

# *Slc22a21* Cas9-KO Strategy

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# Project Overview



**Project Name**

*Slc22a21*

**Project type**

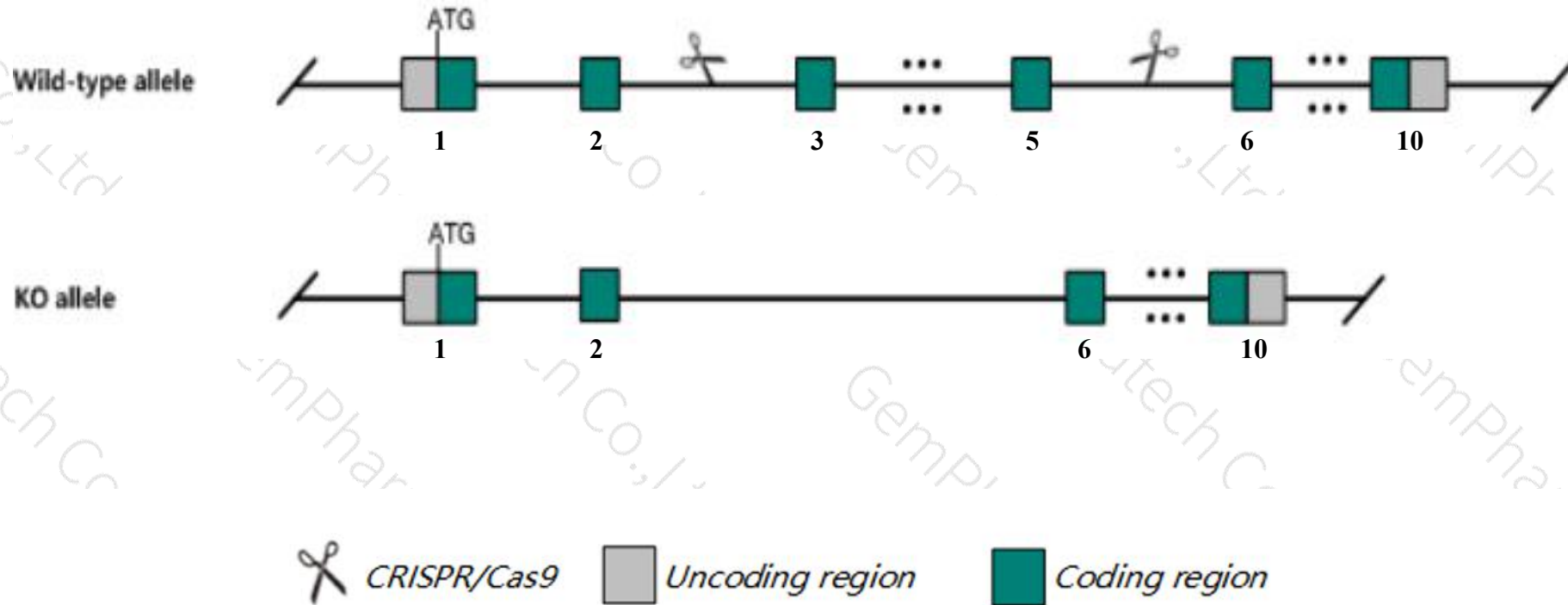
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc22a21* gene. The schematic diagram is as follows:



- The *Slc22a21* gene has 4 transcripts. According to the structure of *Slc22a21* gene, exon3-exon5 of *Slc22a21-201* (ENSMUST00000076493.10) transcript is recommended as the knockout region. The region contains 454bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc22a21* gene. The brief process is as follows: CRISPR/Cas9 system

# Notice

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit no detectable phenotypic abnormalities.
- The *Slc22a21* 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)

