Slc28a1 Cas9-CKO Strategy

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Project Overview

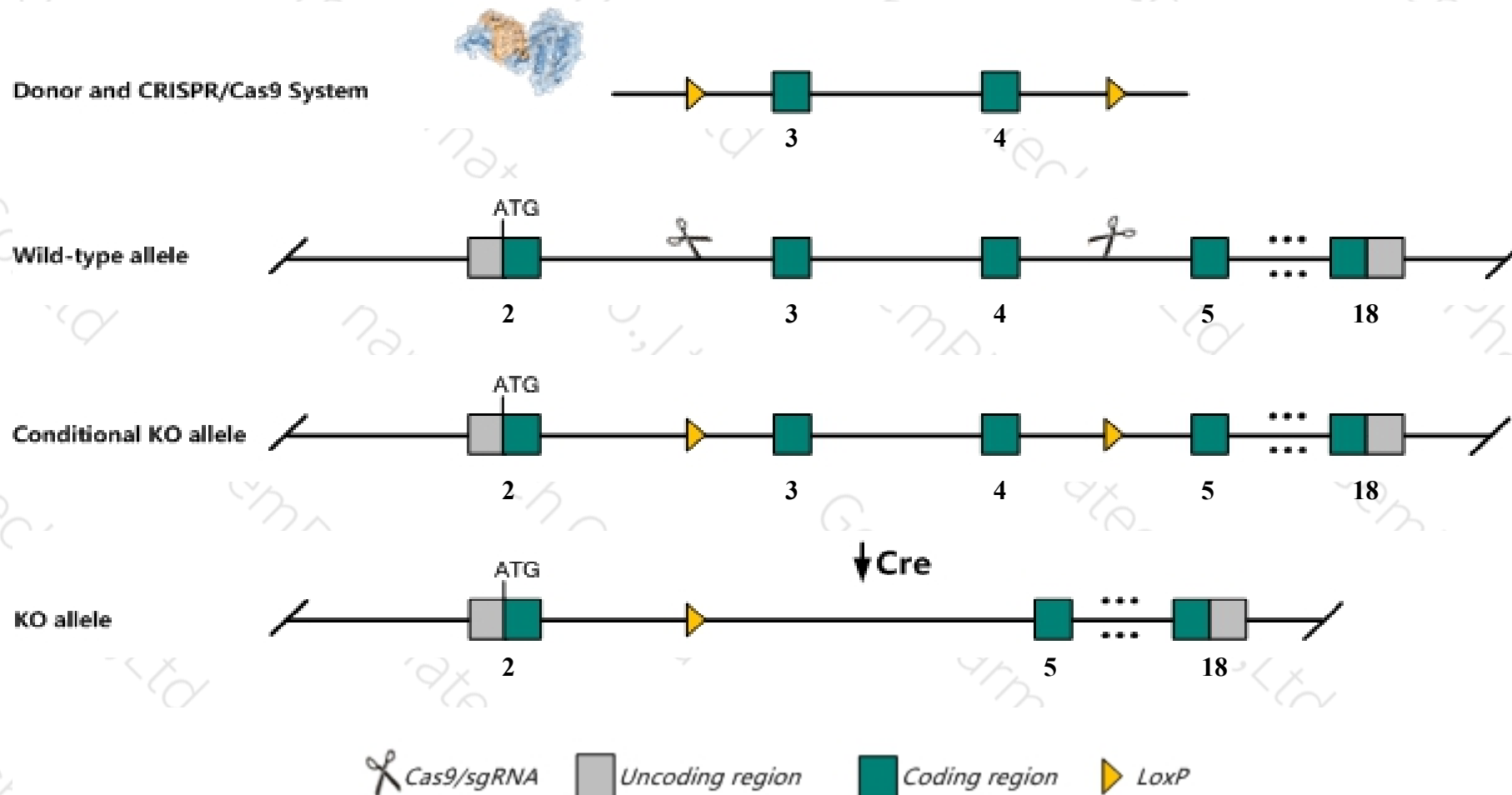|	
Project Name	*Slc28a1*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc28a1* gene. The schematic diagram is as follows:

Technical routes

➢ The *Slc28a1* gene has 2 transcripts. According to the structure of *Slc28a1* gene, exon3-exon4 of *Slc28a1-202*(ENSMUST00000119083.1) transcript is recommended as the knockout region.The region contains Ens 181bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc28a1* gene. The brief process is as follows:sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA 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 was 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

➢ The *Slc28a1* gene is located on the Chr7. 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）

Slc28a1 solute carrier family 28 (sodium-coupled nucleoside transporter), member 1 [Mus musculus (house mouse)]

