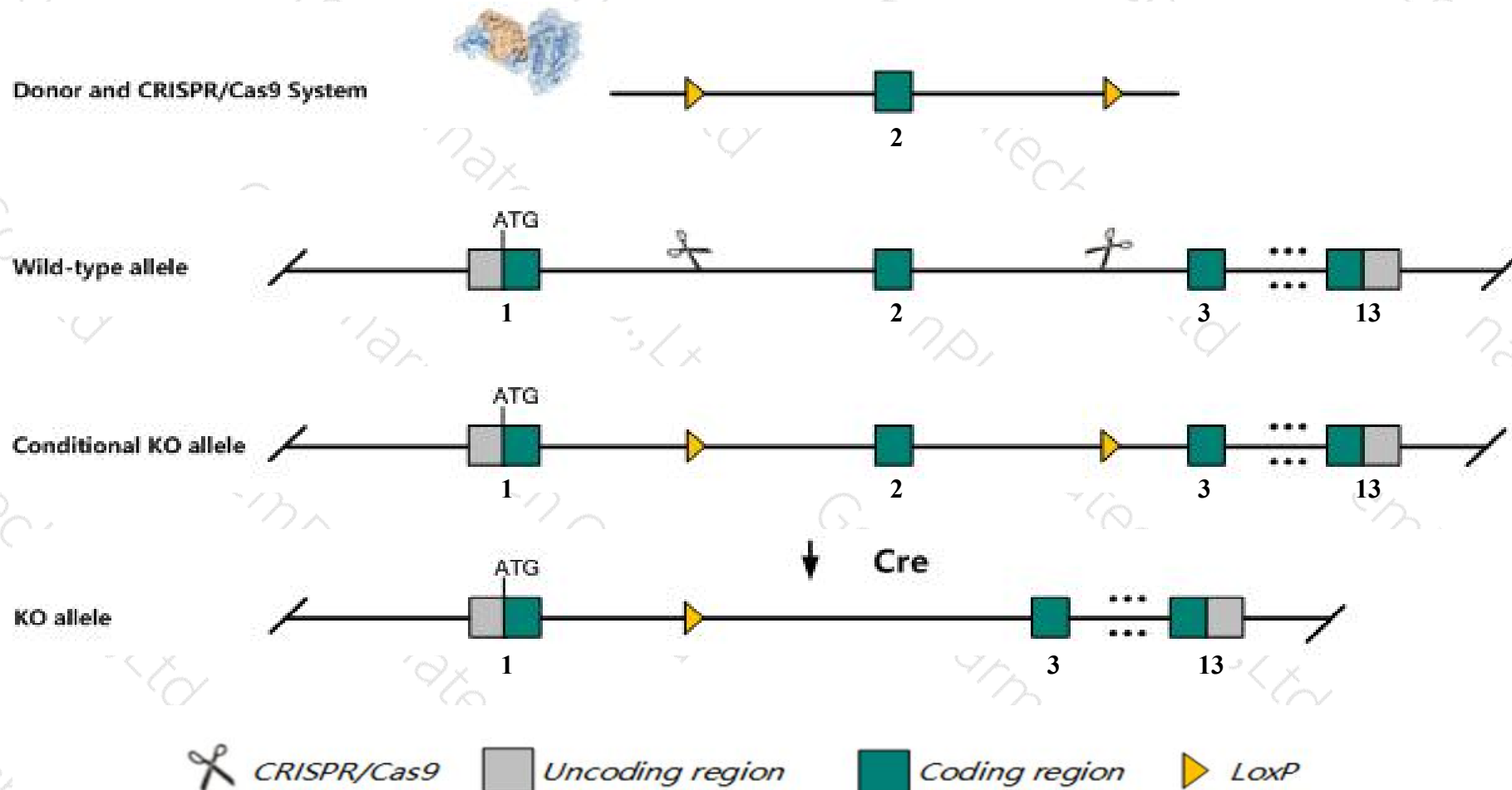
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dctn4* gene. The schematic diagram is as follows:



- The *Dctn4* gene has 8 transcripts. According to the structure of *Dctn4* gene, exon2 of *Dctn4-201* (ENSMUST00000025505.6) transcript is recommended as the knockout region. The region contains 71bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dctn4* 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 *Dctn4* gene is located on the Chr18. 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)

Dctn4 dynactin 4 [Mus musculus (house mouse)]

