Slc15a1 Cas9-CKO Strategy

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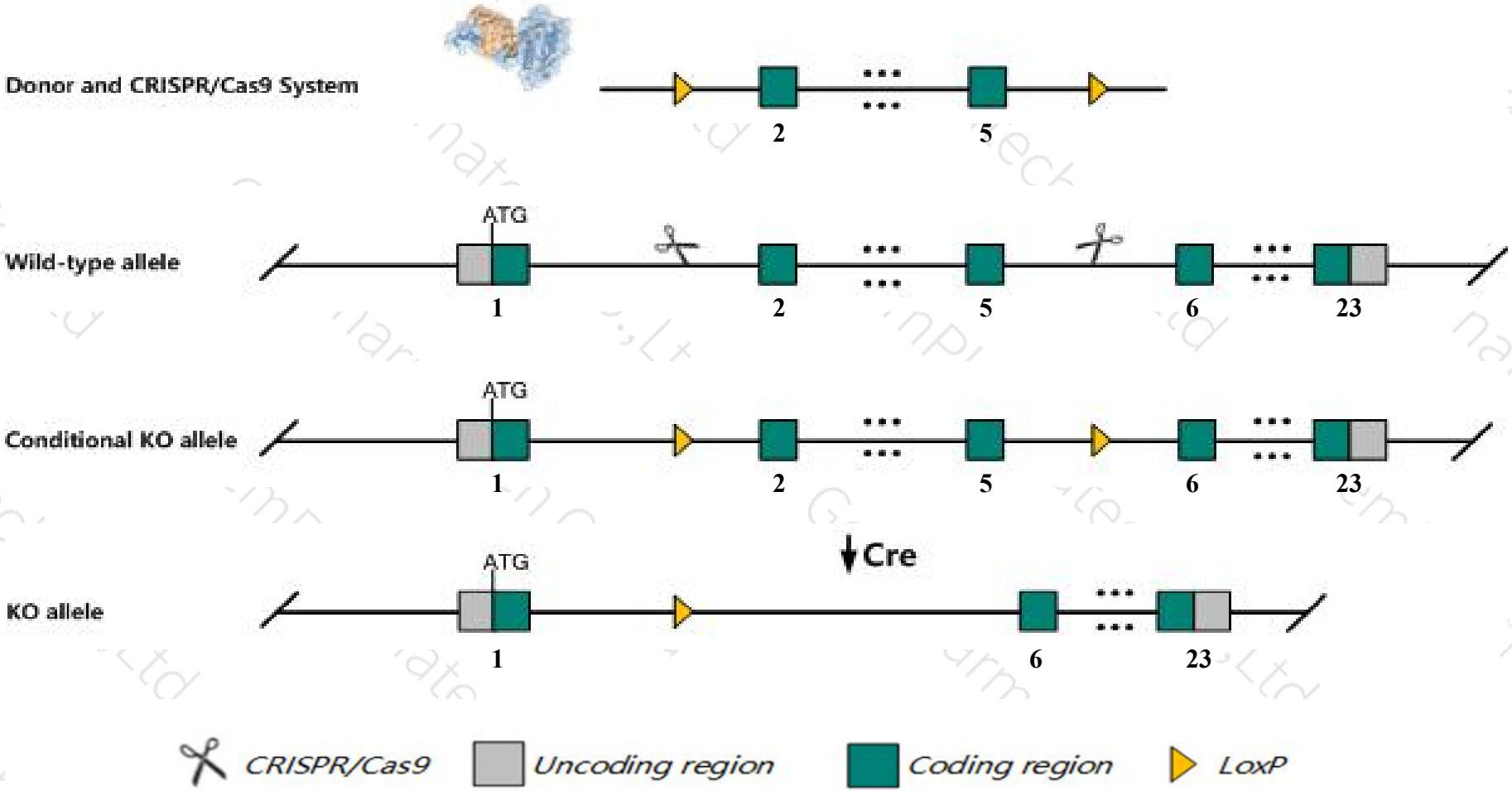
Project Overview

Project Name	***Slc15a1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc15a1* gene. The schematic diagram is as follows:



Technical routes

- The *Slc15a1* gene has 2 transcripts. According to the structure of *Slc15a1* gene, exon2-exon5 of *Slc15a1-201* (ENSMUST00000088386.7) transcript is recommended as the knockout region.The region contains 361bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc15a1* gene. The brief process is as follows:CRISPR/Cas9 system and Donor 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.

- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- According to the existing MGI data,Peptide uptake in the intestine is substantially reduced in mice homozygous for a null mutation of this gene.

- The *Slc15a1* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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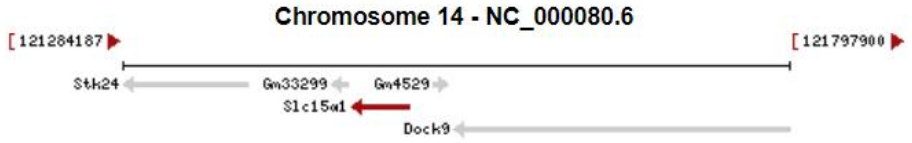
Slc15a1 solute carrier family 15 (oligopeptide transporter), member 1 [*Mus musculus* (house mouse)]

Gene ID: 56643, updated on 12-Aug-2019

Summary

Official Symbol	Slc15a1 provided by MGI
Official Full Name	solute carrier family 15 (oligopeptide transporter), member 1 provided by MGI
Primary source	MGI:MGI:1861376
See related	Ensembl:ENSMUSG00000025557
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	PECT1; PEPT1; D630032F02
Expression	Biased expression in large intestine adult (RPKM 80.7), small intestine adult (RPKM 68.5) and 2 other tissues See more
Orthologs	human all

