Dnajc5 Cas9-CKO Strategy

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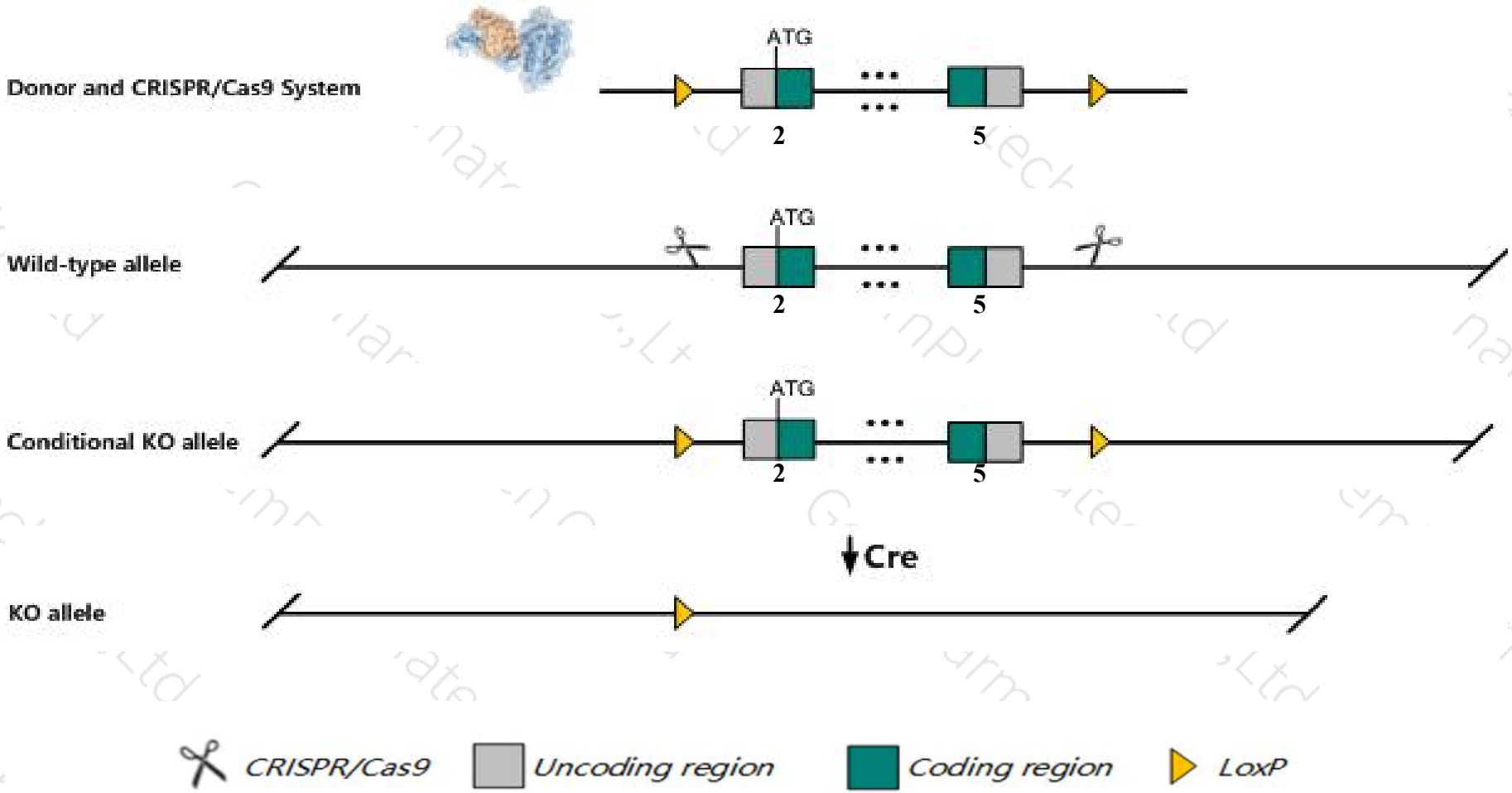
Project Overview

Project Name	***Dnajc5***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnajc5* gene. The schematic diagram is as follows:



Technical routes

- The *Dnajc5* gene has 6 transcripts. According to the structure of *Dnajc5* gene, exon2-exon5 of *Dnajc5-201* (ENSMUST00000072334.11) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Dnajc5* 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

- According to the existing MGI data,Mice homozygous for disruptions in this gene die within the first 3 months of live and abnormalities in their neuromuscular synapses. This results in various defects in movement and coordination.