## Slc22a21 solute carrier family 22 (organic cation transporter), member 21 [ *Mus musculus* (house mouse) ]

Gene ID: 56517, updated on 13-Mar-2020

### Summary

Official Symbol	Slc22a21 provided by <a href="#">MGI</a>
Official Full Name	solute carrier family 22 (organic cation transporter), member 21 provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:1929481</a>
See related	<a href="#">Ensembl:ENSMUSG00000063652</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Octn3; Slc22a9
Expression	Broad expression in testis adult (RPKM 14.7), kidney adult (RPKM 7.9) and 20 other tissues <a href="#">See more</a>

# Transcript information (Ensembl)

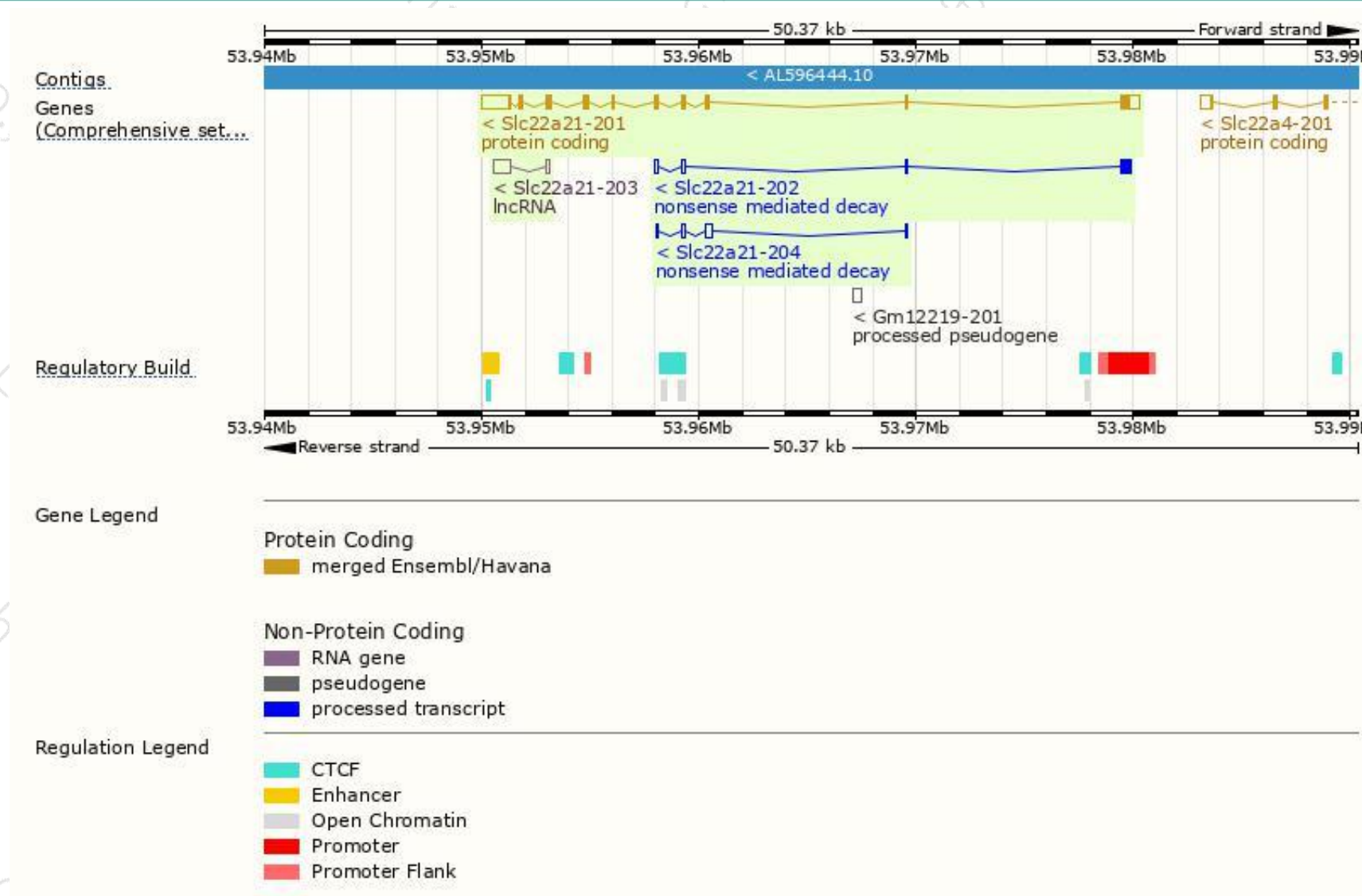
The gene has 4 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc22a21-201	<a href="#">ENSMUST00000076493.10</a>	3461	<a href="#">564aa</a>	Protein coding	<a href="#">CCDS24688</a>	<a href="#">A2RSK7</a> <a href="#">Q9WTN6</a>	TSL:1 Gencode basic APPRIS P1
Slc22a21-202	<a href="#">ENSMUST00000124221.7</a>	809	<a href="#">174aa</a>	Nonsense mediated decay	-	<a href="#">D6RDB6</a>	TSL:5
Slc22a21-204	<a href="#">ENSMUST00000143352.1</a>	650	<a href="#">36aa</a>	Nonsense mediated decay	-	<a href="#">F6YI98</a>	CDS 5' incomplete TSL:3
Slc22a21-203	<a href="#">ENSMUST00000129301.1</a>	939	No protein	Processed transcript	-	-	TSL:2