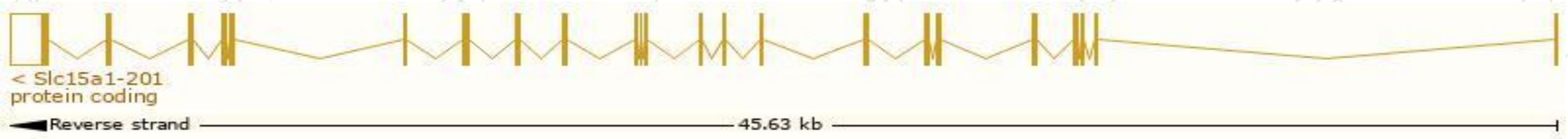


Transcript information（Ensembl）

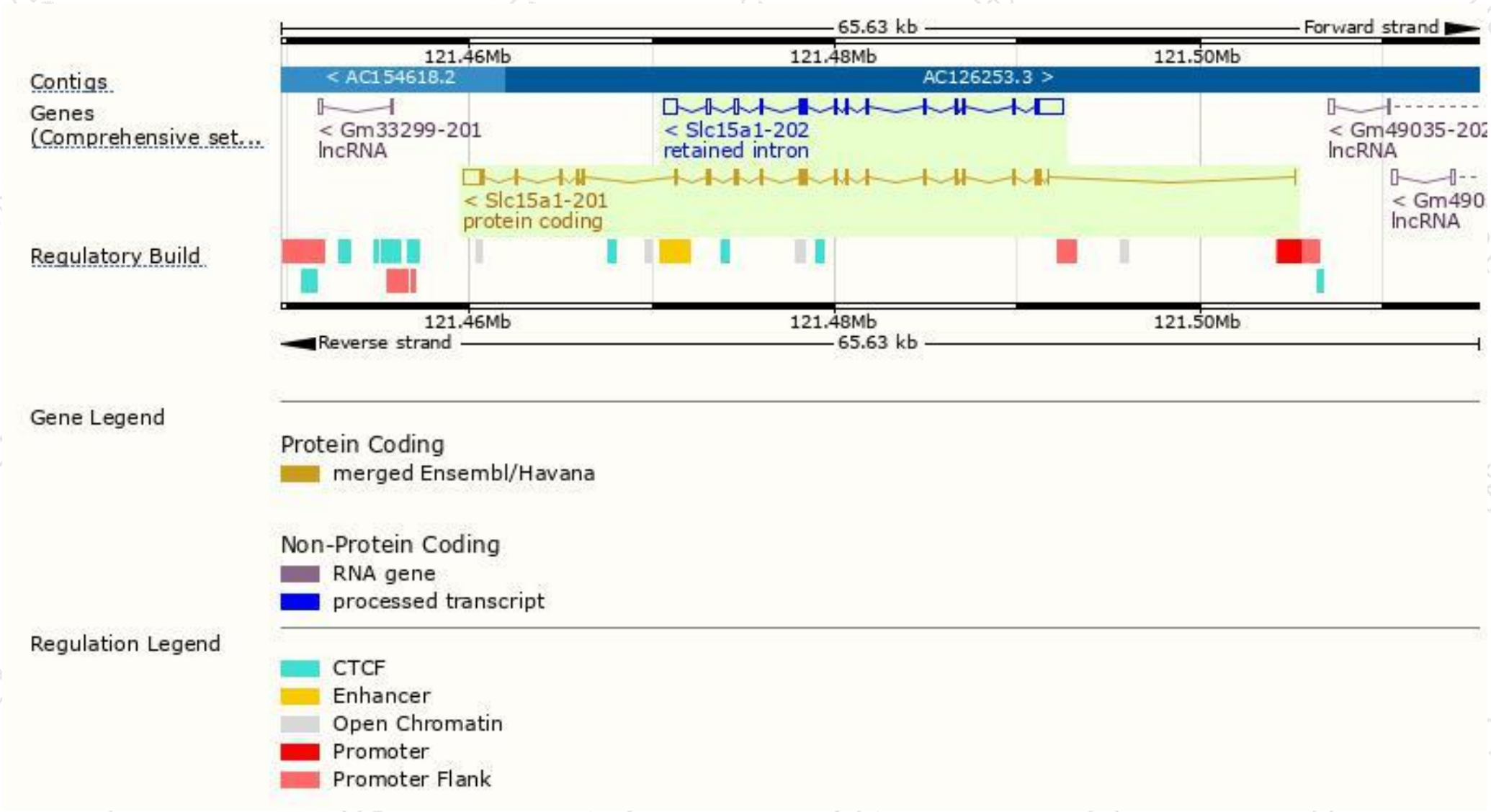
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Slc15a1-201	ENSMUST00000088386.7	3121	709aa	ENSMUSP00000085728.6	Protein coding	CCDS37017	Q9JIP7	TSL:1 GENCODE basic APPRIS P1
Slc15a1-202	ENSMUST00000227372.1	3229	No protein	-	Retained intron	-	-	-

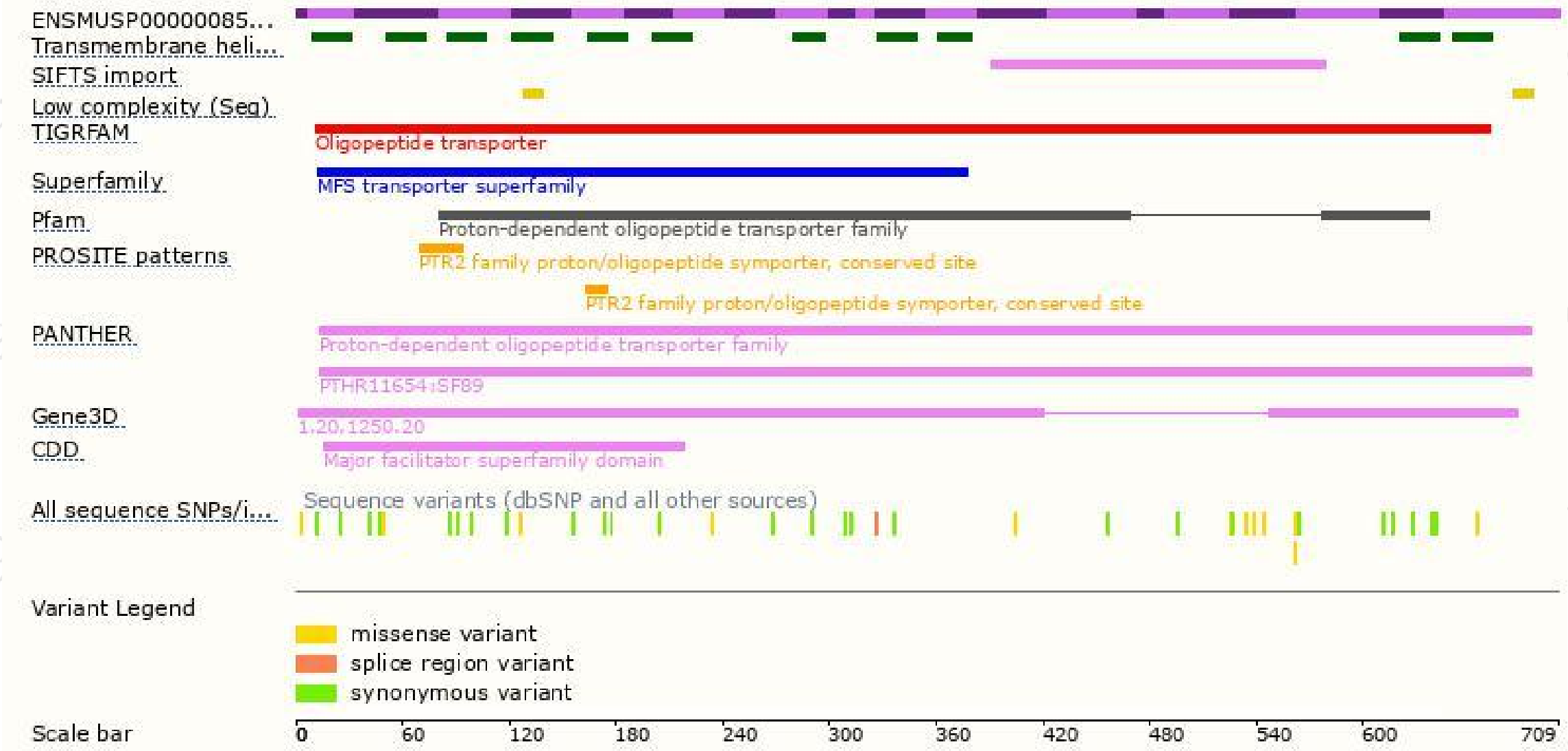
The strategy is based on the design of *Slc15a1-201* transcript,The transcription is shown below



