

***Trarg1* Cas9-KO Strategy**

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Design Date: 2020-6-17

Project Overview

Project Name

Trarg1

Project type

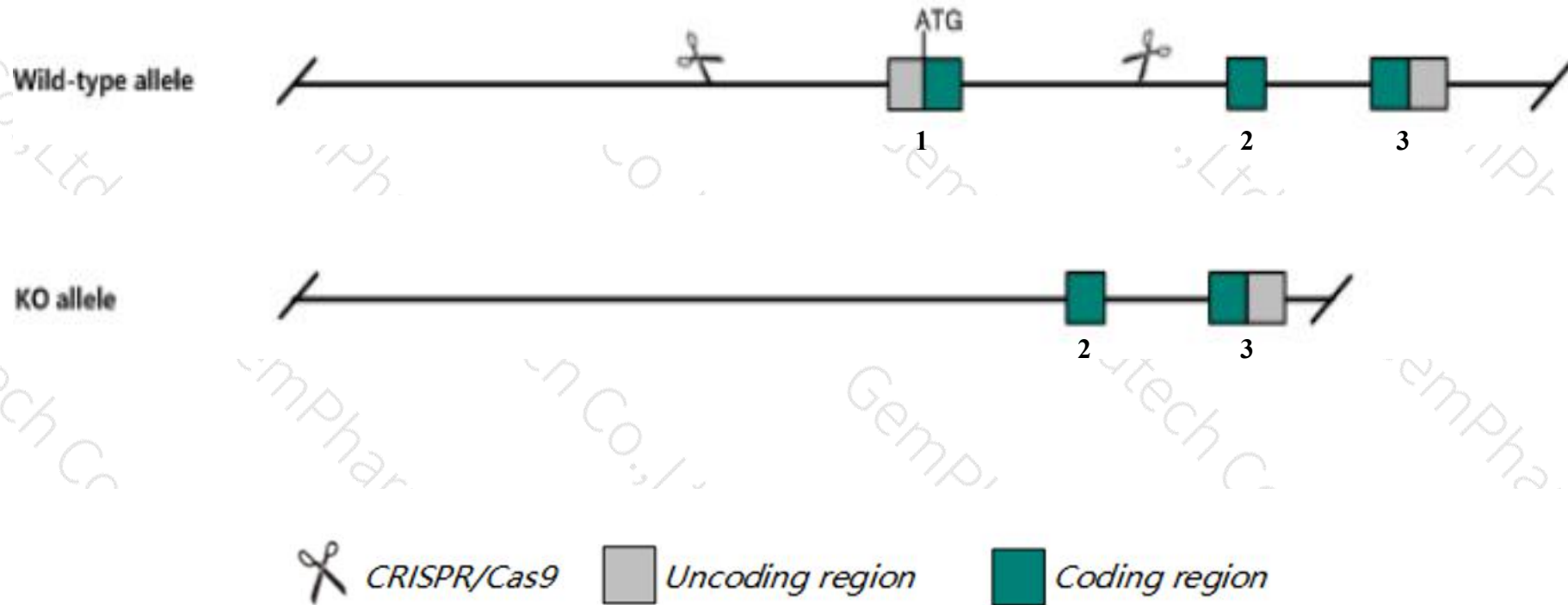
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trarg1* gene. The schematic diagram is as follows:



- The *Trarg1* gene has 1 transcript. According to the structure of *Trarg1* gene, exon1 of *Trarg1-201* (ENSMUST00000062024.2) 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 *Trarg1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, mice homozygous for a knock-out allele display abnormal adipocyte glucose uptake and show increased body weight, elevated blood insulin and glucose levels, and insulin resistance when fed a high-fat diet.
- The *Trarg1* 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)

Trarg1 trafficking regulator of GLUT4 (SLC2A4) 1 [Mus musculus (house mouse)]

Gene ID: 237858, updated on 13-Mar-2020

Summary



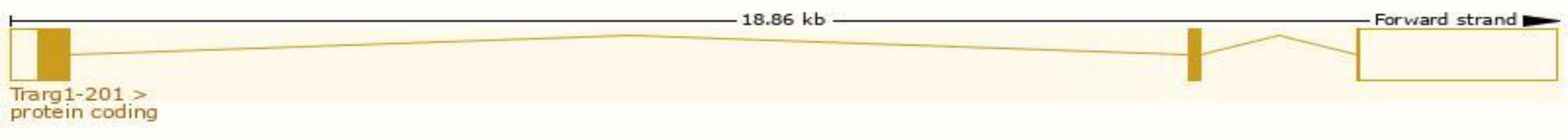
Official Symbol	Trarg1 provided by MGI
Official Full Name	trafficking regulator of GLUT4 (SLC2A4) 1 provided by MGI
Primary source	MGI:MGI:3029307
See related	Ensembl:ENSMUSG00000046275
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C130069F04Rik, DSPB1, Lost1, Tusc5
Expression	Biased expression in subcutaneous fat pad adult (RPKM 33.0), genital fat pad adult (RPKM 17.9) and 3 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

