Unc45b Cas9-KO Strategy

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Project Overview

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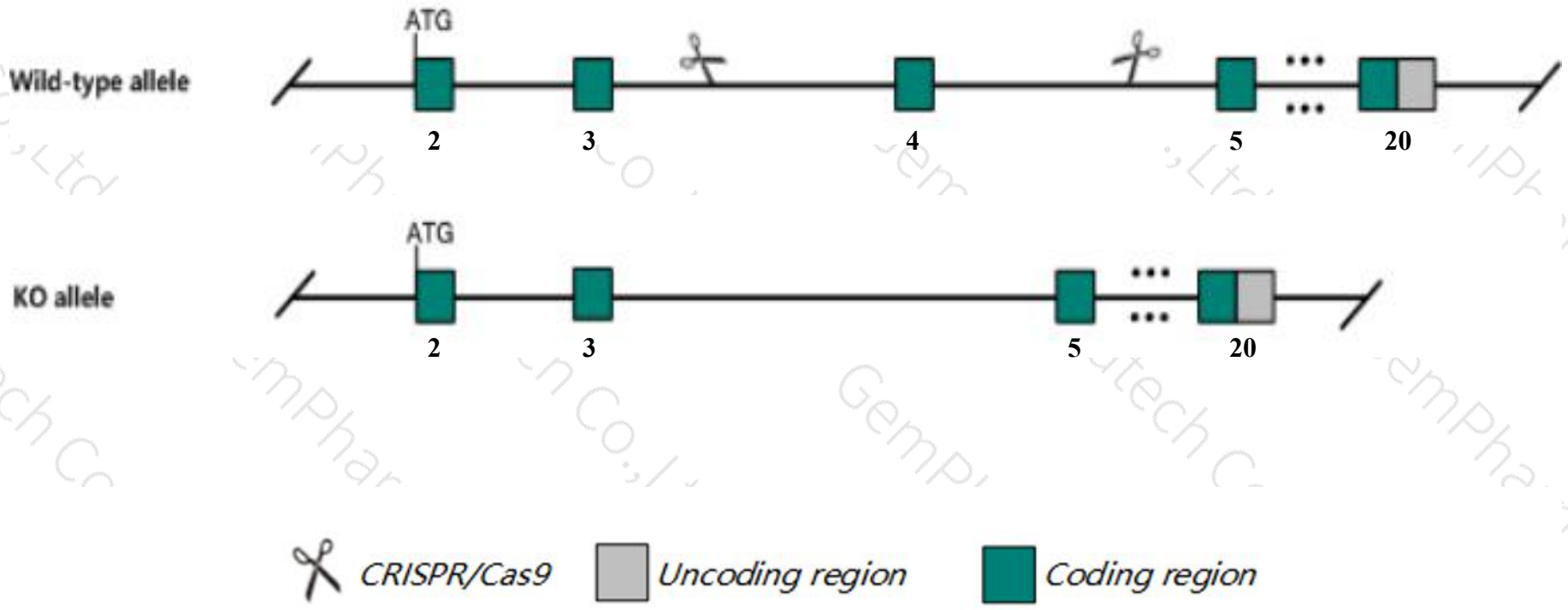
Project Name	***Unc45b***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Unc45b* gene. The schematic diagram is as follows:



Technical routes

➢ The *Unc45b* gene has 5 transcripts. According to the structure of *Unc45b* gene, exon4 of *Unc45b-201*(ENSMUST00000018989.13) transcript is recommended as the knockout region.The region contains 176bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Unc45b* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ According to the existing MGI data,mice homozygous for a transgenic gene disruption exhibit embryonic lethality at E9 without placental abnormalities.

