

***Slc16a1* Cas9-KO Strategy**

Designer:

Project Overview

Project Name

Slc16a1

Project type

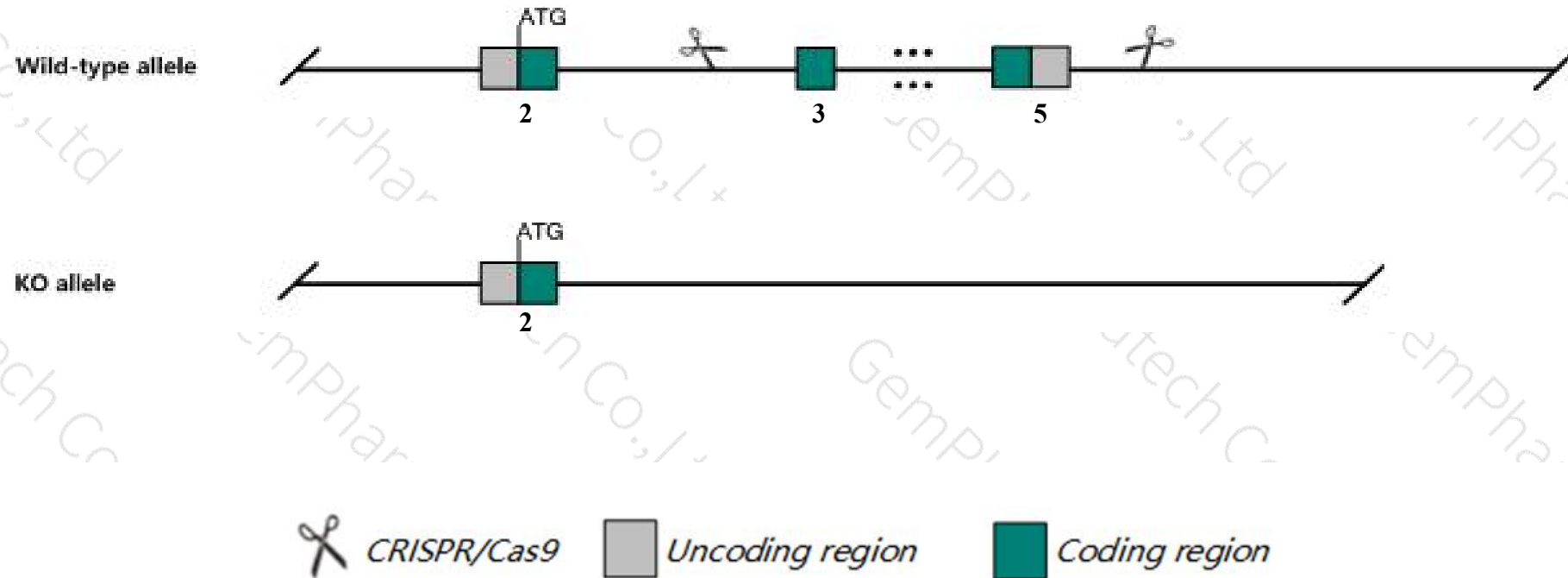
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc16a1* gene. The schematic diagram is as follows:



- The *Slc16a1* gene has 1 transcript. According to the structure of *Slc16a1* gene, exon3-exon5 of *Slc16a1*-201 (ENSMUST00000046212.1) transcript is recommended as the knockout region. The region contains 1265bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc16a1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygotes are non-viable, while heterozygous animals are resistant to diet-induced obesity.
- The *Slc16a1* gene is located on the Chr3. 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)

Slc16a1 solute carrier family 16 (monocarboxylic acid transporters), member 1 [Mus musculus (house mouse)]