- The *Dnajc5* 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）

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Dnajc5 DnaJ heat shock protein family (Hsp40) member C5 [Mus musculus (house mouse)]

Gene ID: 13002, updated on 31-Jan-2019

Summary

Official Symbol	Dnajc5 provided by MGI
Official Full Name	DnaJ heat shock protein family (Hsp40) member C5 provided byMGI
Primary source	MGI:MGI:892995
See related	Ensembl:ENSMUSG00000000826
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	2610314I24Rik, AU018536, Csp
Expression	Ubiquitous expression in CNS E18 (RPKM 42.4), cerebellum adult (RPKM 41.1) and 28 other tissuesSee more
Orthologs	human all

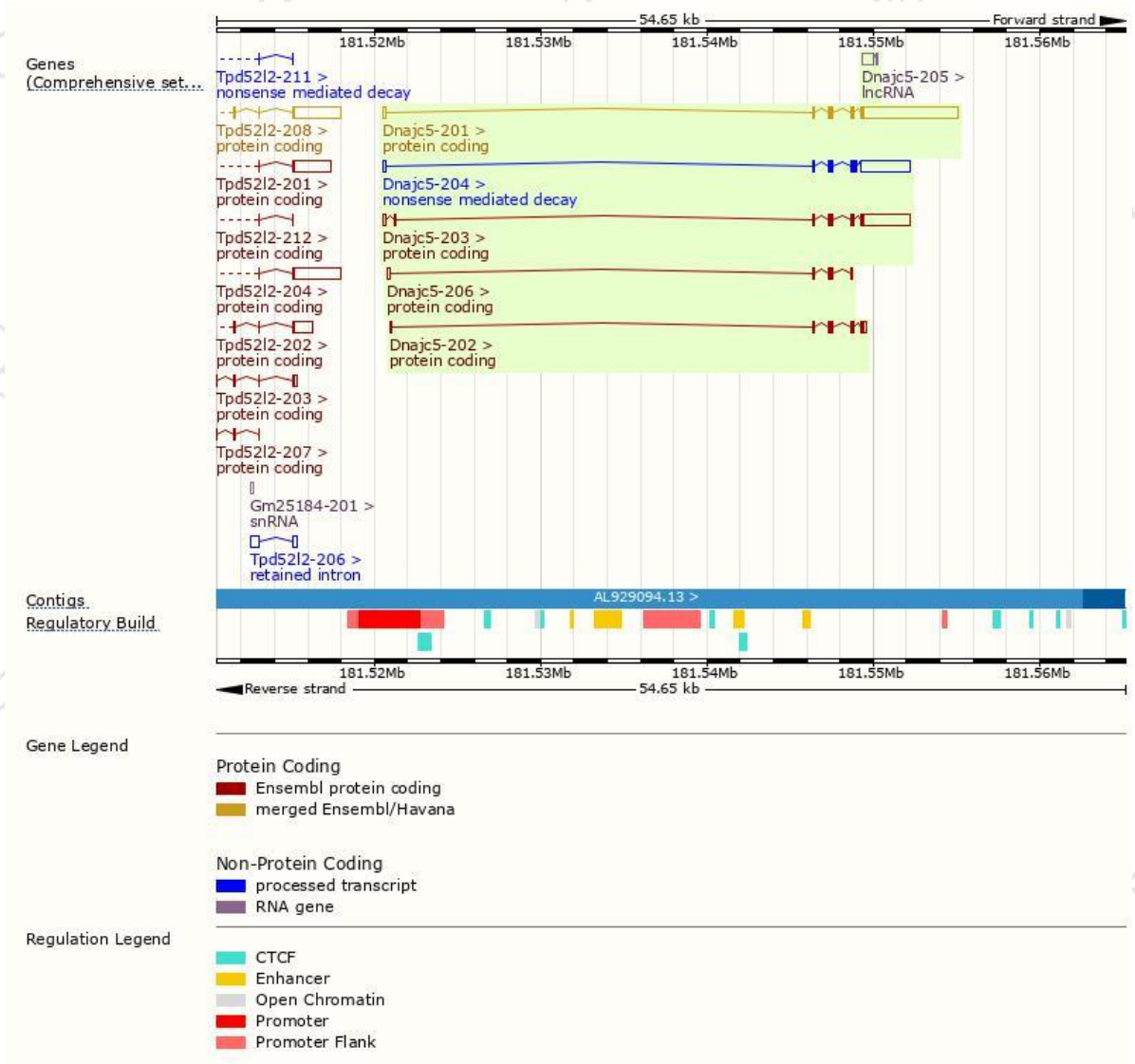