➢ The *Unc45b* gene is located on the Chr11. 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）

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Unc45b unc-45 myosin chaperone B [Mus musculus (house mouse)]

Gene ID: 217012, updated on 13-Mar-2020

Summary

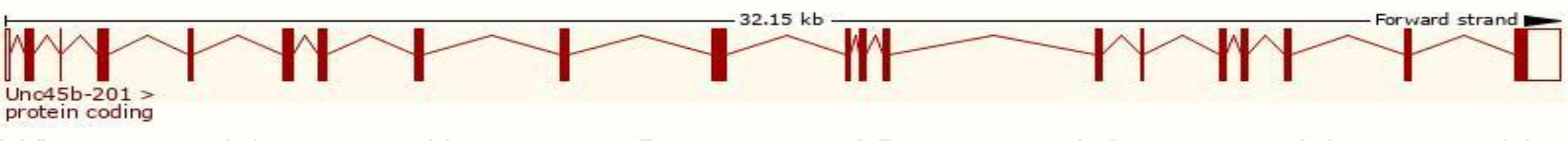
Official Symbol	Unc45b provided by MGI
Official Full Name	unc-45 myosin chaperone B provided byMGI
Primary source	MGI:MGI:2443377
See related	Ensembl:ENSMUSG00000018845
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA445617, Cmya4, D230041A13Rik, Unc45
Expression	Biased expression in heart adult (RPKM 41.6), mammary gland adult (RPKM 6.5) and 5 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

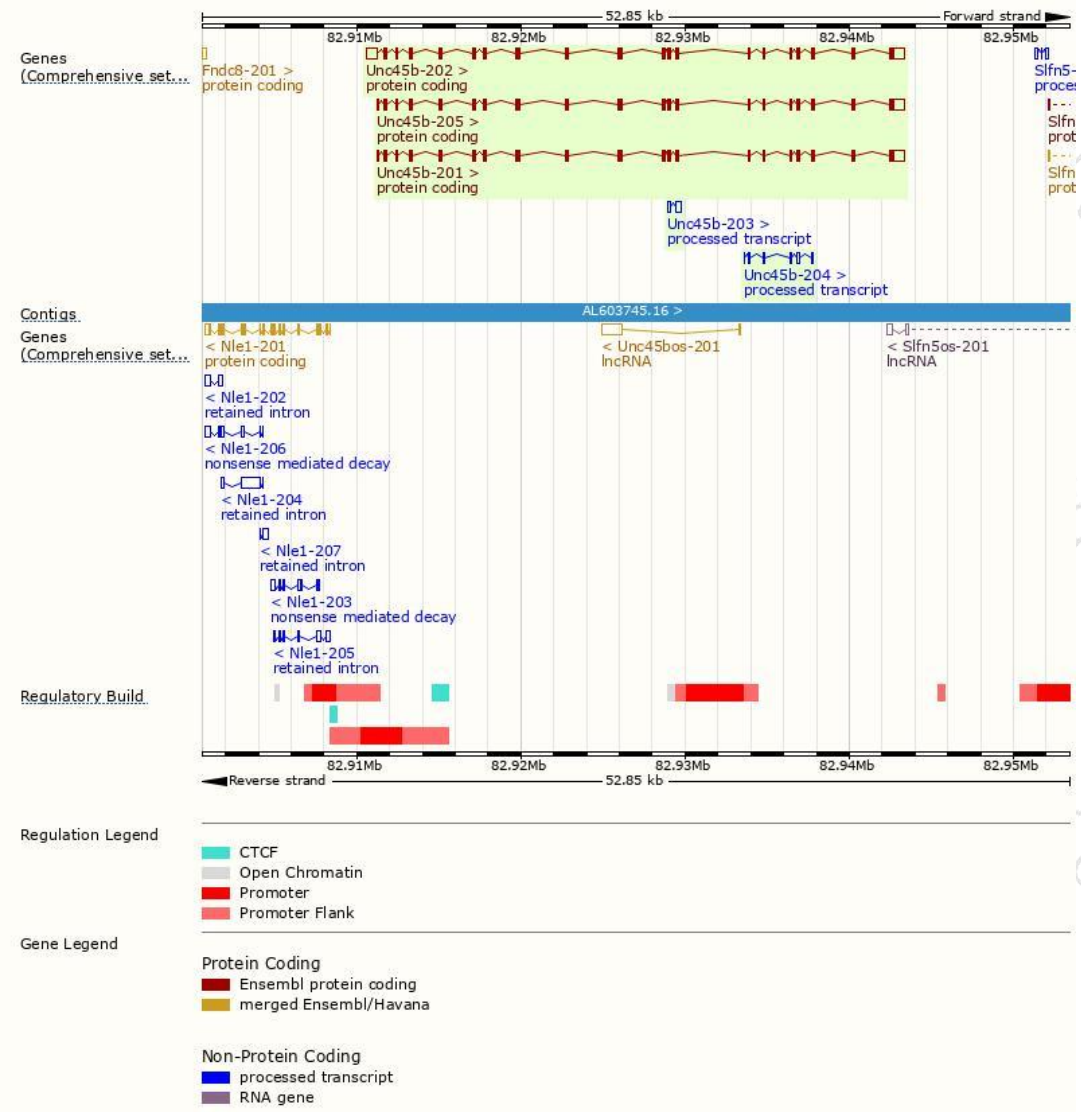
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Unc45b-201	ENSMUST00000018989.13	3549	929aa	Protein coding	CCDS36251	Q8CGY6	TSL:1 GENCODE basic APPRIS P2
Unc45b-202	ENSMUST00000108160.7	4152	931aa	Protein coding	-	Q8CGY6	TSL:5 GENCODE basic APPRIS ALT1
Unc45b-205	ENSMUST00000164945.2	3555	931aa	Protein coding	-	Q8CGY6	TSL:5 GENCODE basic APPRIS ALT1
Unc45b-204	ENSMUST00000142336.1	498	No protein	Processed transcript	-	-	TSL:5
Unc45b-203	ENSMUST00000125499.1	446	No protein	Processed transcript	-	-	TSL:5

