Cldn23 Cas9-CKO Strategy

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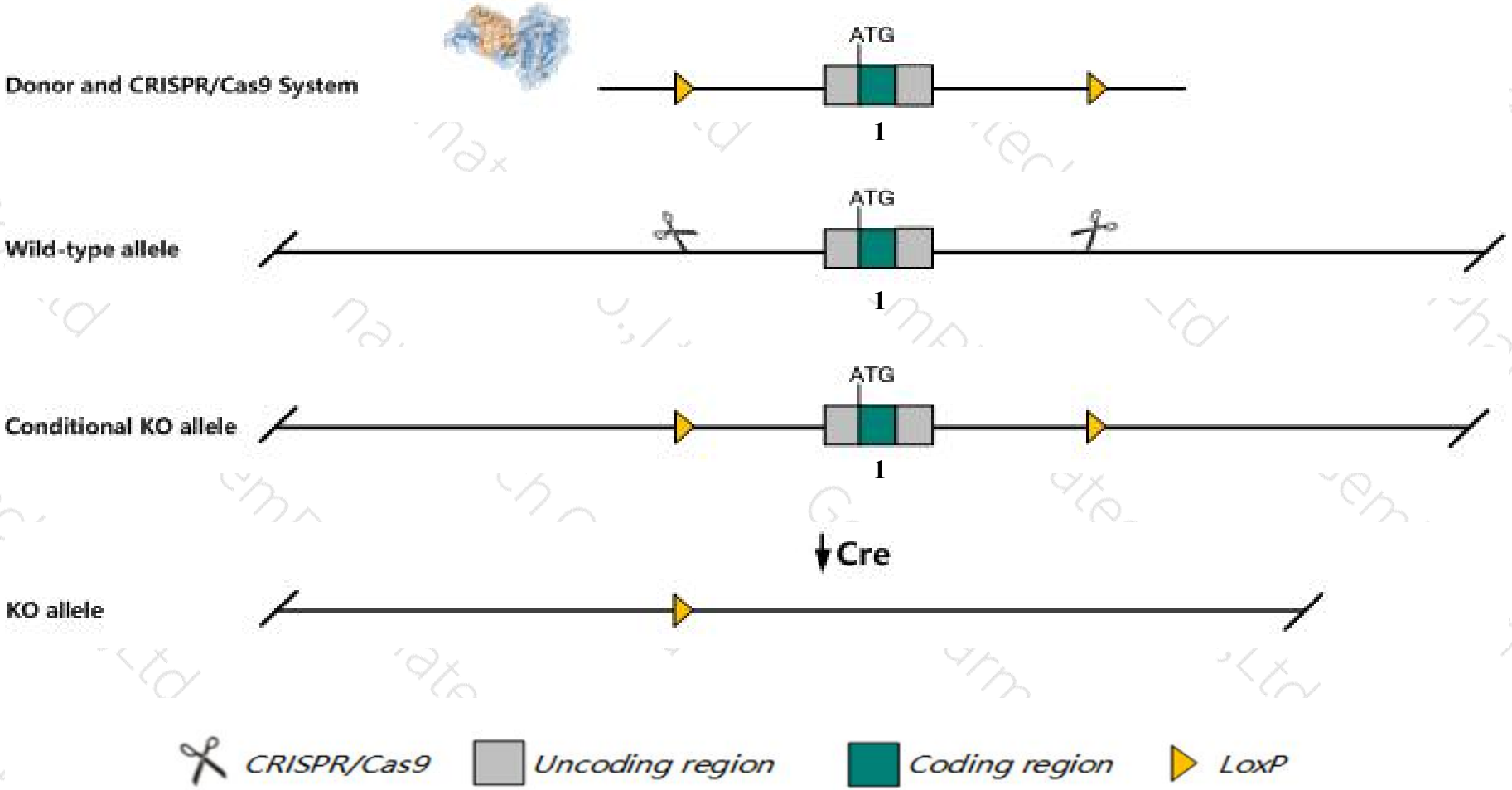
Project Overview

Project Name	***Cldn23***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cldn23* gene. The schematic diagram is as follows:



Technical routes

- The *Cldn23* gene has 2 transcripts. According to the structure of *Cldn23* gene, exon1 of *Cldn23-201* (ENSMUST00000060128.6) transcript is recommended as the knockout region.The region contains all 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 *Cldn23* 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 *Cldn23* gene is located on the Chr8. 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）

