Cdh7 Cas9-KO Strategy

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Project Overview

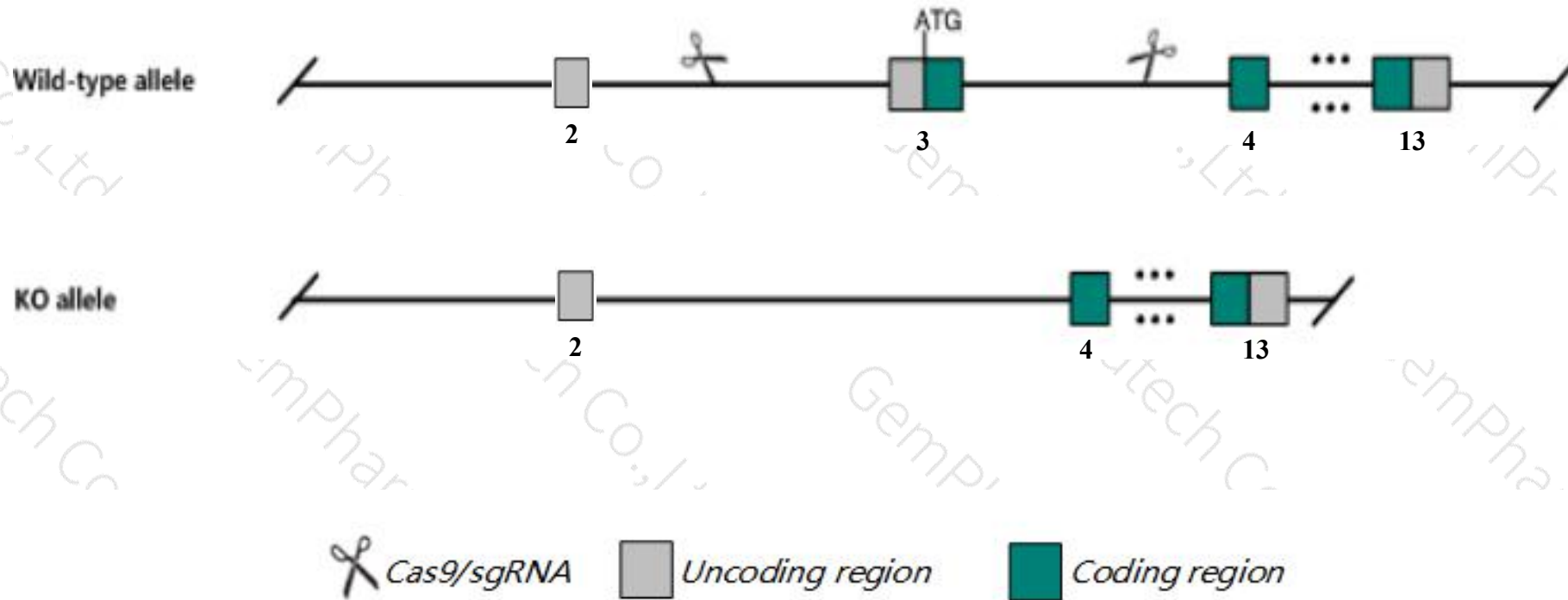|	
Project Name	*Cdh7*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdh7* gene. The schematic diagram is as follows:

Technical routes

➢ The *Cdh7* gene has 9 transcripts. According to the structure of *Cdh7* gene, exon3 of *Cdh7-202*(ENSMUST00000112701.7) transcript is recommended as the knockout region.The region contains start codon ATG.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Cdh7* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ The *Cdh7* gene is located on the Chr1. 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）

Cdh7 cadherin 7, type 2 [*Mus musculus* (house mouse)]

