

Adat1 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Adat1

Project type

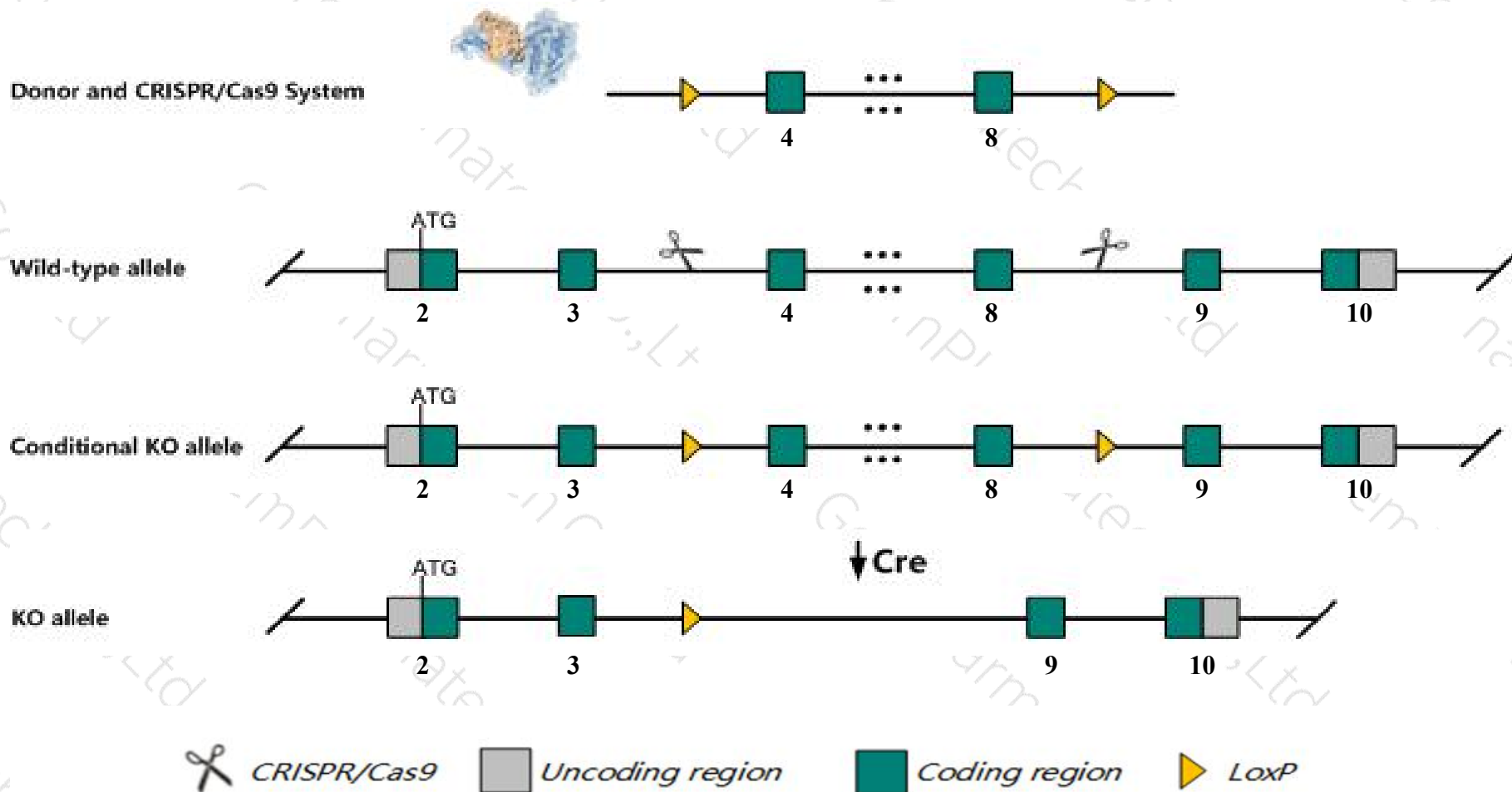
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adat1* gene. The schematic diagram is as follows:



- The *Adat1* gene has 3 transcripts. According to the structure of *Adat1* gene, exon4-exon8 of *Adat1-201* (ENSMUST00000034427.11) transcript is recommended as the knockout region. The region contains 1036bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Adat1* 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

- The *Adat1* 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)

Adat1 adenosine deaminase, tRNA-specific 1 [Mus musculus (house mouse)]

