

Myo3a Cas9-KO Strategy

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Project Overview

Project Name

Myo3a

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Myo3a* gene. The schematic diagram is as follows:



- The *Myo3a* gene has 6 transcripts. According to the structure of *Myo3a* gene, exon4-exon5 of *Myo3a-201* (ENSMUST00000044749.13) transcript is recommended as the knockout region. The region contains 205bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Myo3a* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-in allele exhibit impaired hearing and cochlear hair cell degeneration.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- The *Myo3a* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Myo3a myosin IIIA [Mus musculus (house mouse)]

Gene ID: 667663, updated on 31-Jan-2019

Summary



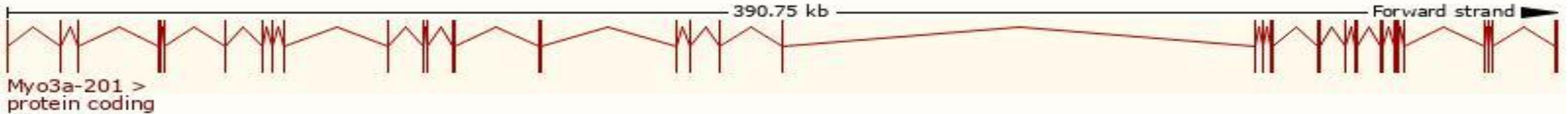
Official Symbol	Myo3a provided by MGI
Official Full Name	myosin IIIA provided by MGI
Primary source	MGI:MGI:2183924
See related	Ensembl:ENSMUSG00000025716
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9030416P08Rik
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

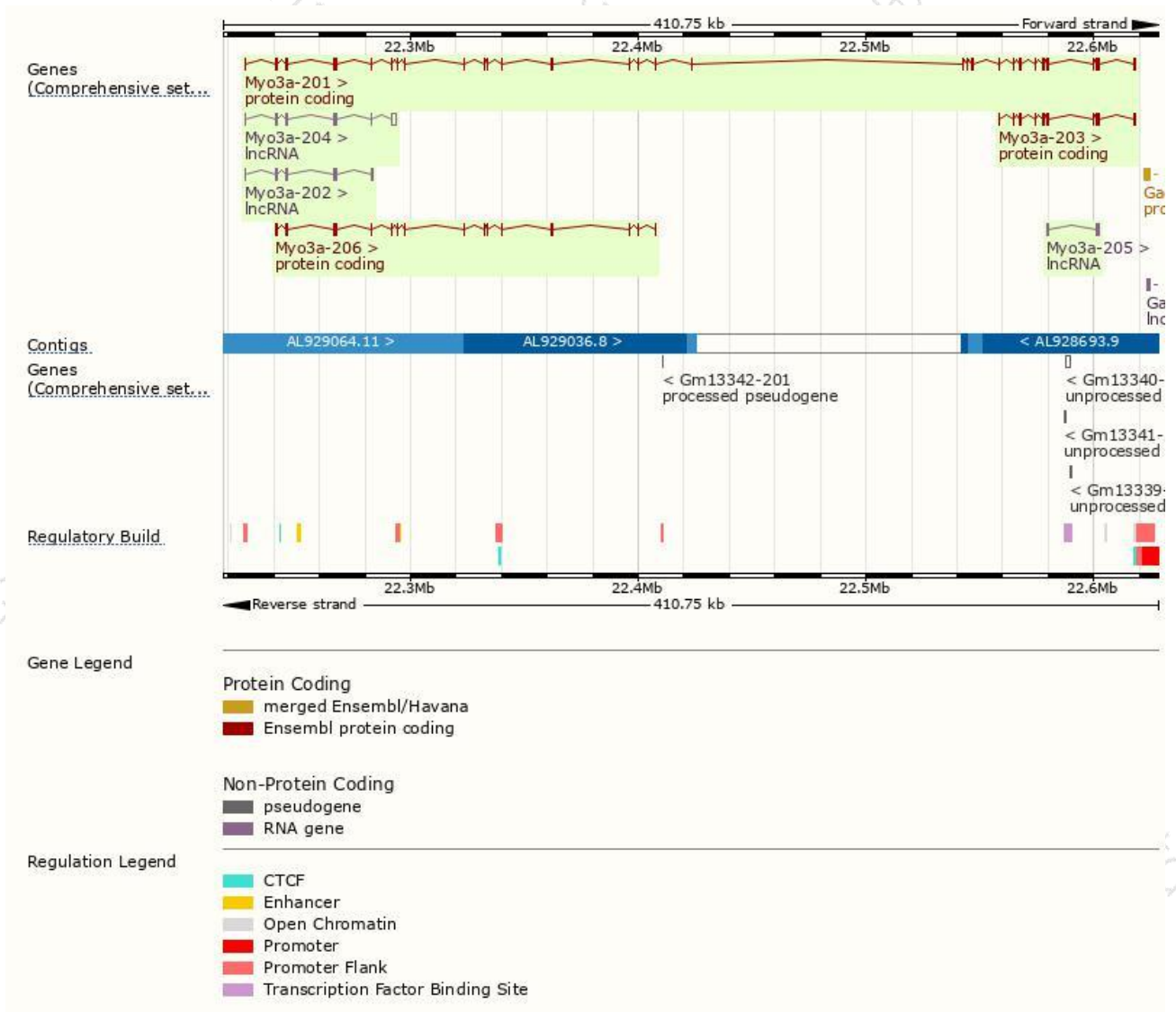
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Myo3a-201	ENSMUST00000044749.13	5082	1621aa	Protein coding	CCDS84477	F6QNG5	TSL:5 GENCODE basic APPRIS P1
Myo3a-206	ENSMUST00000153002.2	2270	753aa	Protein coding	-	B1AYY3	CDS 3' incomplete TSL:5
Myo3a-203	ENSMUST00000138863.1	2130	683aa	Protein coding	-	A2ASW0	CDS 5' incomplete TSL:5
Myo3a-204	ENSMUST00000142435.1	2831	No protein	lncRNA	-	-	TSL:5
Myo3a-202	ENSMUST00000138850.7	1648	No protein	lncRNA	-	-	TSL:1
Myo3a-205	ENSMUST00000149423.1	332	No protein	lncRNA	-	-	TSL:5

