

Dab2ip Cas9-CKO Strategy

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Project Overview

Project Name

Dab2ip

Project type

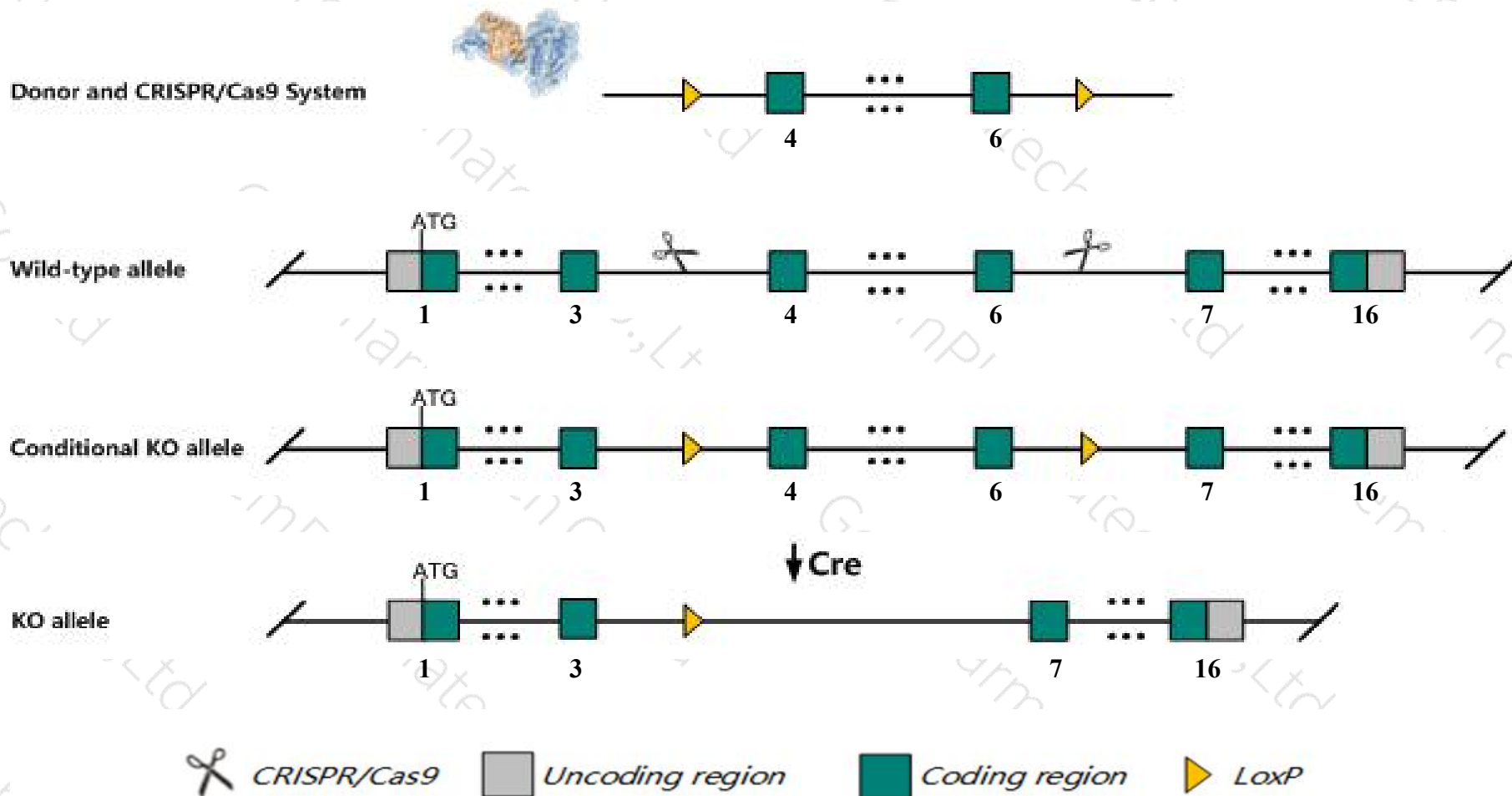
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dab2ip* gene. The schematic diagram is as follows:



