

***Hemk1* Cas9-CKO Strategy**

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Reviewer:

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Project Overview

Project Name

Hemk1

Project type

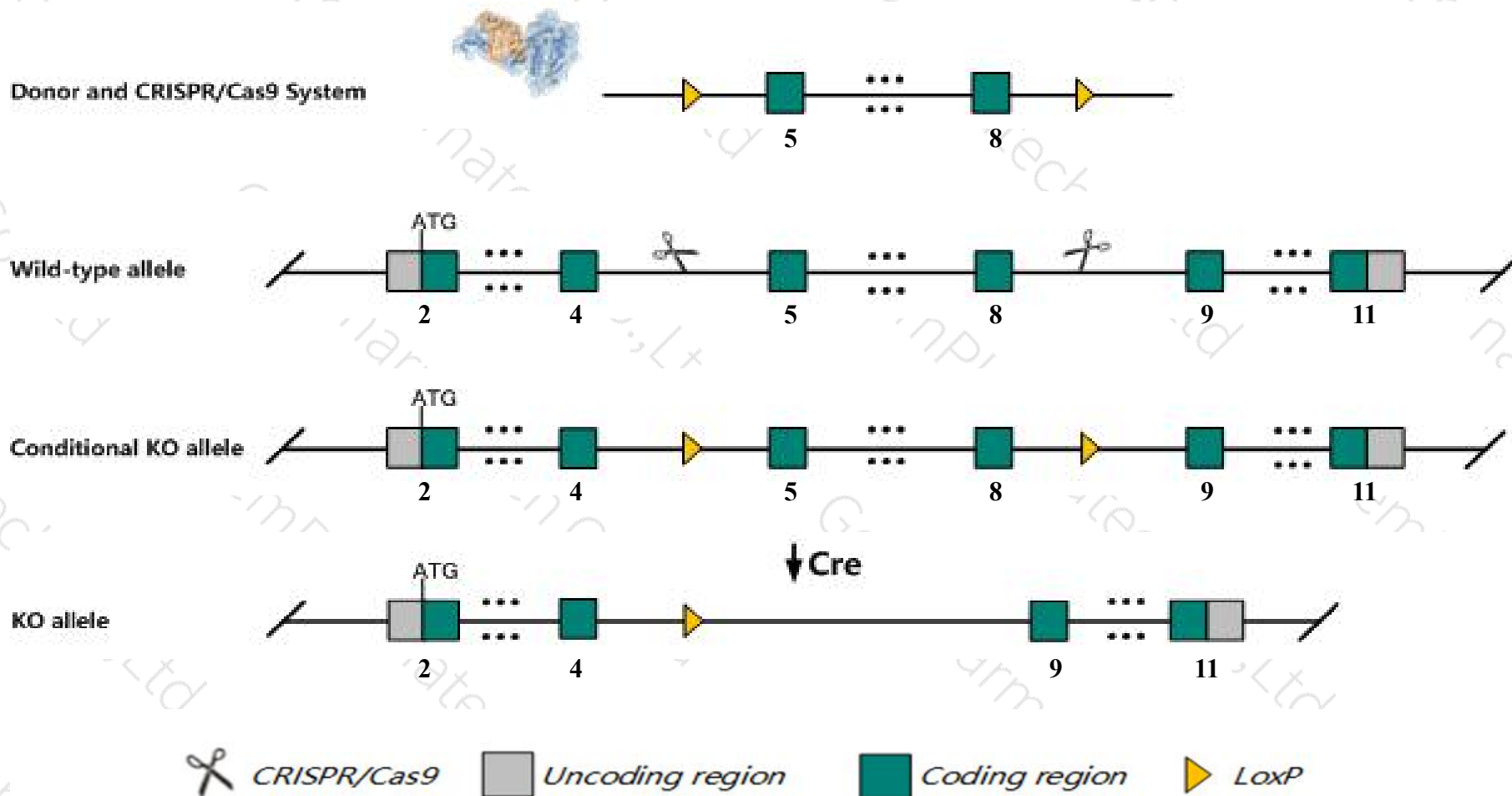
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Hemk1* gene has 7 transcripts. According to the structure of *Hemk1* gene, exon5-exon8 of *Hemk1*-201 (ENSMUST00000035196.13) transcript is recommended as the knockout region. The region contains 359bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Hemk1* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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 sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- The *Hemk1* gene is located on the Chr9. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Hemk1 HemK methyltransferase family member 1 [Mus musculus (house mouse)]

