Cyp2s1 Cas9-KO Strategy

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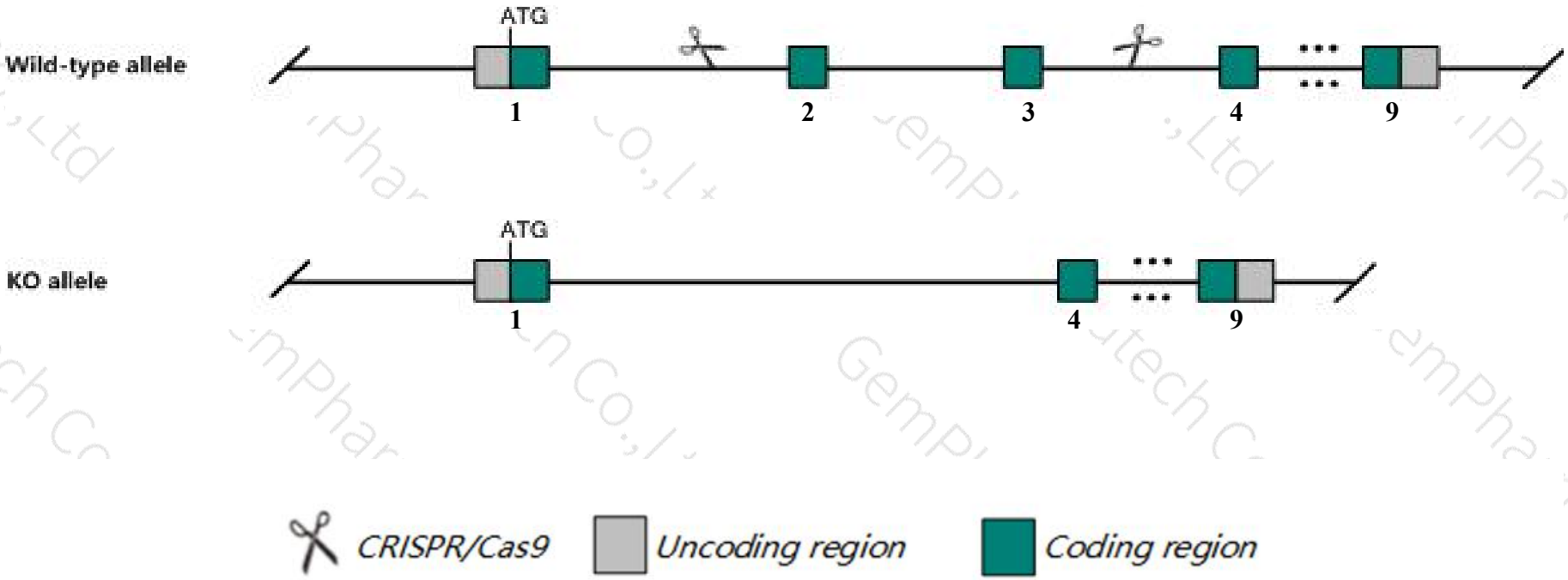
Project Overview

Project Name	***Cyp2s1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cyp2s1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Cyp2s1* gene has 4 transcripts. According to the structure of *Cyp2s1* gene, exon2-exon3 of *Cyp2s1-201* (ENSMUST00000043314.9) transcript is recommended as the knockout region.The region contains 316bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Cyp2s1* gene. The brief process is as follows: CRISPR/Cas9 syster

Notice

➢ According to the existing MGI data,Mice homozygous for a knock-out allele are viable and fertile and appear normal in terms of body weight, growth rate, organ weight, and daily activity.

➢The flox region is about 1 kb away from the 5th end of the Gm26707 gene, which may affect the regulation of this gene.

➢ The *Cyp2s1* gene is located on the Chr7. 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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Cyp2s1 cytochrome P450, family 2, subfamily s, polypeptide 1 [Mus musculus (house mouse)]

