

Hecw1 Cas9-KO Strategy

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Project Overview

Project Name

Hecw1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Hecw1* gene. The schematic diagram is as follows:



- The *Hecw1* gene has 10 transcripts. According to the structure of *Hecw1* gene, exon3-exon4 of *Hecw1*-201 (ENSMUST00000110516.2) transcript is recommended as the knockout region. The region contains 433bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Hecw1* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- Transcript *Hecw1-202/205/208* may not be affected.
- The KO region overlaps the *Gm47011* gene. Knockout the region may affect the function of *Gm47011* gene.
- The *Hecw1* gene is located on the Chr13. 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)

Hecw1 HECT, C2 and WW domain containing E3 ubiquitin protein ligase 1 [*Mus musculus* (house mouse)]

Gene ID: 94253, updated on 12-Aug-2019

Summary



Official Symbol Hecw1 provided by [MGI](#)

Official Full Name HECT, C2 and WW domain containing E3 ubiquitin protein ligase 1 provided by [MGI](#)

Primary source [MGI:MGI:2444115](#)

See related [Ensembl:ENSMUSG00000021301](#)

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 Nedl1; AV273951; 9330116H24Rik; E130207I19Rik

Expression Biased expression in CNS E18 (RPKM 6.7), whole brain E14.5 (RPKM 4.9) and 6 other tissues [See more](#)

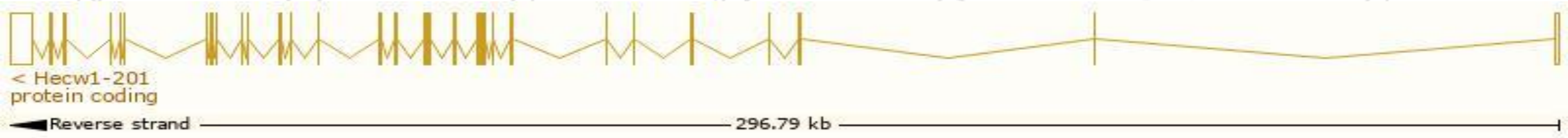
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

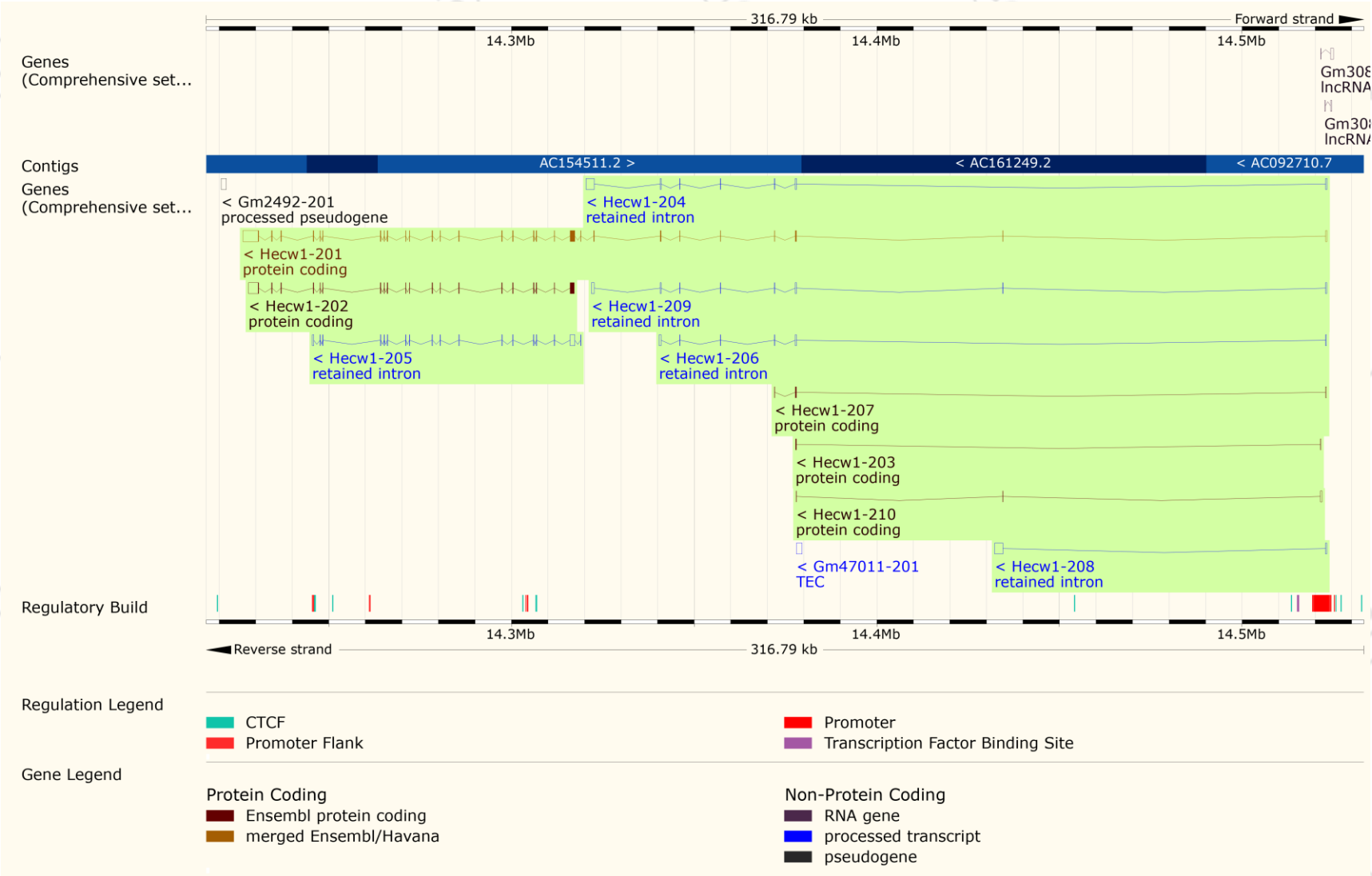
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Hecw1-201	ENSMUST00000110516.2	9460	1604aa	Protein coding	CCDS49207	Q8K4P8	TSL:5 GENCODE basic APPRIS P1
Hecw1-202	ENSMUST00000220718.1	6124	1177aa	Protein coding	-	A0A1Y7VJ05	CDS 5' incomplete TSL:1
Hecw1-207	ENSMUST00000223189.1	650	132aa	Protein coding	-	A0A1Y7VJ41	CDS 3' incomplete TSL:3
Hecw1-210	ENSMUST00000223550.1	523	23aa	Protein coding	-	A0A1Y7VMF2	CDS 3' incomplete TSL:2
Hecw1-203	ENSMUST00000221274.1	404	74aa	Protein coding	-	A0A1Y7VJB7	CDS 3' incomplete TSL:3
Hecw1-205	ENSMUST00000222241.1	3696	No protein	Retained intron	-	-	TSL:1
Hecw1-204	ENSMUST00000221863.1	3372	No protein	Retained intron	-	-	TSL:1
Hecw1-208	ENSMUST00000223283.1	2554	No protein	Retained intron	-	-	TSL:1
Hecw1-209	ENSMUST00000223317.1	1864	No protein	Retained intron	-	-	TSL:1
Hecw1-206	ENSMUST00000222904.1	1357	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Hecw1-201* 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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