

# *H1f7* Cas9-KO Strategy

**Designer:**

**Yanhua Shen**

**Reviewer:**

**Xueting Zhang**

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# Project Overview

**Project Name**

*H1f7*

**Project type**

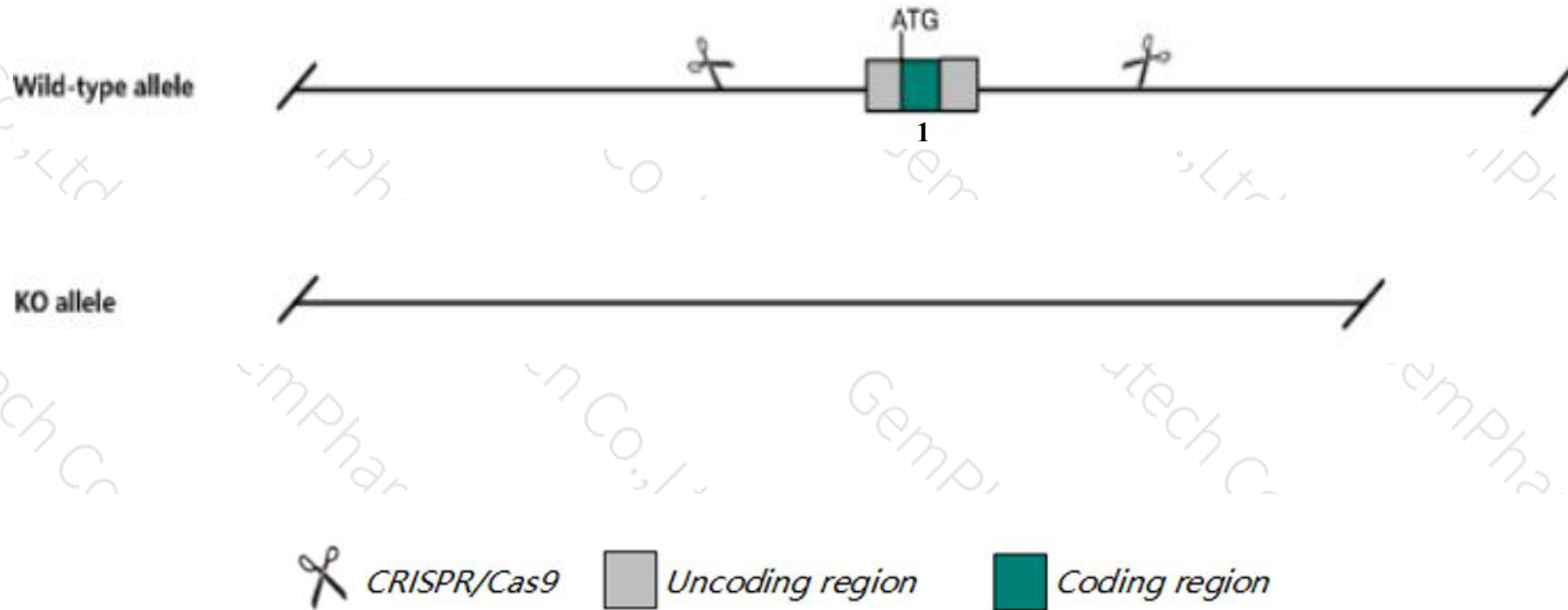
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Hlf7* gene. The schematic diagram is as follows:



- The *Hlf7* gene has 1 transcript. According to the structure of *Hlf7* gene, exon1 of *Hlf7-201* (ENSMUST00000060855.6) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Hlf7* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, homozygous null male mice display reduced fertility with asthenozoospermia, oligozoospermia, and teratozoospermia.
- The *Hlf7* gene is located on the Chr15. 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)