Gene ID: 74134, updated on 31-Jan-2019

Summary

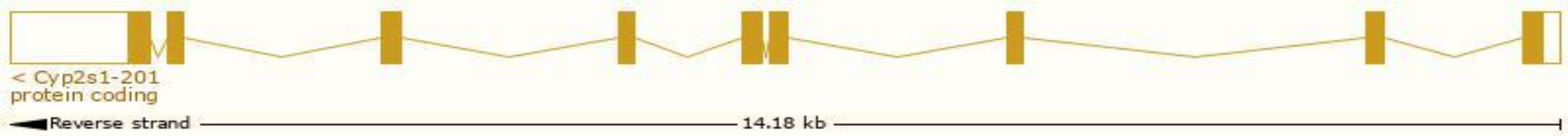
Official Symbol	Cyp2s1 provided by MGI
Official Full Name	cytochrome P450, family 2, subfamily s, polypeptide 1 provided by MGI
Primary source	MGI:MGI:1921384
See related	Ensembl:ENSMUSG00000040703
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1200011C15Rik, AU041727, C79779, CYPIIS1
Expression	Biased expression in stomach adult (RPKM 203.6), lung adult (RPKM 56.1) and 7 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

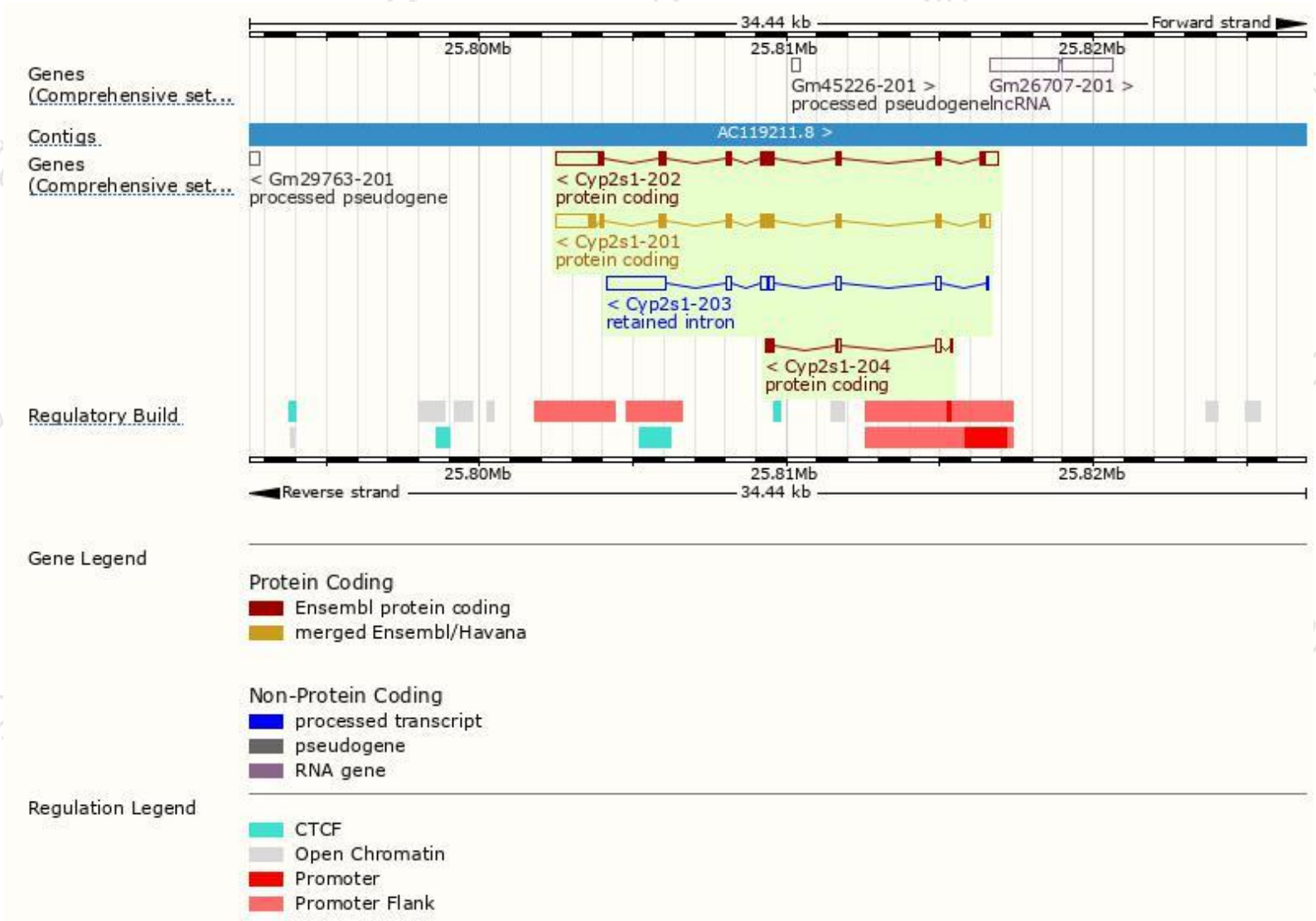
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cyp2s1-201	ENSMUST00000043314.9	2745	501aa	Protein coding	CCDS20997	Q9DBX6	TSL:1 GENCODE basic APPRIS P1
Cyp2s1-202	ENSMUST00000108395.7	3161	448aa	Protein coding	-	D3Z7F1	TSL:1 GENCODE basic
Cyp2s1-204	ENSMUST00000156714.1	566	90aa	Protein coding	-	D3Z762	CDS 3' incomplete TSL:5
Cyp2s1-203	ENSMUST00000152560.7	2741	No protein	Retained intron	-	-	TSL:1