- The *Dab2ip* gene has 13 transcripts. According to the structure of *Dab2ip* gene, exon4-exon6 of *Dab2ip*-202 (ENSMUST00000091010.11) transcript is recommended as the knockout region. The region contains 808bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dab2ip* 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit impaired IRE1-mediated endoplasmic reticulum (ER) stress-induced responses. Mice homozygous for a gene trap allele exhibit delayed Purkinje cell dendritogenesis.
- The *Dab2ip* gene is located on the Chr2. 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)

Dab2ip disabled 2 interacting protein [Mus musculus (house mouse)]

Gene ID: 69601, updated on 31-Jan-2019

Summary



Official Symbol	Dab2ip provided by MGI
Official Full Name	disabled 2 interacting protein provided by MGI
Primary source	MGI:MGI:1916851
See related	Ensembl:ENSMUSG000000026883
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	2310011D08Rik, AI480459, Aip1, mKIAA1743
Expression	Ubiquitous expression in colon adult (RPKM 34.6), lung adult (RPKM 31.7) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

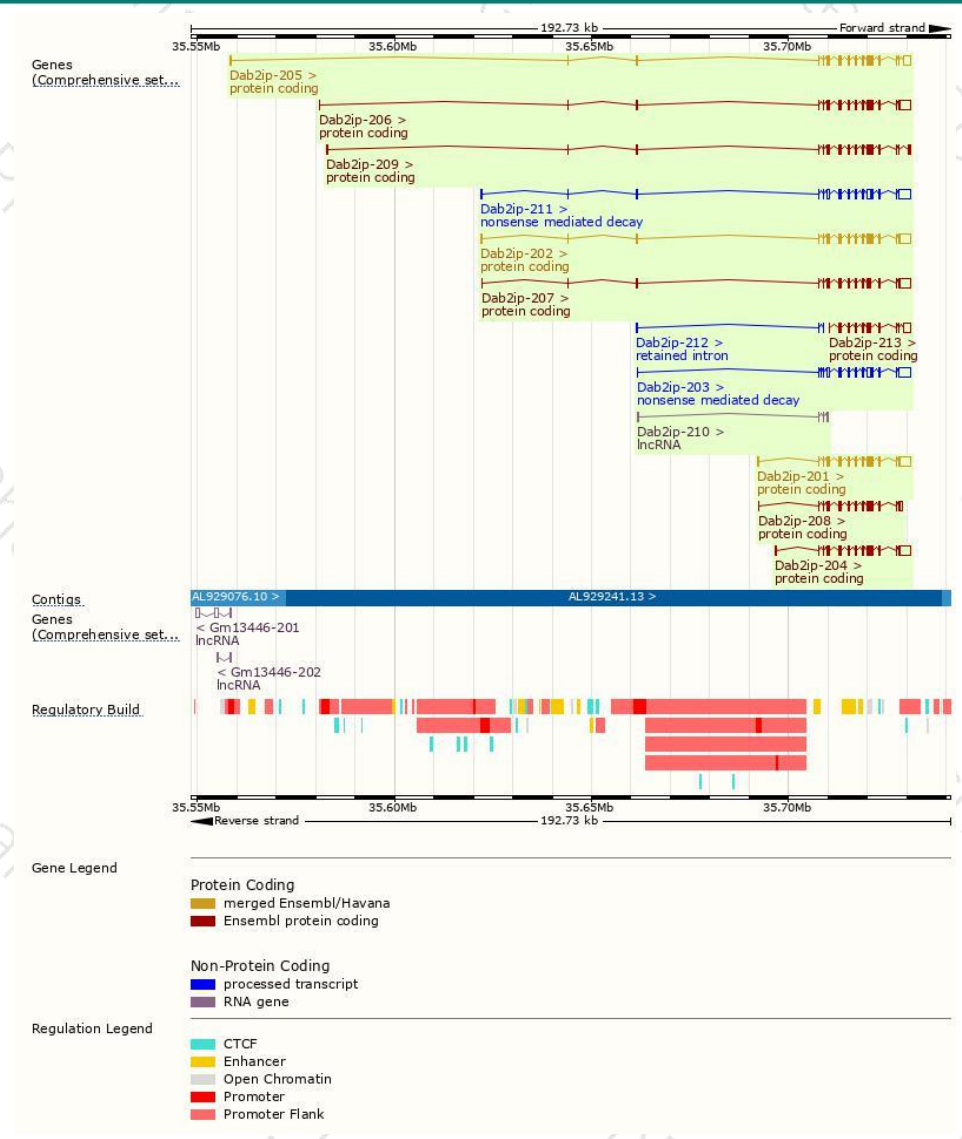
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dab2ip-202	ENSMUST00000091010.11	6455	1189aa	Protein coding	CCDS50578	Q3UHC7	TSL:1 GENCODE basic APPRIS ALT2
Dab2ip-201	ENSMUST00000065001.11	6392	1124aa	Protein coding	CCDS15965	A2AUX5	TSL:1 GENCODE basic APPRIS P3
Dab2ip-204	ENSMUST00000112983.7	6051	1065aa	Protein coding	CCDS71045	Q3UHC7	TSL:1 GENCODE basic APPRIS ALT2
Dab2ip-205	ENSMUST00000112986.8	5580	1132aa	Protein coding	CCDS50577	Q3UHC7	TSL:5 GENCODE basic APPRIS ALT2
Dab2ip-209	ENSMUST00000135741.7	4128	1154aa	Protein coding	CCDS79788	B7ZD29	TSL:1 GENCODE basic APPRIS ALT2
Dab2ip-206	ENSMUST00000112987.7	6287	1132aa	Protein coding	-	A2AUX3	TSL:5 GENCODE basic APPRIS ALT2
Dab2ip-207	ENSMUST00000112992.8	6184	1138aa	Protein coding	-	Q3UHC7	TSL:5 GENCODE basic
Dab2ip-213	ENSMUST00000156669.1	4014	713aa	Protein coding	-	F6QQP6	CDS 5' incomplete TSL:1
Dab2ip-208	ENSMUST00000124098.7	3972	1083aa	Protein coding	-	F6RK07	CDS 5' incomplete TSL:1
Dab2ip-211	ENSMUST00000145698.7	6649	163aa	Nonsense mediated decay	-	D6RDE3	TSL:1
Dab2ip-203	ENSMUST00000112981.8	6219	97aa	Nonsense mediated decay	-	F6Y0W2	CDS 5' incomplete TSL:5
Dab2ip-212	ENSMUST00000156465.7	464	No protein	Retained intron	-	-	TSL:5
Dab2ip-210	ENSMUST00000138957.1	668	No protein	lncRNA	-	-	TSL:3

