

Hmmr Cas9-KO Strategy

Designer: Ruirui Zhang

Reviewer: Xueting Zhang

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Overview

Target Gene Name

- Hmnr

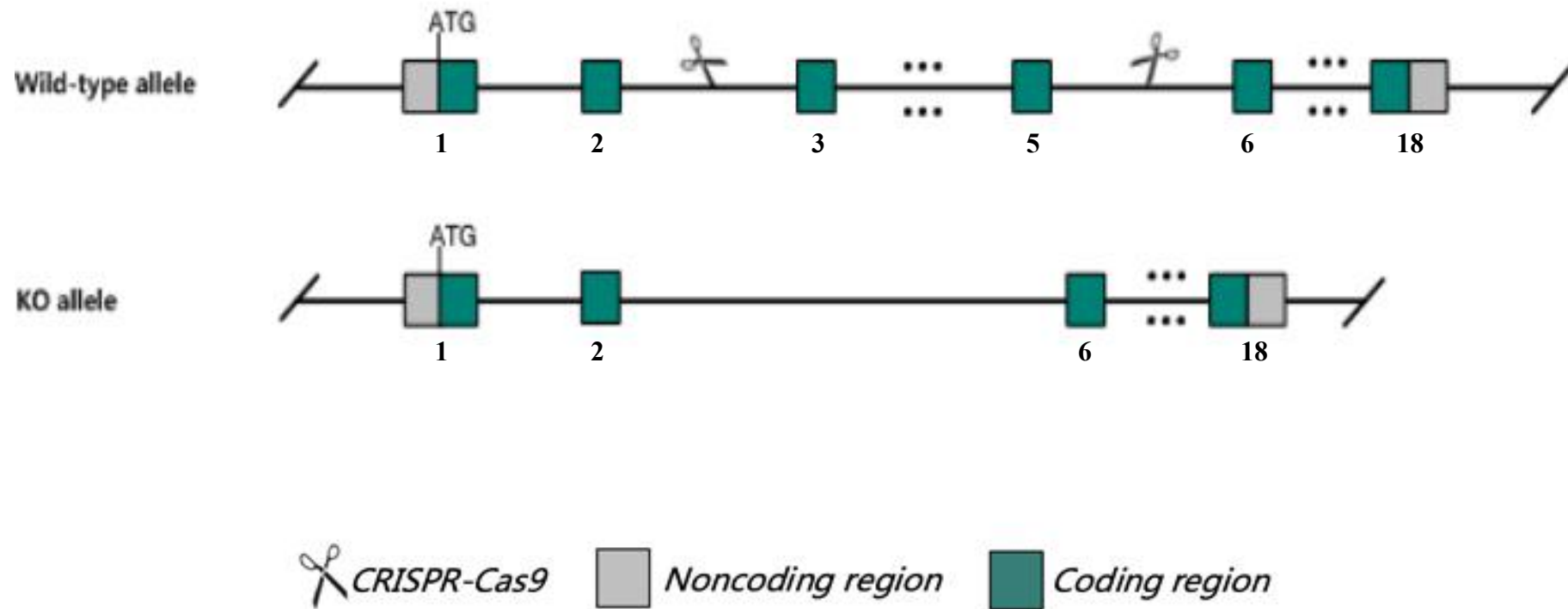
Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Technical Information

- The *Hmnr* gene has 4 transcripts. According to the structure of *Hmnr* gene, exon3-exon5 of *Hmnr*-201 (ENSMUST00000020579.9) transcript is recommended as the knockout region. The region contains 317bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Hmnr* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

Gene Information

Hmmr hyaluronan mediated motility receptor (RHAMM) [Mus musculus (house mouse)]

Gene ID: 15366, updated on 13-Mar-2020

Summary

Official Symbol	Hmmr provided by MGI
Official Full Name	hyaluronan mediated motility receptor (RHAMM) provided by MGI
Primary source	MGI:MGI:104667
See related	Ensembl:ENSMUSG00000020330
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	AA386826, CD168, Rhamm
Expression	Biased expression in liver E14 (RPKM 13.5), liver E14.5 (RPKM 10.2) and 10 other tissues See more
Orthologs	human all

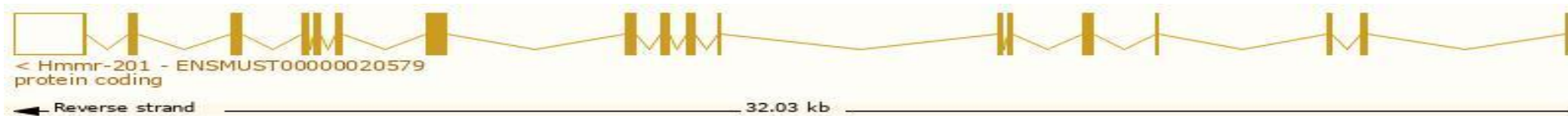
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