Gene ID: 434203, updated on 13-Mar-2020

Summary

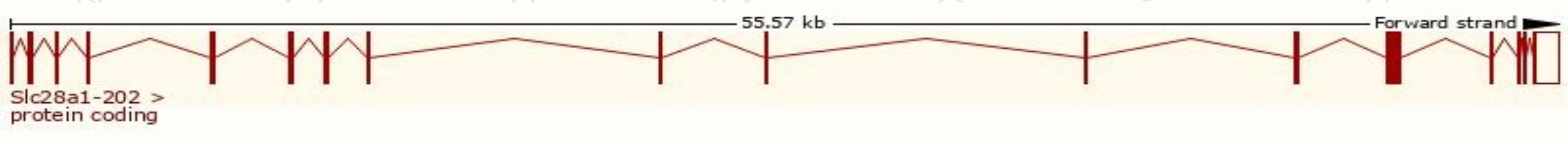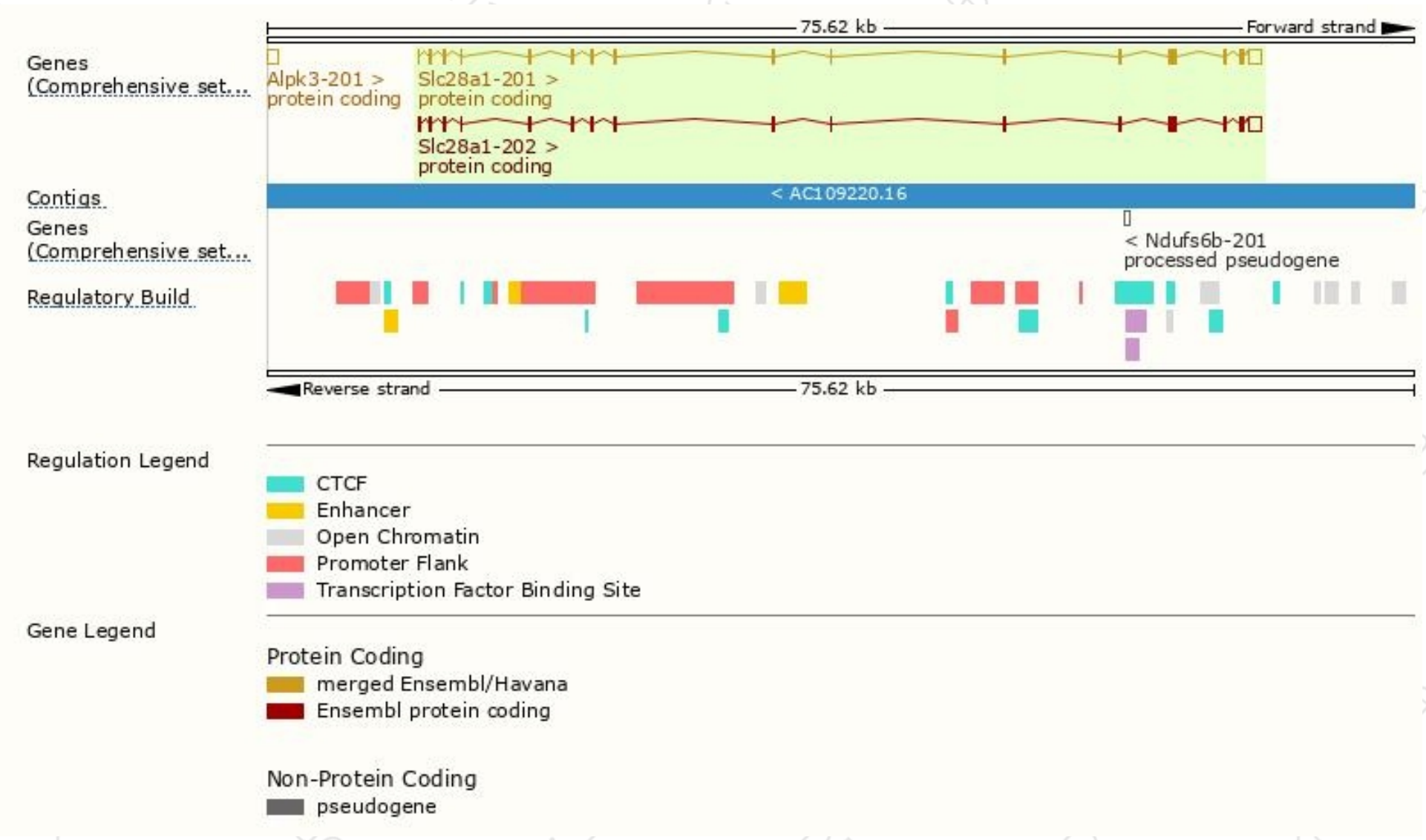|	
Official Symbol	Slc28a1 provided by MGI
Official Full Name	solute carrier family 28 (sodium-coupled nucleoside transporter), member 1 provided by MGI
Primary source	MGI:MGI:3605073
See related	Ensembl:ENSMUSG00000025726
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cnt1
Expression	Biased expression in duodenum adult (RPKM 39.3), small intestine adult (RPKM 22.2) and 3 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	Biotype	CCDS	UniProt	Flags
Slc28a1-202	ENSMUST00000119083.1	2899	648aa	Protein coding	CCDS21402	E9PXX9	TSL:5 GENCODE basic APPRIS P1