Gene ID: 20501, updated on 3-Feb-2019

Summary



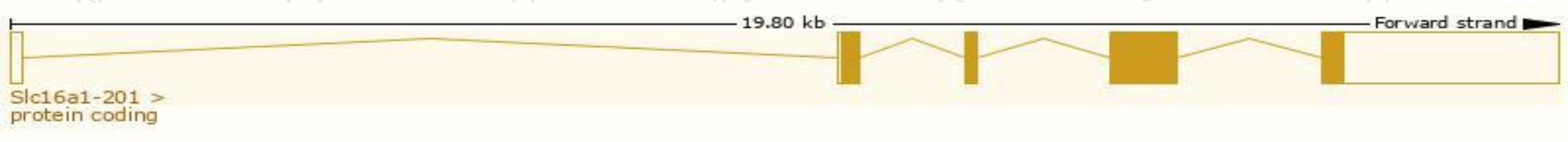
| | |
|---------------------------|---|
| Official Symbol | Slc16a1 provided by MGI |
| Official Full Name | solute carrier family 16 (monocarboxylic acid transporters), member 1 provided by MGI |
| Primary source | MGI:MGI:106013 |
| See related | Ensembl:ENSMUSG00000032902 |
| Gene type | protein coding |
| 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 | AL022710, Mct1 |
| Expression | Ubiquitous expression in colon adult (RPKM 55.3), placenta adult (RPKM 47.0) and 27 other tissues See more |
| Orthologs | human all |

Transcript information (Ensembl)

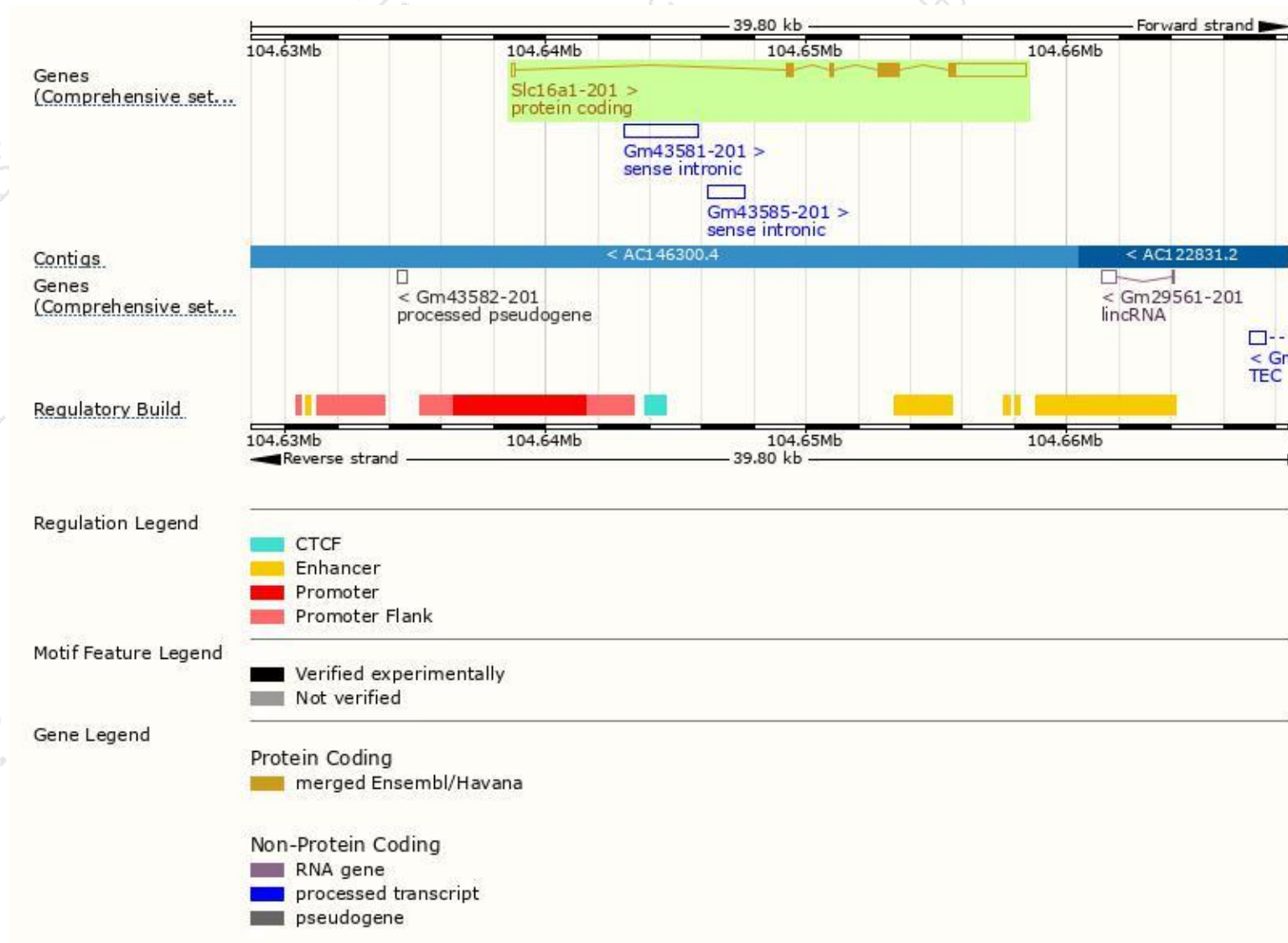
The gene has 1 transcript, and the transcript is shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|-------------|--------------------------------------|------|-----------------------|----------------|---------------------------|---|-------------------------------|
| Slc16a1-201 | ENSMUST00000046212.1 | 4426 | 493aa | Protein coding | CCDS17702 | P53986 Q544N9 | TSL:1 GENCODE basic APPRIS P1 |

