Cyp4x1 Cas9-KO Strategy

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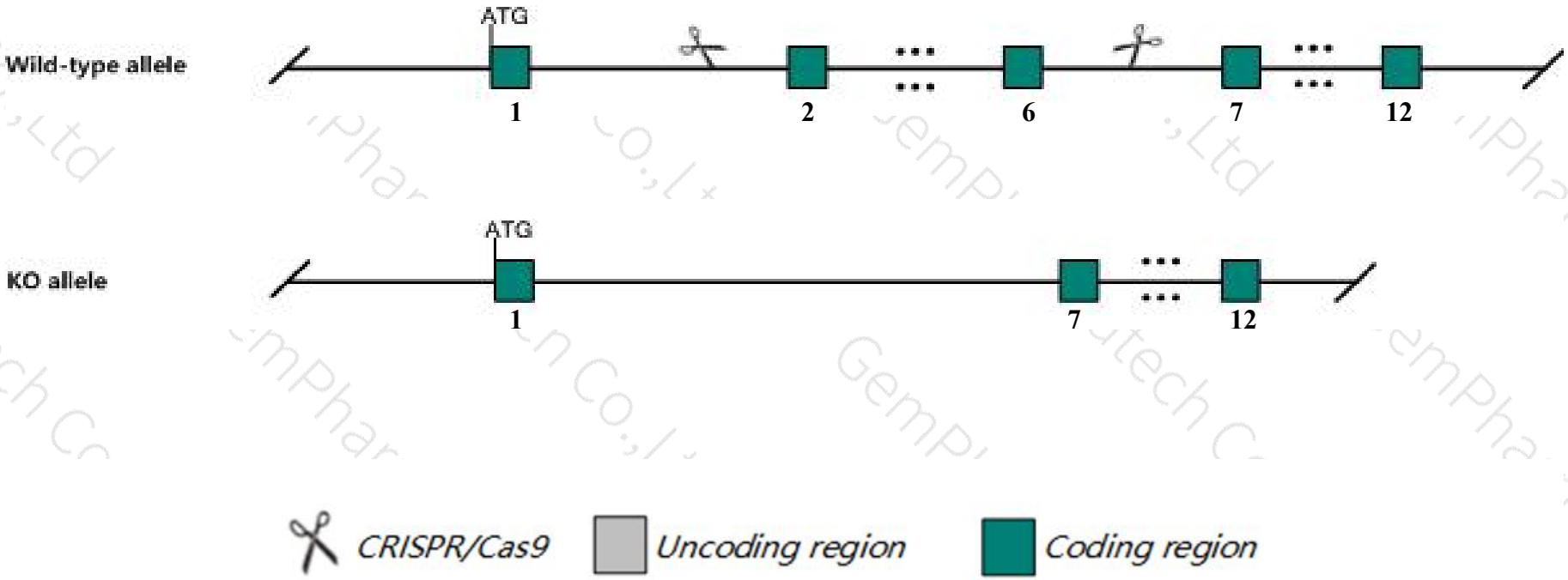
Project Overview

Project Name	***Cyp4x1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cyp4x1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Cyp4x1* gene has 2 transcripts. According to the structure of *Cyp4x1* gene, exon2-exon6 of *Cyp4x1-201* (ENSMUST00000051400.7) transcript is recommended as the knockout region.The region contains 598bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Cyp4x1* gene. The brief process is as follows: CRISPR/Cas9 syster

Notice

➢ The *Cyp4x1* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Cyp4x1 cytochrome P450, family 4, subfamily x, polypeptide 1 [Mus musculus (house mouse)]

Gene ID: 81906, updated on 31-Jan-2019

Summary

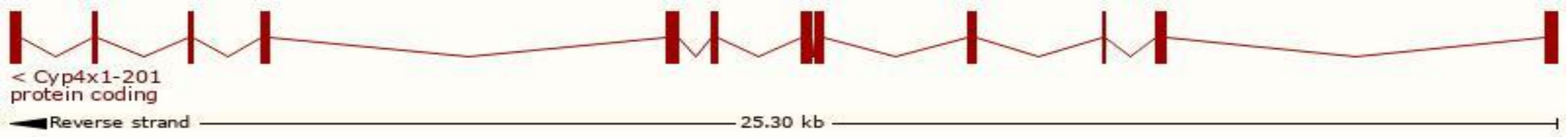
Official Symbol	Cyp4x1 provided by MGI
Official Full Name	cytochrome P450, family 4, subfamily x, polypeptide 1 provided by MGI
Primary source	MGI:MGI:1932403
See related	Ensembl:ENSMUSG00000047155
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A230025G20, CYPIVX1, CYP_a, Cyp4a28-ps
Expression	Biased expression in CNS E18 (RPKM 3.7), cortex adult (RPKM 2.3) and 4 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