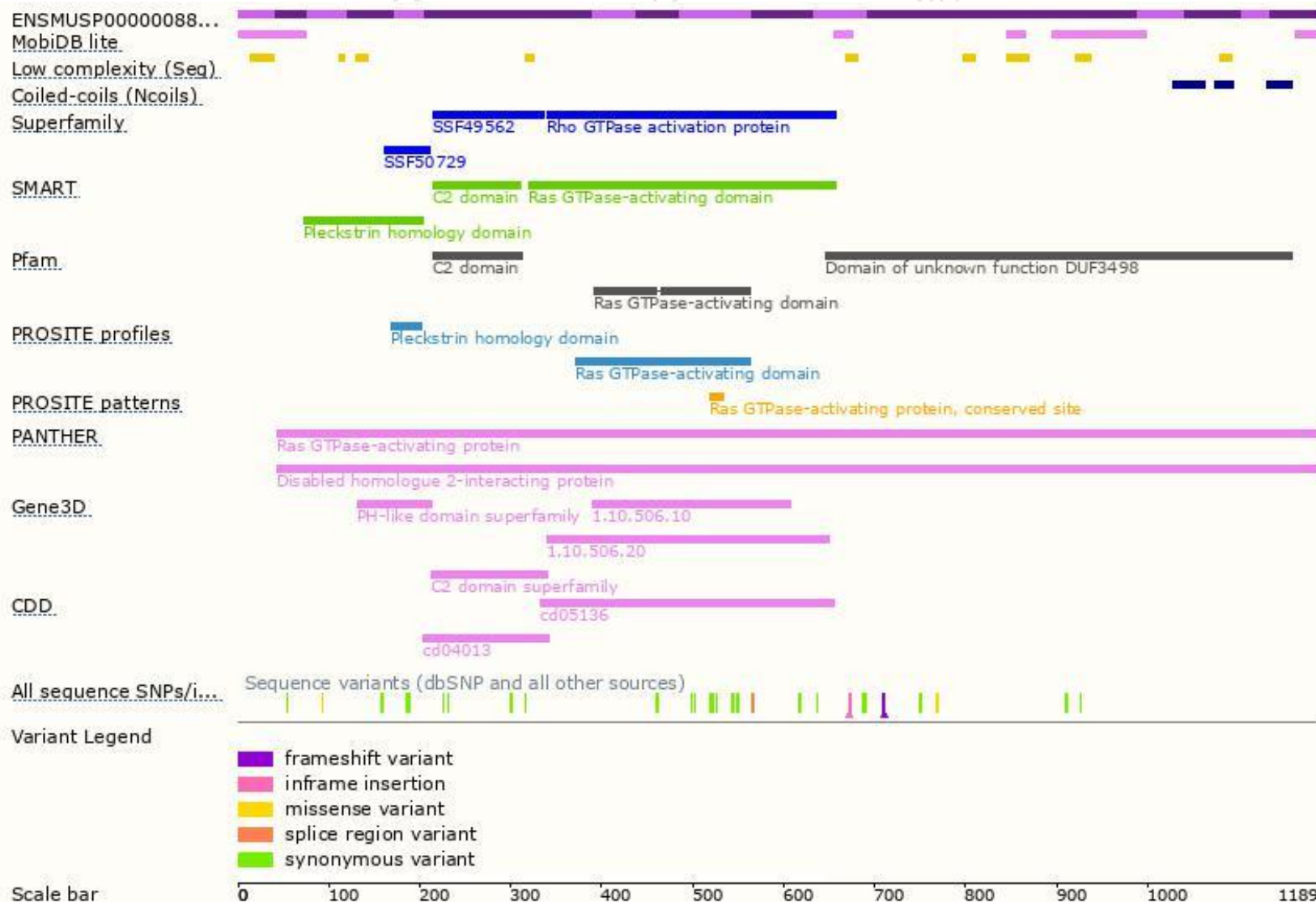
The strategy is based on the design of *Dab2ip-202* transcript,The transcription is shown below



