Cdhr1 Cas9-KO Strategy

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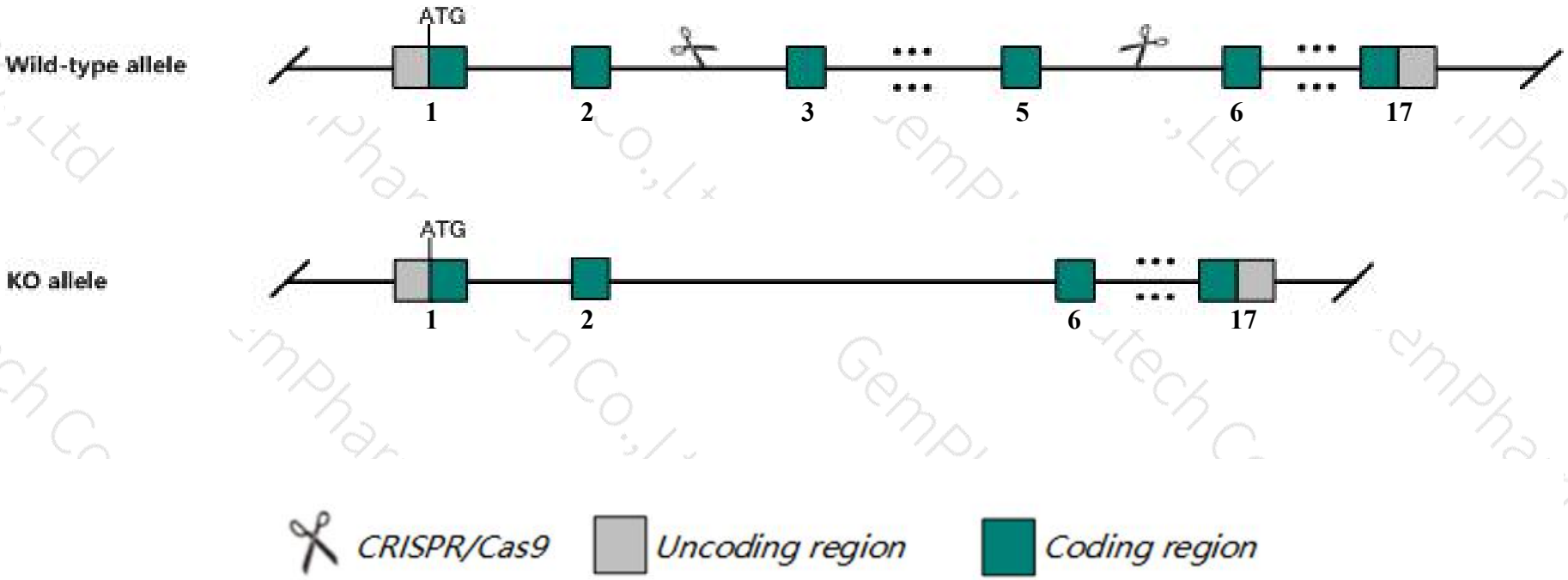
Project Overview

Project Name	***Cdhr1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdhr1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Cdhr1* gene has 1 transcript. According to the structure of *Cdhr1* gene, exon3-exon5 of *Cdhr1-201* (ENSMUST00000022337.10) transcript is recommended as the knockout region.The region contains 287bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Cdhr1* gene. The brief process is as follows: CRISPR/Cas9 system we

Notice

- According to the existing MGI data, mice homozygous for a targeted null mutation exhibit progressive degeneration of retinal photoreceptor cells and a slight reduction in light responses.