Gene ID: 69536, updated on 31-Jan-2019

Summary



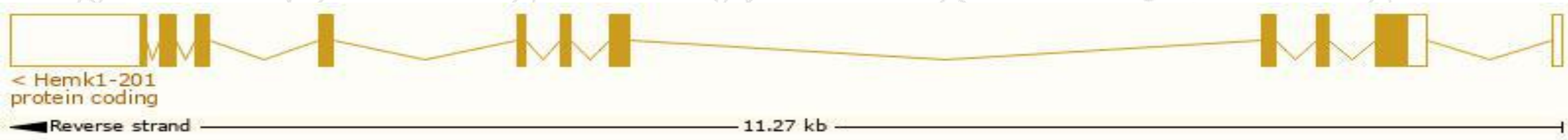
Official Symbol	Hemk1 provided by MGI
Official Full Name	HemK methyltransferase family member 1 provided by MGI
Primary source	MGI:MGI:1916786
See related	Ensembl:ENSMUSG00000032579
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310008M14Rik, AW049265
Expression	Ubiquitous expression in kidney adult (RPKM 5.0), mammary gland adult (RPKM 4.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

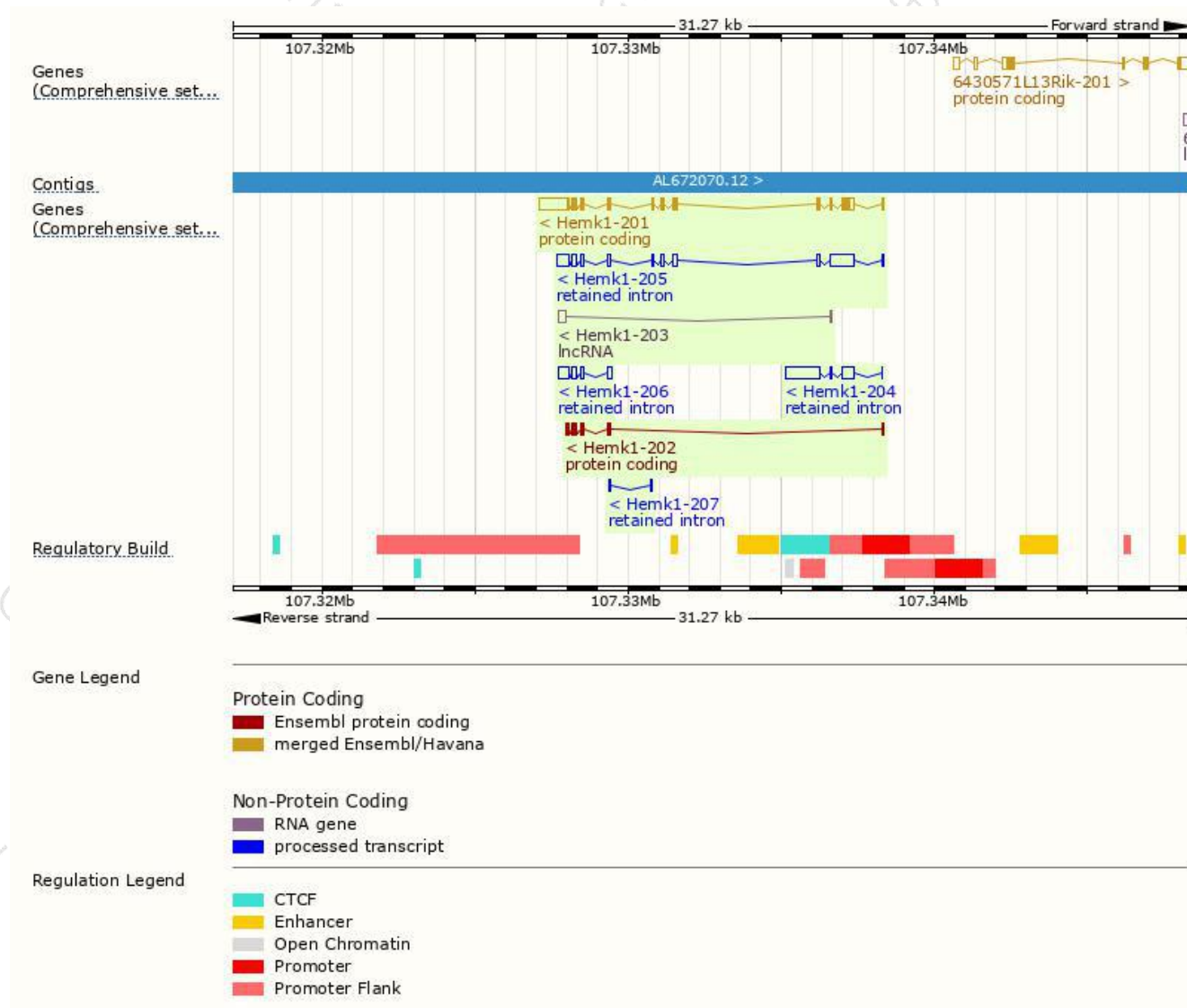
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Hemk1-201	ENSMUST00000035196.13	2192	340aa	Protein coding	CCDS23488	Q921L7	TSL:1 GENCODE basic APPRIS P1
Hemk1-202	ENSMUST00000118051.1	453	121aa	Protein coding	-	B0QZV0	TSL:3 GENCODE basic
Hemk1-205	ENSMUST00000148165.6	1888	No protein	Retained intron	-	-	TSL:1
Hemk1-204	ENSMUST00000128895.1	1619	No protein	Retained intron	-	-	TSL:1
Hemk1-206	ENSMUST00000194260.1	700	No protein	Retained intron	-	-	TSL:2
Hemk1-207	ENSMUST00000194735.1	164	No protein	Retained intron	-	-	TSL:1
Hemk1-203	ENSMUST00000128396.1	315	No protein	lncRNA	-	-	TSL:5

