

Cdhr3 Cas9-CKO Strategy

Designer: Jia Yu

Reviewer: Xiaojing Li

Design Date: 2021-1-29

Project Overview

Project Name

Cdhr3

Project type

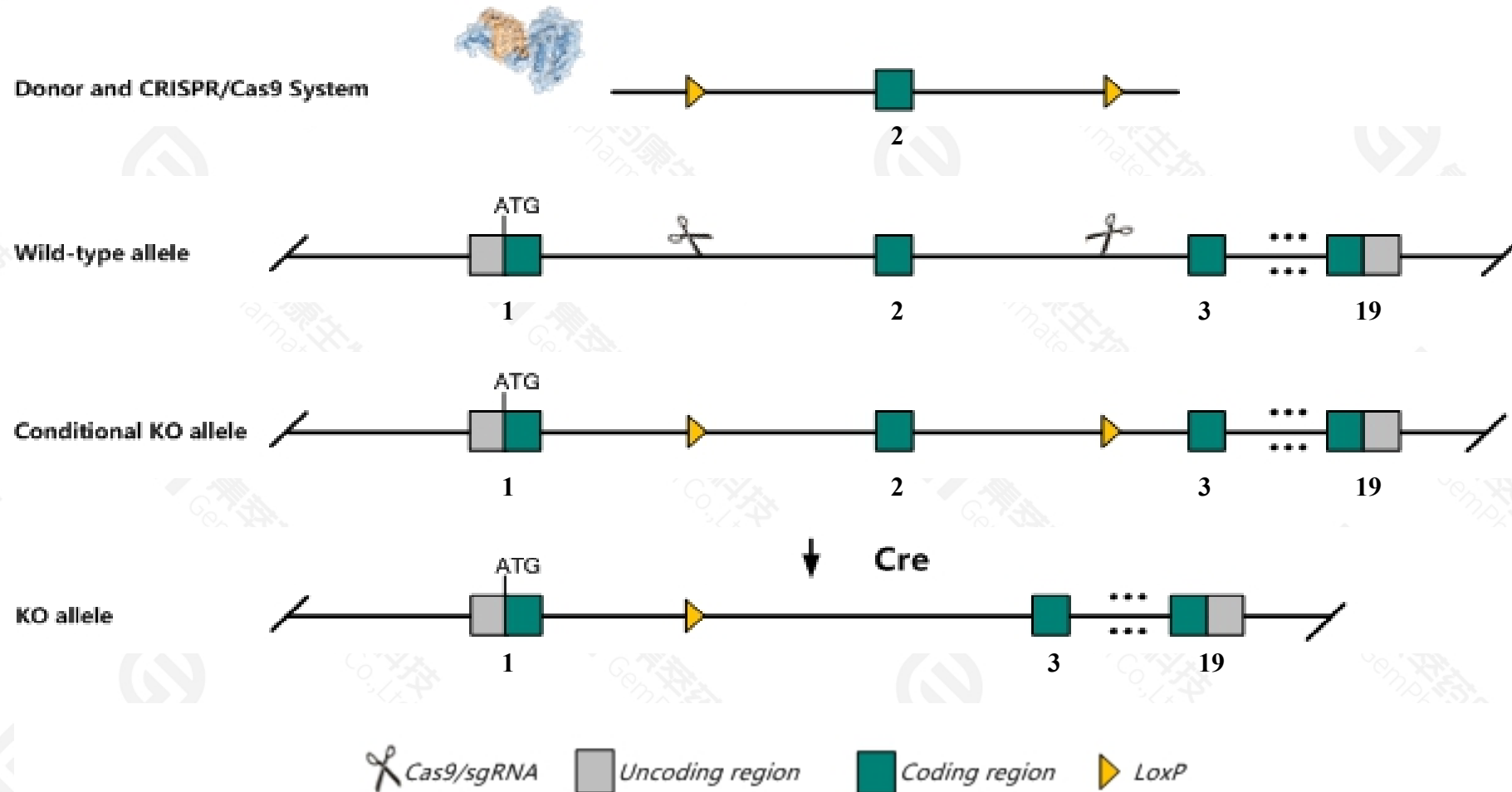
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdhr3* gene. The schematic diagram is as follows:



Technical routes

- The *Cdhr3* gene has 4 transcripts. According to the structure of *Cdhr3* gene, exon2 of *Cdhr3*-201(ENSMUST00000095774.2) transcript is recommended as the knockout region. The region contains 203bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cdhr3* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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 *Cdhr3* gene is located on the Chr12. 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)

Cdhr3 cadherin-related family member 3 [Mus musculus (house mouse)]