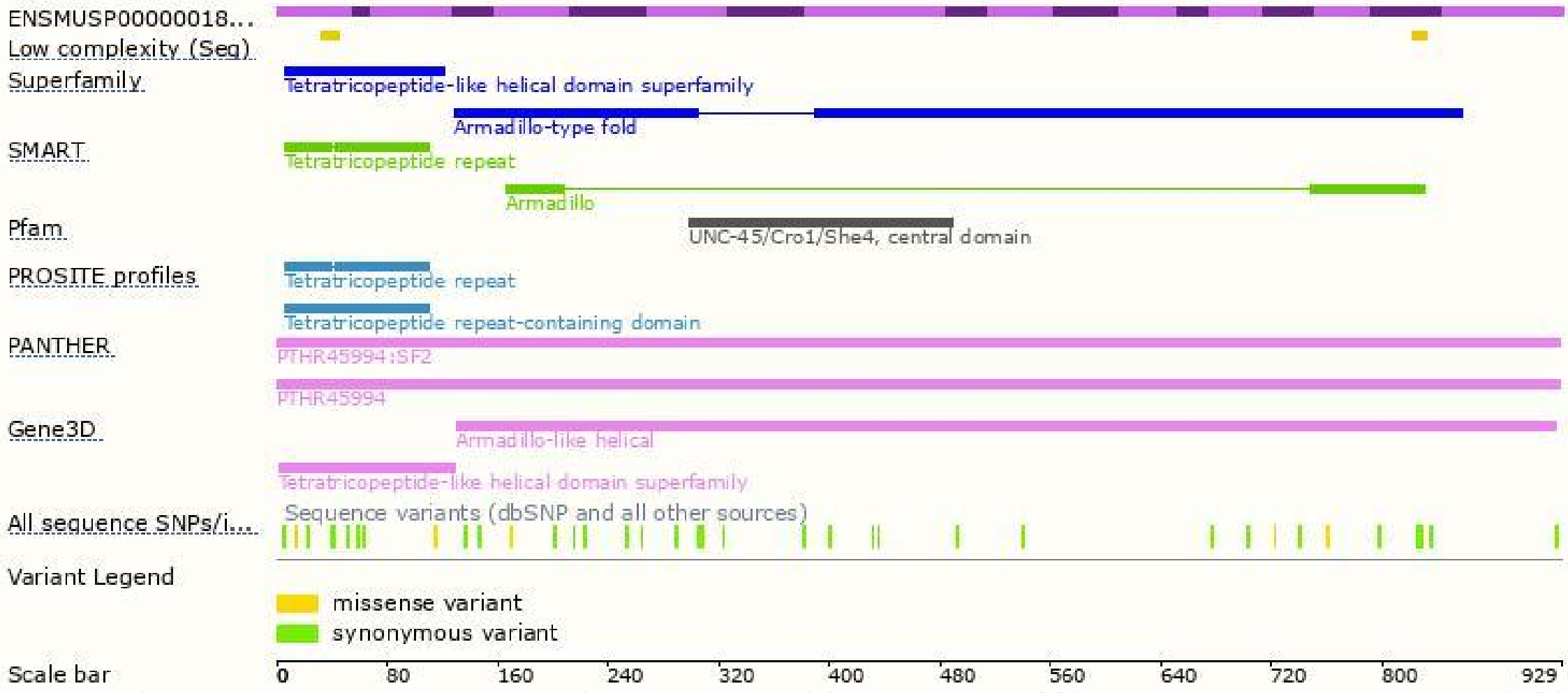
The strategy is based on the design of *Unc45b-201* transcript,the transcription is shown below:



