Dym Cas9-KO Strategy

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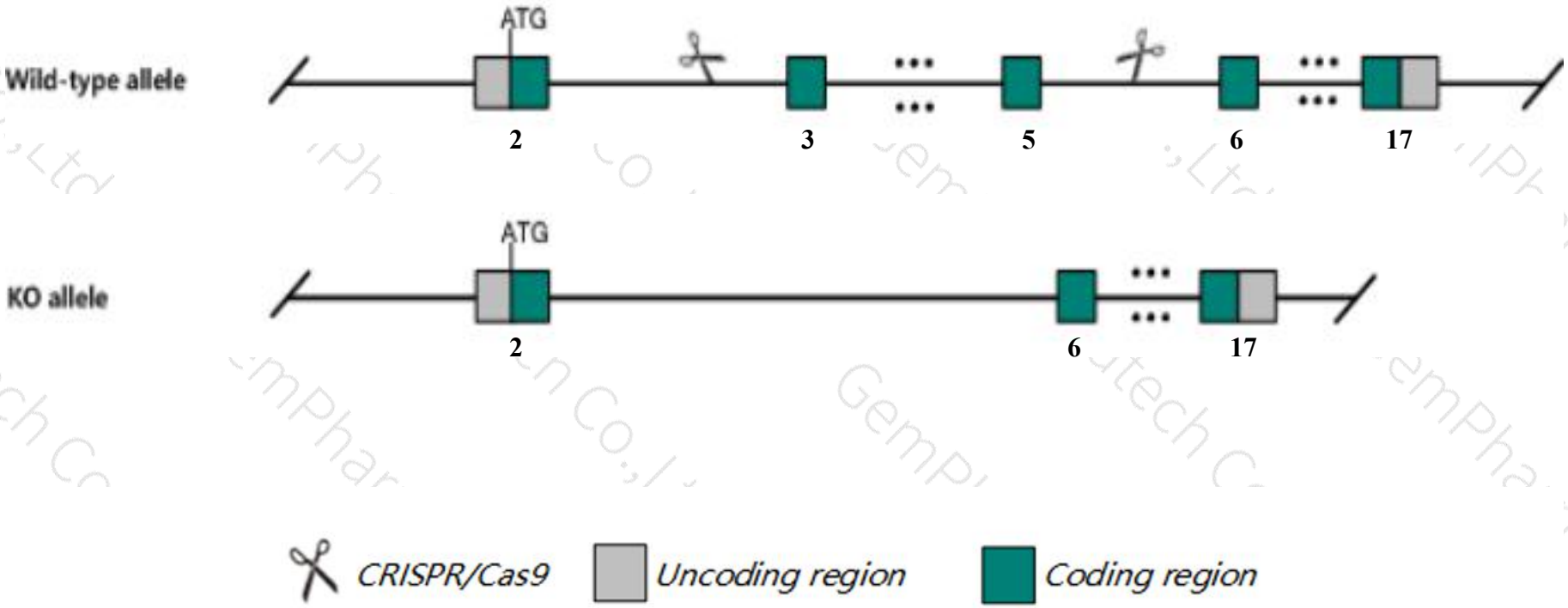
Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Dym* gene has 6 transcripts. According to the structure of *Dym* gene, exon3-exon5 of *Dym-201* (ENSMUST00000039608.8) transcript is recommended as the knockout region.The region contains 281bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

- According to the existing MGI data,Mice homozygous for a gene trapped allele display decreased body size with short tubular bones, chondrodysplasia, partial penetrance of obstructive hydronephrosis and impaired vesicular transport.
- Transcript *Dym*-203&206 may not be affected.
- The *Dym* gene is located on the Chr18. 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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Dym dymeclin [*Mus musculus* (house mouse)]

Gene ID: 69190, updated on 14-Aug-2019

Summary

Official Symbol	Dym provided by MGI
Official Full Name	dymeclin provided by MGI
Primary source	MGI:MGI:1918480
See related	Ensembl:ENSMUSG00000035765
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	1810041M12Rik; 4933427L07Rik; C030019K18Rik
Expression	Ubiquitous expression in testis adult (RPKM 9.1), cerebellum adult (RPKM 5.0) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 18; 18 E2-E3

See Dym in Genome Data Viewer

Exon count: 19

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	18	NC_000084.6 (75018699..75286966)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	18	NC_000084.5 (75178426..75446620)

