

Haus6 Cas9-CKO Strategy

Designer:

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Design Date:

2019-8-4

Project Overview

Project Name

Haus6

Project type

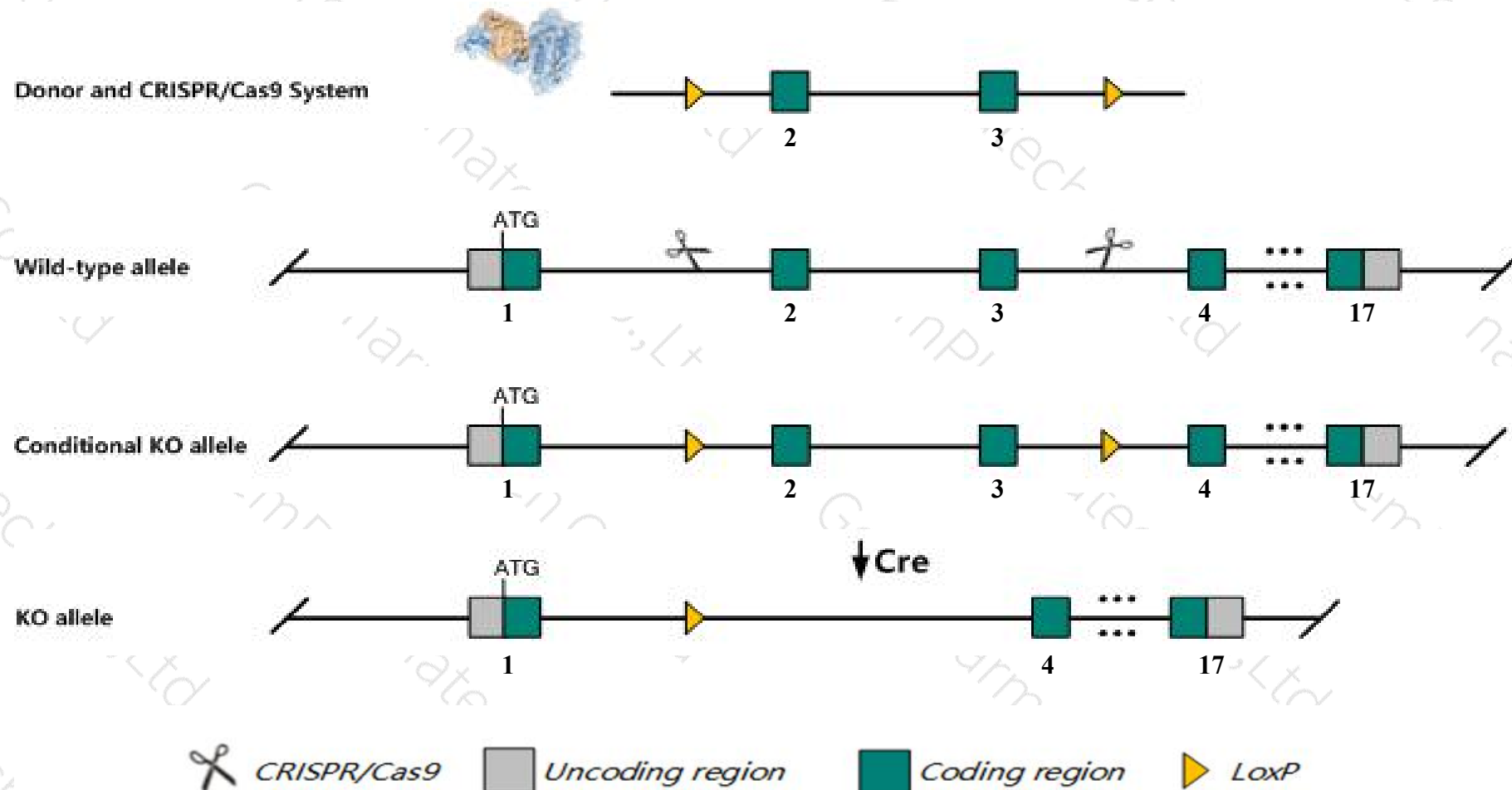
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Haus6* gene. The schematic diagram is as follows:



- The *Haus6* gene has 4 transcripts. According to the structure of *Haus6* gene, exon2-exon3 of *Haus6-201* (ENSMUST00000070607.8) transcript is recommended as the knockout region. The region contains 175bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Haus6* 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit embryonic lethality between E2.5 and E7.5 with delayed or incomplete clustering of microtubule-organizing centers.
- The *Haus6* gene is located on the Chr4. 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)

Haus6 HAUS augmin-like complex, subunit 6 [Mus musculus (house mouse)]

