

# ***Pcdh20 Cas9-KO Strategy***

**Designer:**

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# Project Overview

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**Project Name**

***Pcdh20***

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**Project type**

**Cas9-KO**

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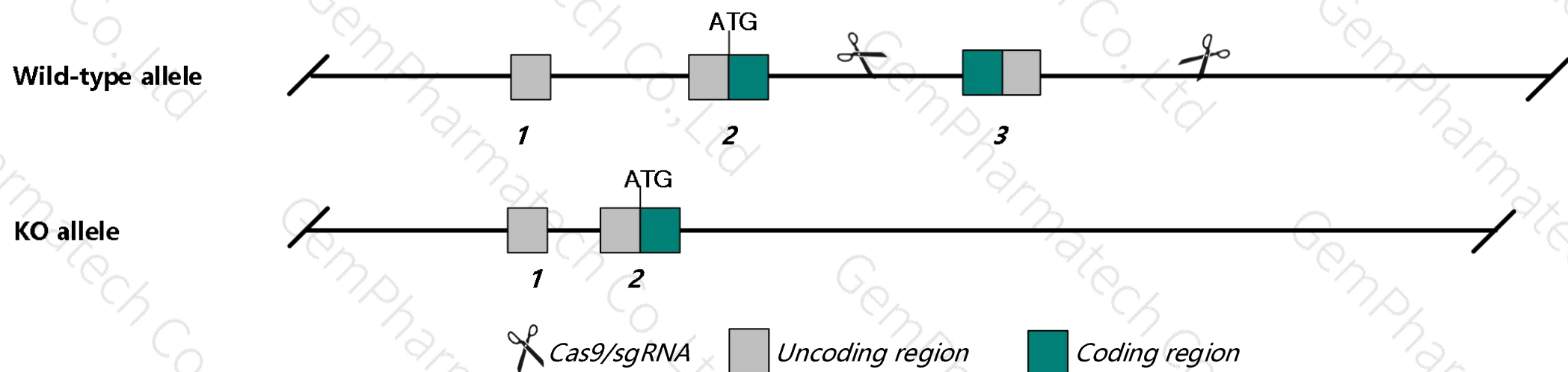
**Strain background**

**C57BL/6J**

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# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pcdh20* gene. The schematic diagram is as follows:



# Technical routes

- The *Pcdh20* gene has 2 transcripts. According to the structure of *Pcdh20* gene, exon3 of *Pcdh20*-201 (ENSMUST00000061628.6) transcript is recommended as the knockout region. The region contains most coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pcdh20* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- The *Pcdh20* 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)

## Pcdh20 protocadherin 20 [ *Mus musculus* (house mouse) ]



Gene ID: 219257, updated on 4-Jun-2019

### Summary

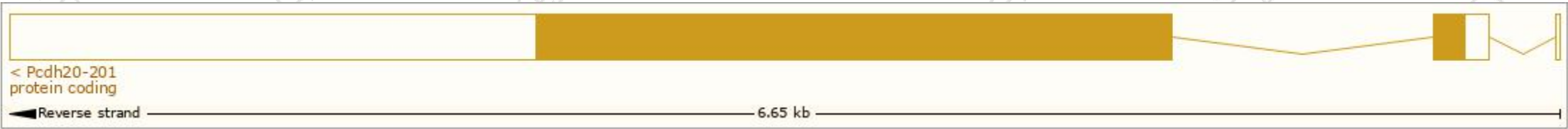
Official Symbol	Pcdh20 provided by <a href="#">MGI</a>
Official Full Name	protocadherin 20 provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:2443376</a>
See related	<a href="#">Ensembl:ENSMUSG00000050505</a>
Gene type	protein coding
RefSeq status	REVIEWED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Pcdh13; C630015B17Rik
Summary	This gene belongs to the protocadherin gene family, a subfamily of the cadherin superfamily. The encoded protein contains six extracellular cadherin domains, a transmembrane domain, and a cytoplasmic tail differing from those of the classical cadherins. The encoded protein may play a role in cell adhesion in the nervous system and has been shown to be specifically expressed in newly differentiated olfactory sensory neurons and their axons during development. In adult mice, the expression of this protein in the olfactory system is more restricted but shows a gender difference with higher expression in the male than in the female. [provided by RefSeq, Sep 2009]
Expression	Biased expression in frontal lobe adult (RPKM 3.1), cortex adult (RPKM 2.1) and 7 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

