

# ***Cdh16 Cas9-KO Strategy***

**Designer:**

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# Project Overview

**Project Name**

***Cdh16***

**Project type**

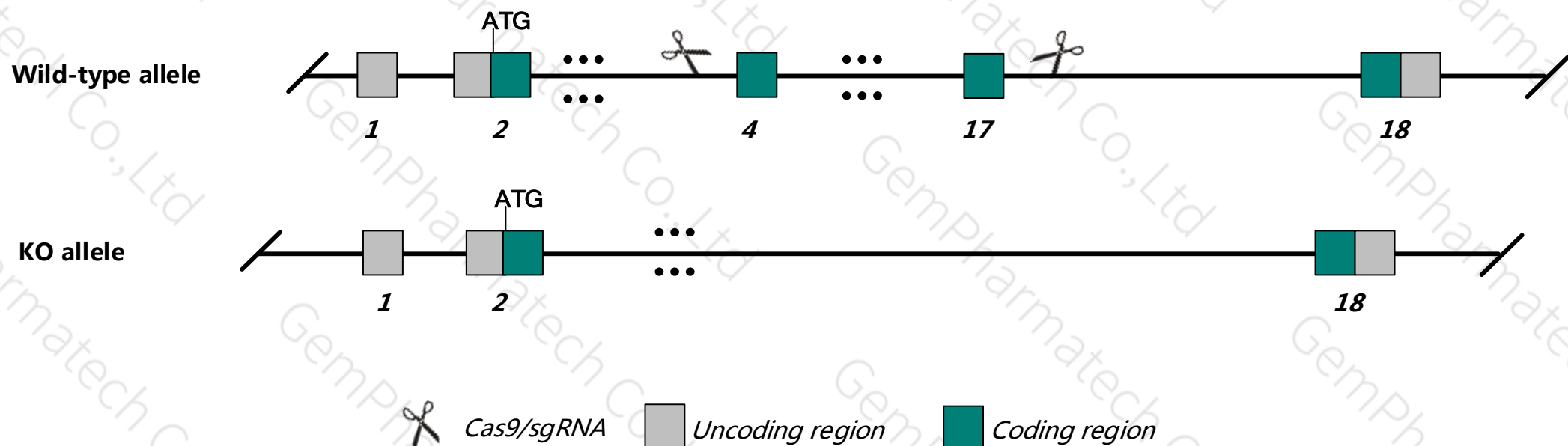
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdh16* gene. The schematic diagram is as follows:



# Technical routes

- The *Cdh16* gene has 14 transcripts, According to the structure of *Cdh16* gene, exon4-17 of *Cdh16-204* transcript is recommended as the knockout region. The region contains the 2263bp most of coding sequence. Knock out the region, result in destruction of protein.
- In this project we use CRISPR/Cas9 technology to modify *Cdh16* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- Transcript *Cdh16-206* may not be affected.
- The *Cdh16* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

# Gene information ( NCBI )

## Cdh16 cadherin 16 [ *Mus musculus* (house mouse) ]

Gene ID: 12556, updated on 31-Jan-2019

### Summary

Official Symbol	Cdh16 provided by <a href="#">MGI</a>
Official Full Name	cadherin 16 provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:106671</a>
See related	<a href="#">Ensembl:ENSMUSG00000031881</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Restricted expression toward kidney adult (RPKM 275.2) <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

### Genomic context

Location: 8 D3; 8 53.04 cM

See Cdh16 in [Genome Data Viewer](#)