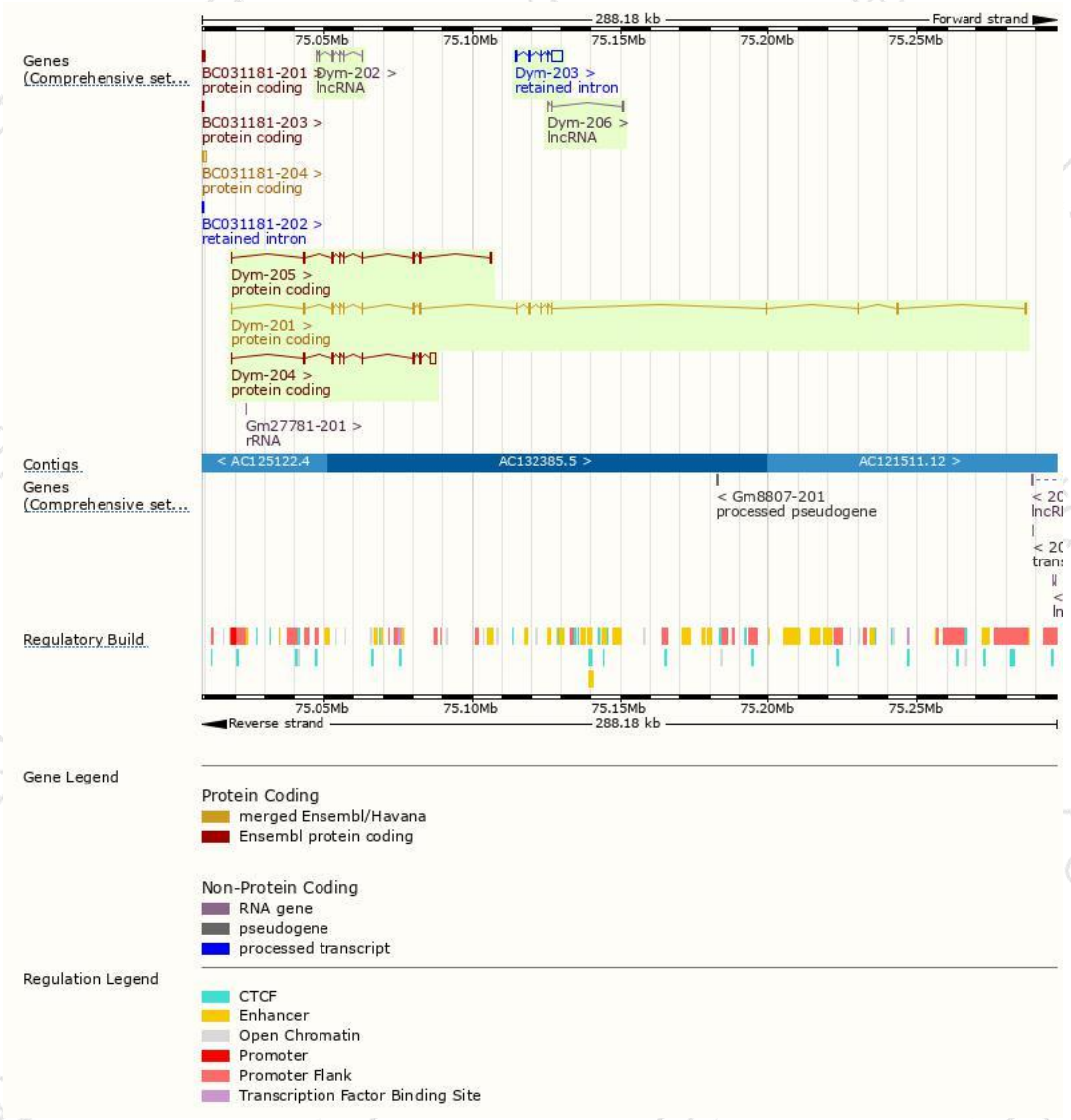
Transcript information（Ensembl）

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

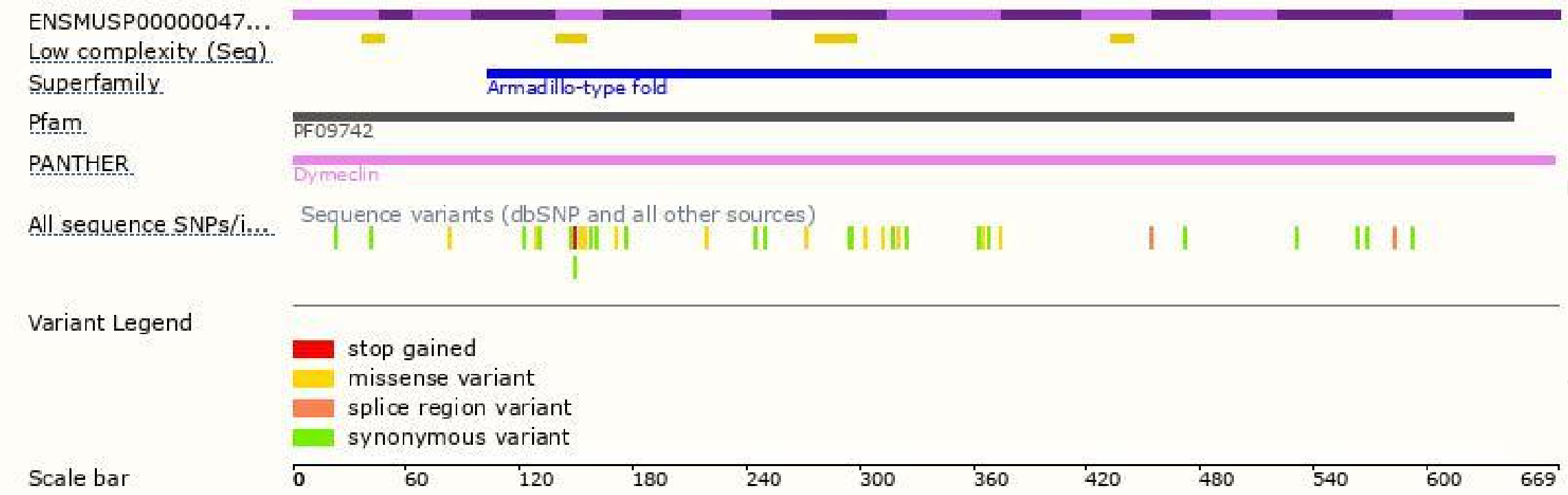
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dym-201	ENSMUST00000039608.8	2456	669aa	Protein coding	CCDS29346	Q8CHY3	TSL:1 GENCODE basic APPRIS P1
Dym-204	ENSMUST00000235692.1	3007	344aa	Protein coding	-	-	GENCODE basic
Dym-205	ENSMUST00000236220.1	1571	263aa	Protein coding	-	-	GENCODE basic