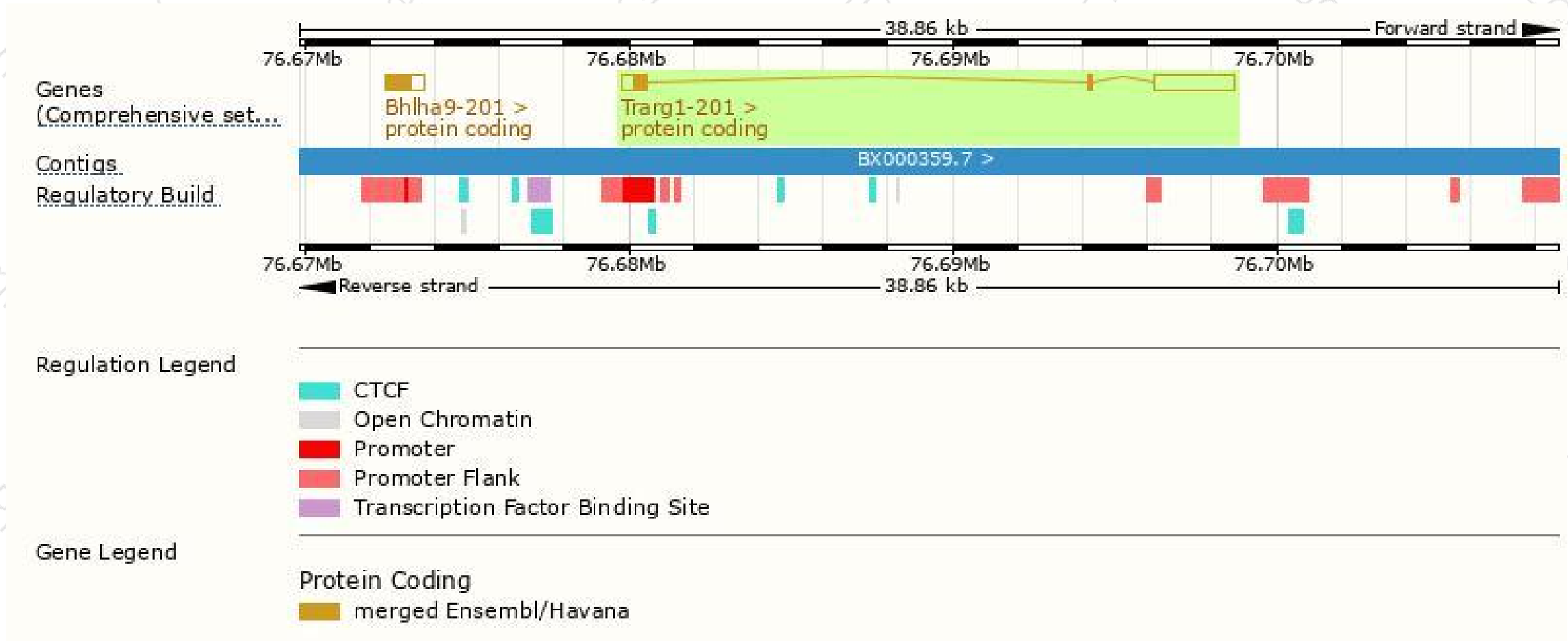
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trarg1-201	ENSMUST00000062024.2	3302	173aa	Protein coding	CCDS25069	Q8C838	TSL:1 GENCODE basic APPRIS P1