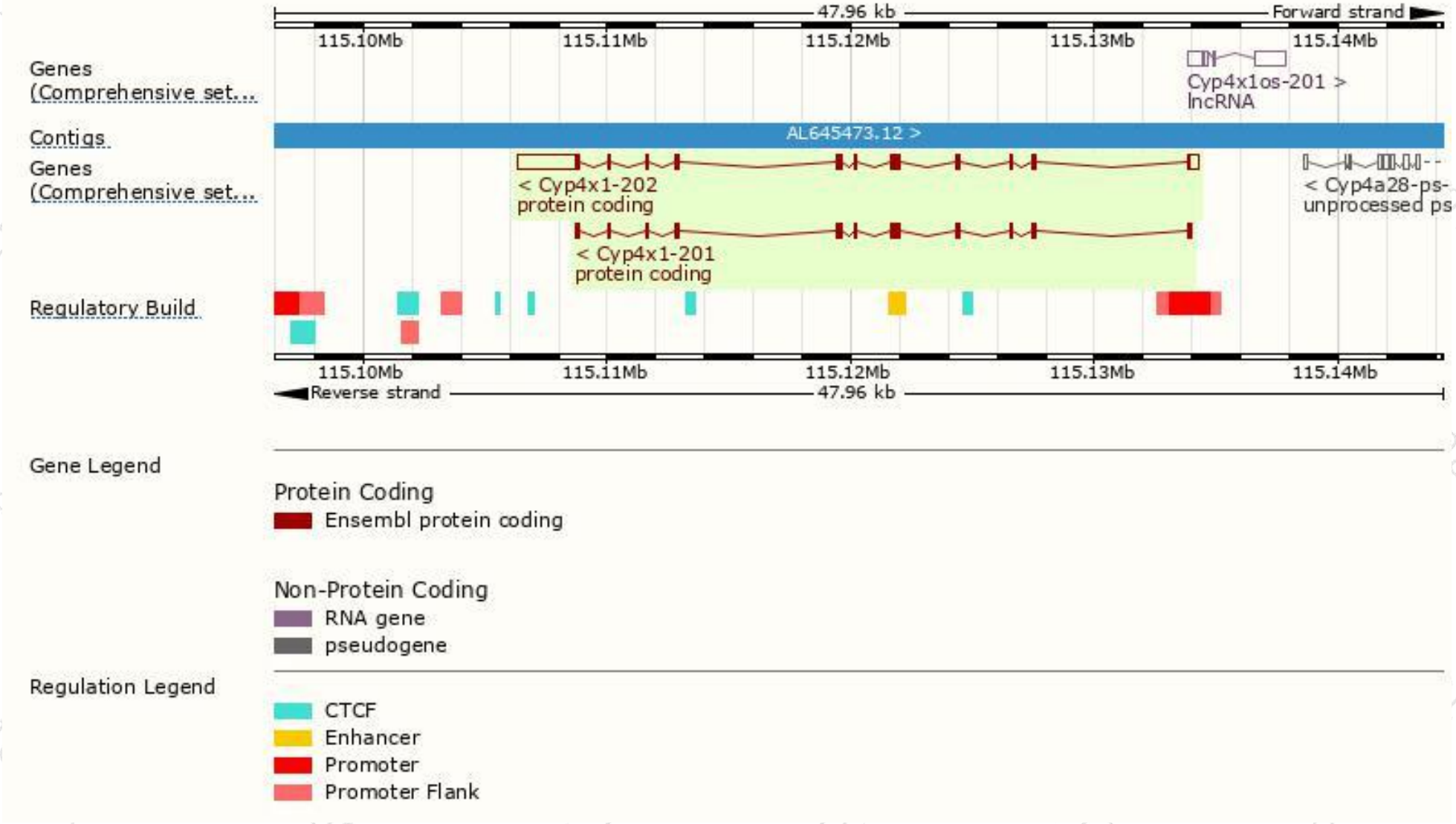
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cyp4x1-201	ENSMUST00000051400.7	1524	507aa	Protein coding	CCDS18488	Q6A152	TSL:1 GENCODE basic APPRIS P2
Cyp4x1-202	ENSMUST00000106545.7	4187	481aa	Protein coding	-	A2A9Y7	TSL:1 GENCODE basic APPRIS ALT2

