

***Herc6* Cas9-CKO Strategy**

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Design Date: 2019-8-15

Project Overview

Project Name

Herc6

Project type

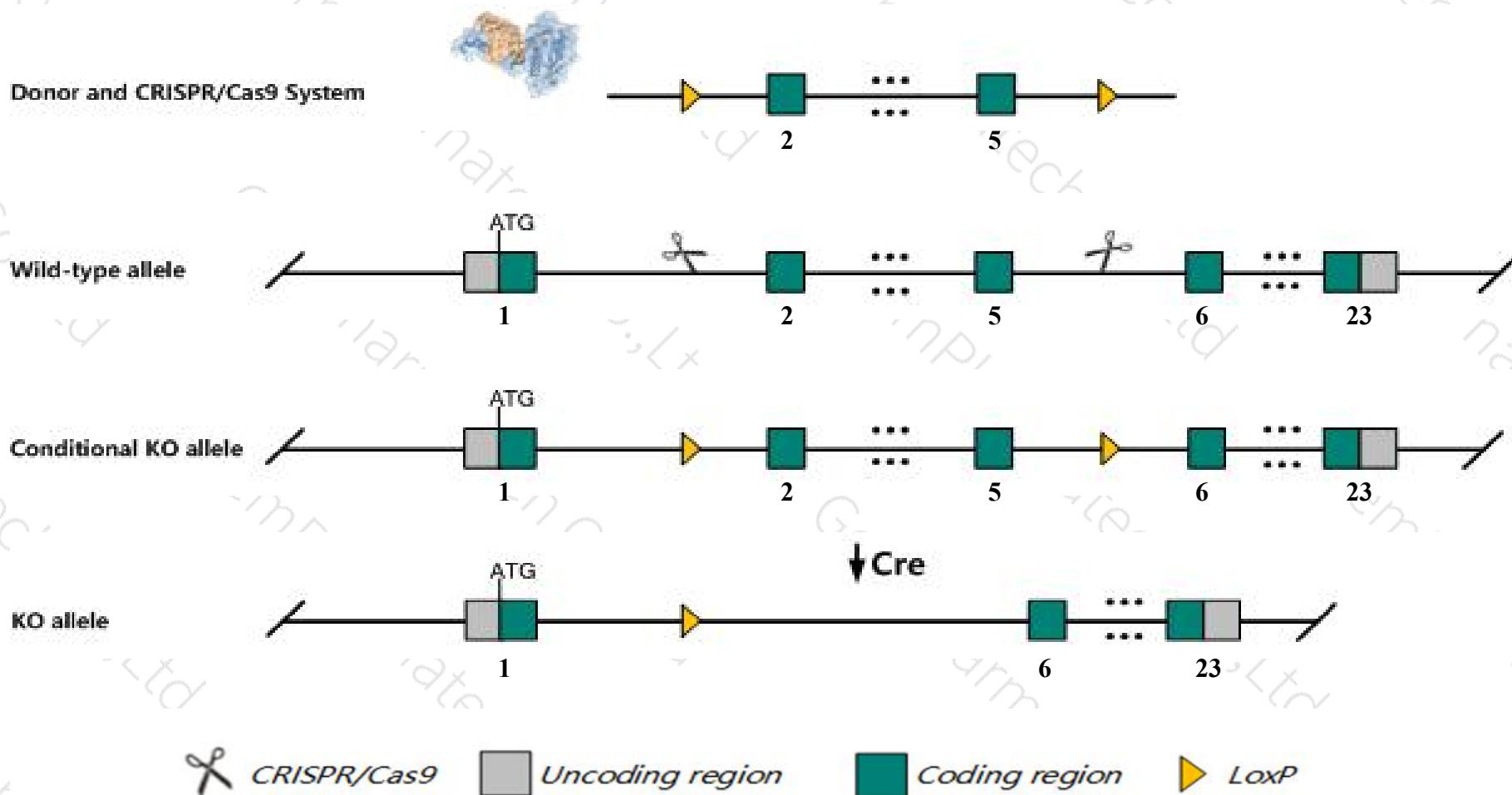
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Herc6* gene. The schematic diagram is as follows:



Technical routes

- The *Herc6* gene has 6 transcripts. According to the structure of *Herc6* gene, exon2-exon5 of *Herc6-201* (ENSMUST00000031817.9) transcript is recommended as the knockout region. The region contains 560bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Herc6* 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 *Herc6* gene is located on the Chr6. 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 deletes the overlap of region and Gm45193 lncRNA gene and destroys Gm45193 lncRNA gene at the same time.
- 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)

Herc6 hect domain and RLD 6 [Mus musculus (house mouse)]

