

Dhx15 Cas9-CKO Strategy

Designer:

Daohua Xu

Reviewer:

Huimin Su

Design Date:

2019-11-22

Project Overview

Project Name

Dhx15

Project type

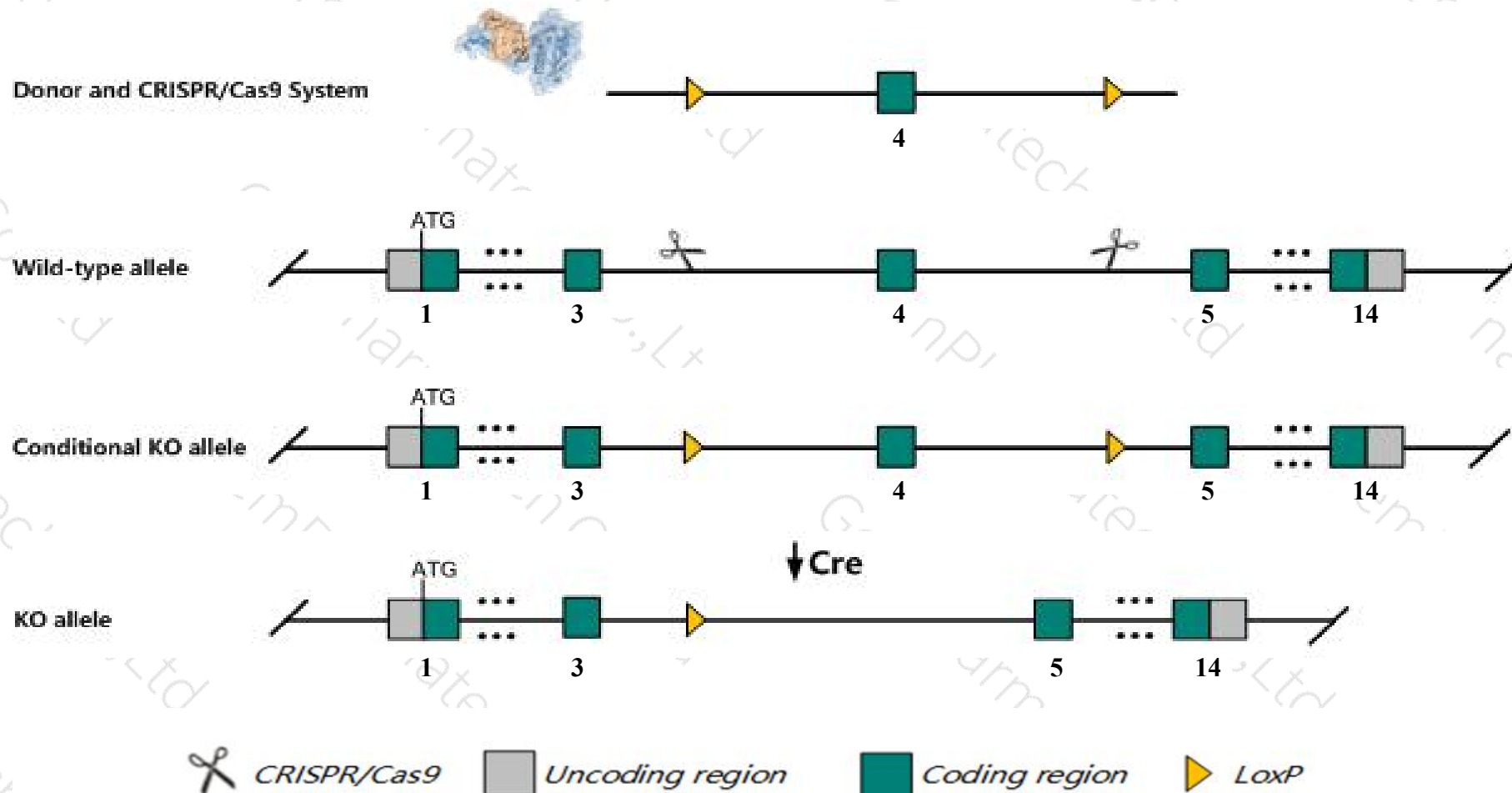
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dhx15* gene. The schematic diagram is as follows:



Technical routes

- The *Dhx15* gene has 7 transcripts. According to the structure of *Dhx15* gene, exon4 of *Dhx15-201* (ENSMUST00000031061.11) transcript is recommended as the knockout region. The region contains 160bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dhx15* 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 *Dhx15* gene is located on the Chr5. 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)

Dhx15 DEAH (Asp-Glu-Ala-His) box polypeptide 15 [Mus musculus (house mouse)]

