

Cyp2w1 Cas9-CKO Strategy

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Project Overview

Project Name

Cyp2w1

Project type

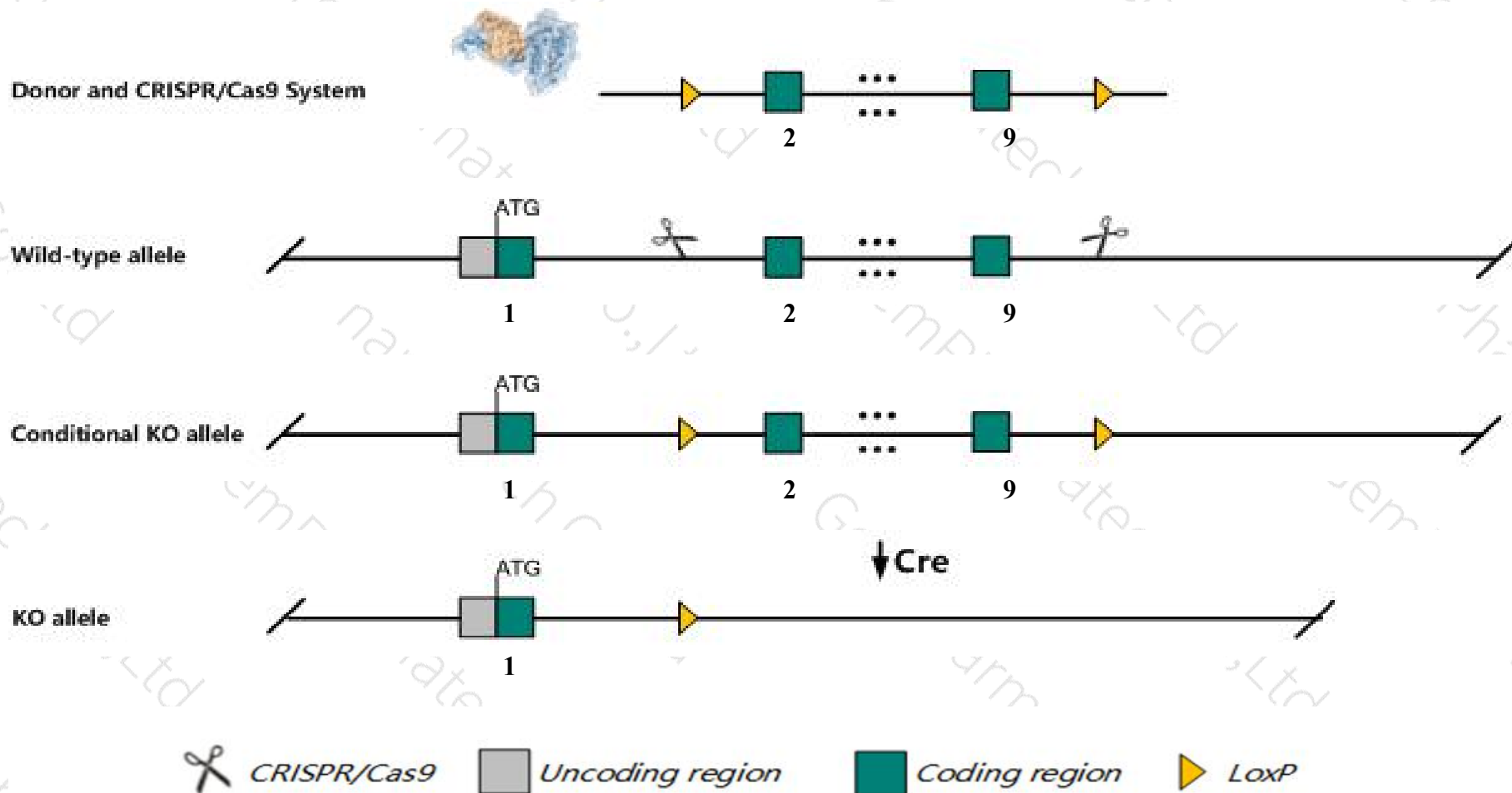
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cyp2w1* gene. The schematic diagram is as follows:



- The *Cyp2w1* gene has 3 transcripts. According to the structure of *Cyp2w1* gene, exon2-exon9 of *Cyp2w1-201* (ENSMUST00000031521.12) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cyp2w1* 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.

- The effect on transcript *Cyp2w1*-202 is unknown.
- The floxed region is near to the N-terminal of *Cox19* gene, this strategy may influence the regulatory function of the N-terminal of *Cox19* gene.
- The *Cyp2w1* gene is located on the Chr5. 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)

Cyp2w1 cytochrome P450, family 2, subfamily w, polypeptide 1 [Mus musculus (house mouse)]