Gene ID: 230376, updated on 31-Jan-2019

Summary



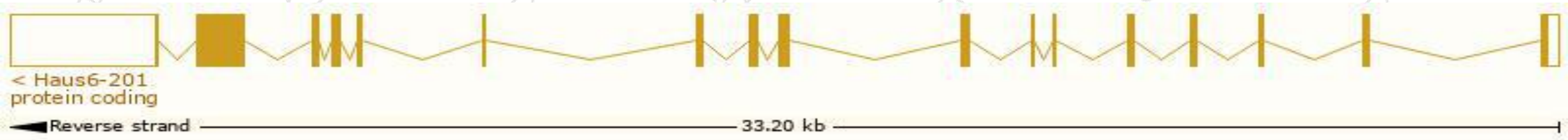
Official Symbol	Haus6 provided by MGI
Official Full Name	HAUS augmin-like complex, subunit 6 provided by MGI
Primary source	MGI:MGI:1923389
See related	Ensembl:ENSMUSG00000038047
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	6230416J20Rik, 9830144E06, D4Erd27e, mKIAA1574
Expression	Broad expression in CNS E11.5 (RPKM 5.7), liver E14 (RPKM 3.9) and 20 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

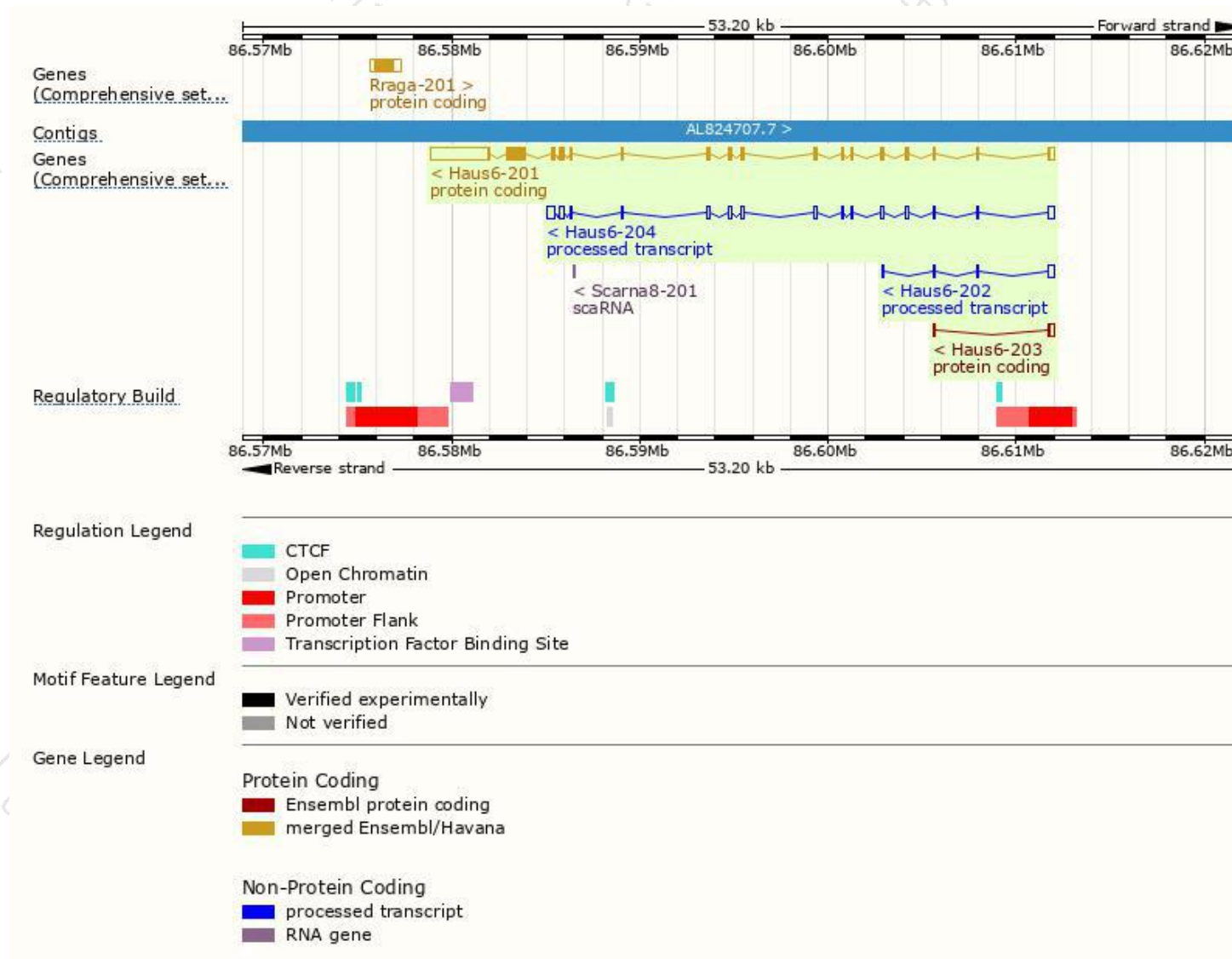
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Haus6-201	ENSMUST00000070607.8	6158	933aa	Protein coding	CCDS18307	Q6NV99	TSL:1 GENCODE basic APPRIS P1
Haus6-203	ENSMUST00000125481.2	443	69aa	Protein coding	-	B1AXR2	CDS 3' incomplete TSL:3
Haus6-204	ENSMUST00000128381.7	2302	No protein	Processed transcript	-	-	TSL:1
Haus6-202	ENSMUST00000123432.1	600	No protein	Processed transcript	-	-	TSL:3