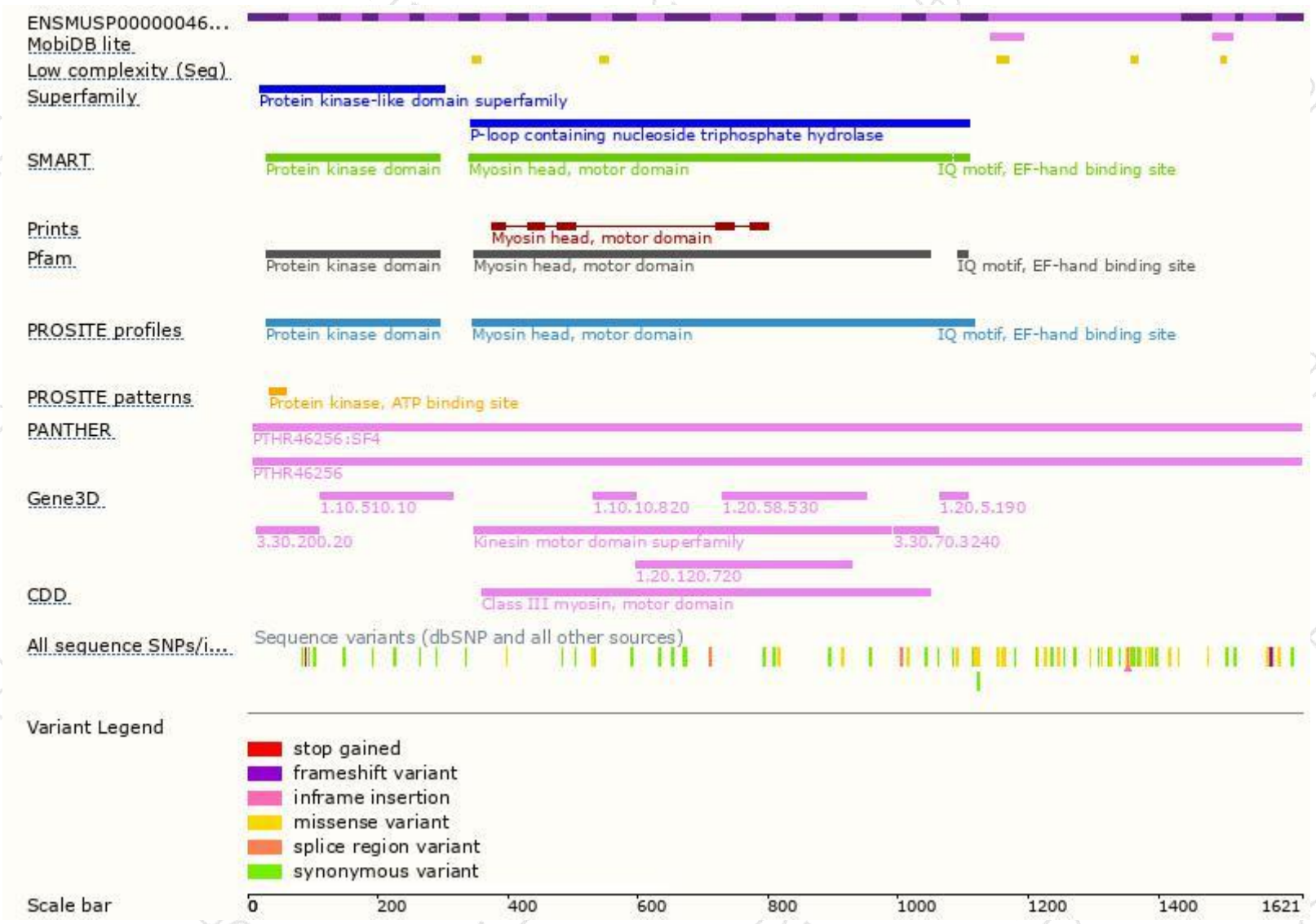
The strategy is based on the design of *Myo3a-201* transcript,The transcription is shown below