## H1f7 H1.7 linker histone [Mus musculus (house mouse)]

Gene ID: 70069, updated on 13-Mar-2020

### Summary



**Official Symbol** H1f7 provided by [MGI](#)

**Official Full Name** H1.7 linker histone provided by [MGI](#)

**Primary source** [MGI:MGI:1917319](#)

**See related** [Ensembl:ENSMUSG00000048077](#)

**Gene type** protein coding

**RefSeq status** REVIEWED

**Organism** [Mus musculus](#)

**Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

**Also known as** 1700026P10Rik, H1-7, H1.7, H1fnt, H1t2, Hanp1, mH1t2

**Summary** Histones are basic nuclear proteins that are responsible for the nucleosome structure of the chromosomal fiber in eukaryotes. Nucleosomes consist of approximately 146 bp of DNA wrapped around a histone octamer composed of pairs of each of the four core histones (H2A, H2B, H3, and H4). The chromatin fiber is further compacted through the interaction of a linker histone, H1, with the DNA between the nucleosomes to form higher order chromatin structures. This gene is intronless and encodes a replication-independent histone that is a member of the histone H1 family. This gene encodes a testis specific protein that is required for spermatogenesis and male fertility. [provided by RefSeq, Oct 2015]

**Orthologs** [human](#) [all](#)

# Transcript information (Ensembl)

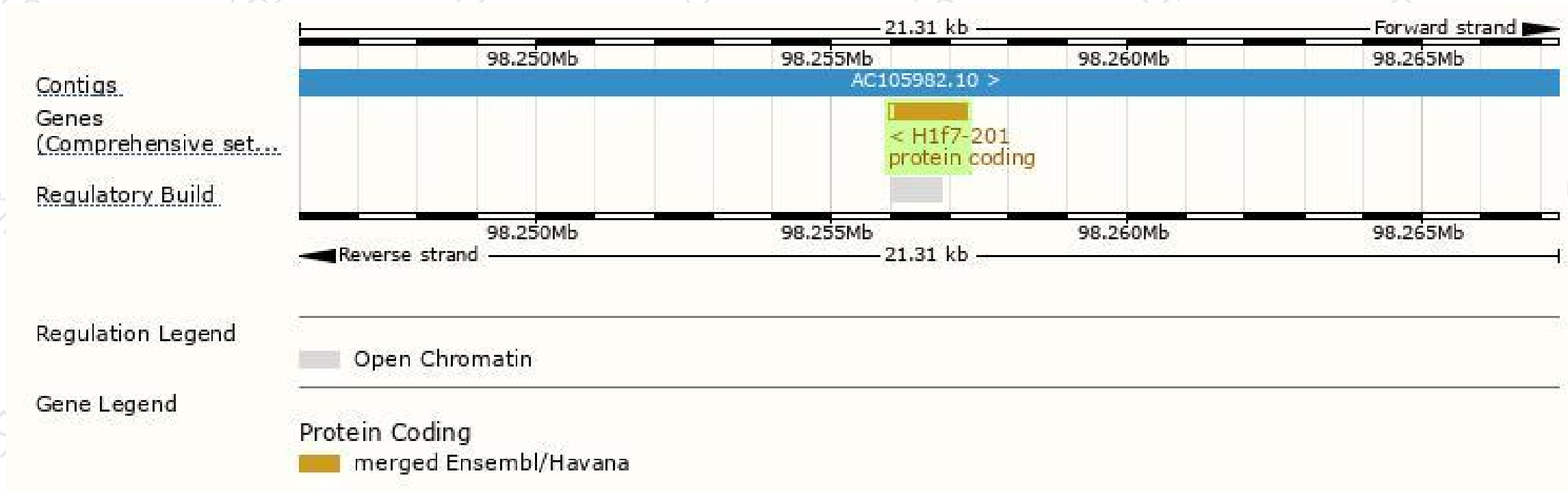
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
H1f7-201	<a href="#">ENSMUST00000060855.6</a>	1308	<a href="#">398aa</a>	Protein coding	<a href="#">CCDS49721</a>	<a href="#">Q8CJL4</a>	TSL:NA GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1

The strategy is based on the design of *H1f7-201* transcript, The transcription is shown below