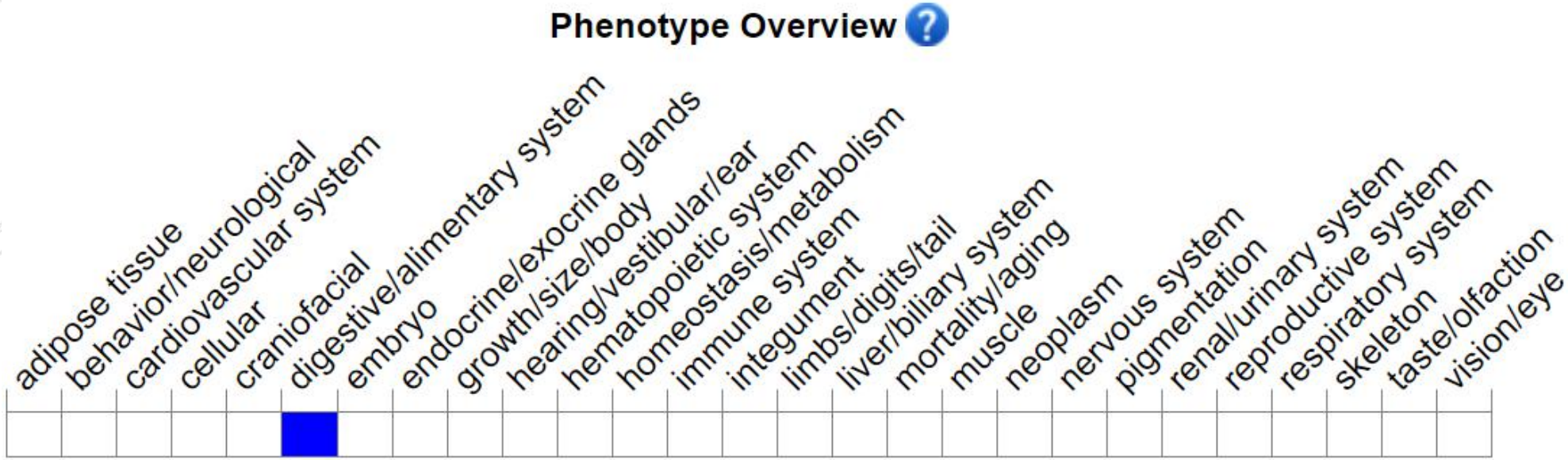
Genomic location distribution



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,Peptide uptake in the intestine is substantially reduced in mice homozygous for a null mutation of this gene.

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

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