Gene ID: 13204, updated on 31-Jan-2019

Summary



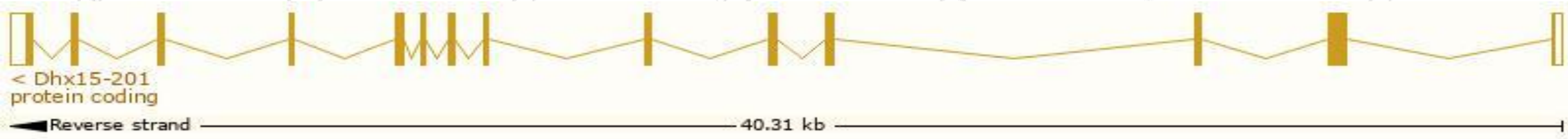
Official Symbol	Dhx15 provided by MGI
Official Full Name	DEAH (Asp-Glu-Ala-His) box polypeptide 15 provided by MGI
Primary source	MGI:MGI:1099786
See related	Ensembl:ENSMUSG00000029169
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	DBP1, DEAH9, Ddx15, HRH2, mDEAH9
Expression	Ubiquitous expression in CNS E11.5 (RPKM 55.8), CNS E14 (RPKM 38.2) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

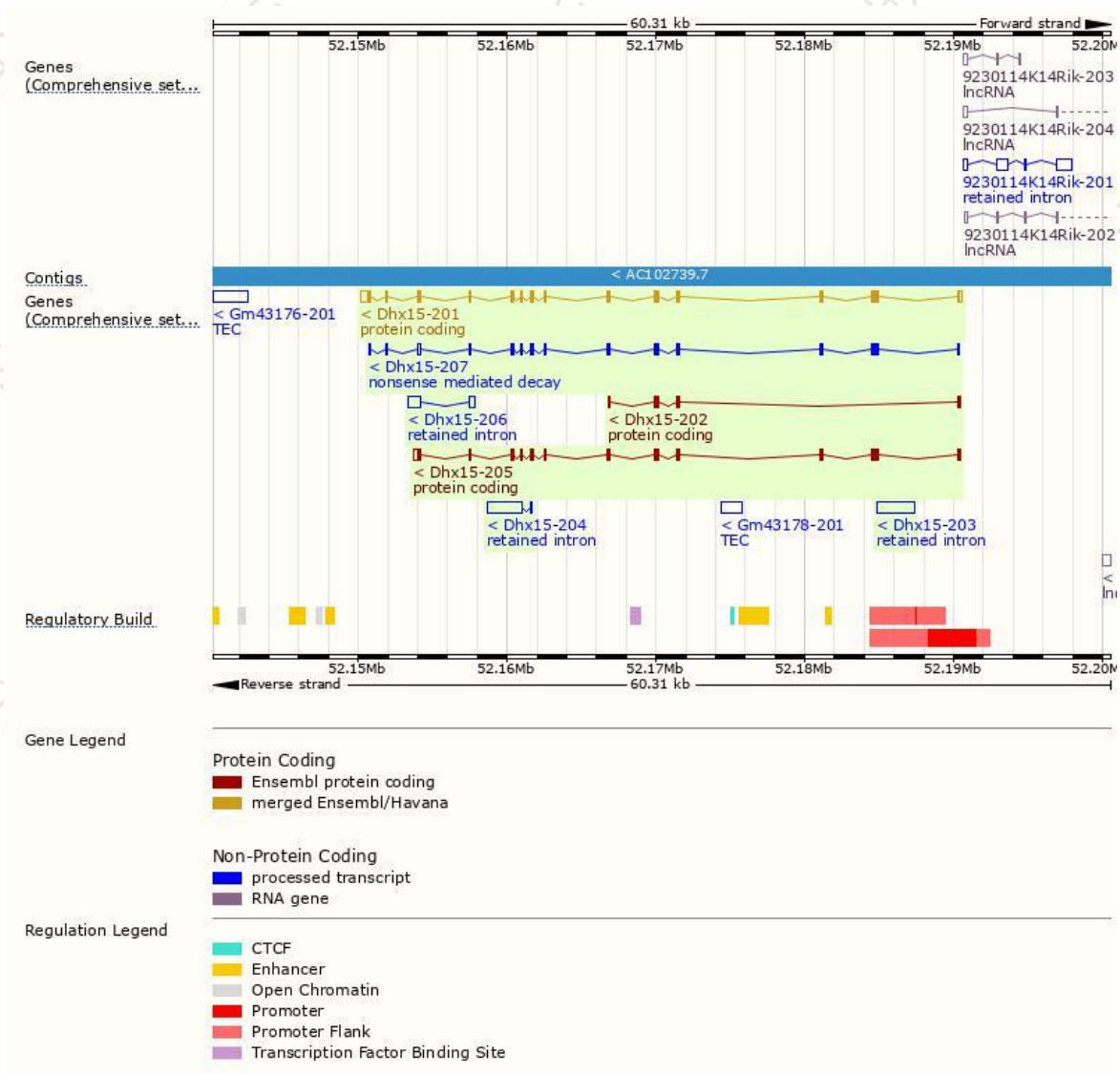
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dhx15-201	ENSMUST00000031061.11	3010	795aa	Protein coding	CCDS39085	Q35286 Q3UKJ6	TSL:1 GENCODE basic APPRIS P1
Dhx15-205	ENSMUST00000199321.4	2550	703aa	Protein coding	CCDS80280	Q497W9	TSL:1 GENCODE basic
Dhx15-202	ENSMUST00000195922.1	702	186aa	Protein coding	-	A0A0G2JGQ5	CDS 3' incomplete TSL:3
Dhx15-207	ENSMUST00000200186.4	2375	608aa	Nonsense mediated decay	-	A0A0G2JG10	TSL:1
Dhx15-203	ENSMUST00000196230.1	2600	No protein	Retained intron	-	-	TSL:NA
Dhx15-204	ENSMUST00000198378.1	2384	No protein	Retained intron	-	-	TSL:1
Dhx15-206	ENSMUST00000199343.1	1253	No protein	Retained intron	-	-	TSL:1