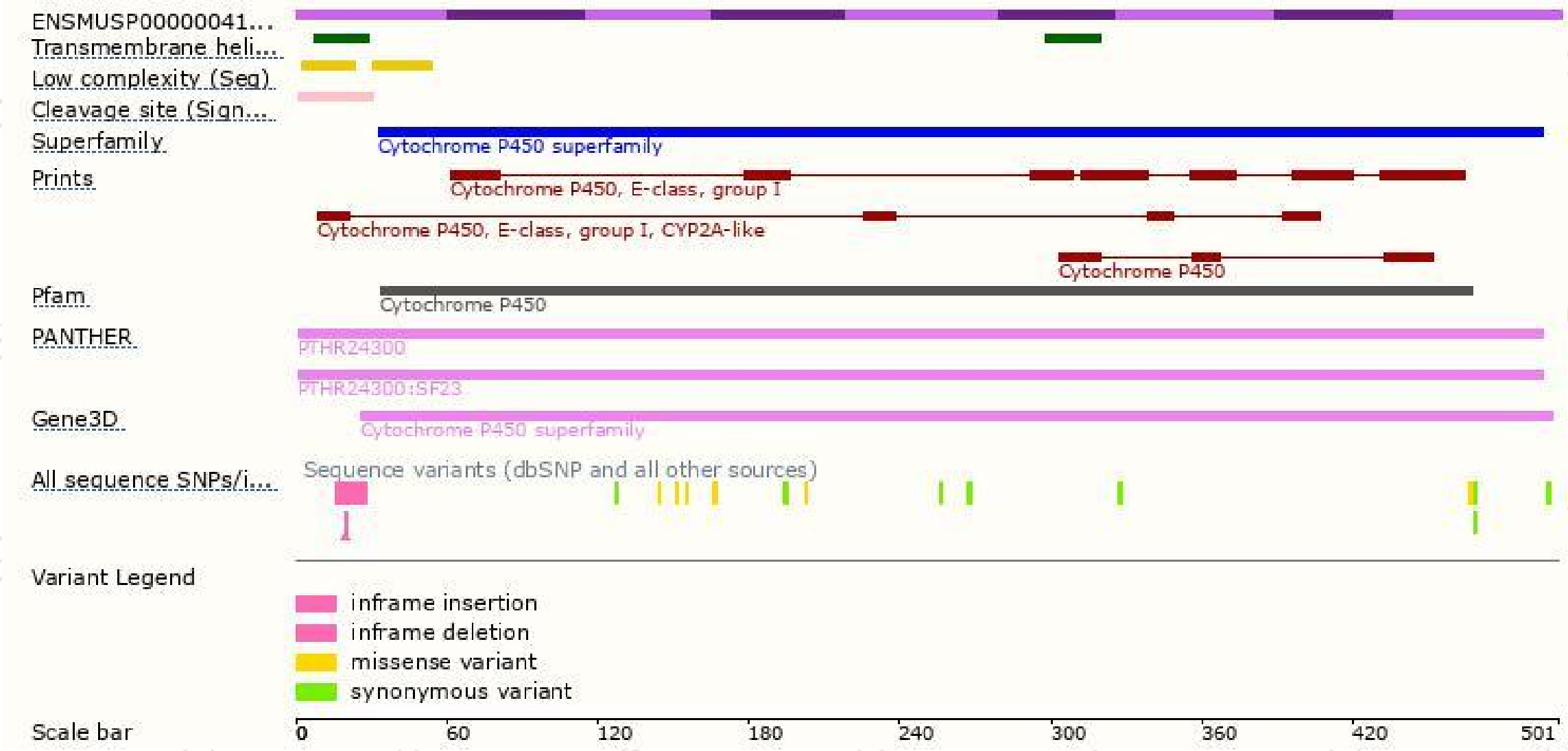
The strategy is based on the design of *Cyp2s1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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