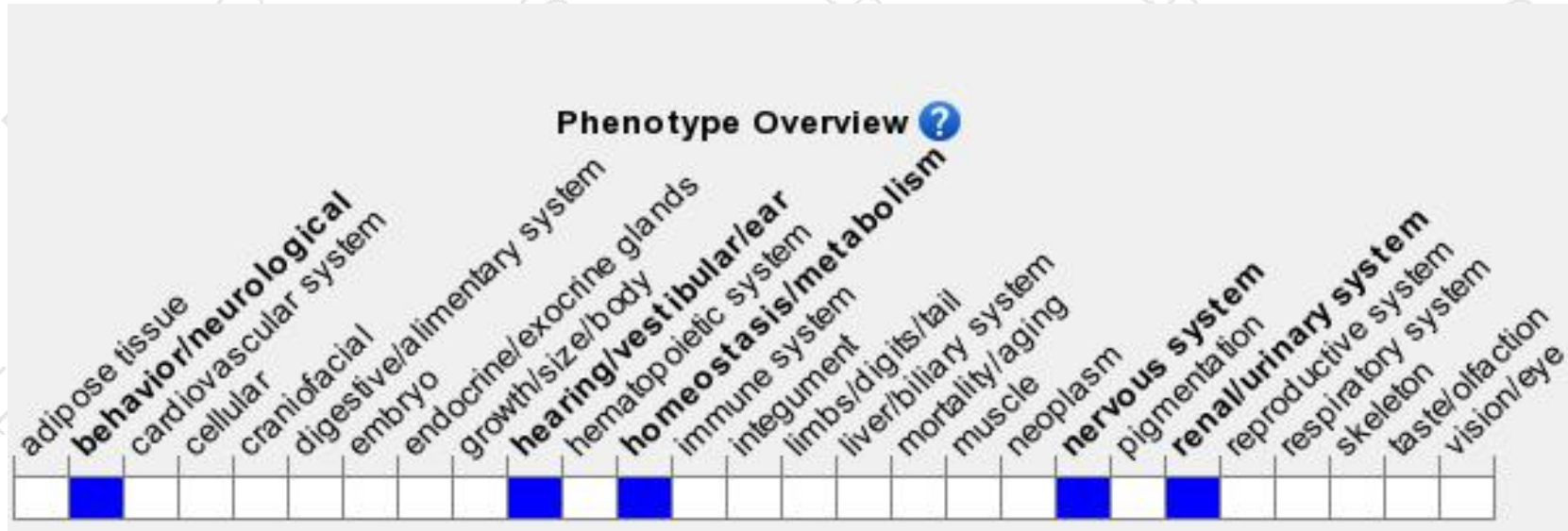
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous for a knock-in allele exhibit impaired hearing and cochlear hair cell degeneration.

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

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