

Myo15 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Myo15

Project type

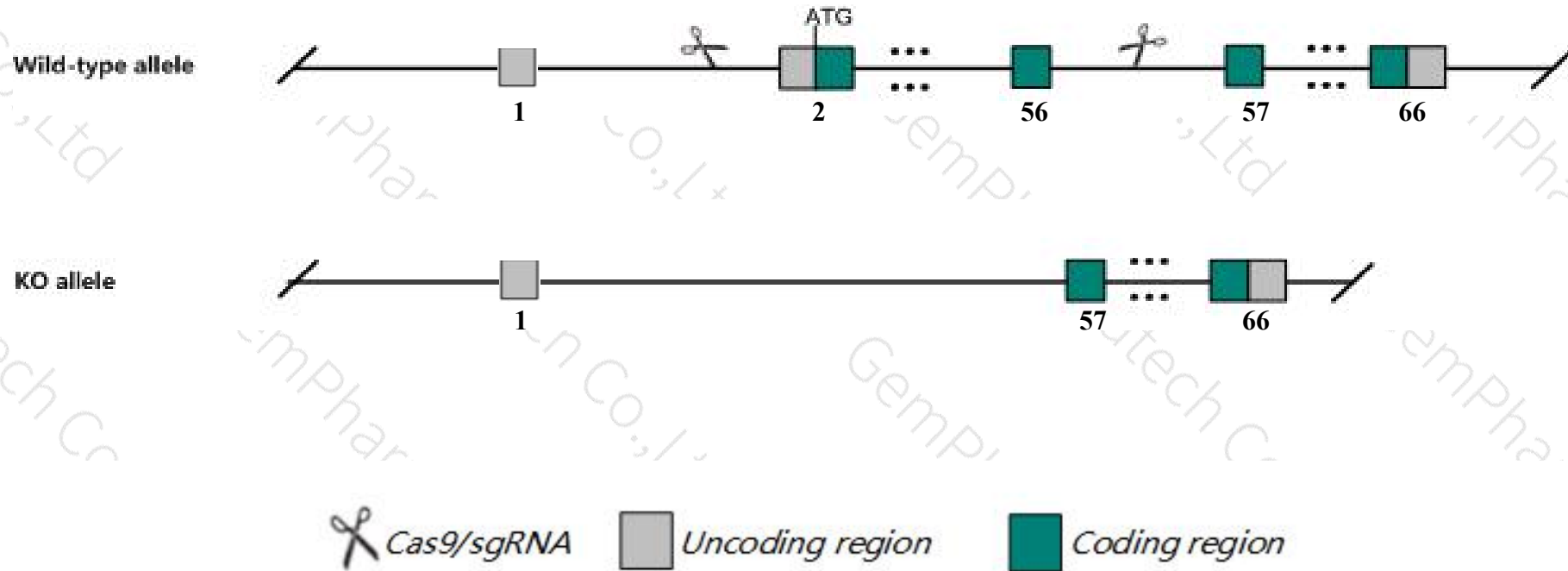
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Myo15* gene. The schematic diagram is as follows:



- The *Myo15* gene has 6 transcripts. According to the structure of *Myo15* gene, exon2-exon56 of *Myo15-201* (ENSMUST00000071880.8) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Myo15* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mutations in this gene result in profound deafness and neurological behavior.
- The *Myo15* 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)

Myo15 myosin XV [*Mus musculus* (house mouse)]

Gene ID: 17910, updated on 14-Aug-2019

Summary

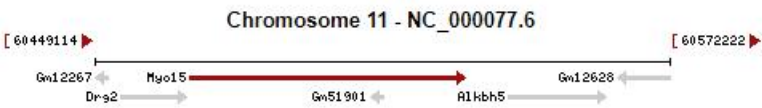
- Official Symbol** Myo15 provided by MGI
- Official Full Name** myosin XV provided by MGI
- Primary source** MGI:MGI:1261811
- See related** Ensembl:ENSMUSG00000042678
- Gene type** protein coding
- RefSeq status** VALIDATED
- Organism** *Mus musculus*
- Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as** sh2; sh-2; Myo15a
- Expression** Biased expression in testis adult (RPKM 2.4), cerebellum adult (RPKM 0.5) and 4 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 11 B2; 11 37.81 cM [See Myo15 in Genome Data Viewer](#)

