

Hacd4 Cas9-CKO Strategy

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Project Overview

Project Name

Hacd4

Project type

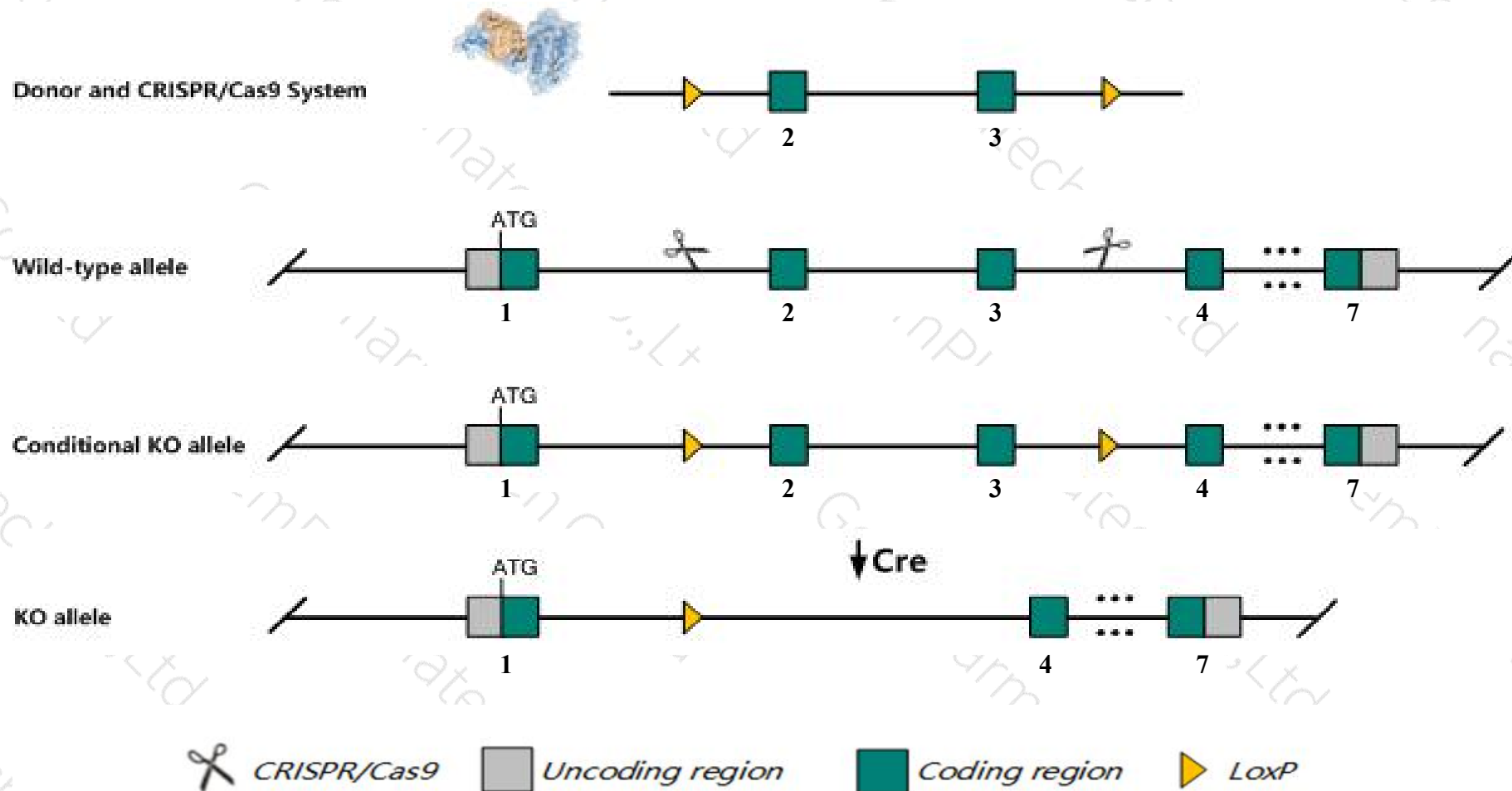
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Hacd4* gene. The schematic diagram is as follows:



- The *Hacd4* gene has 3 transcripts. According to the structure of *Hacd4* gene, exon2-exon3 of *Hacd4-201* (ENSMUST00000030221.2) transcript is recommended as the knockout region. The region contains 232bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Hacd4* 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 *Hacd4* 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)

Hacd4 3-hydroxyacyl-CoA dehydratase 4 [*Mus musculus* (house mouse)]

Gene ID: 66775, updated on 31-Jan-2019

Summary

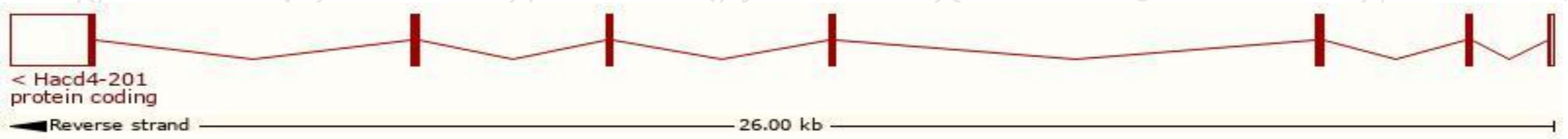
Official Symbol	Hacd4 provided by MGI
Official Full Name	3-hydroxyacyl-CoA dehydratase 4 provided by MGI
Primary source	MGI:MGI:1914025
See related	Ensembl:ENSMUSG000000028497
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Hcad4; Ptplad2; 4933428I03Rik
Expression	Ubiquitous expression in bladder adult (RPKM 5.2), genital fat pad adult (RPKM 2.4) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

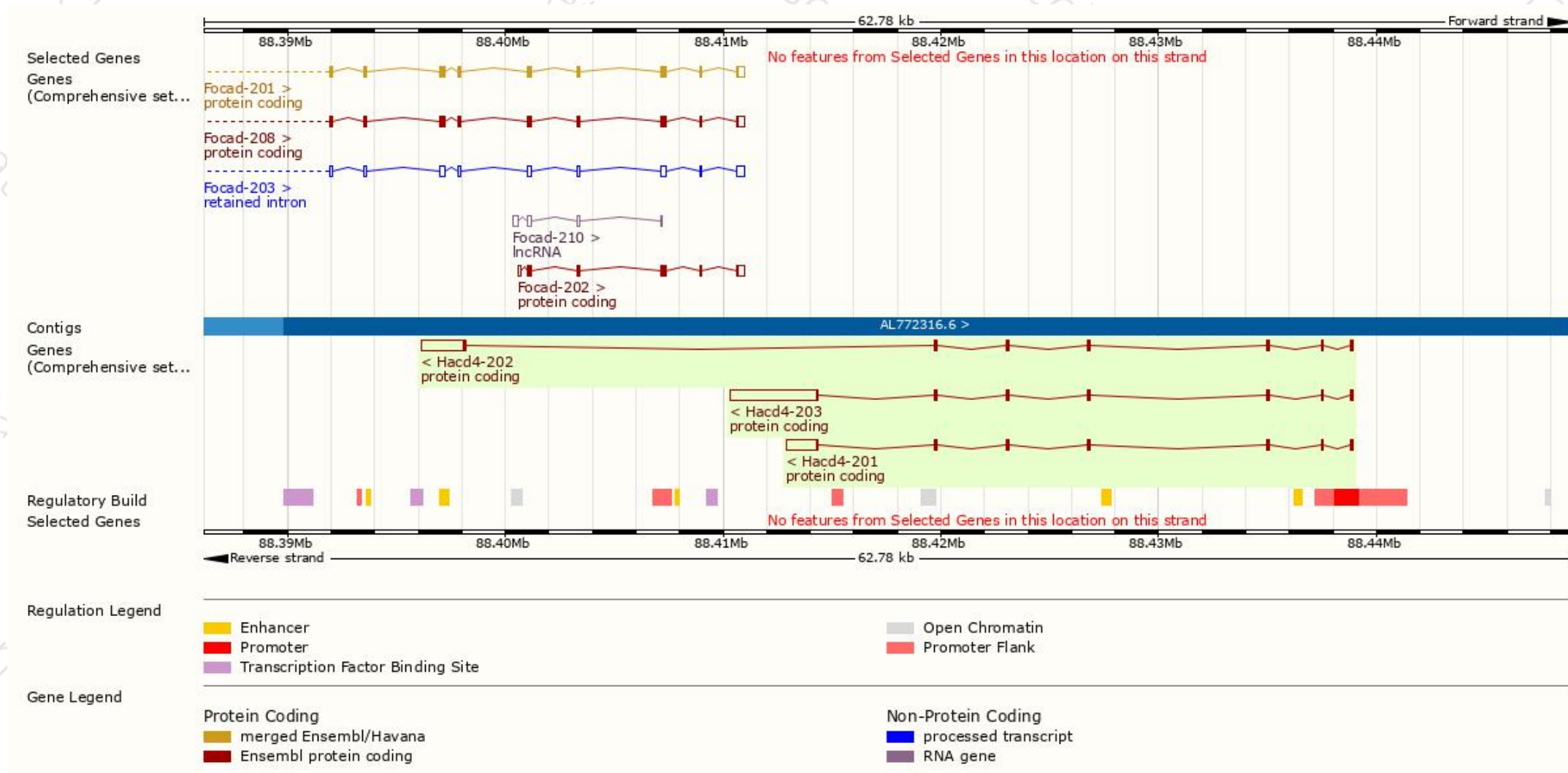
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Hacd4-201	ENSMUST00000030221.2	2089	232aa	Protein coding	CCDS18317	A2AKM2	TSL:1 GENCODE basic APPRIS P1
Hacd4-203	ENSMUST00000151280.7	4680	252aa	Protein coding	-	F7CPS1	CDS 5' incomplete TSL:1
Hacd4-202	ENSMUST00000132493.7	2737	262aa	Protein coding	-	Z4YMP4	CDS 5' incomplete TSL:1