Transcript information（Ensembl）

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

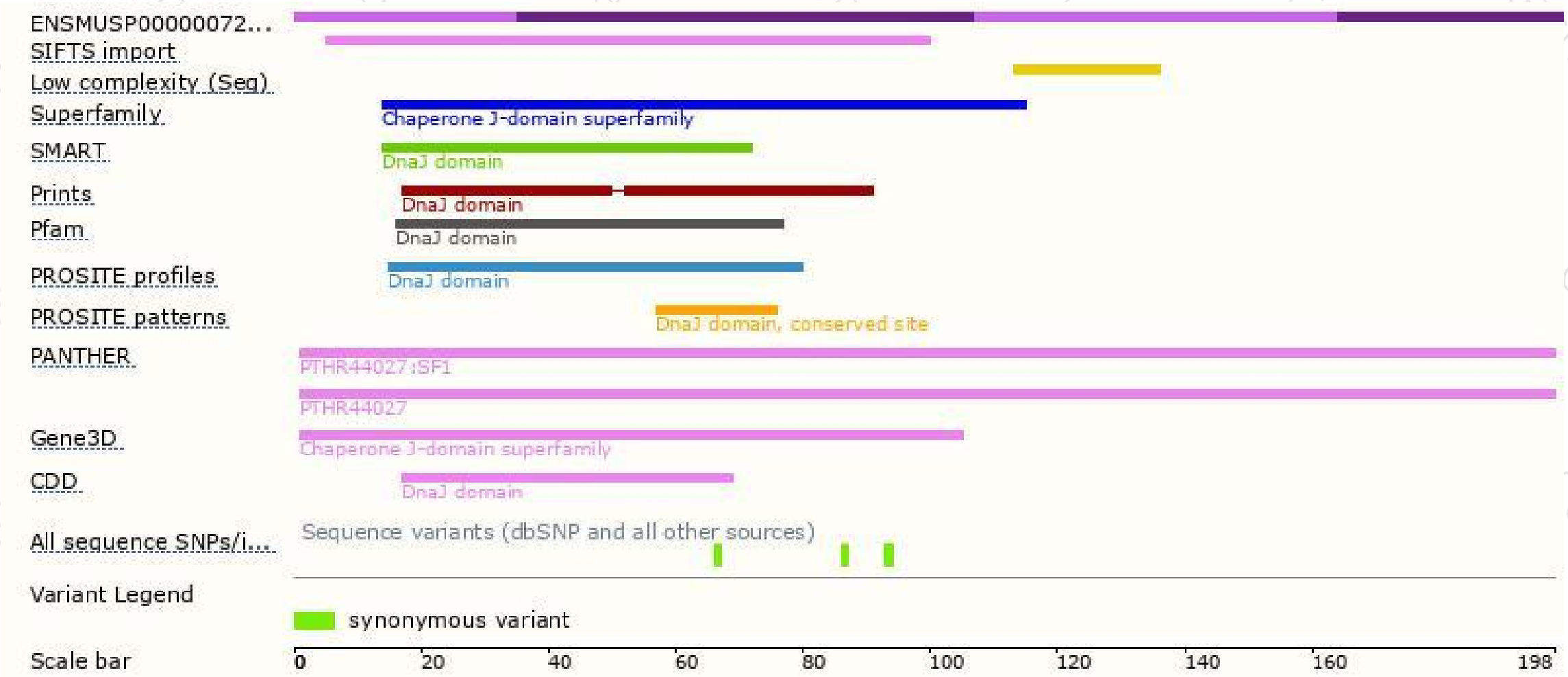
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnajc5-201	ENSMUST00000072334.11	6578	198aa	Protein coding	CCDS17215	P60904	TSL:1 GENCODE basic APPRIS P1
Dnajc5-203	ENSMUST00000108797.7	3664	198aa	Protein coding	CCDS17215	P60904	TSL:1 GENCODE basic APPRIS P1
Dnajc5-202	ENSMUST00000108796.1	934	198aa	Protein coding	CCDS17215	P60904	TSL:5 GENCODE basic APPRIS P1
Dnajc5-206	ENSMUST00000152578.7	609	141aa	Protein coding	-	A2AUE1	CDS 3' incomplete TSL:3
Dnajc5-204	ENSMUST00000116365.8	3728	167aa	Nonsense mediated decay	-	G5E8T0	TSL:1
Dnajc5-205	ENSMUST00000141523.1	787	No protein	lncRNA	-	-	TSL:2