Gene ID: 68764, updated on 13-Mar-2020

Summary



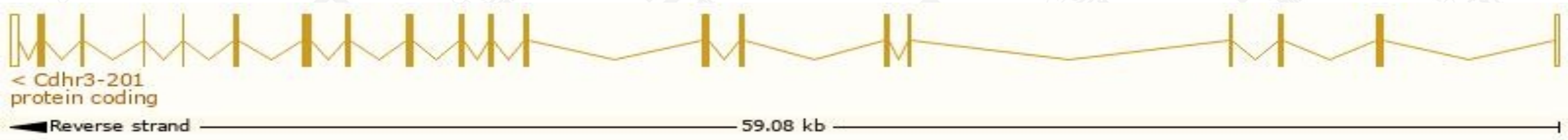
Official Symbol	Cdhr3 provided by MGI
Official Full Name	cadherin-related family member 3 provided by MGI
Primary source	MGI:MGI:1916014
See related	Ensembl:ENSMUSG00000035860
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110049B09Rik, BB172694, Cdh28
Expression	Biased expression in lung adult (RPKM 4.3), ovary adult (RPKM 1.8) and 4 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

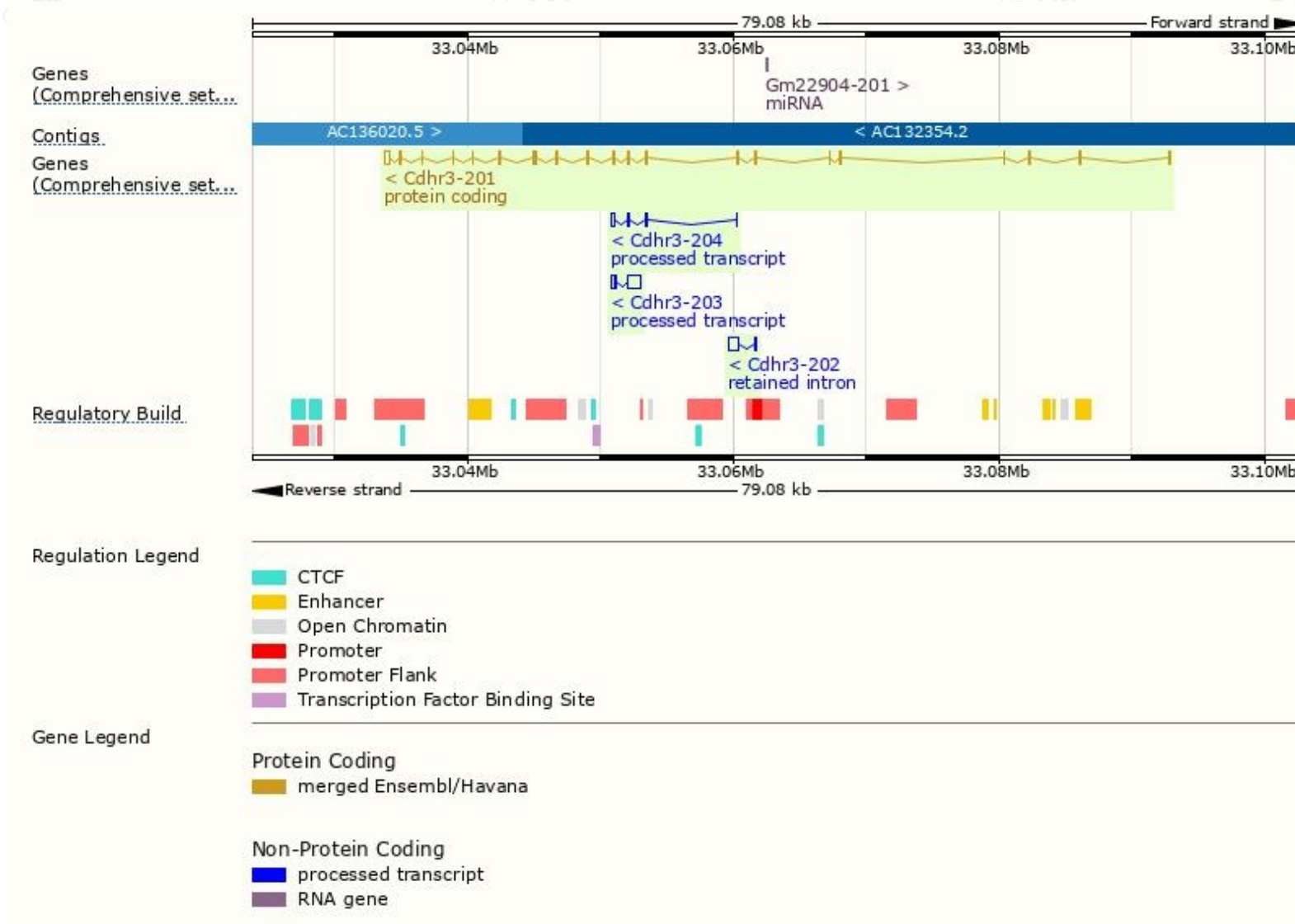
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cdhr3-201	ENSMUST00000095774.2	2953	831aa	Protein coding	CCDS36430	Q8BL00	TSL:1 GENCODE basic APPRIS P1
Cdhr3-203	ENSMUST00000219158.1	1209	No protein	Processed transcript	-	-	TSL:1
Cdhr3-204	ENSMUST00000219453.1	604	No protein	Processed transcript	-	-	TSL:3
Cdhr3-202	ENSMUST00000219065.1	881	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Cdhr3-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain

ENSMUSP00000093...

