

Dock9 Cas9-KO Strategy

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Project Overview



Project Name

Dock9

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dock9* gene. The schematic diagram is as follows:



- The *Dock9* gene has 10 transcripts. According to the structure of *Dock9* gene, exon4 of *Dock9-201* (ENSMUST00000040700.8) transcript is recommended as the knockout region. The region contains 83bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dock9* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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 *Dock9* gene is located on the Chr14. 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)

Dock9 dedicator of cytokinesis 9 [Mus musculus (house mouse)]

Gene ID: 105445, updated on 31-Jan-2019

Summary



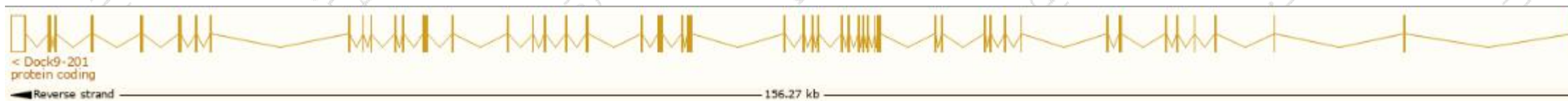
Official Symbol	Dock9 provided by MGI
Official Full Name	dedicator of cytokinesis 9 provided by MGI
Primary source	MGI:MGI:106321
See related	Ensembl:ENSMUSG000000025558
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA959601, AW538057, B230309H04Rik, D14Wsu89e, Zizimin1, mKIAA1058
Expression	Broad expression in cerebellum adult (RPKM 15.8), lung adult (RPKM 13.0) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

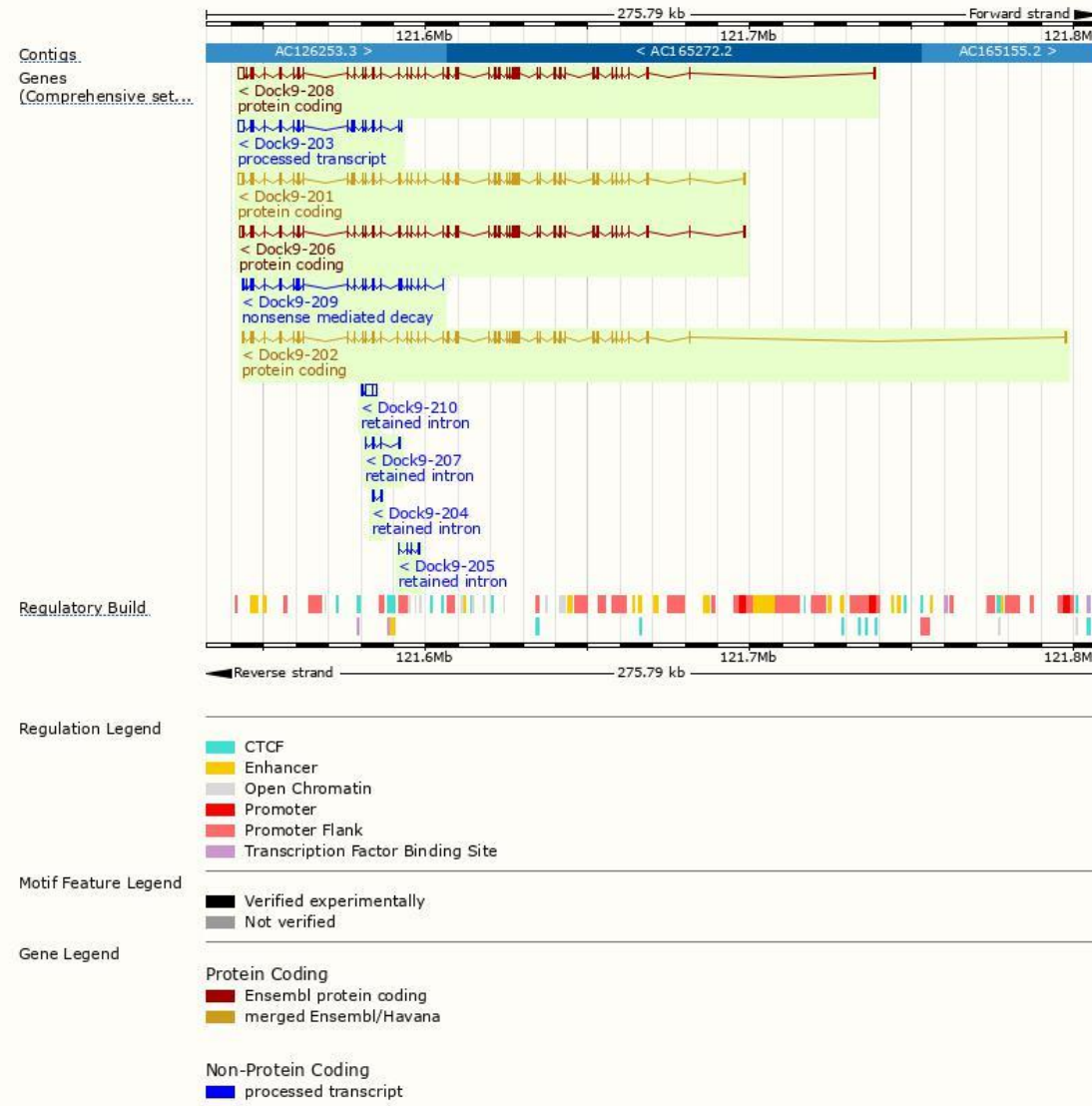
The gene has 10 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dock9-208	ENSMUST00000212376.2	8107	2042aa	Protein coding	CCDS84162	A0A1D5RLE0	TSL:5 GENCODE basic APPRIS ALT2
Dock9-201	ENSMUST00000040700.8	7803	2113aa	Protein coding	CCDS37018	F8VFN7	TSL:2 GENCODE basic APPRIS P3
Dock9-206	ENSMUST00000212181.1	7368	2088aa	Protein coding	CCDS84161	A0A1D5RMM1	TSL:1 GENCODE basic APPRIS ALT2
Dock9-202	ENSMUST00000100299.10	6476	2058aa	Protein coding	CCDS49569	E9QMR2	TSL:1 GENCODE basic APPRIS ALT2
Dock9-209	ENSMUST00000212416.1	3043	166aa	Nonsense mediated decay	-	A0A1D5RLB8	CDS 5' incomplete TSL:5
Dock9-203	ENSMUST00000211803.1	3667	No protein	Processed transcript	-	-	TSL:1
Dock9-210	ENSMUST00000212719.1	4023	No protein	Retained intron	-	-	TSL:1
Dock9-205	ENSMUST00000211993.1	755	No protein	Retained intron	-	-	TSL:3
Dock9-207	ENSMUST00000212371.1	738	No protein	Retained intron	-	-	TSL:3
Dock9-204	ENSMUST00000211907.1	713	No protein	Retained intron	-	-	TSL:3