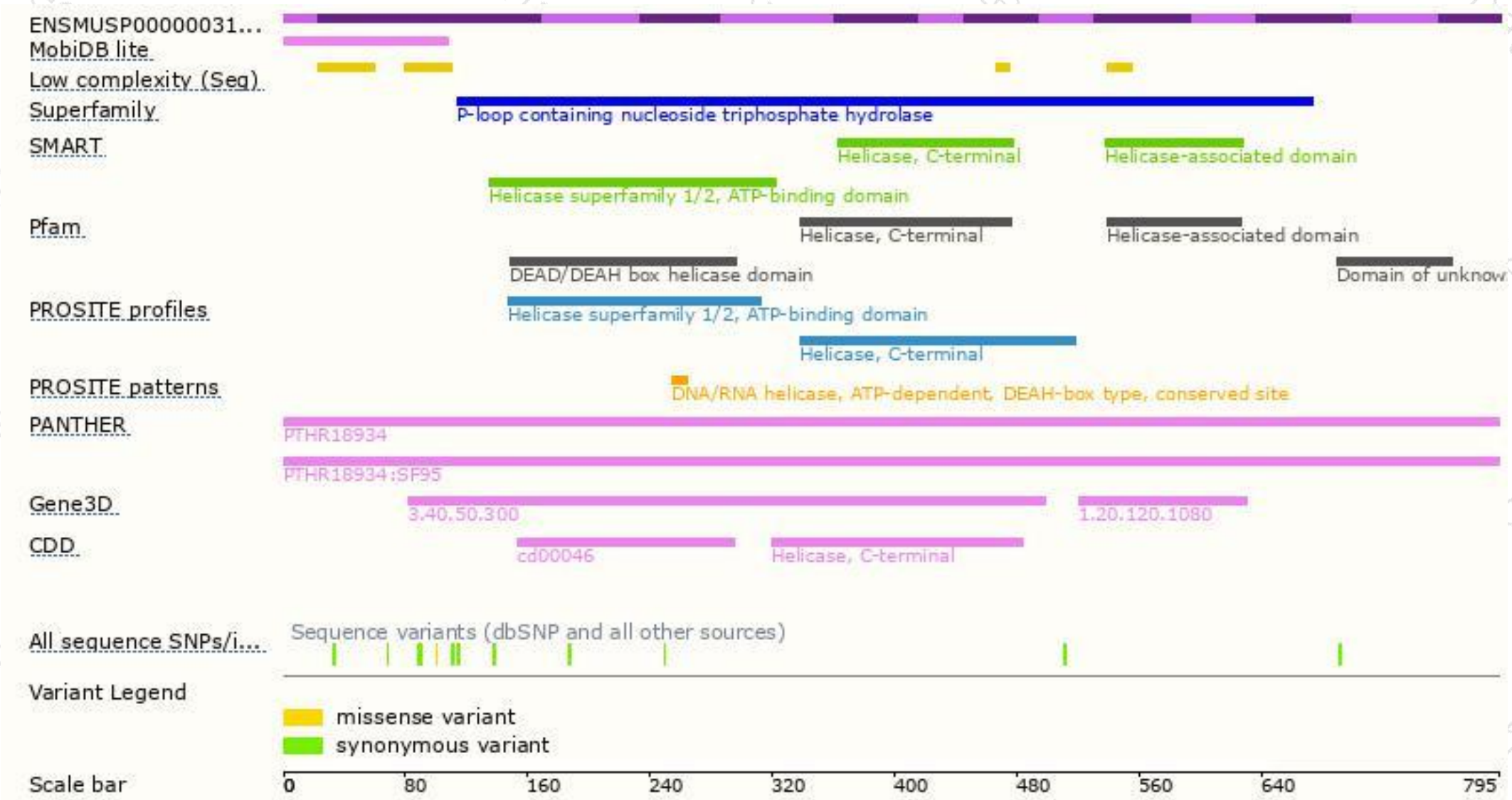
The strategy is based on the design of *Dhx15-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