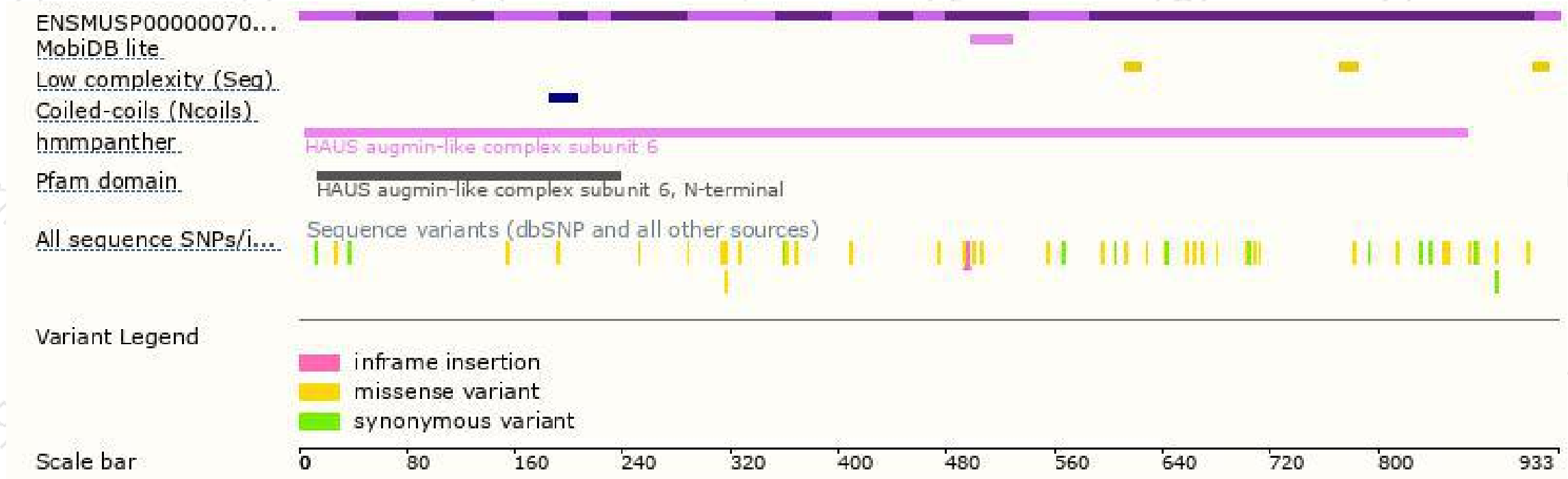
The strategy is based on the design of *Haus6-201* transcript,The transcription is shown below



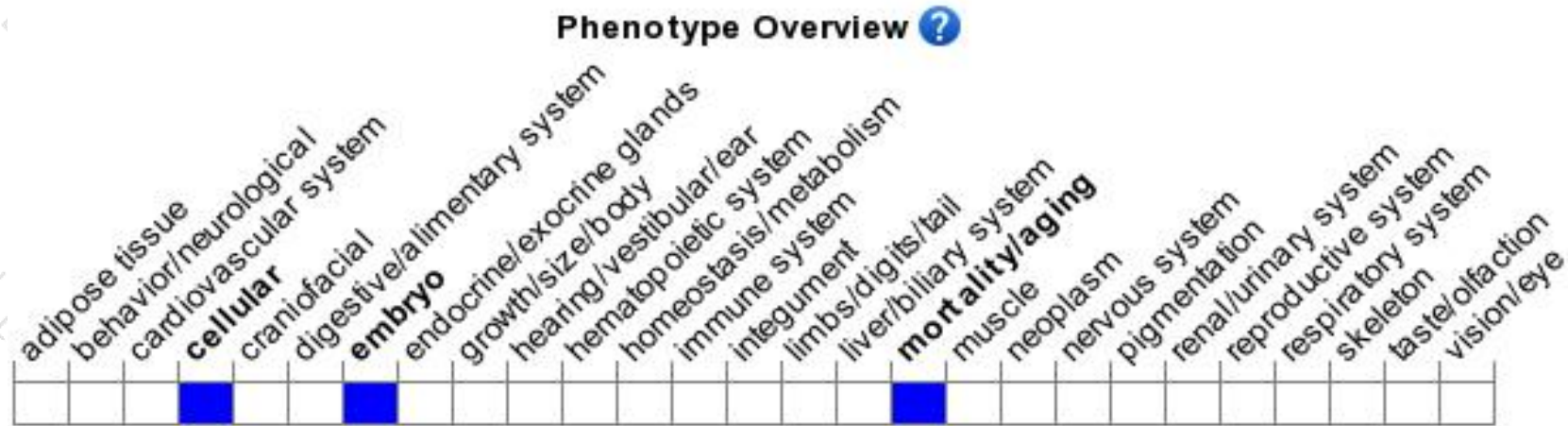
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit embryonic lethality between E2.5 and E7.5 with delayed or incomplete clustering of microtubule-organizing centers.

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

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