The strategy is based on the design of *Dnajc5-201* transcript,The transcription is shown below

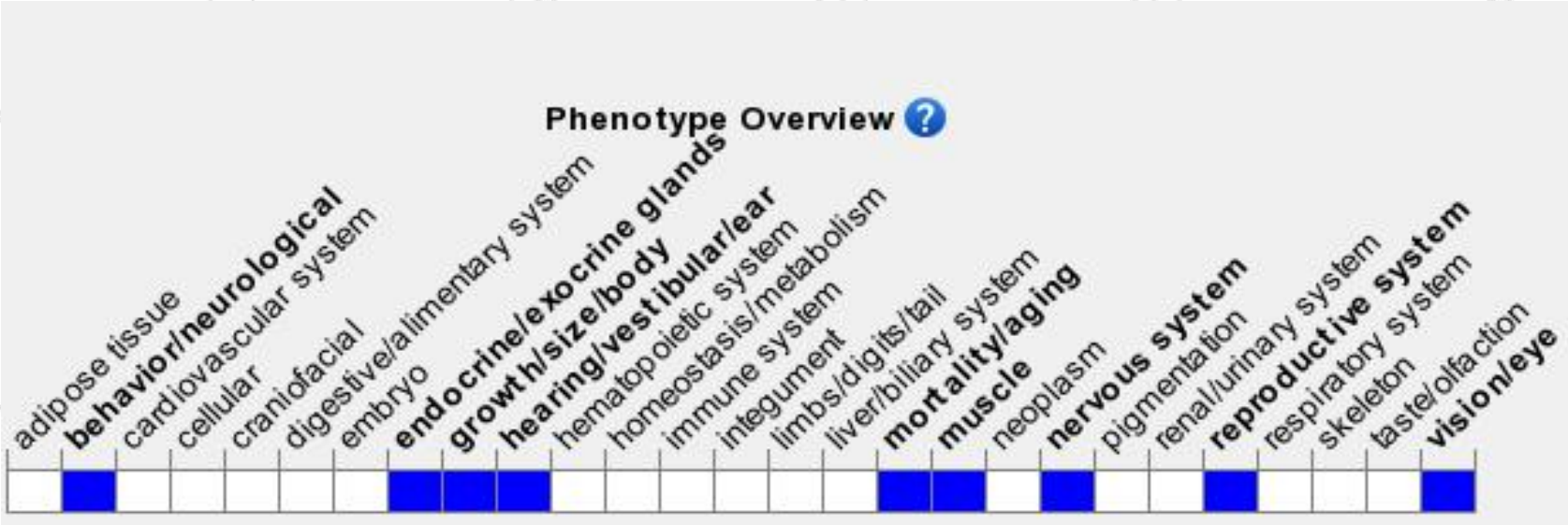
Genomic location distribution



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/).

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

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