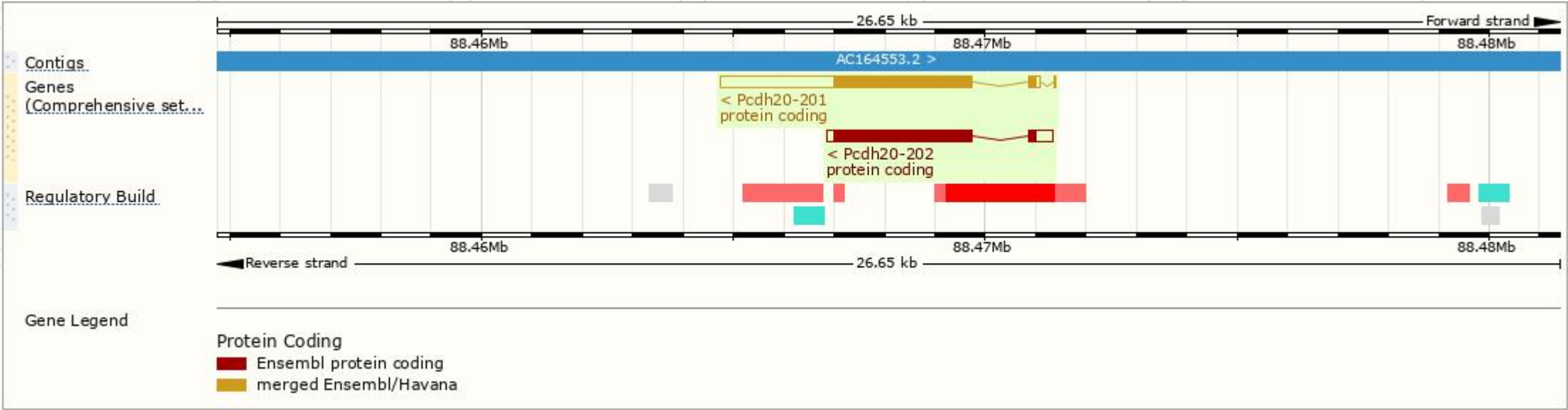
The gene has 2 transcripts, and all transcripts are shown below:

Show/hide columns (1 hidden)							Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Pcdh20-201	<a href="#">ENSMUST00000061628.6</a>	5241	<a href="#">952aa</a>	 Protein coding	<a href="#">CCDS27306</a>	<a href="#">Q8BIZ0</a>	TSL:1	GENCODE basic APPRIS P1
Pcdh20-202	<a href="#">ENSMUST00000192557.1</a>	3362	<a href="#">952aa</a>	 Protein coding	<a href="#">CCDS27306</a>	<a href="#">Q8BIZ0</a>	TSL:1	GENCODE basic APPRIS P1

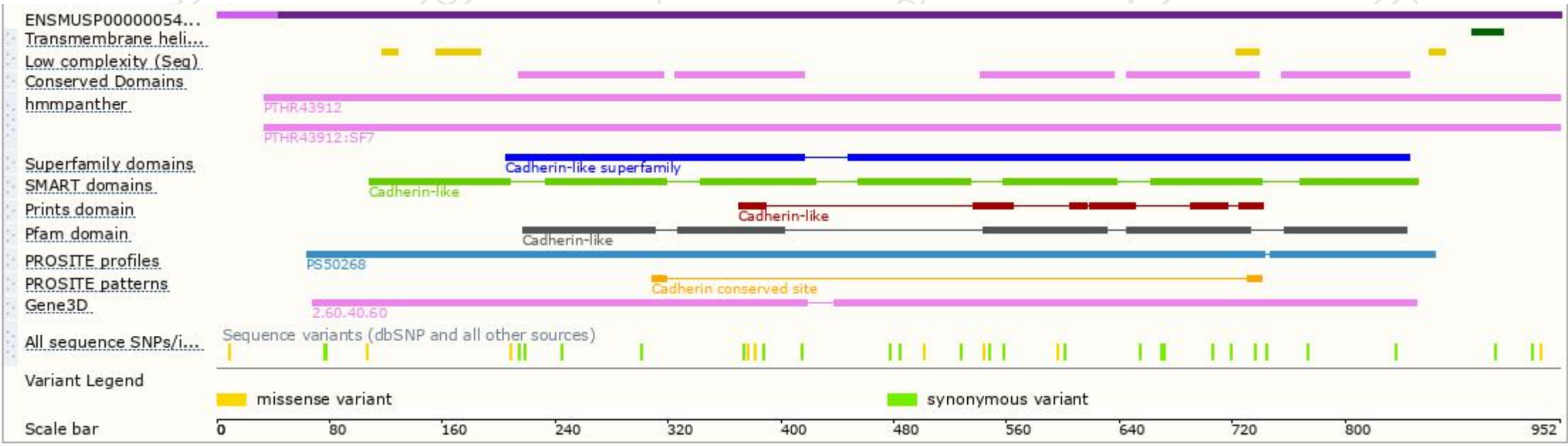
The strategy is based on the design of *Pcdh20-201* transcript, The transcription is shown below



# Genomic location (Ensembl)



# Protein domain (Ensembl)



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