

# ***H19 Cas9-KO Strategy***

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# Project Overview

**Project Name**

***H19***

**Project type**

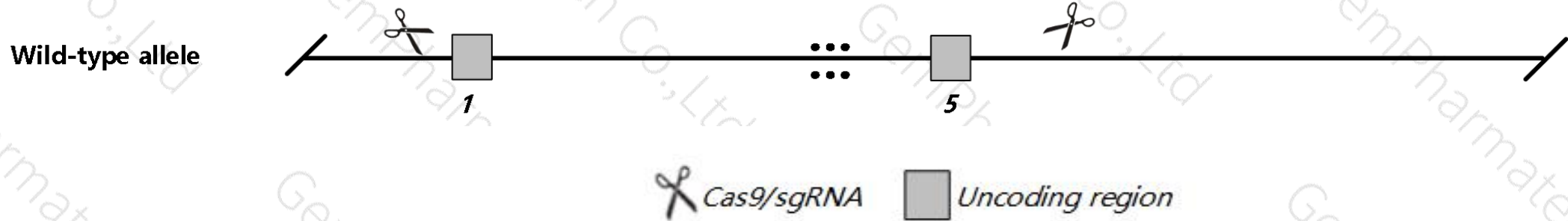
**Cas9-KO**

**Strain background**

**C57BL/6J**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *H19* gene. The schematic diagram is as follows:



- The *H19* gene has 7 transcripts. According to the structure of *H19* gene, exon1-exon5 of *H19-202* ( ENSMUST00000136359.7) transcript is recommended as the knockout region. The region contains all sequence. Knock out the region will result in disruption of gene function.
- In this project we use CRISPR/Cas9 technology to modify *H19* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- The KO region contains functional region of the *Gm27483, Gm27786, Mir675* gene. Knockout the region may affect the function of *Gm27483, Gm27786, Mir675* gene
- The *H19* gene is located on the Chr7. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

# Gene information (NCBI)

## H19 H19, imprinted maternally expressed transcript [ *Mus musculus* (house mouse) ]

Gene ID: 14955, updated on 21-May-2019

### Summary

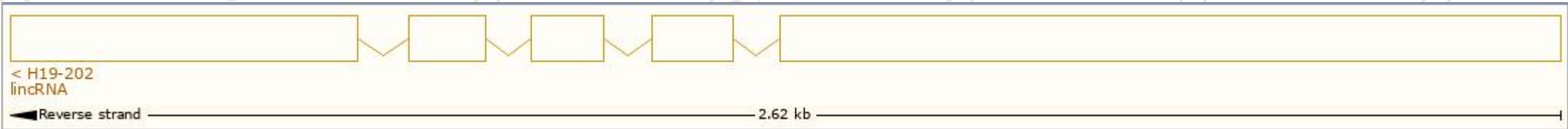
Official Symbol	H19 provided by <a href="#">MGI</a>
Official Full Name	H19, imprinted maternally expressed transcript provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:95891</a>
See related	<a href="#">Ensembl:ENSMUSG000000000031</a>
Gene type	ncRNA
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI747191; EyeLinc6
Expression	Biased expression in liver E18 (RPKM 5536.3), placenta adult (RPKM 4196.2) and 5 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