Gene ID: 67138, updated on 3-Feb-2019

Summary



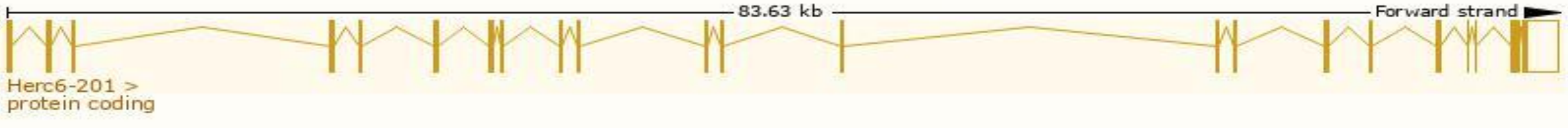
Official Symbol	Herc6 provided by MGI
Official Full Name	hect domain and RLD 6 provided by MGI
Primary source	MGI:MGI:1914388
See related	Ensembl:ENSMUSG00000029798
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700121D12Rik, 2510038N07Rik, 4930427L17Rik, AI451296, CEB1, Herc5
Expression	Ubiquitous expression in liver E18 (RPKM 2.1), cortex adult (RPKM 1.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

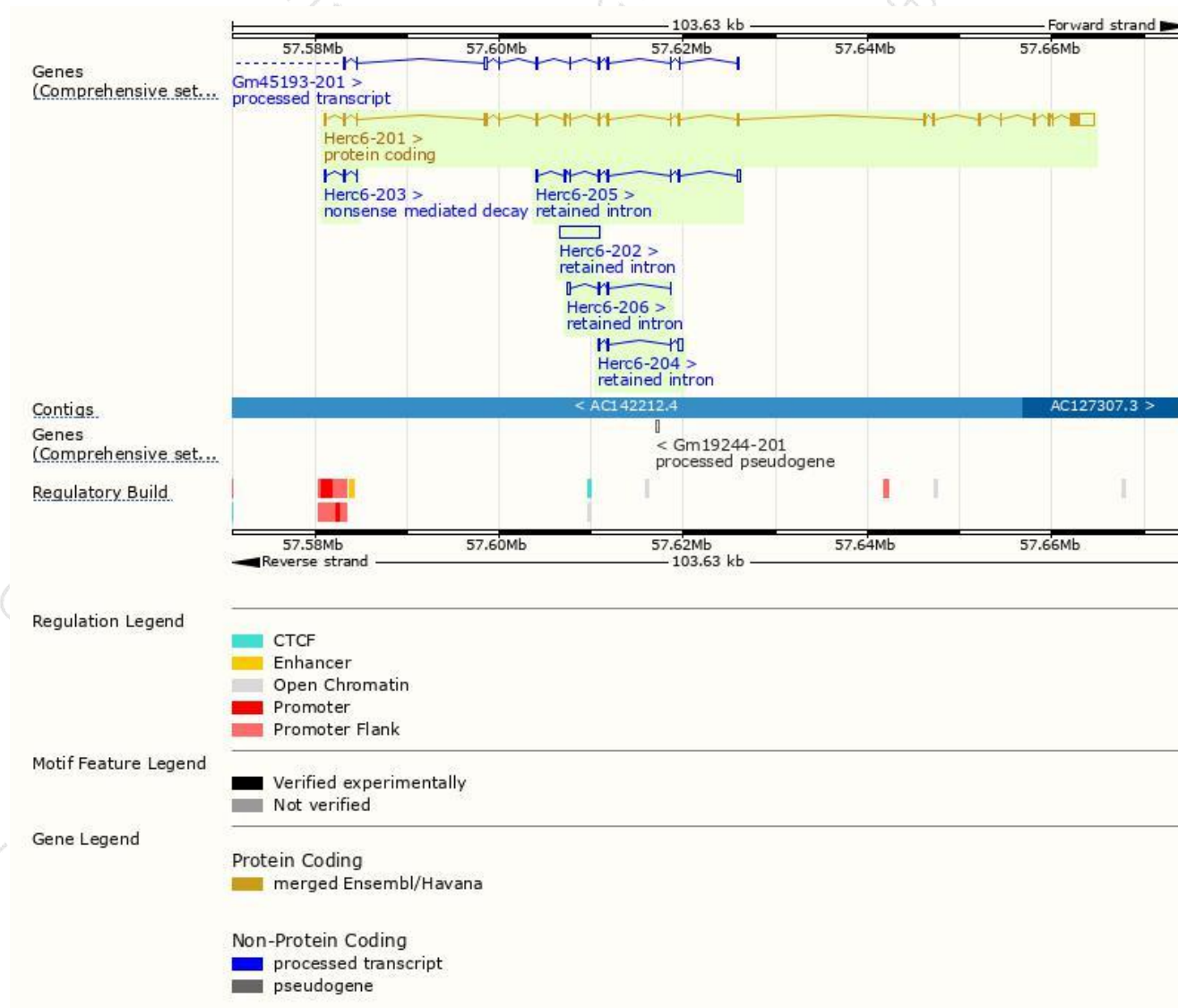
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Herc6-201	ENSMUST00000031817.9	4767	1003aa	Protein coding	CCDS51796	F2Z461	TSL:1 GENCODE basic APPRIS P1
Herc6-203	ENSMUST00000203840.1	449	78aa	Nonsense mediated decay	-	A0A0N4SWG1	TSL:3
Herc6-202	ENSMUST00000203506.1	4378	No protein	Retained intron	-	-	TSL:NA
Herc6-205	ENSMUST00000204455.2	1084	No protein	Retained intron	-	-	TSL:5
Herc6-204	ENSMUST00000204166.1	734	No protein	Retained intron	-	-	TSL:2
Herc6-206	ENSMUST00000204843.2	513	No protein	Retained intron	-	-	TSL:2