Gene ID: 241201, updated on 21-Jul-2020

Summary

|	
Official Symbol	Cdh7 provided by MGI
Official Full Name	cadherin 7, type 2 provided by MGI
Primary source	MGI:MGI:2442792
See related	Ensembl:ENSMUSG00000026312
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	CDH7L1; 9330156F07Rik
Summary	This gene encodes a member of the cadherin family of calcium-dependent glycoproteins that mediate cell adhesion and regulate many morphogenetic events during development. The encoded preproprotein is further processed to generate a mature protein. Alternative splicing results in multiple transcript variants encoding different isoforms. This gene is located adjacent to a related cadherin gene on chromosome 1. [provided by RefSeq, Oct 2015]
Expression	Biased expression in cerebellum adult (RPKM 1.6), CNS E18 (RPKM 1.0) and 5 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 9 transcripts,all transcripts are shown below:

| Name	Transcript ID	bp	Protein ▲	Biotype	CCDS	UniProt	Flags
Cdh7-207	ENSMUST00000145188.1	714	67aa	▌Protein coding	-	D3Z0J7	CDS 3' incomplete TSL:3
Cdh7-204	ENSMUST00000131464.7	4211	73aa	▌Nonsense mediated decay	-	M0QWW8	TSL:1
Cdh7-208	ENSMUST00000146282.2	4776	76aa	▌Protein coding	-	Q8BLT5	TSL:3 GENCODE basic
Cdh7-206	ENSMUST00000137092.7	2681	76aa	▌Protein coding	-	Q8BLT5	TSL:1 GENCODE basic
Cdh7-203	ENSMUST00000129923.1	1409	76aa	▌Protein coding	-	Q8BLT5	TSL:1 GENCODE basic
Cdh7-205	ENSMUST00000134301.1	677	179aa	▌Protein coding	-	F6WWT2	CDS 5' incomplete TSL:1
