

# *Ist1* Cas9-CKO Strategy

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**Reviewer:**

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# Project Overview

**Project Name**

*Ist1*

**Project type**

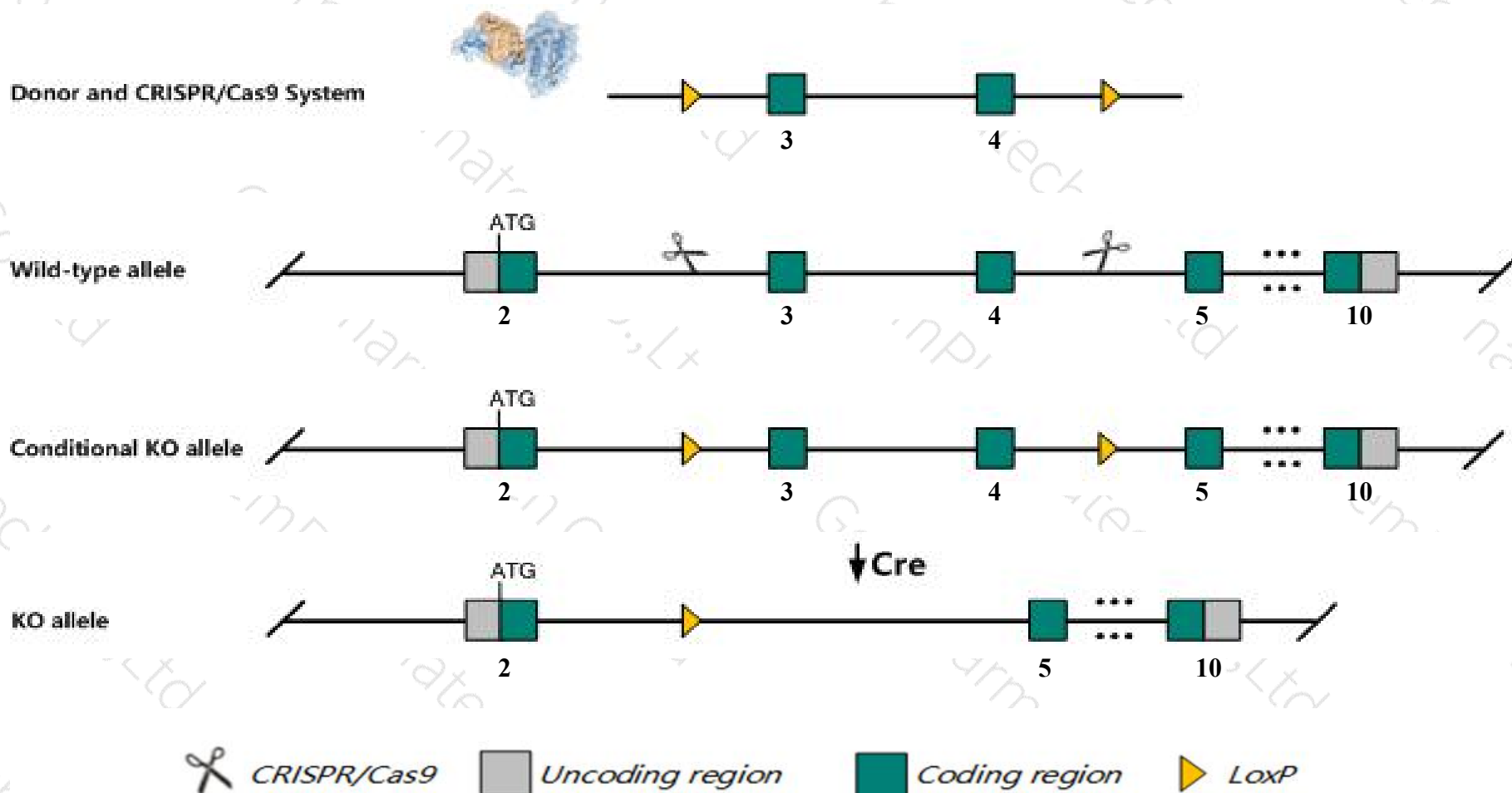
**Cas9-CKO**

**Strain background**

**C57BL/6JGpt**

# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ist1* gene. The schematic diagram is as follows:



# Technical routes

- The *Ist1* gene has 4 transcripts. According to the structure of *Ist1* gene, exon3-exon4 of *Ist1-201* (ENSMUST00000034164.5) transcript is recommended as the knockout region. The region contains 269bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ist1* 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

- Transcript 202 may not be affected.
- The *Ist1* gene is located on the Chr8. 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)

## Ist1 increased sodium tolerance 1 homolog (yeast) [ *Mus musculus* (house mouse) ]

Gene ID: 71955, updated on 13-Aug-2019

### Summary

Official Symbol	Ist1 provided by <a href="#">MGI</a>
Official Full Name	increased sodium tolerance 1 homolog (yeast) provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:1919205</a>
See related	<a href="#">Ensembl:ENSMUSG000000031729</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	AW536298; mKIAA0174; 2400003C14Rik
Expression	Ubiquitous expression in CNS E14 (RPKM 40.7), CNS E18 (RPKM 40.3) and 28 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