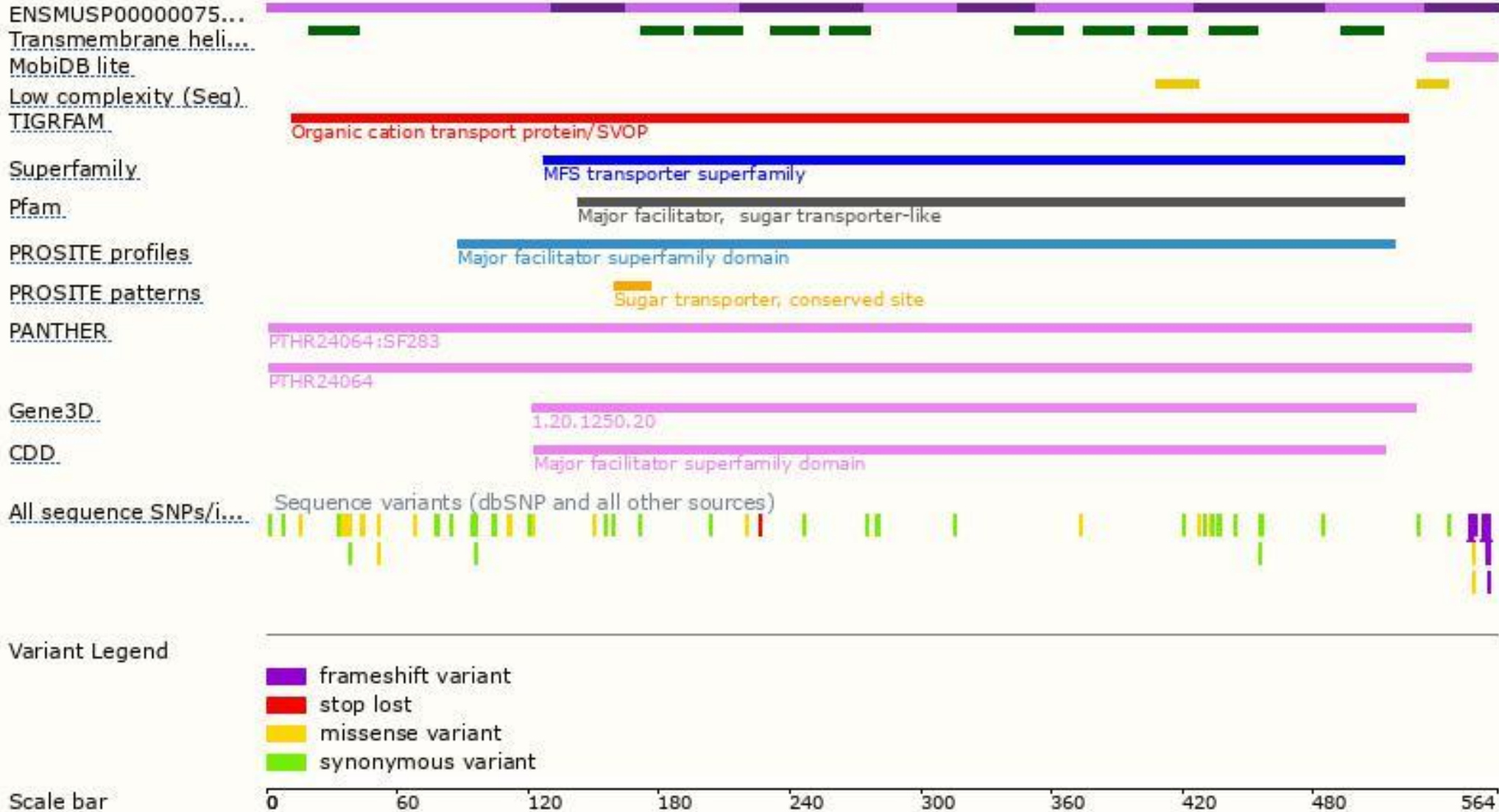
The strategy is based on the design of *Slc22a21-201* transcript, The transcription is shown below