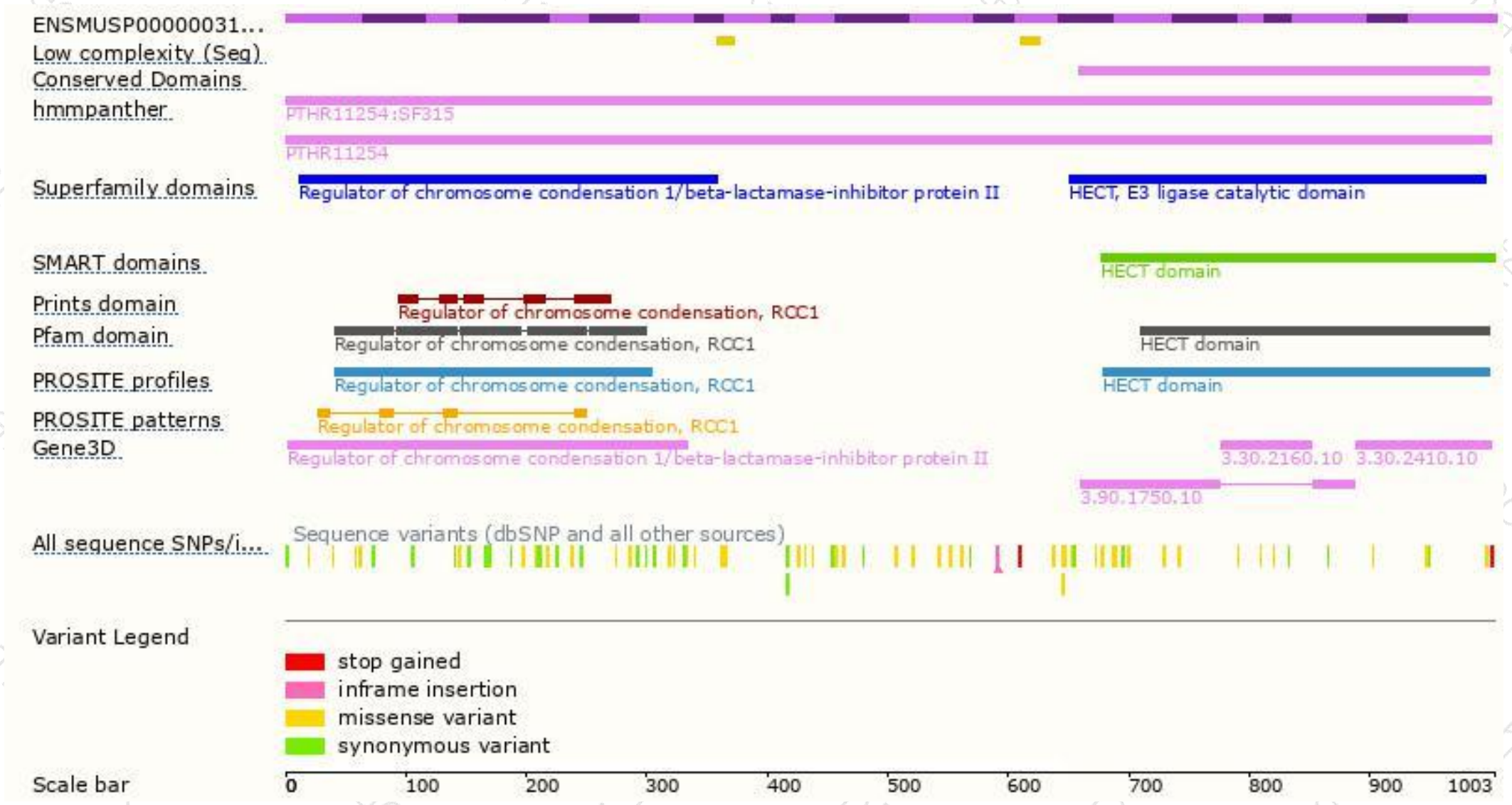
The strategy is based on the design of *Herc6-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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