

# *Pctp* Cas9-KO Strategy

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**Reviewer:**

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# Project Overview

**Project Name**

*Pctp*

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

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



- The *Pctp* gene has 1 transcript. According to the structure of *Pctp* gene, exon2 of *Pctp-201* (ENSMUST00000020864.8) transcript is recommended as the knockout region. The region contains 118bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pctp* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Mice homozygous for a knock-out allele display impaired biliary lipid secretion in response to a lithogenic diet, and show altered adaptive responses of macrophages to cholesterol loading. Mice heterozygous for a spontaneous allele show lack of phosphatidylcholine transfer protein activity.
- The *Pctp* gene is located on the Chr11. 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)

## Pctp phosphatidylcholine transfer protein [Mus musculus (house mouse)]

Gene ID: 18559, updated on 31-Jan-2019

### Summary



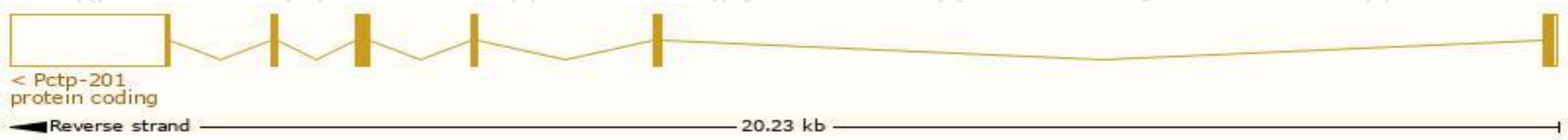
|                           |                                                                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Official Symbol</b>    | Pctp provided by <a href="#">MGI</a>                                                                                                                                      |
| <b>Official Full Name</b> | phosphatidylcholine transfer protein provided by <a href="#">MGI</a>                                                                                                      |
| <b>Primary source</b>     | <a href="#">MGI:MGI:107375</a>                                                                                                                                            |
| <b>See related</b>        | <a href="#">Ensembl:ENSMUSG00000020553</a>                                                                                                                                |
| <b>Gene type</b>          | protein coding                                                                                                                                                            |
| <b>RefSeq status</b>      | VALIDATED                                                                                                                                                                 |
| <b>Organism</b>           | <a href="#">Mus musculus</a>                                                                                                                                              |
| <b>Lineage</b>            | Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus |
| <b>Also known as</b>      | PC-TP, StarD2                                                                                                                                                             |
| <b>Expression</b>         | Broad expression in liver E18 (RPKM 11.2), liver adult (RPKM 7.6) and 18 other tissues <a href="#">See more</a>                                                           |
| <b>Orthologs</b>          | <a href="#">human</a> <a href="#">all</a>                                                                                                                                 |