Dym-203	ENSMUST00000235554.1	4307	No protein	Retained intron	-	-	
Dym-206	ENSMUST00000236840.1	556	No protein	lncRNA	-	-	
Dym-202	ENSMUST00000235545.1	515	No protein	lncRNA	-	-	

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

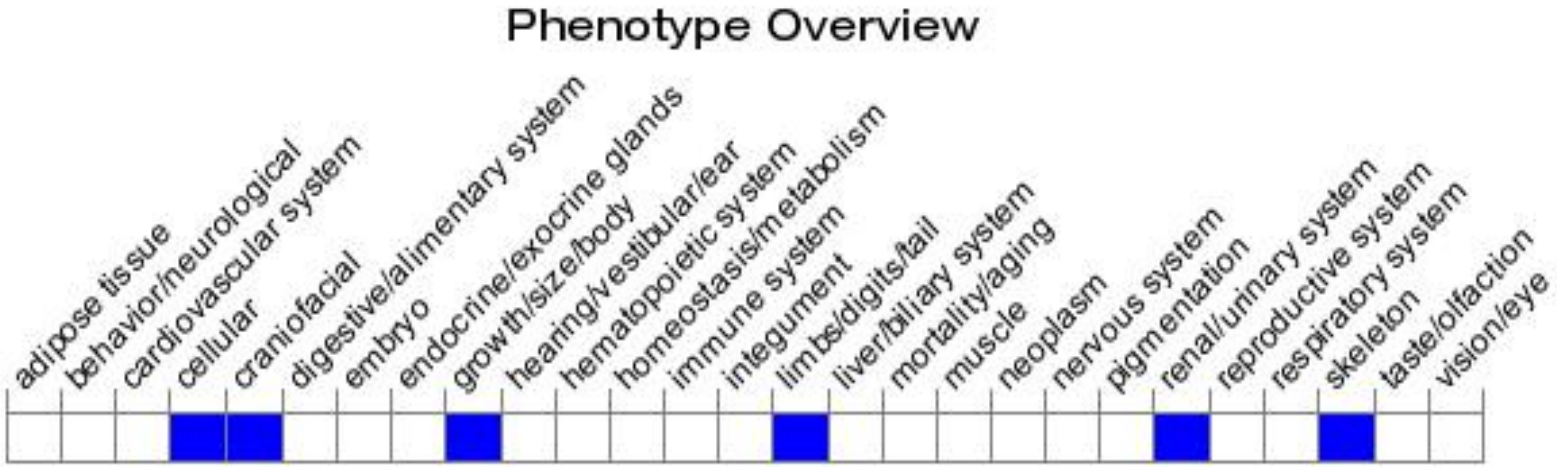
Genomic location distribution



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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