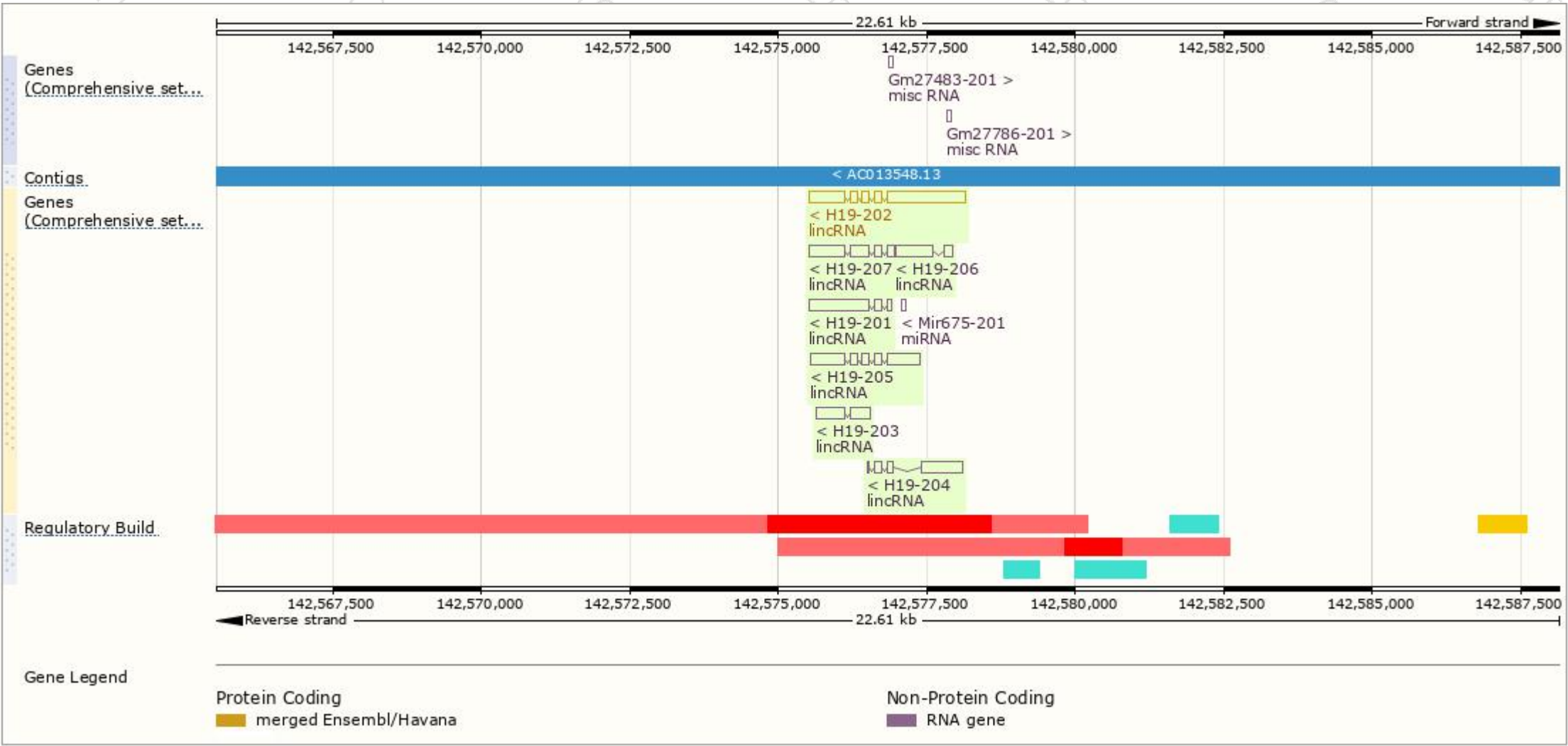
The gene has 7 transcripts,all transcripts are shown below:

Show/hide columns (1 hidden)					Filter		
Name	Transcript ID	bp	Protein	Biotype	CCDS	Flags	
H19-202	<a href="#">ENSMUST00000136359.7</a>	2286	No protein	lincRNA	-	TSL:1	GENCODE basic
H19-205	<a href="#">ENSMUST00000152754.8</a>	1521	No protein	lincRNA	-	TSL:5	
H19-201	<a href="#">ENSMUST00000132294.8</a>	1217	No protein	lincRNA	-	TSL:2	
H19-207	<a href="#">ENSMUST00000228514.1</a>	1178	No protein	lincRNA	-	-	
H19-204	<a href="#">ENSMUST00000149974.1</a>	935	No protein	lincRNA	-	TSL:3	
H19-203	<a href="#">ENSMUST00000140716.1</a>	817	No protein	lincRNA	-	TSL:2	
H19-206	<a href="#">ENSMUST00000228259.1</a>	761	No protein	lincRNA	-	-	

The strategy is based on the design of *H19-202* transcript,The transcription is shown below



# Genomic location distribution



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

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