Gene ID: 545817, updated on 13-Mar-2020

Summary



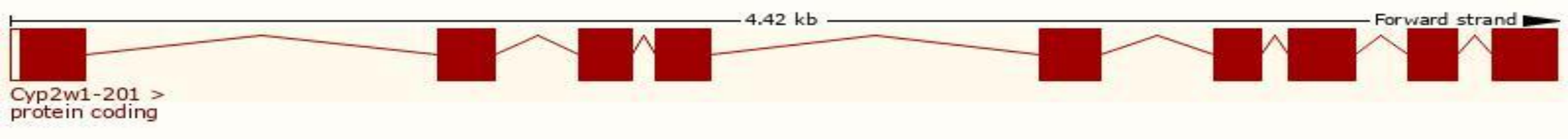
Official Symbol	Cyp2w1 provided by MGI
Official Full Name	cytochrome P450, family 2, subfamily w, polypeptide 1 provided by MGI
Primary source	MGI:MGI:3616076
See related	Ensembl:ENSMUSG00000029541
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gm455
Expression	Biased expression in limb E14.5 (RPKM 12.2), colon adult (RPKM 4.2) and 1 other tissue See more
Orthologs	human all

Transcript information (Ensembl)

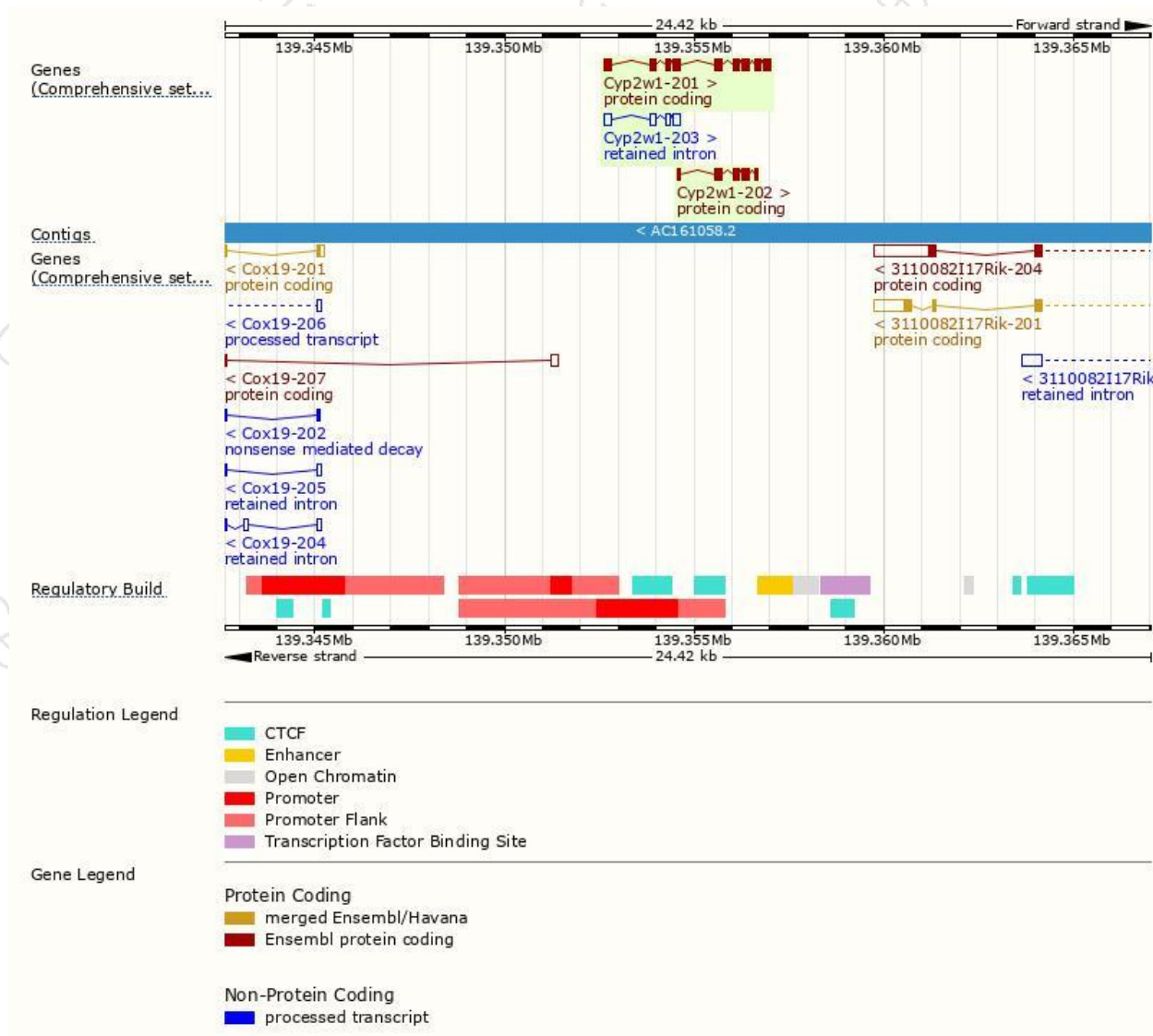
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cyp2w1-201	ENSMUST00000031521.12	1512	493aa	Protein coding	CCDS51683	E9Q816	TSL:5 GENCODE basic APPRIS P1
Cyp2w1-202	ENSMUST00000197955.1	602	200aa	Protein coding	-	A0A0G2JFE3	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3
Cyp2w1-203	ENSMUST00000200478.1	689	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Cyp2w1-201* 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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