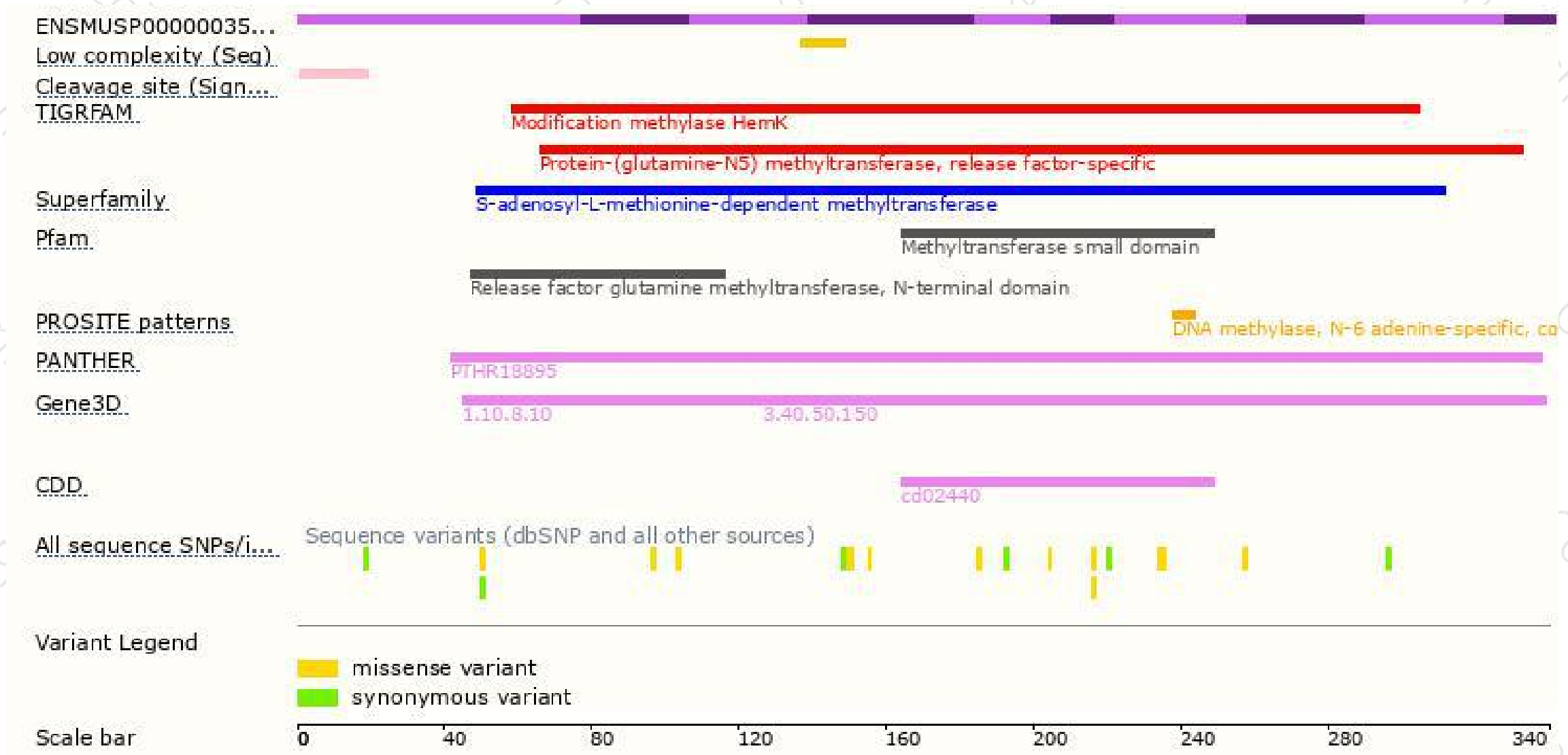
The strategy is based on the design of *Hemk1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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