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Cldn23 claudin 23 [Mus musculus (house mouse)]

Gene ID: 71908, updated on 31-Jan-2019

Summary

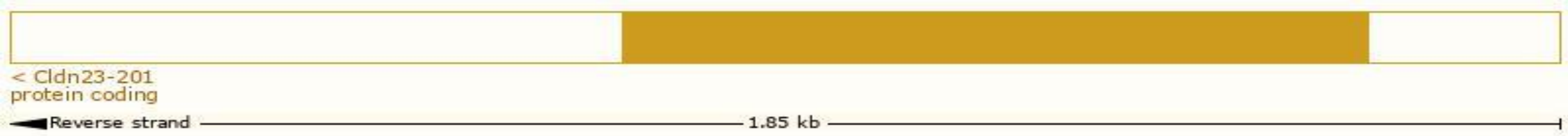
Official Symbol	Cldn23 provided by MGI
Official Full Name	claudin 23 provided by MGI
Primary source	MGI:MGI:1919158
See related	Ensembl:ENSMUSG00000055976
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310014B08Rik
Summary	This gene encodes a member of the claudin family. Claudins are integral membrane proteins and components of tight junction strands. Tight junction strands serve as a physical barrier to prevent solutes and water from passing freely through the paracellular space between epithelial or endothelial cell sheets, and also play critical roles in maintaining cell polarity and signal transductions. This gene is intronless and the protein encoded by this gene is 77% identical to the human homolog. [provided by RefSeq, Aug 2010]
Orthologs	human all

Transcript information（Ensembl）

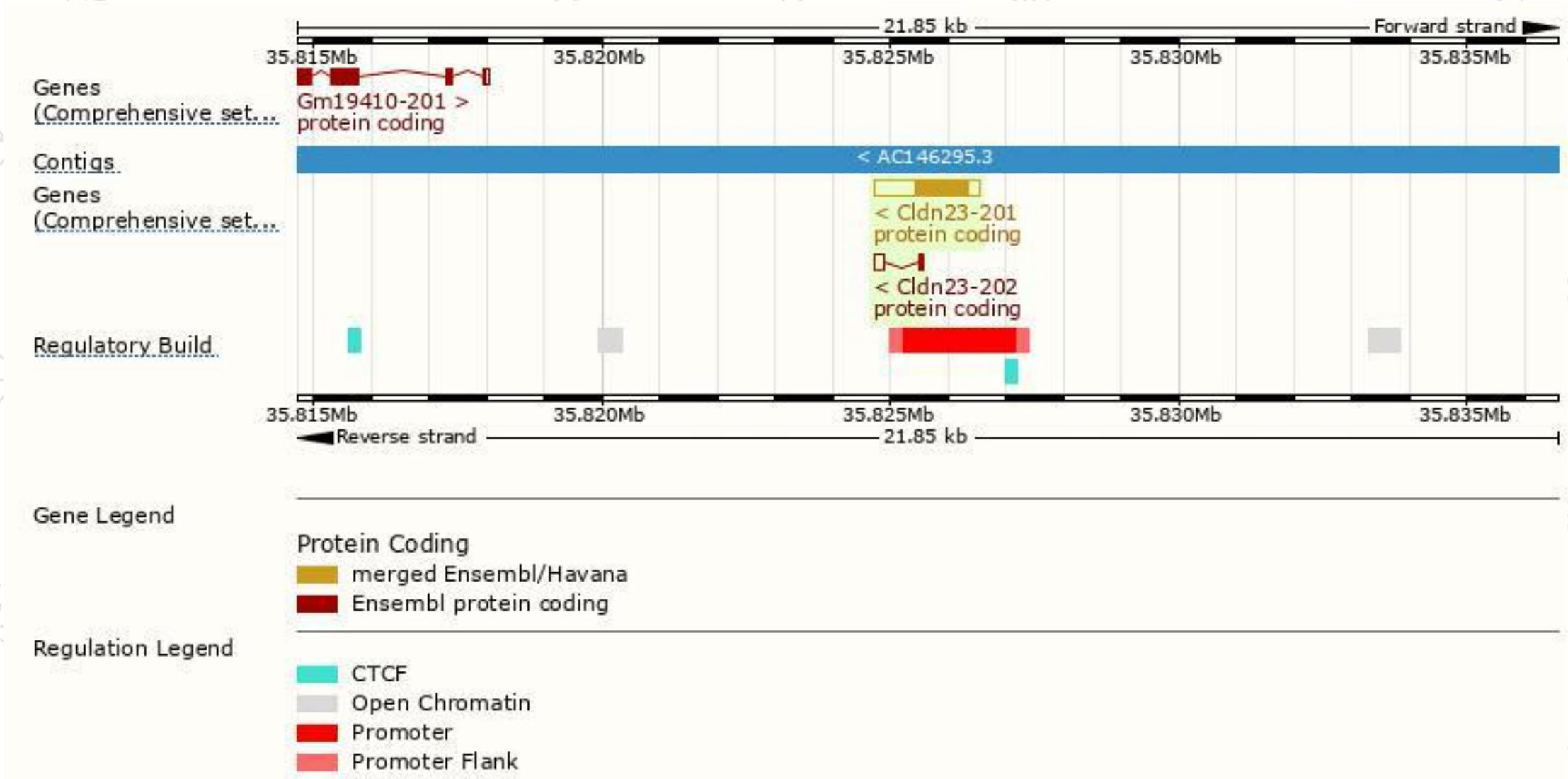
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cldn23-201	ENSMUST00000060128.6	1848	296aa	Protein coding	CCDS22246	Q9D7D7	TSL:NA GENCODE basic APPRIS P1
Cldn23-202	ENSMUST00000210370.1	232	25aa	Protein coding	-	A0A1B0GQV1	CDS 5' incomplete TSL:2