The gene has 4 transcripts, all transcripts are shown below:

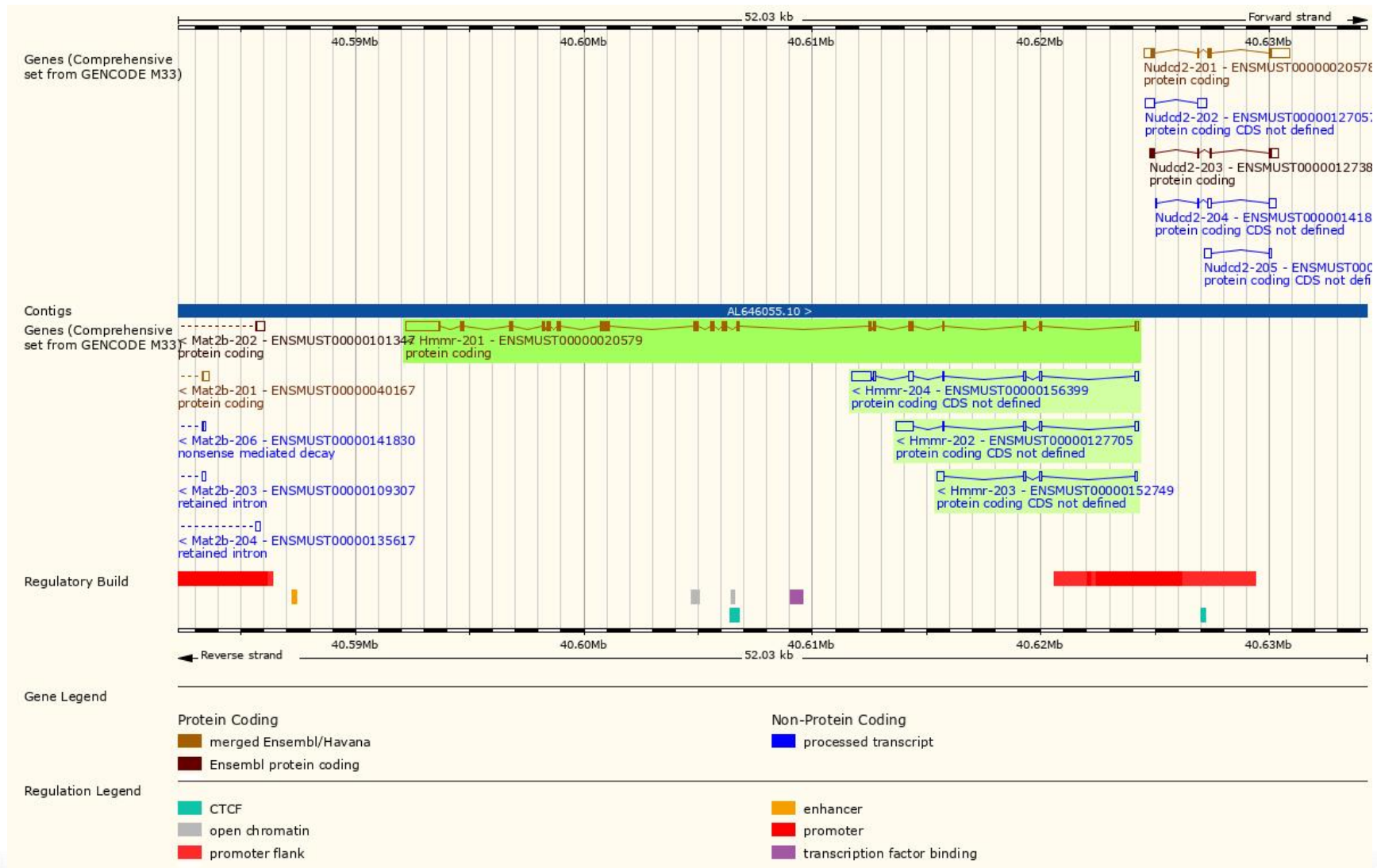
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000020579.9	Hmmr-201	3892	794aa	Protein coding	CCDS24548	Q00547-1	Ensembl Canonical Gencode basic APPRIS P1 TSL:1
ENSMUST00000156399.8	Hmmr-204	1443	No protein	Protein coding CDS not defined		-	TSL:2
ENSMUST00000127705.8	Hmmr-202	1080	No protein	Protein coding CDS not defined		-	TSL:1
ENSMUST00000152749.2	Hmmr-203	547	No protein	Protein coding CDS not defined		-	TSL:3