- The *Cdhr1* gene is located on the Chr14. 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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Cdhr1 cadherin-related family member 1 [*Mus musculus* (house mouse)]

Gene ID: 170677, updated on 11-Sep-2019

Summary

Official Symbol	Cdhr1 provided by MGI
Official Full Name	cadherin-related family member 1 provided by MGI
Primary source	MGI:MGI:2157782
See related	Ensembl:ENSMUSG00000021803
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	Prcad; Pcdh21; mKIAA1775
Expression	Biased expression in frontal lobe adult (RPKM 31.5), CNS E18 (RPKM 5.0) and 2 other tissues See more
Orthologs	human all

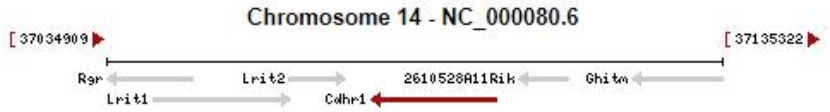
Genomic context

Location: 14; 14 B

See Cdhr1 in Genome Data Viewer

Exon count: 17

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	14	NC_000080.6 (37077849..37098347, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	14	NC_000080.5 (37891035..37911497, complement)

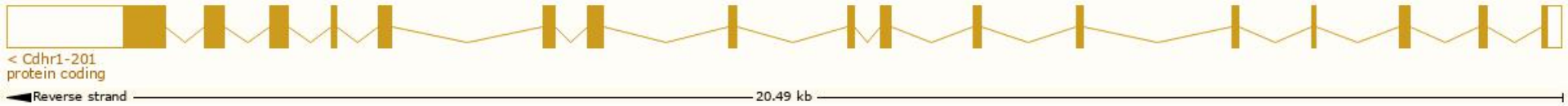


Transcript information（Ensembl）

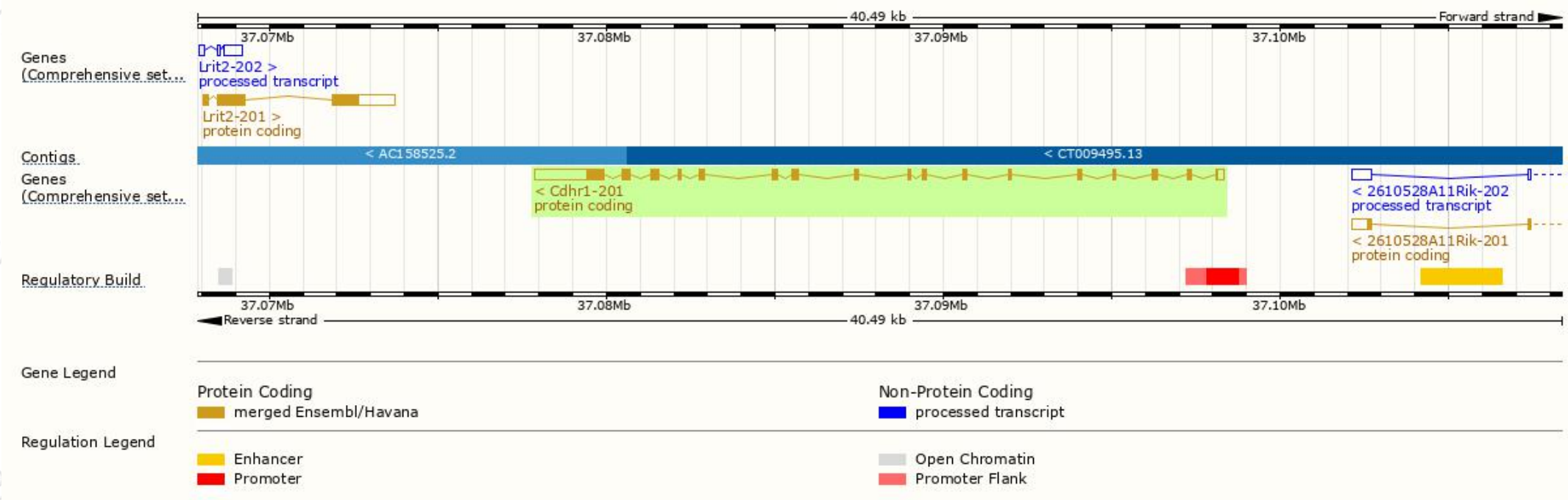
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cdhr1-201	ENSMUST00000022337.10	4332	859aa	Protein coding	CCDS26952	Q8VHP6	TSL:1 GENCODE basic APPRIS P1