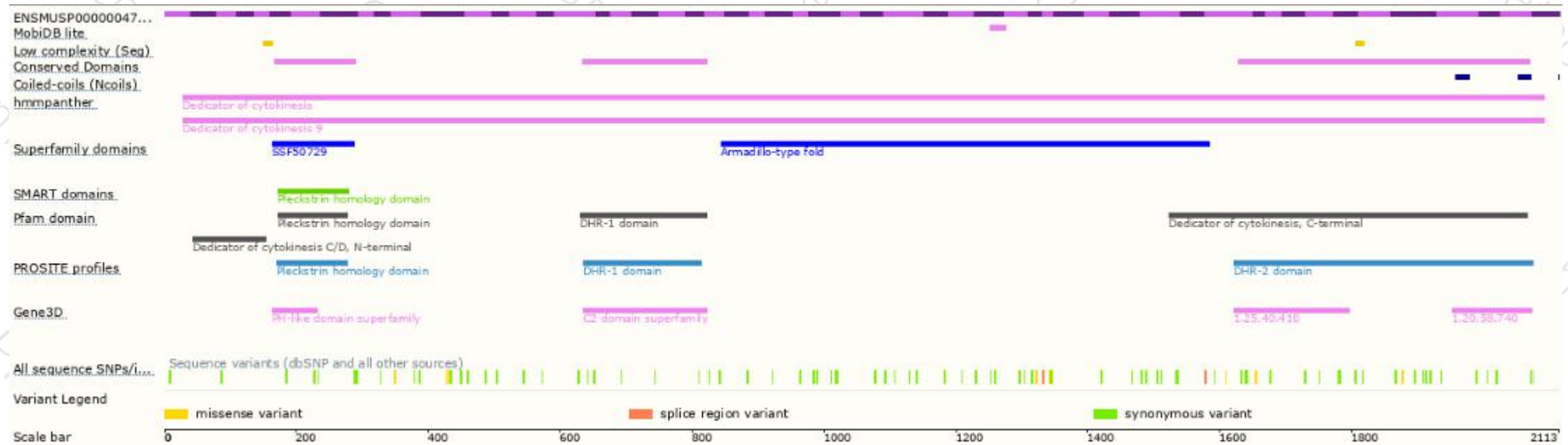
The strategy is based on the design of *Dock9-201* transcript, The transcription is shown below



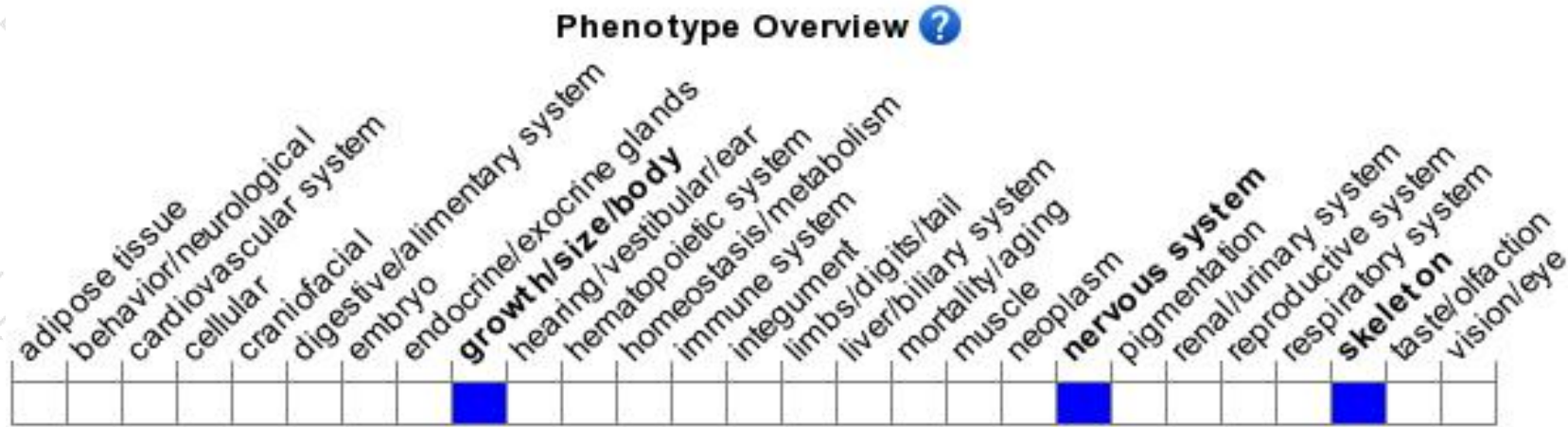
Genomic location distribution



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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