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

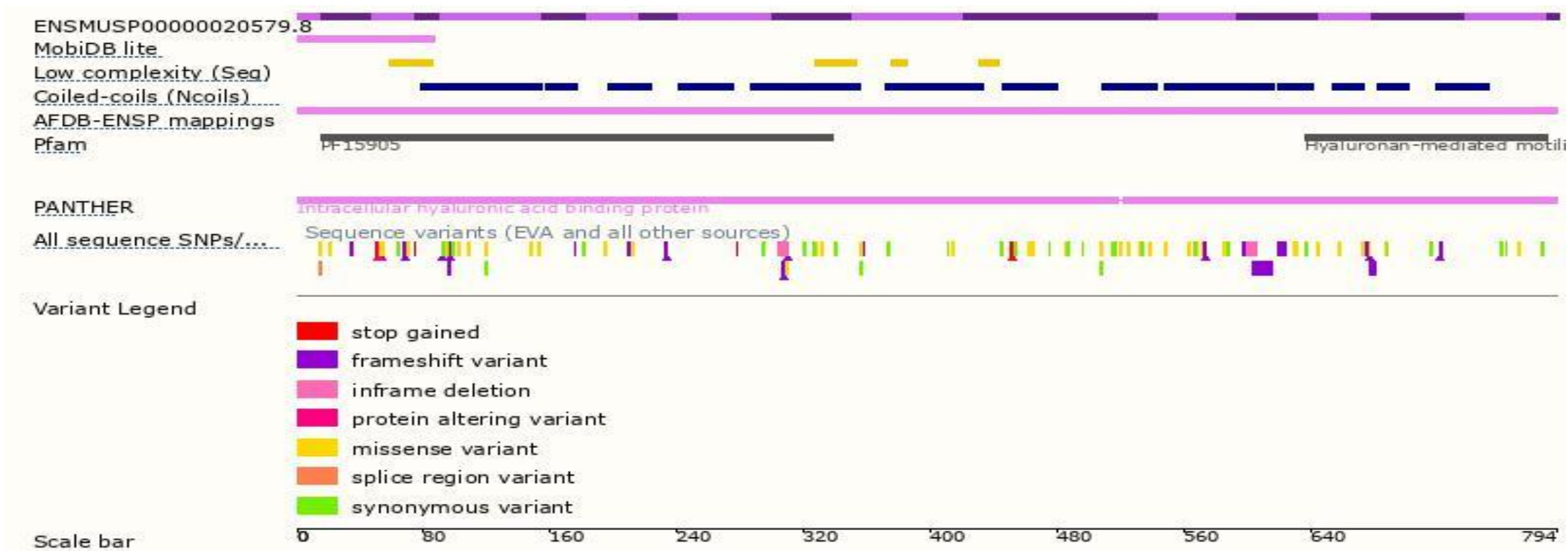


Source: <https://www.ensembl.org>

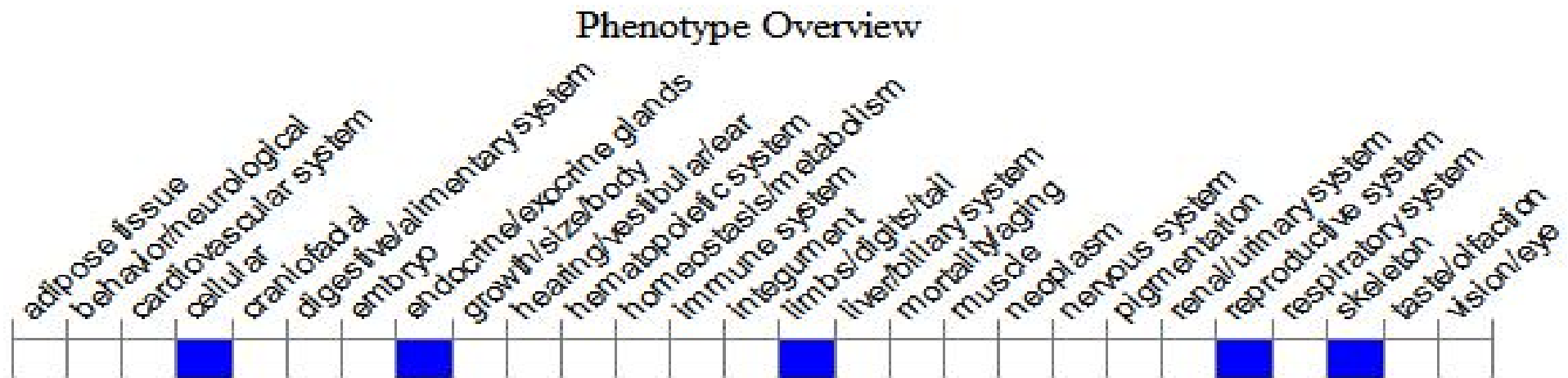
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



- Mice homozygous for mutations of this gene exhibit impaired fertility and are less susceptible to the formation of aggressive fibromatosis.

Important Information

- *Hmmr* is located on Chr11. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.