Exon count: 67

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	11	NC_000077.6 (60469339..60528369)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	11	NC_000077.5 (60282841..60341871)

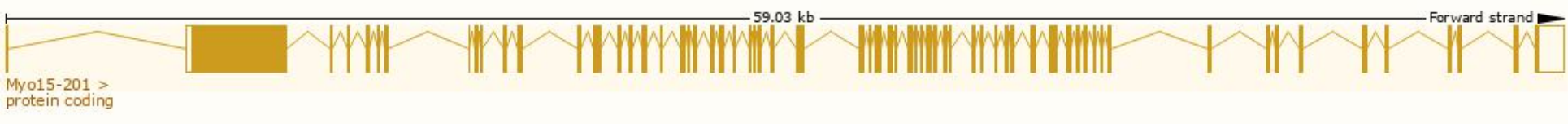


Transcript information (Ensembl)

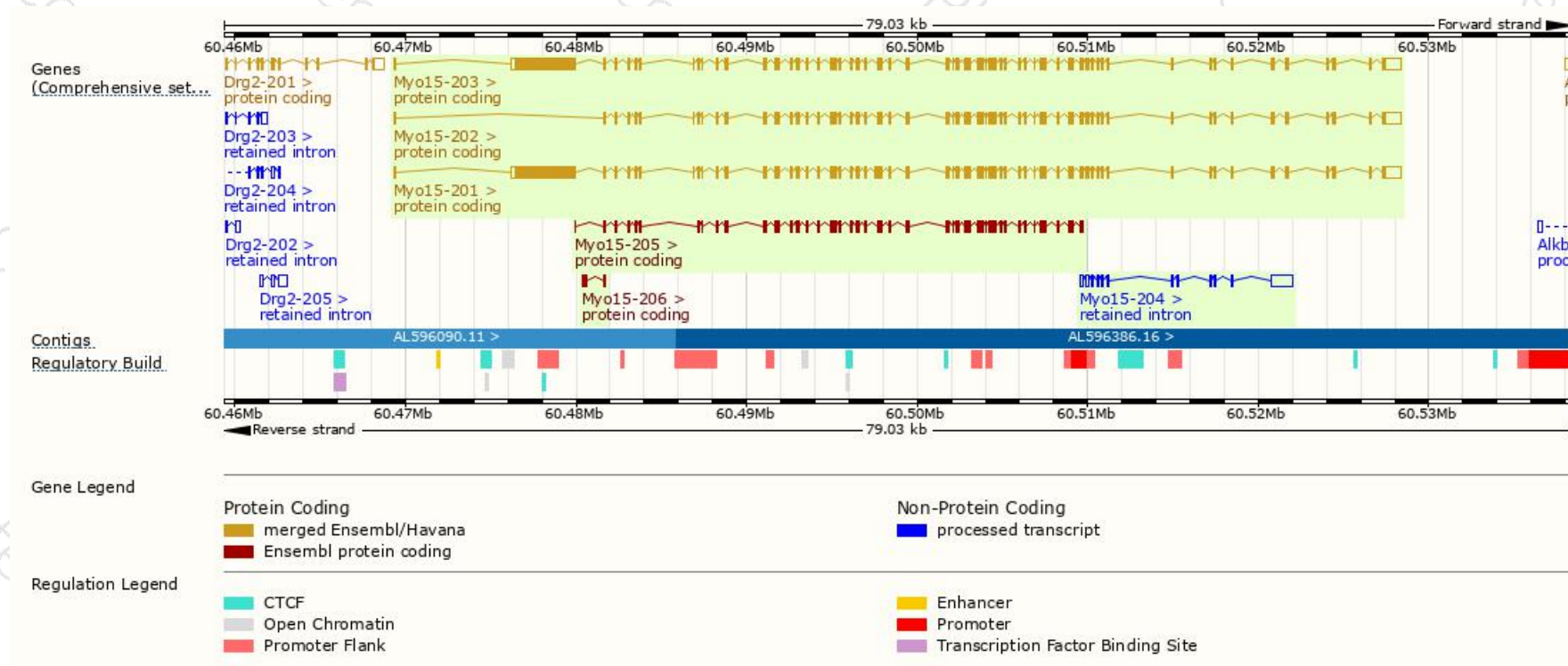
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Myo15-201	ENSMUST00000071880.8	11769	3511aa	Protein coding	CCDS24792	Q9QZZ4	TSL:5 GENCODE basic APPRIS P4
Myo15-203	ENSMUST00000094135.8	11715	3493aa	Protein coding	CCDS48811	Q9QZZ4	TSL:5 GENCODE basic APPRIS ALT2
Myo15-202	ENSMUST00000081823.11	7953	2306aa	Protein coding	CCDS24793	Q9QZZ4	TSL:5 GENCODE basic APPRIS ALT2
Myo15-205	ENSMUST00000126522.3	5351	1784aa	Protein coding	-	F6VXK7	CDS 5' and 3' incomplete TSL:1
Myo15-206	ENSMUST00000238401.1	360	77aa	Protein coding	-	-	CDS 3' incomplete
Myo15-204	ENSMUST00000122825.1	2285	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Myo15-201* transcript,The transcription is shown below