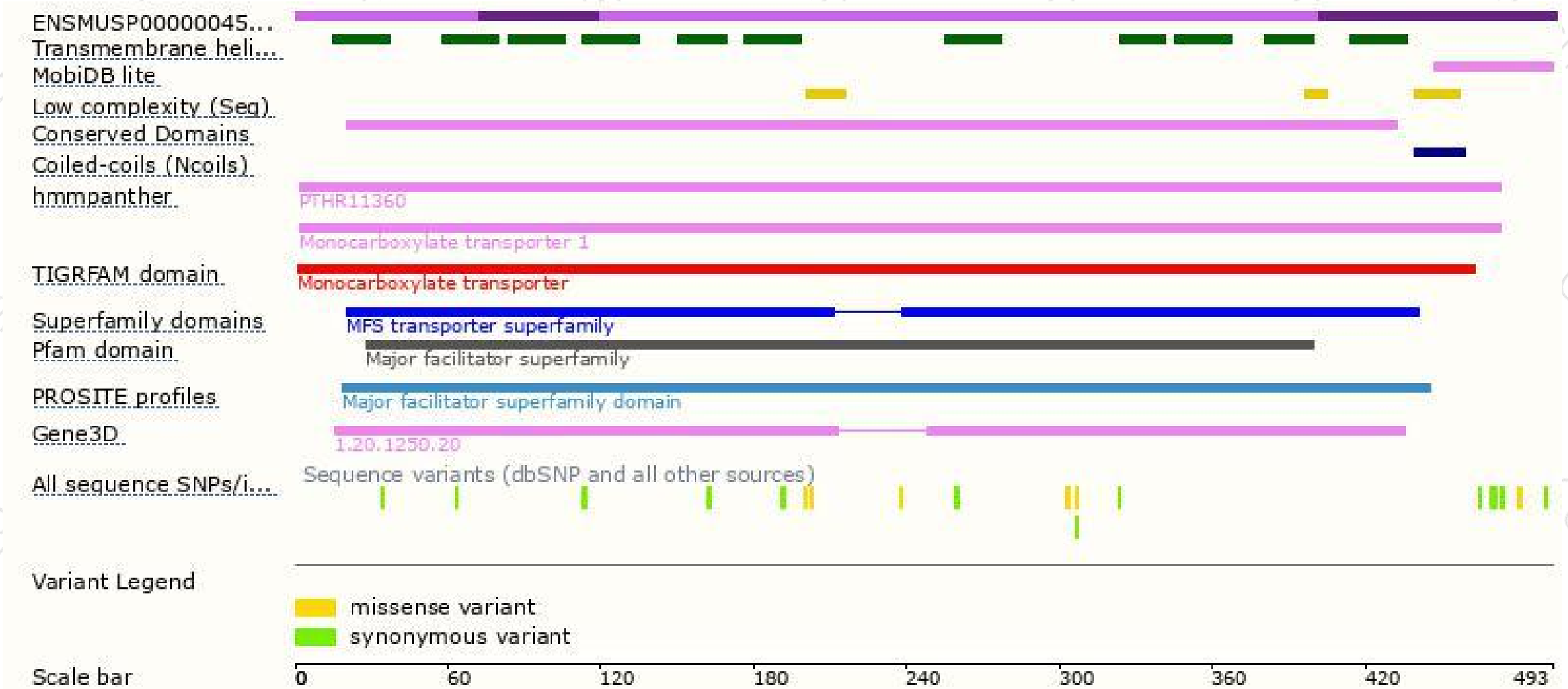
The strategy is based on the design of *Slc16a1-201* transcript, The transcription is shown below