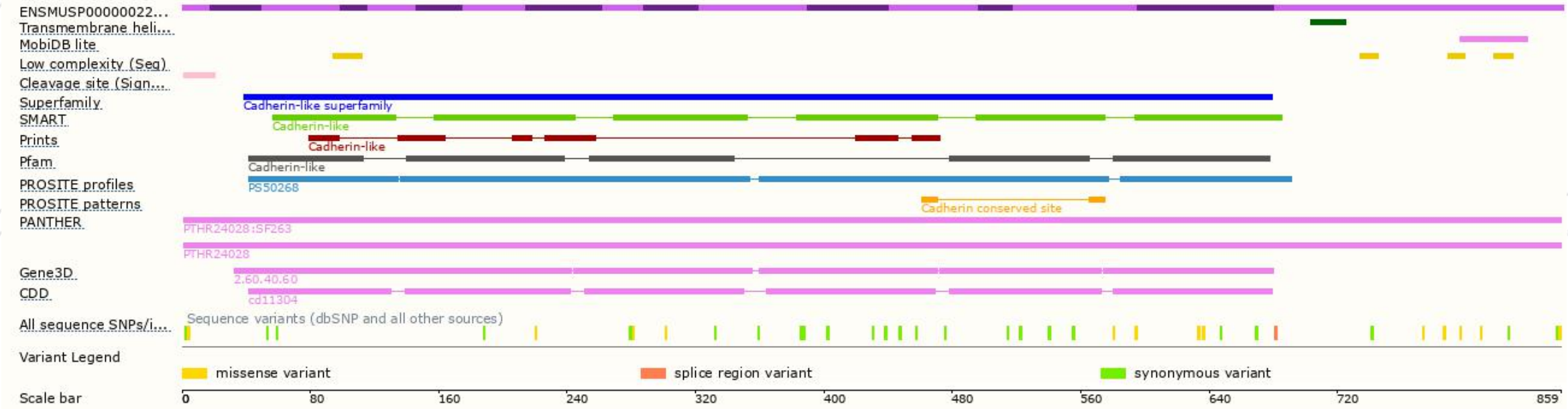
The strategy is based on the design of *Cdhr1-201* transcript, the transcription is shown below:



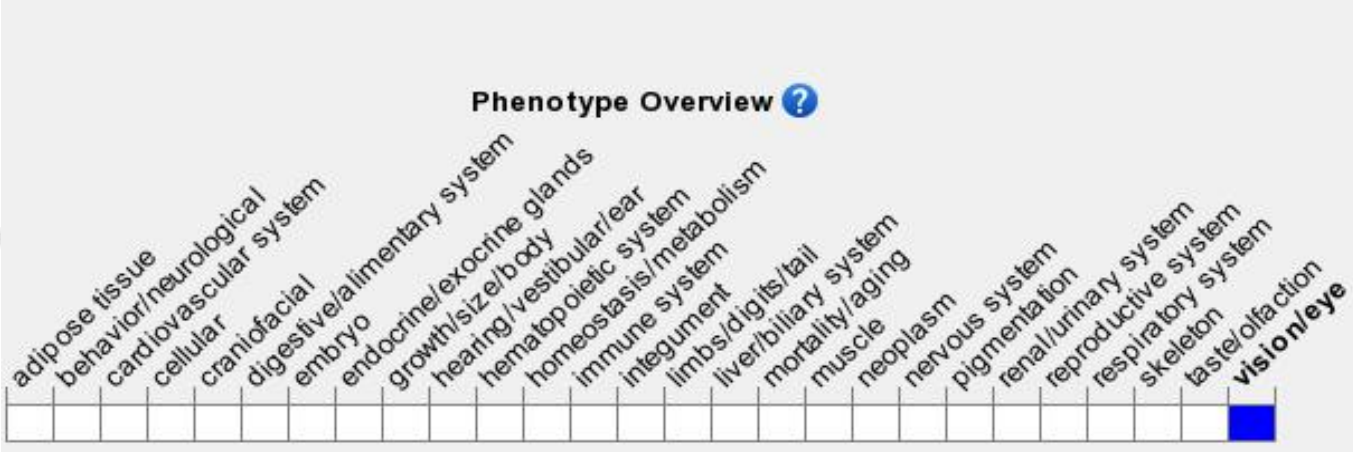
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

According to the existing MGI data, mice homozygous for a targeted null mutation exhibit progressive degeneration of retinal photoreceptor cells and a slight reduction in light responses.

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

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