Exon count: 19

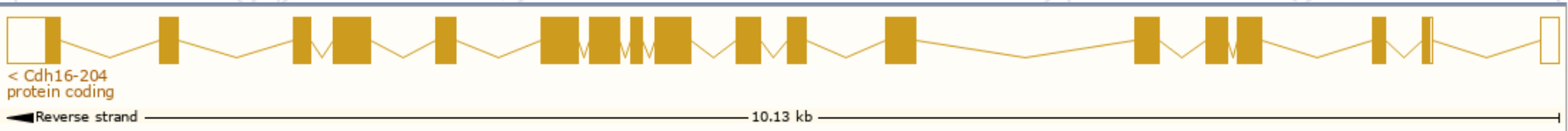


# Transcript information ( Ensembl )

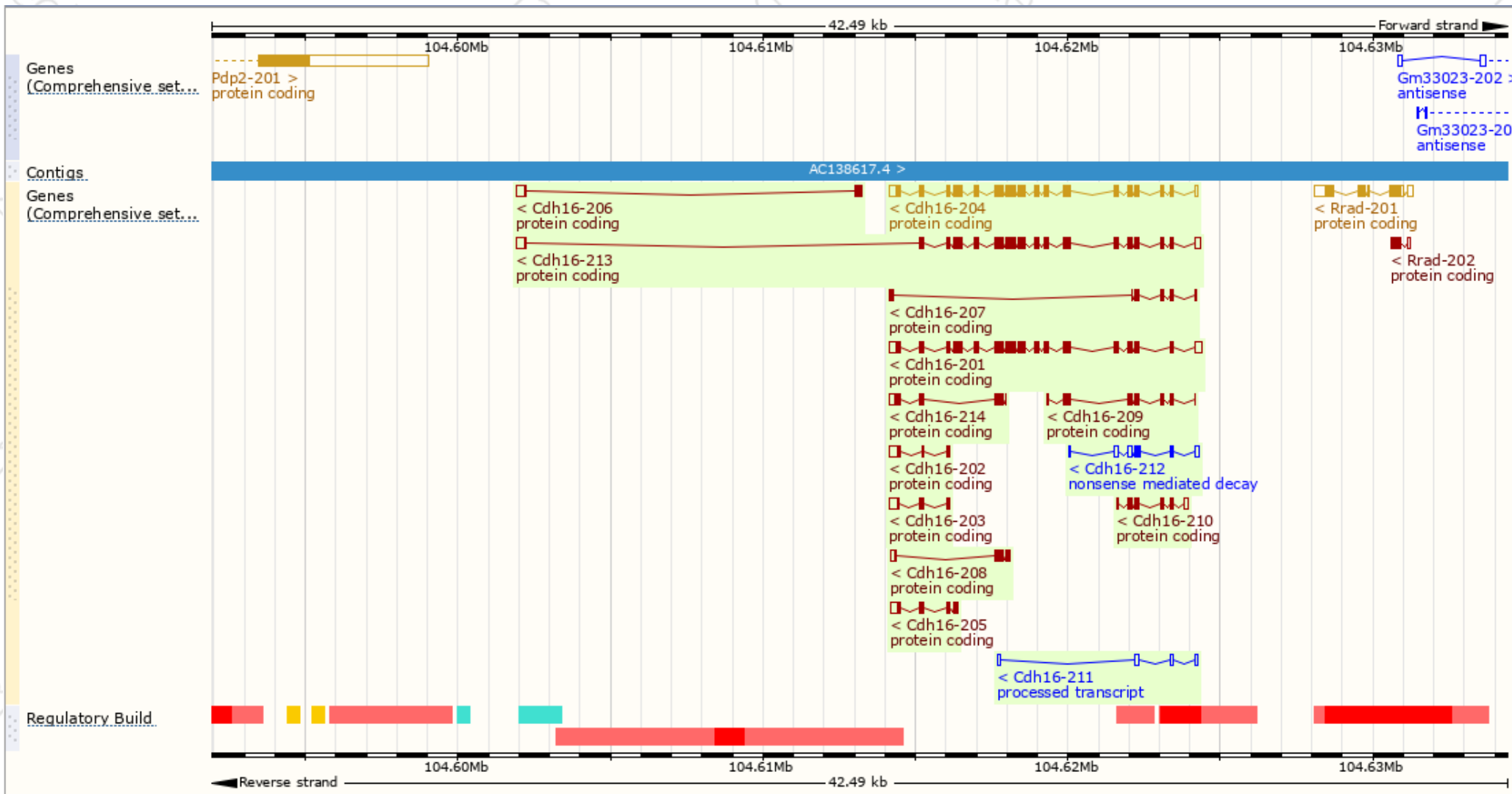
The gene has 14 transcripts, and all transcripts are shown below :