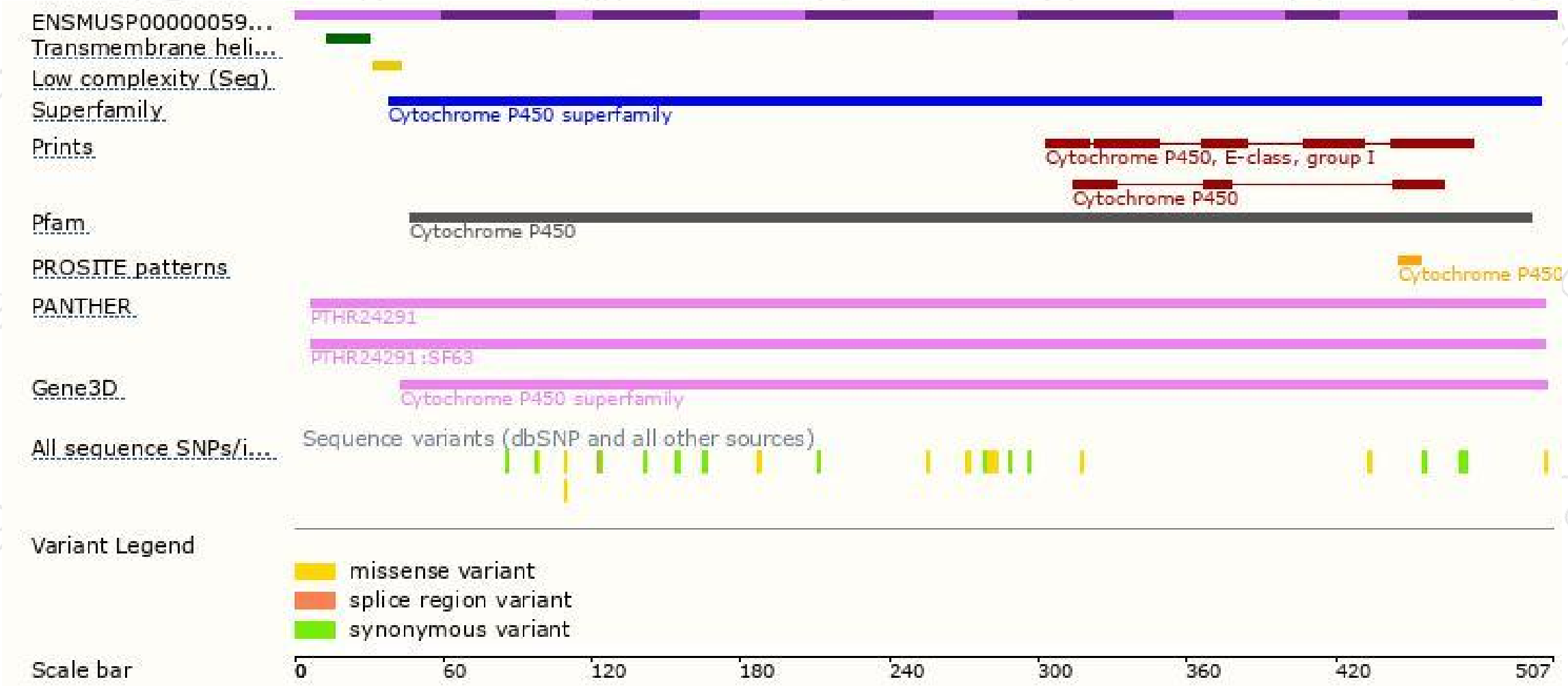
The strategy is based on the design of *Cyp4x1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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