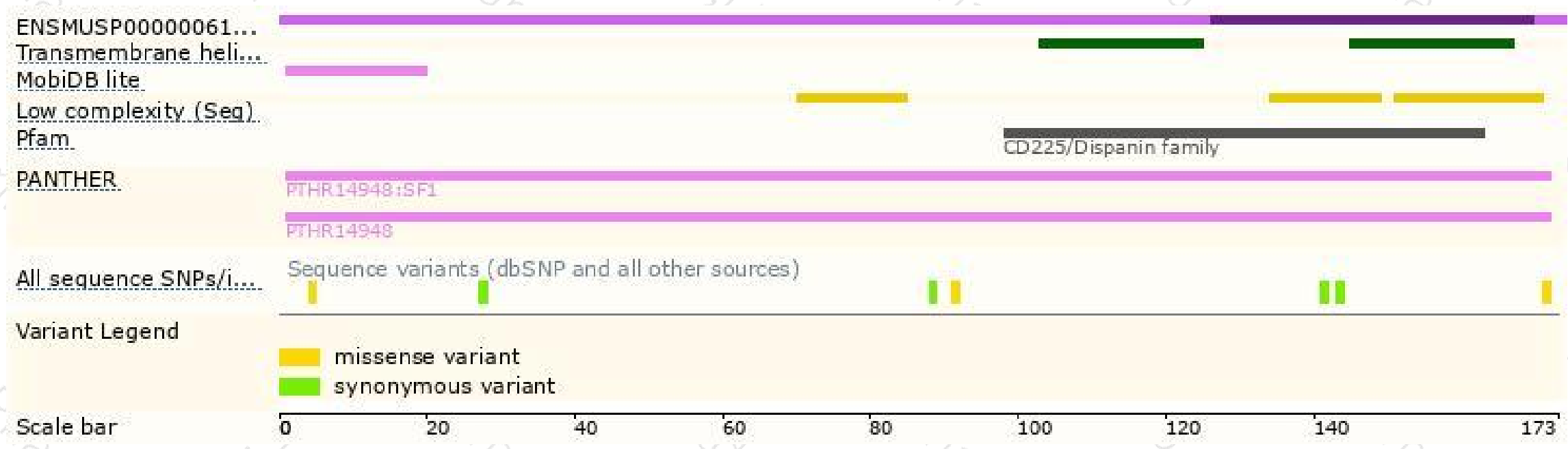
The strategy is based on the design of *Trarg1-201* transcript, the transcription is shown below:



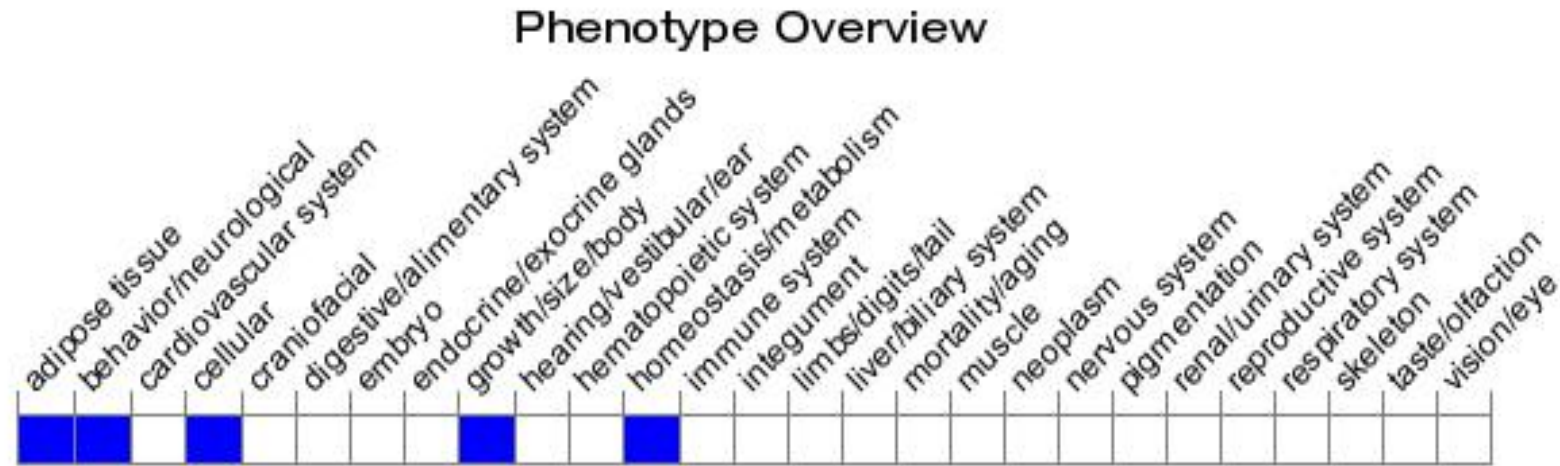
Genomic location distribution



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 abnormal adipocyte glucose uptake and show increased body weight, elevated blood insulin and glucose levels, and insulin resistance when fed a high-fat diet.

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

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