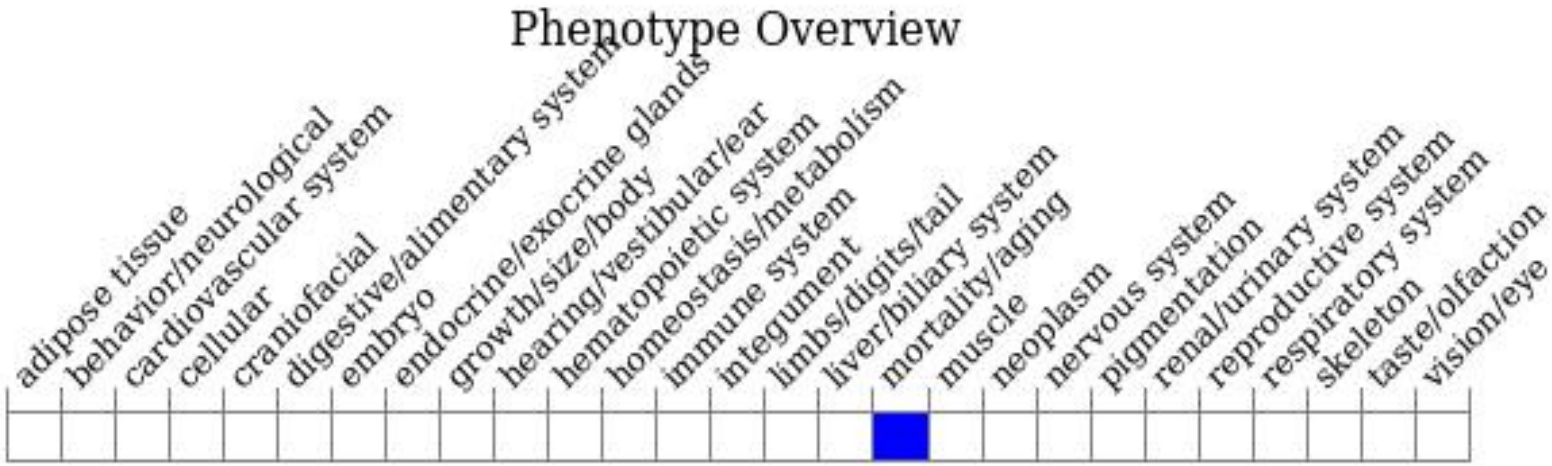
Genomic location distribution



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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