Cdh7-202	ENSMUST00000112701.7	4945	785aa	▌Protein coding	CCDS15221	Q8BM92	TSL:5 GENCODE basic APPRIS P1
Cdh7-201	ENSMUST00000027542.12	3390	785aa	▌Protein coding	CCDS15221	Q8BM92	TSL:1 GENCODE basic APPRIS P1
Cdh7-209	ENSMUST00000172005.7	3353	785aa	▌Protein coding	CCDS15221	Q8BM92	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Cdh7-202* transcript,the transcription is shown below:
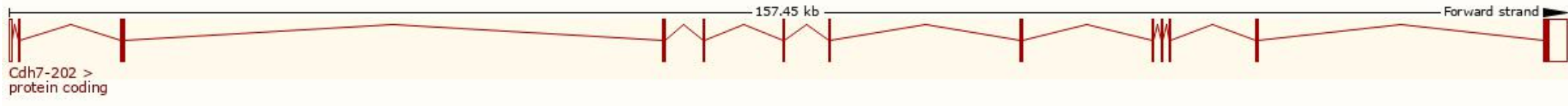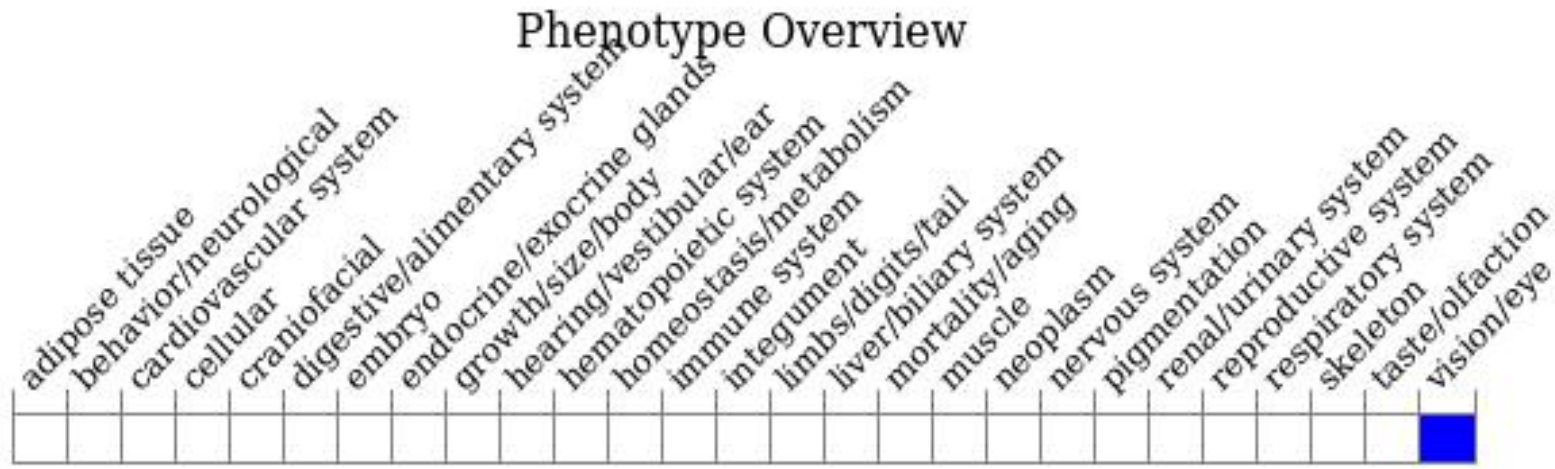
Genomic location distribution
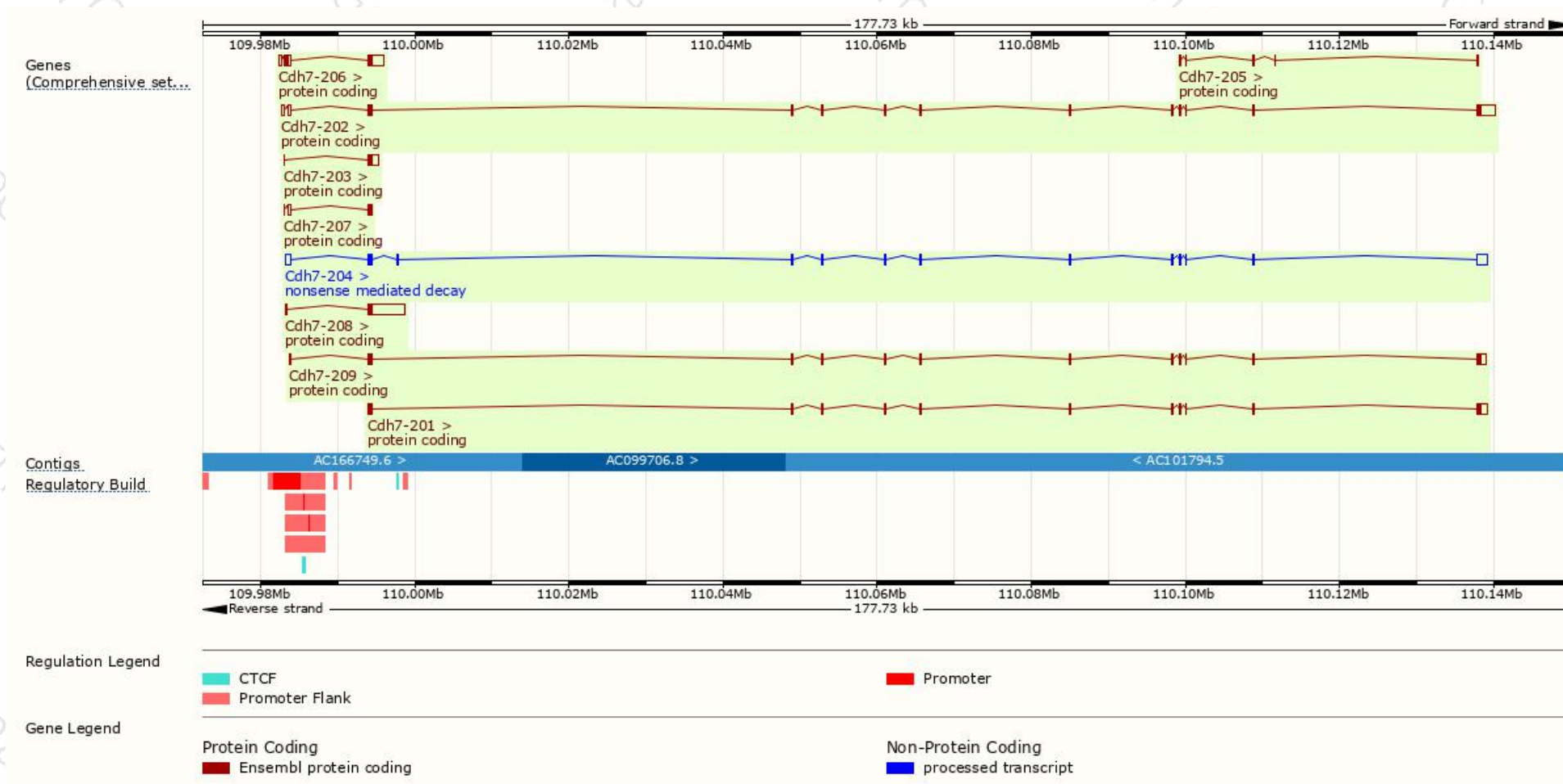
Protein domain
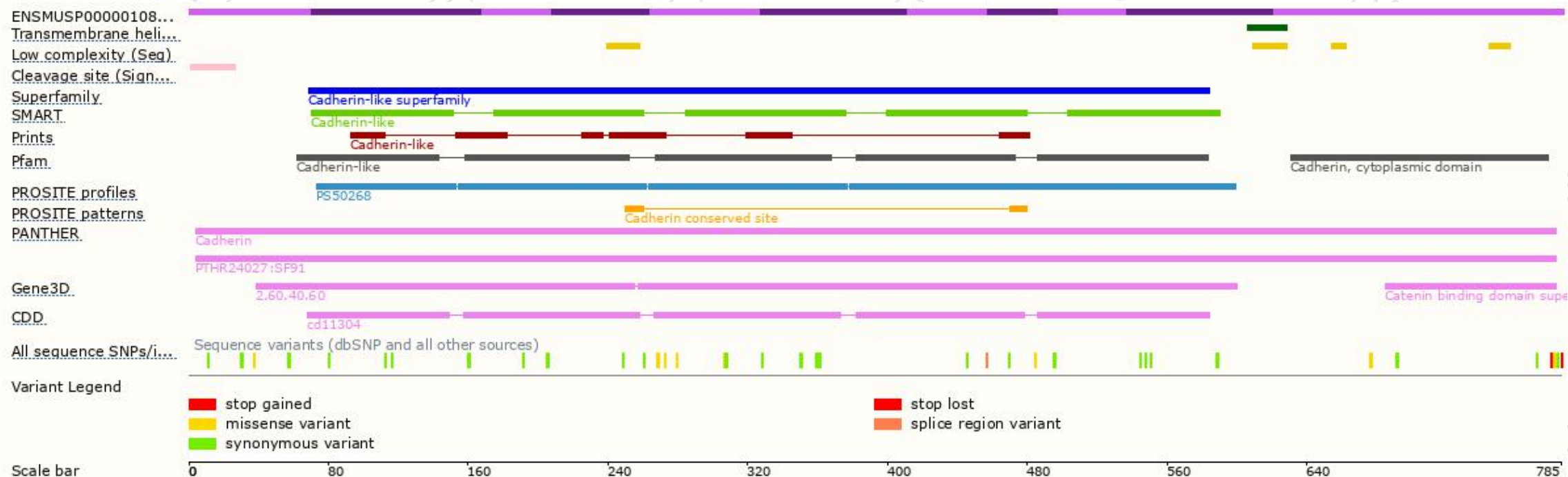
Mouse phenotype description(MGI)

Phenotype Overview

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

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