Slc28a1-201	ENSMUST00000026820.10	2846	648aa	Protein coding	CCDS21402	E9PXX9	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Slc28a1-202* transcript,the transcription is shown below:
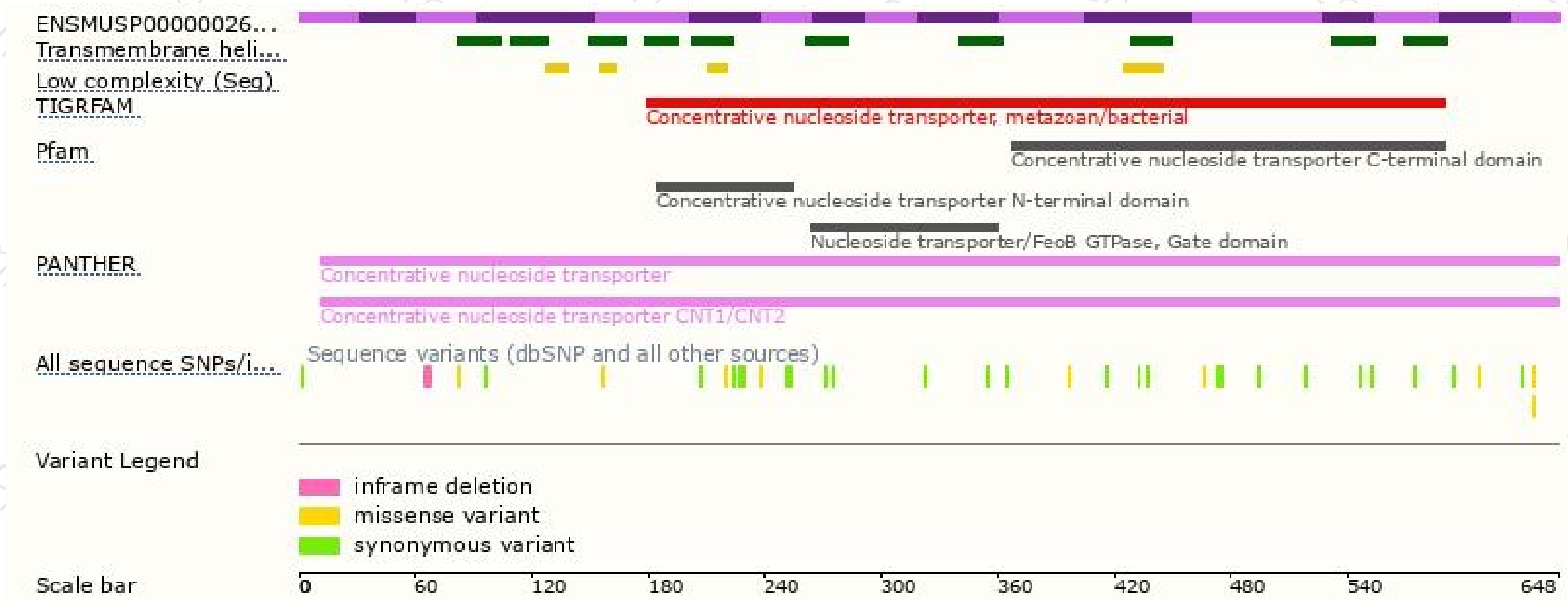
Genomic location distribution

Genes (Comprehensive set...)

Alpk3-201 > protein coding

Slc28a1-201 > protein coding

Slc28a1-202 > protein coding

Contigs   < AC109220.16

Genes (Comprehensive set...)

< Ndufs6b-201 processed pseudogene

Regulatory Build

75.62 kb   Forward strand

Reverse strand   75.62 kb

Regulation Legend
- CTCF
- Enhancer
- Open Chromatin
- Promoter Flank
- Transcription Factor Binding Site

Gene Legend

Protein Coding
- merged Ensembl/Havana
- Ensembl protein coding

Non-Protein Coding
- pseudogene

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Protein domain

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