# Transcript information (Ensembl)

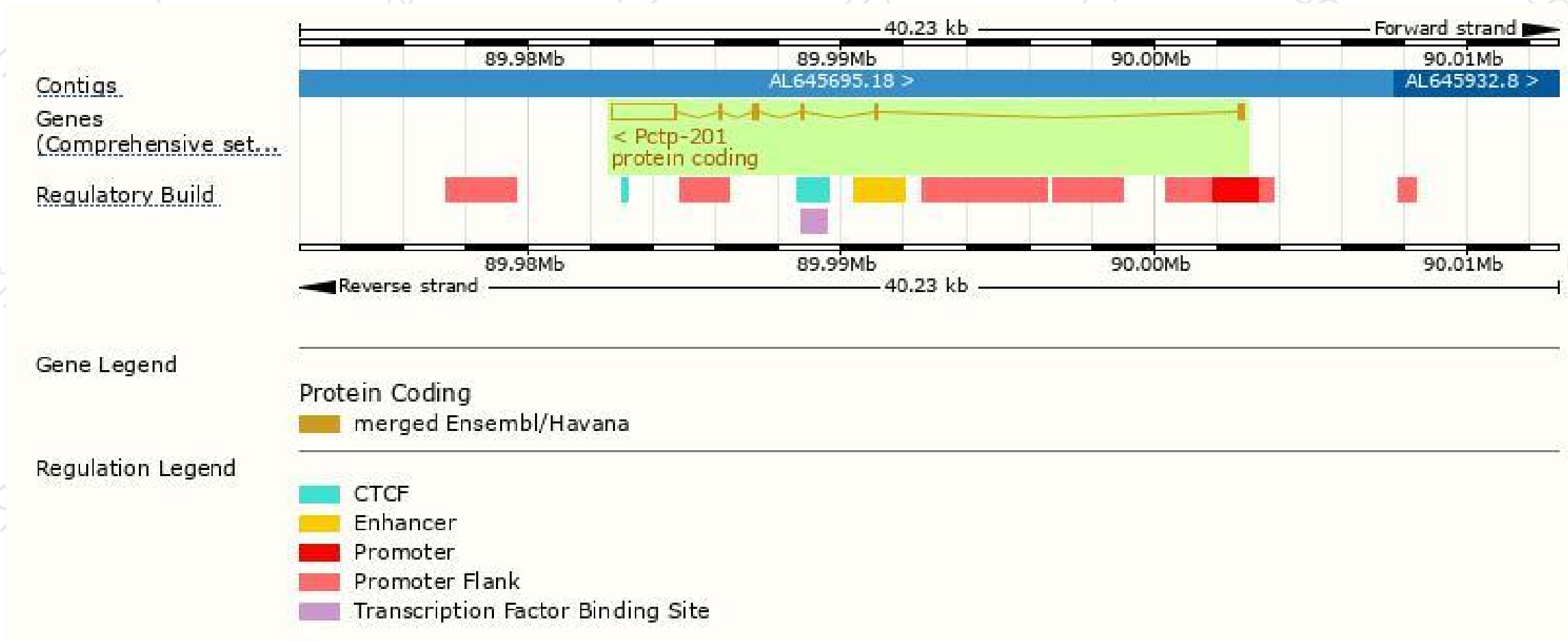
The gene has 1 transcript, and the transcript is shown below:

| Name     | Transcript ID                        | bp   | Protein               | Biotype        | CCDS                      | UniProt                | Flags                         |
|----------|--------------------------------------|------|-----------------------|----------------|---------------------------|------------------------|-------------------------------|
| Pctp-201 | <a href="#">ENSMUST00000020864.8</a> | 2723 | <a href="#">214aa</a> | Protein coding | <a href="#">CCDS25238</a> | <a href="#">Q5SV41</a> | TSL:1 GENCODE basic APPRIS P1 |