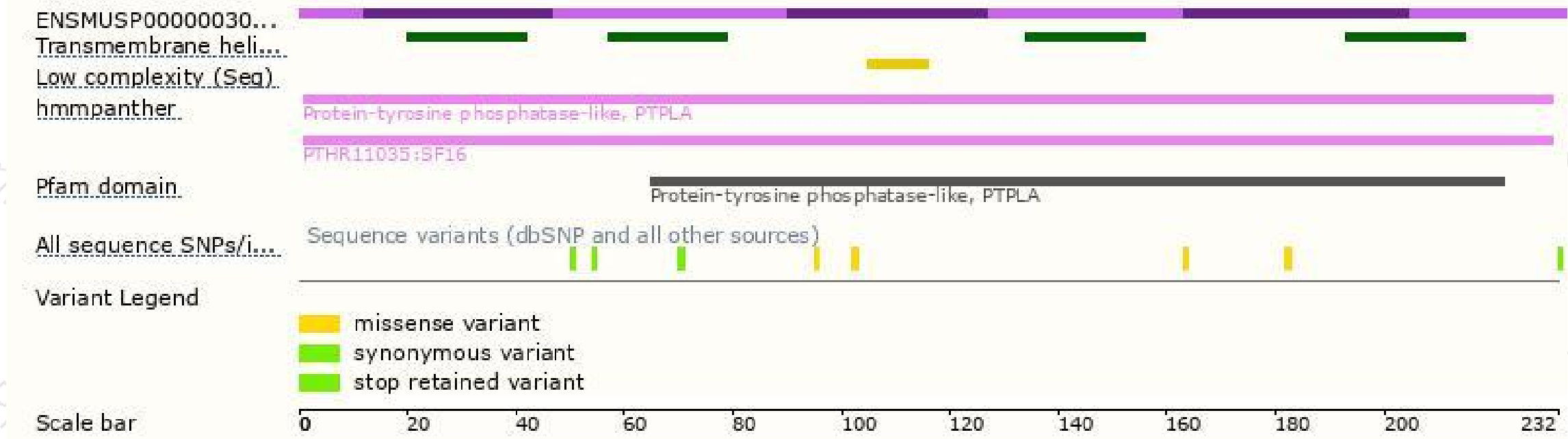
The strategy is based on the design of *Hacd4-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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