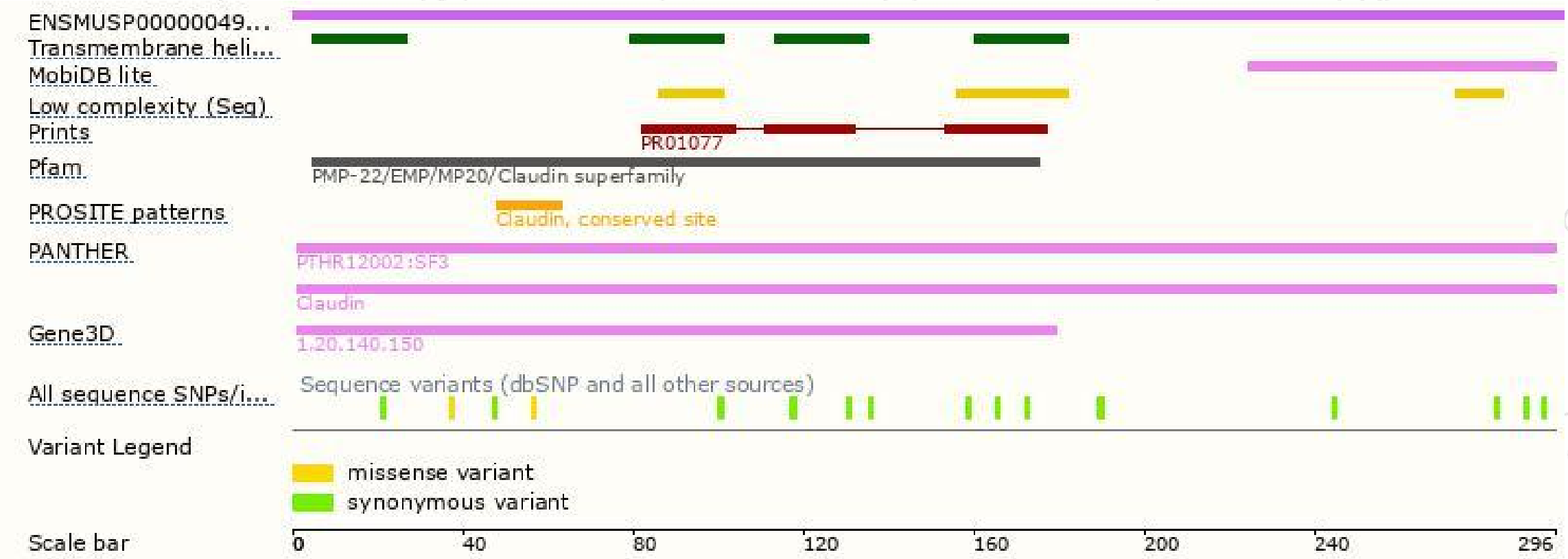
The strategy is based on the design of *Cldn23-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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