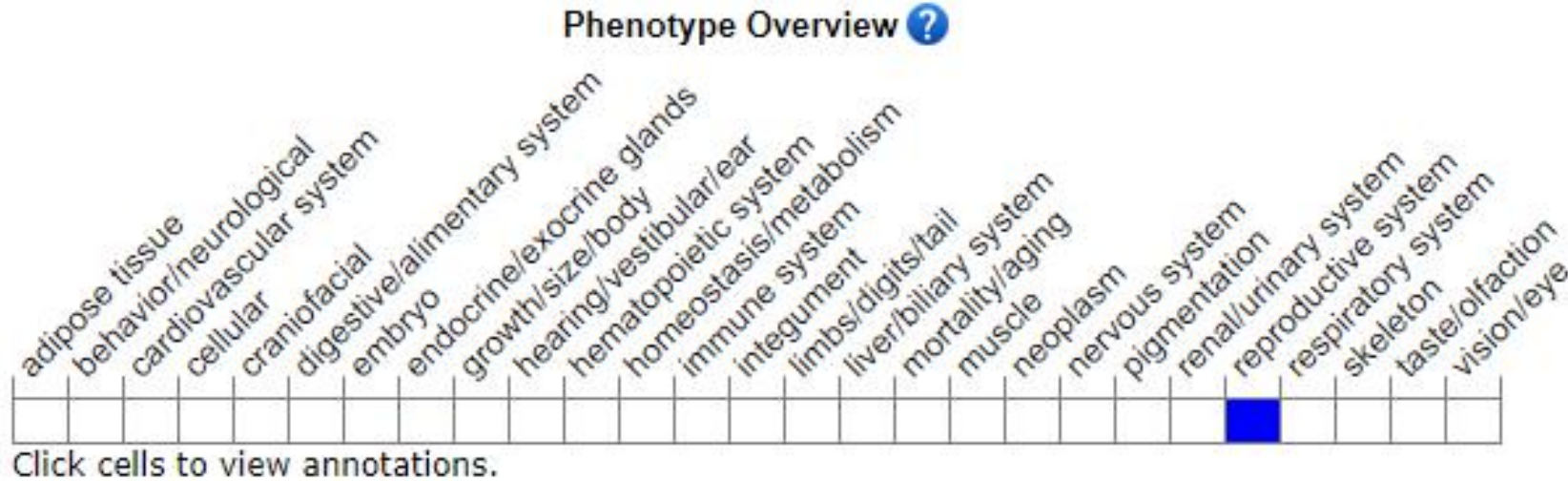
# Genomic location distribution



# 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 exhibit no detectable phenotypic abnormalities.

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

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