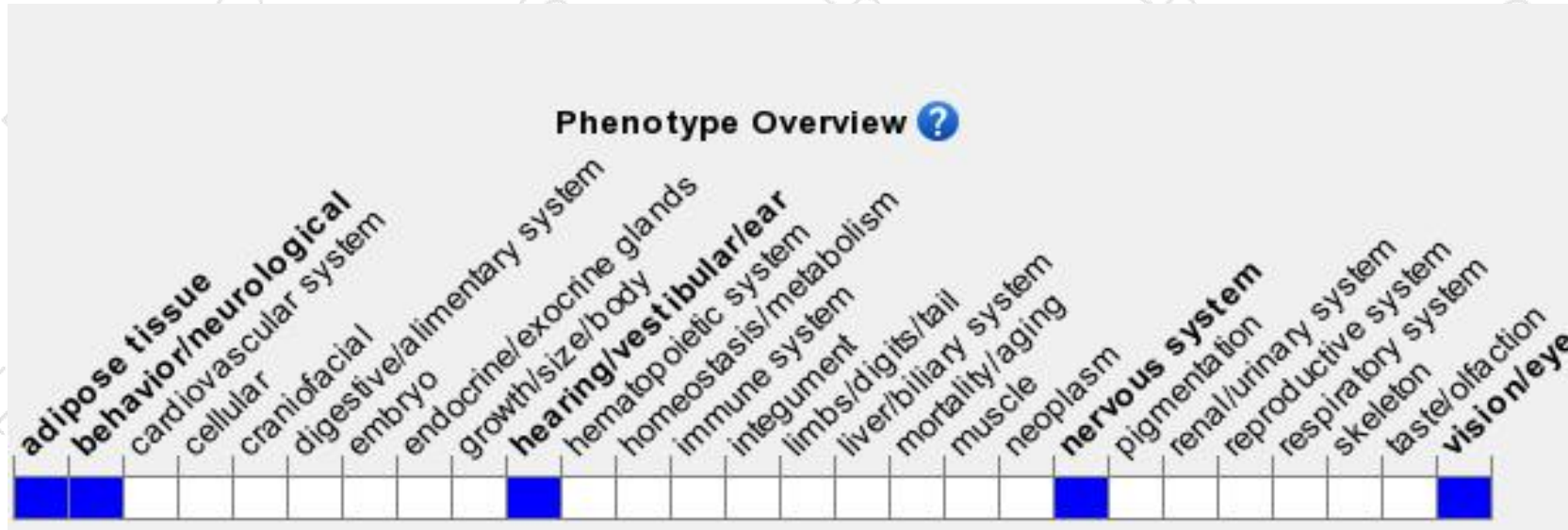
Genomic location distribution



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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