Gene ID: 67665, updated on 31-Jan-2019

Summary



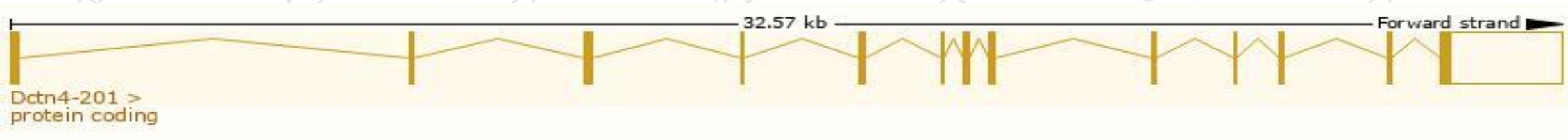
Official Symbol	Dctn4 provided by MGI
Official Full Name	dynactin 4 provided by MGI
Primary source	MGI:MGI:1914915
See related	Ensembl:ENSMUSG000000024603
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110001K06Rik, 4930547K17Rik, C130039E17Rik, p62
Expression	Ubiquitous expression in CNS E18 (RPKM 20.0), whole brain E14.5 (RPKM 18.4) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

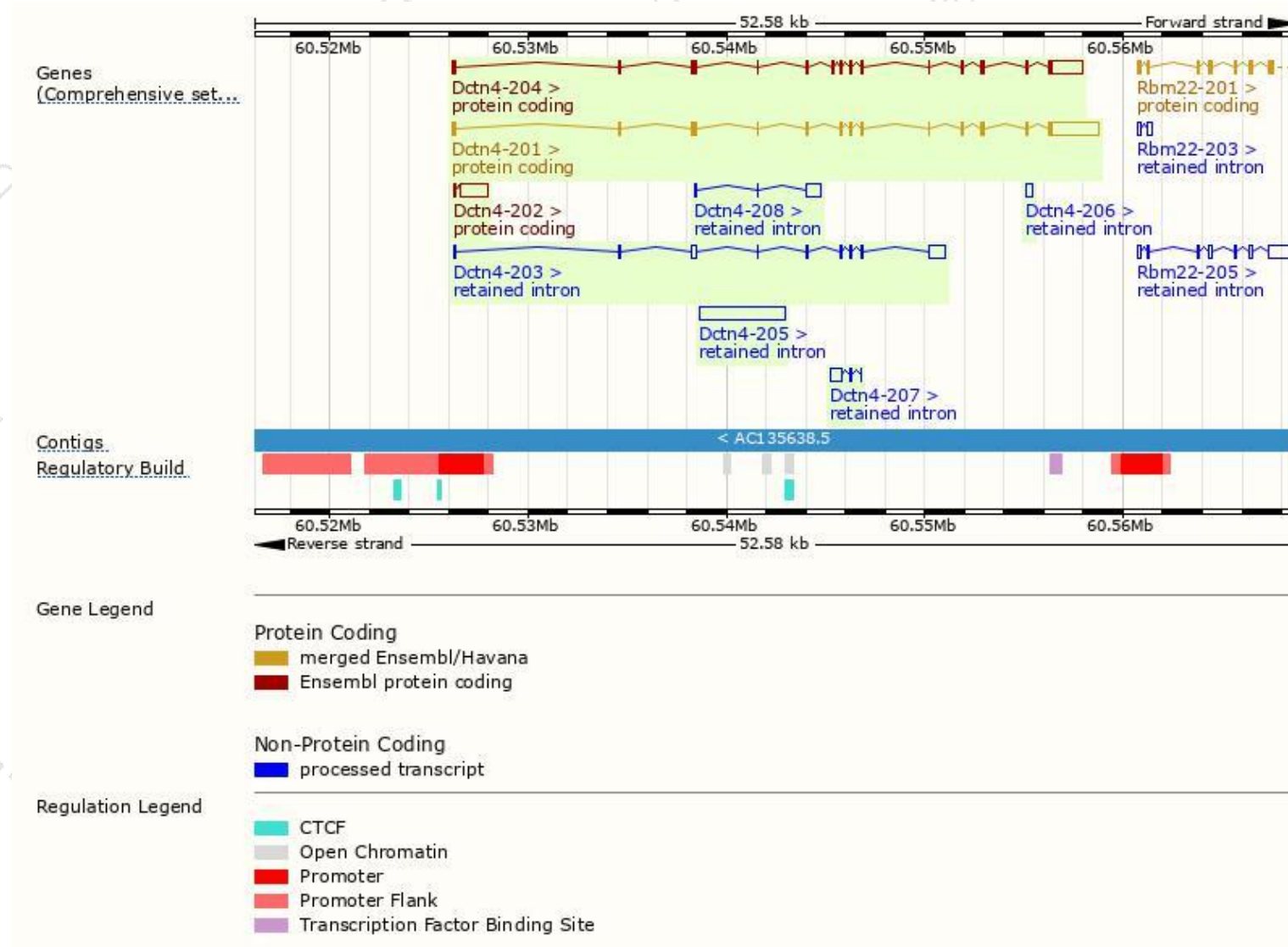
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dctn4-201	ENSMUST00000025505.6	3738	460aa	Protein coding	CCDS37832	Q3TQY2 Q8CBY8	TSL:1 GENCODE basic APPRIS P2
Dctn4-204	ENSMUST00000223984.1	2948	467aa	Protein coding	-	Q8CBY8	GENCODE basic APPRIS ALT1
Dctn4-202	ENSMUST00000223590.1	1530	48aa	Protein coding	-	Q3TRR2	GENCODE basic
Dctn4-205	ENSMUST00000224317.1	4331	No protein	Retained intron	-	-	
Dctn4-203	ENSMUST00000223794.1	1724	No protein	Retained intron	-	-	
Dctn4-208	ENSMUST00000225005.1	797	No protein	Retained intron	-	-	
Dctn4-207	ENSMUST00000224778.1	691	No protein	Retained intron	-	-	
Dctn4-206	ENSMUST00000224671.1	307	No protein	Retained intron	-	-	