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

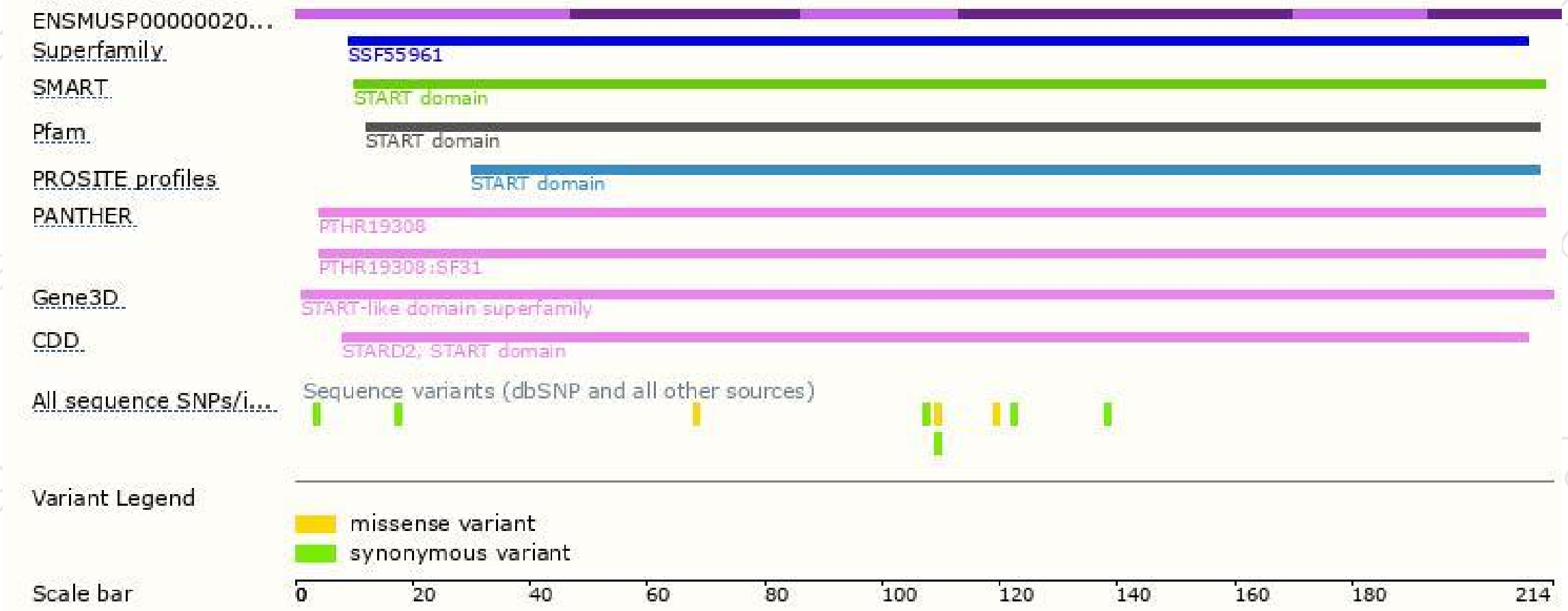


# Genomic location distribution

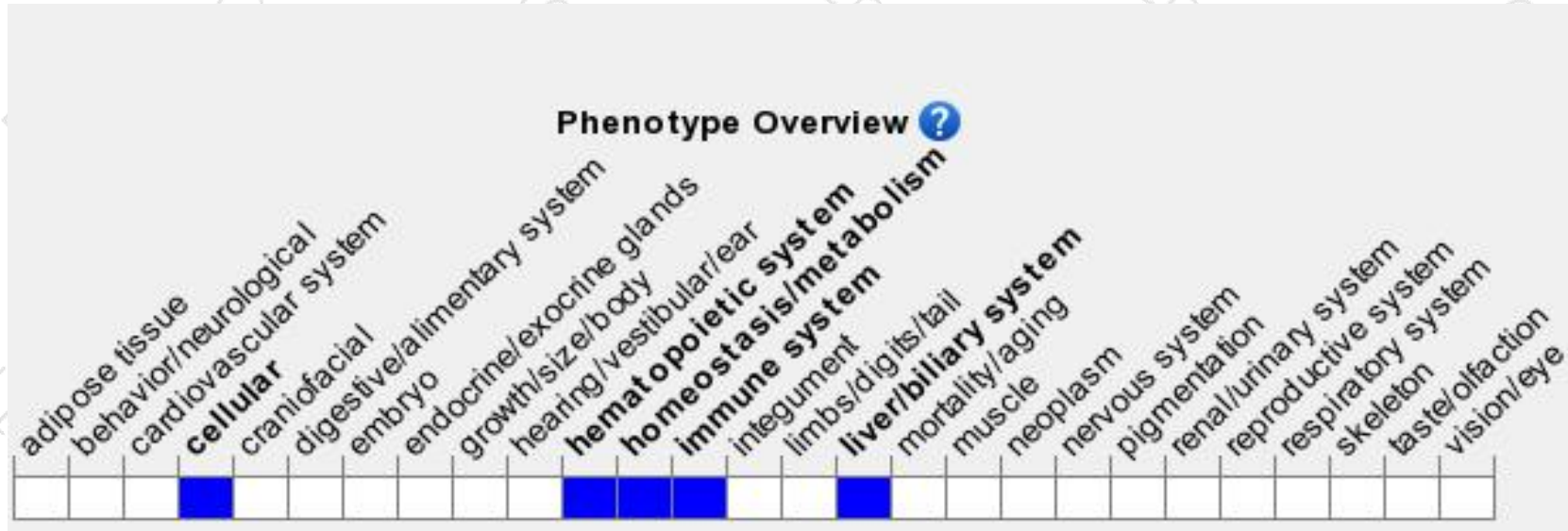




# Protein domain



# 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 knock-out allele display impaired biliary lipid secretion in response to a lithogenic diet, and show altered adaptive responses of macrophages to cholesterol loading. Mice heterozygous for a spontaneous allele show lack of phosphatidylcholine transfer protein activity.

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

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