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cdh16-213	<a href="#">ENSMUST00000212882.1</a>	2923	<a href="#">815aa</a>	Protein coding	<a href="#">CCDS85595</a>	<a href="#">Q8C730</a>	TSL:1 GENCODE basic APPRIS ALT2
Cdh16-201	<a href="#">ENSMUST00000163783.3</a>	2910	<a href="#">800aa</a>	Protein coding	<a href="#">CCDS85594</a>	<a href="#">Q3TPA4</a>	TSL:1 GENCODE basic APPRIS ALT2
Cdh16-204	<a href="#">ENSMUST00000211903.1</a>	2874	<a href="#">830aa</a>	Protein coding	<a href="#">CCDS22583</a>	<a href="#">O88338</a> <a href="#">Q546A8</a>	TSL:1 GENCODE basic APPRIS P3
Cdh16-214	<a href="#">ENSMUST00000213033.1</a>	733	<a href="#">179aa</a>	Protein coding	-	<a href="#">A0A1D5RMA8</a>	CDS 5' incomplete TSL:5
Cdh16-209	<a href="#">ENSMUST00000212447.1</a>	720	<a href="#">223aa</a>	Protein coding	-	<a href="#">A0A1D5RMM2</a>	CDS 3' incomplete TSL:5
Cdh16-205	<a href="#">ENSMUST00000212045.1</a>	646	<a href="#">149aa</a>	Protein coding	-	<a href="#">A0A1D5RM27</a>	CDS 5' incomplete TSL:3
Cdh16-210	<a href="#">ENSMUST00000212662.1</a>	632	<a href="#">163aa</a>	Protein coding	-	<a href="#">A0A1D5RMI6</a>	CDS 3' incomplete TSL:3
Cdh16-208	<a href="#">ENSMUST00000212420.1</a>	594	<a href="#">142aa</a>	Protein coding	-	<a href="#">A0A1D5RMB7</a>	CDS 5' incomplete TSL:5
Cdh16-206	<a href="#">ENSMUST00000212318.1</a>	586	<a href="#">98aa</a>	Protein coding	-	<a href="#">A0A1D5RLE7</a>	CDS 5' incomplete TSL:5
Cdh16-203	<a href="#">ENSMUST00000211889.1</a>	519	<a href="#">93aa</a>	Protein coding	-	<a href="#">A0A1D5RLS8</a>	CDS 5' incomplete TSL:5
Cdh16-207	<a href="#">ENSMUST00000212324.1</a>	506	<a href="#">141aa</a>	Protein coding	-	<a href="#">A0A1D5RLG9</a>	CDS 3' incomplete TSL:5
Cdh16-202	<a href="#">ENSMUST00000211849.1</a>	474	<a href="#">75aa</a>	Protein coding	-	<a href="#">A0A1D5RL88</a>	CDS 5' incomplete TSL:3
Cdh16-212	<a href="#">ENSMUST00000212748.1</a>	730	<a href="#">58aa</a>	Nonsense mediated decay	-	<a href="#">A0A1D5RMK0</a>	TSL:5
Cdh16-211	<a href="#">ENSMUST00000212689.1</a>	421	No protein	Processed transcript	-	-	TSL:5

The strategy is based on the design of *Cdh16-204* transcript,The transcription is shown below

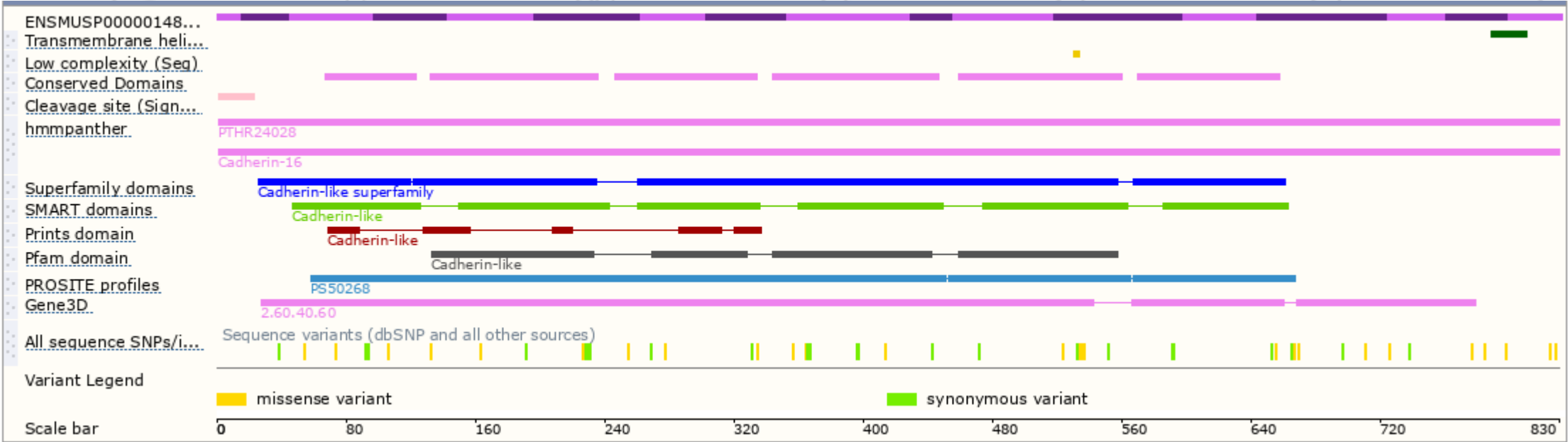


# Genomic location distribution





# Protein domain



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