Transmembrane heli...

MobiDB lite

Low complexity (Seg)

Cleavage site (Sign...

Superfamily

SMART

Prints

Pfam

PROSITE profiles

PANTHER

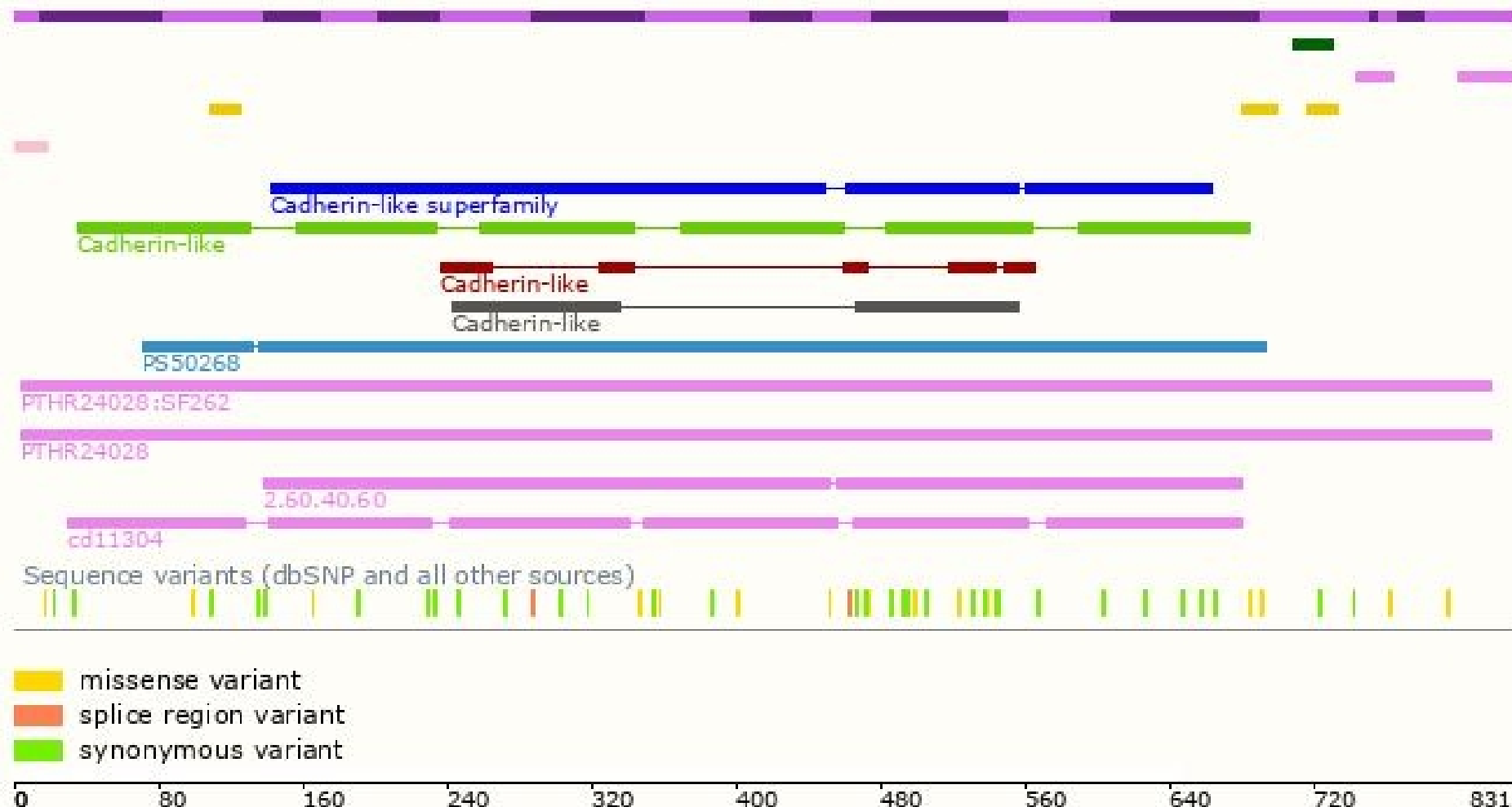
Gene3D

CDD

All sequence SNPs/i...

Variant Legend

Scale bar



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

Tel: 025-5864 1534