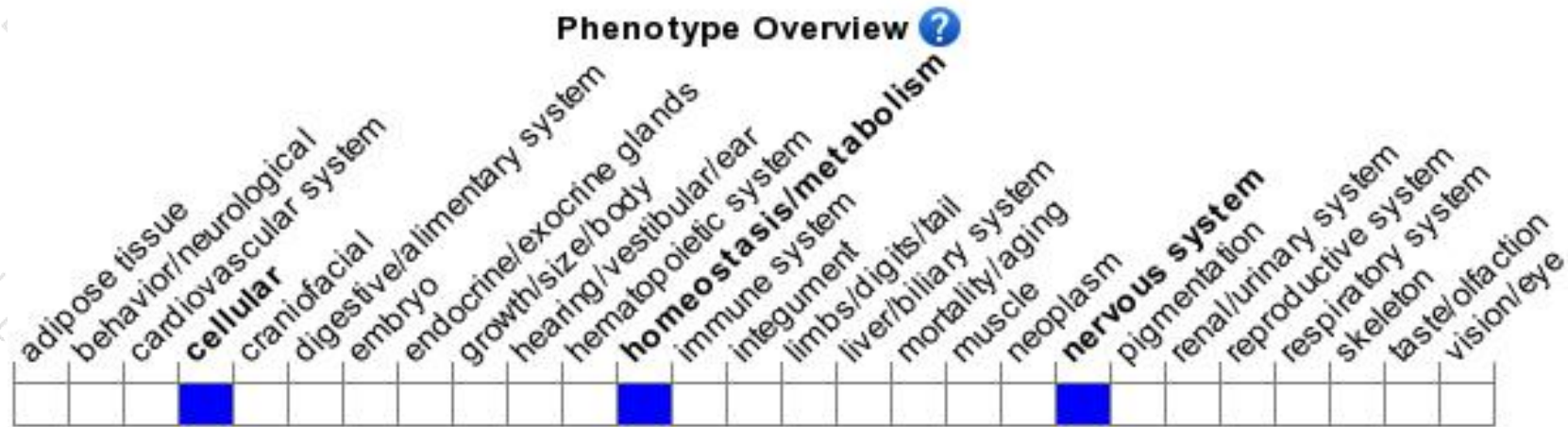
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous for a knock-out allele exhibit impaired IRE1-mediated endoplasmic reticulum (ER) stress-induced responses. Mice homozygous for a gene trap allele exhibit delayed Purkinje cell dendritogenesis.

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

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