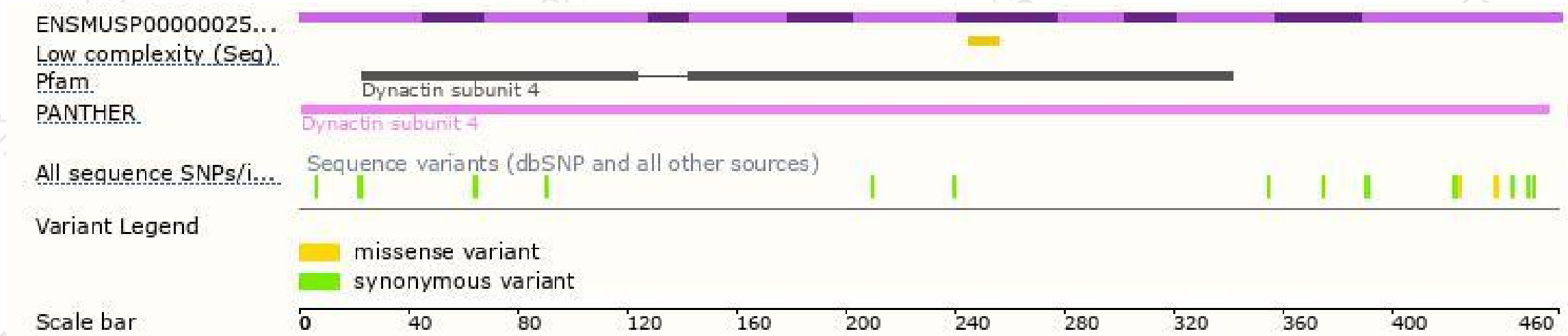
The strategy is based on the design of *Dctn4-201* transcript,The transcription is shown below



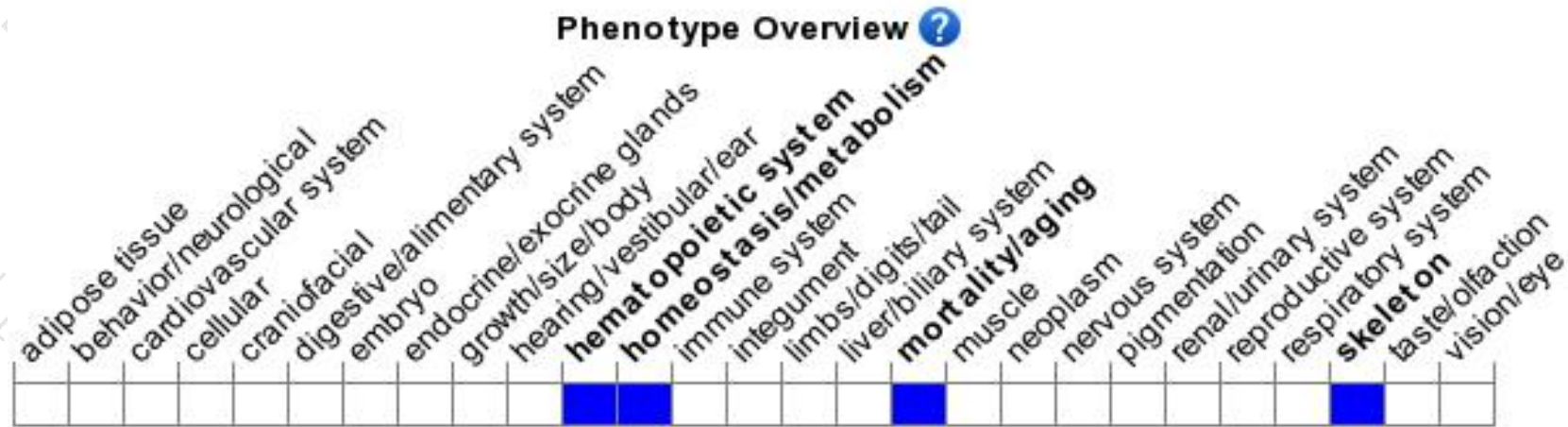
Genomic location distribution



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.

Tel: 400-9660890