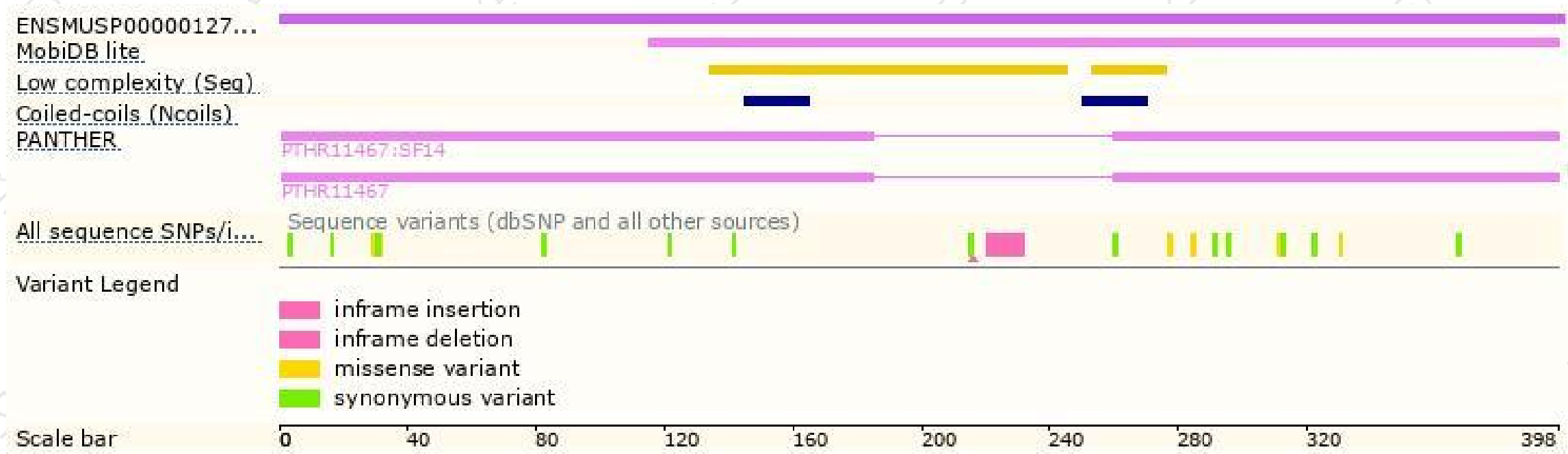


# Genomic location distribution

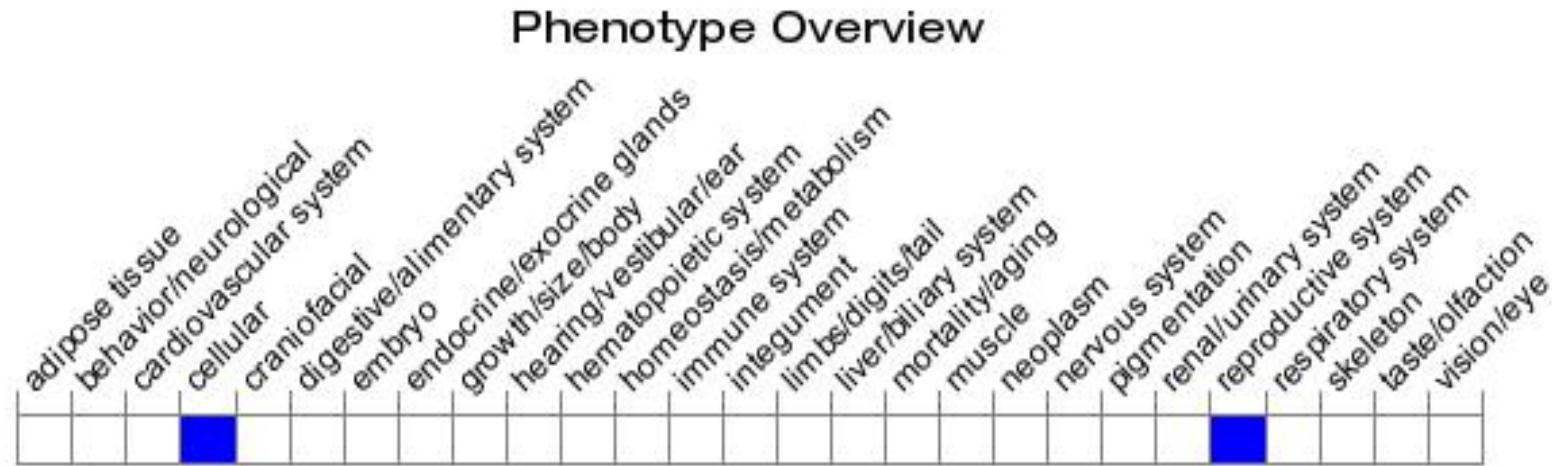




# Protein domain



# 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, homozygous null male mice display reduced fertility with asthenozoospermia, oligozoospermia, and teratozoospermia.

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

Tel: 400-9660890