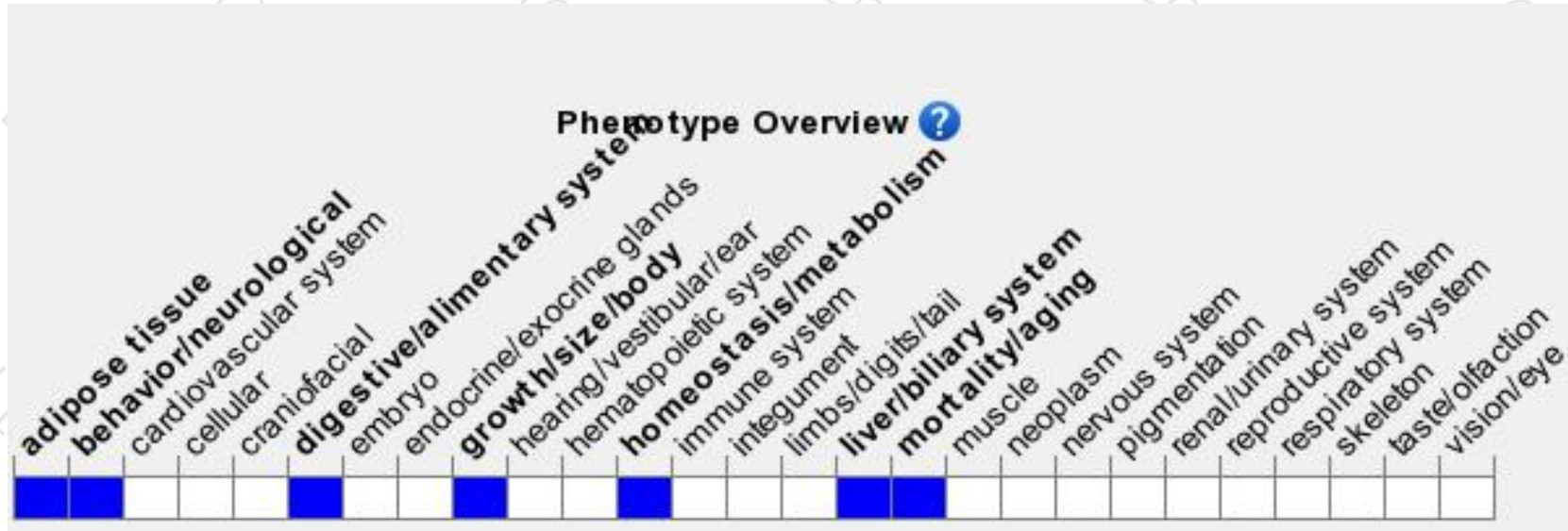
Genomic location distribution



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, Homozygotes are non-viable, while heterozygous animals are resistant to diet-induced obesity.

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

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