### Genomic context

Location: 8; 8 D3

Exon count: 12

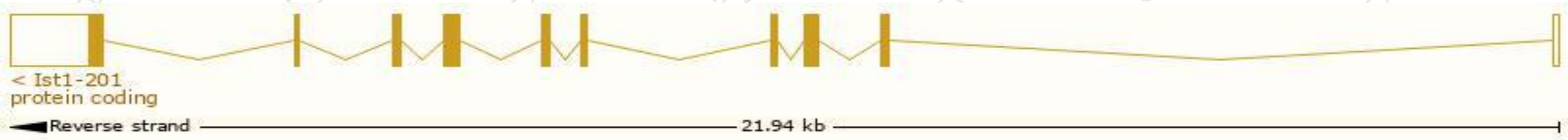
See Ist1 in [Genome Data Viewer](#)

# Transcript information (Ensembl)

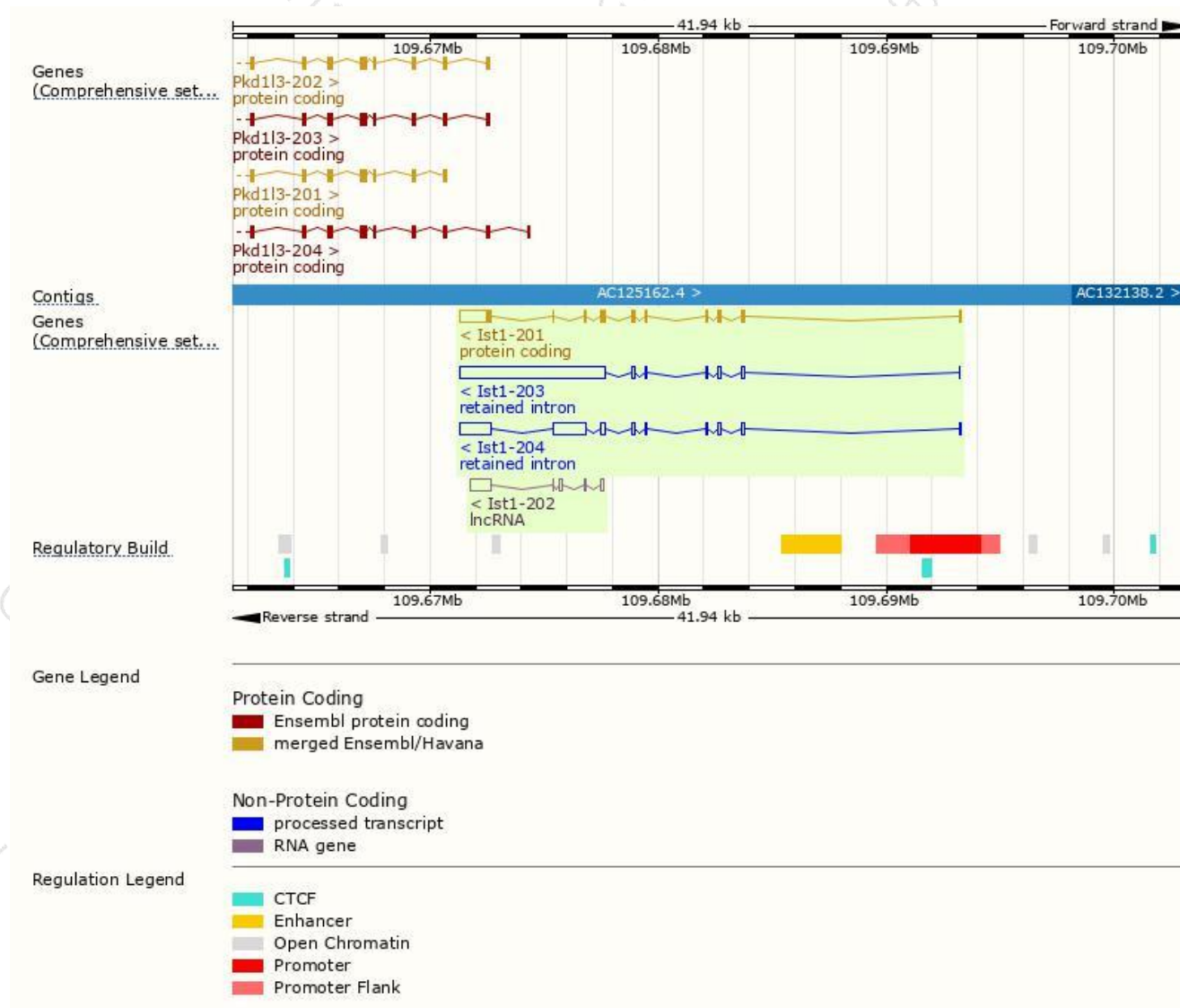
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ist1-201	<a href="#">ENSMUST00000034164.5</a>	2304	<a href="#">362aa</a>	Protein coding	<a href="#">CCDS22655</a>	<a href="#">Q9CX00</a>	TSL:1 GENCODE basic APPRIS P1
Ist1-203	<a href="#">ENSMUST00000212562.1</a>	6990	No protein	Retained intron	-	-	TSL:1
Ist1-204	<a href="#">ENSMUST00000212973.1</a>	3633	No protein	Retained intron	-	-	TSL:2
Ist1-202	<a href="#">ENSMUST00000212170.1</a>	1280	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Ist1-201* transcript,The transcription is shown below



# Genomic location distribution





# Protein domain



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

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