Gene ID: 30947, updated on 31-Jan-2019

Summary



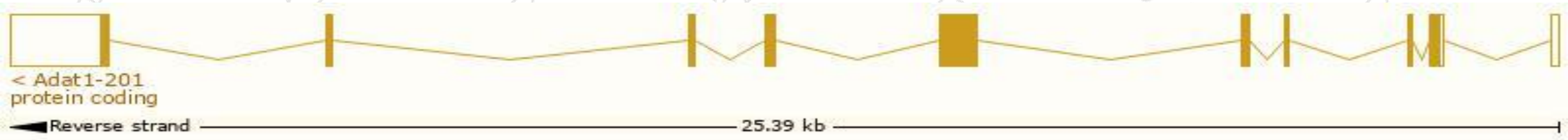
Official Symbol	Adat1 provided by MGI
Official Full Name	adenosine deaminase, tRNA-specific 1 provided by MGI
Primary source	MGI:MGI:1353631
See related	Ensembl:ENSMUSG000000031949
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	MMADAT1
Expression	Ubiquitous expression in CNS E11.5 (RPKM 4.2), limb E14.5 (RPKM 2.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

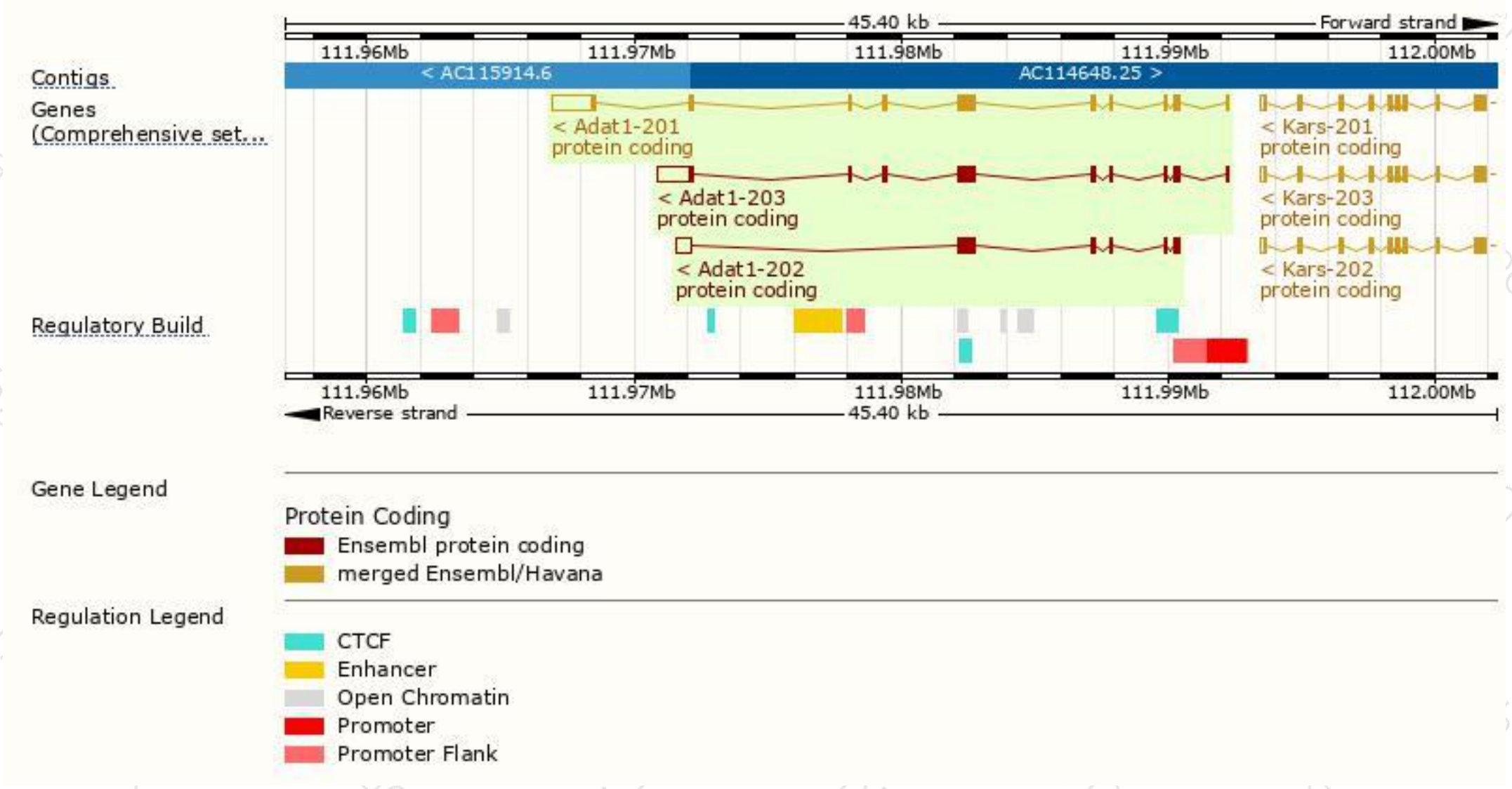
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adat1-201	ENSMUST00000034427.11	3159	499aa	Protein coding	CCDS22684	Q9JHI2	TSL:1 GENCODE basic APPRIS P1
Adat1-203	ENSMUST00000139820.7	2762	454aa	Protein coding	-	Q9JHI2	TSL:1 GENCODE basic
Adat1-202	ENSMUST00000120457.1	1677	354aa	Protein coding	-	D3Z6J6	TSL:5 GENCODE basic

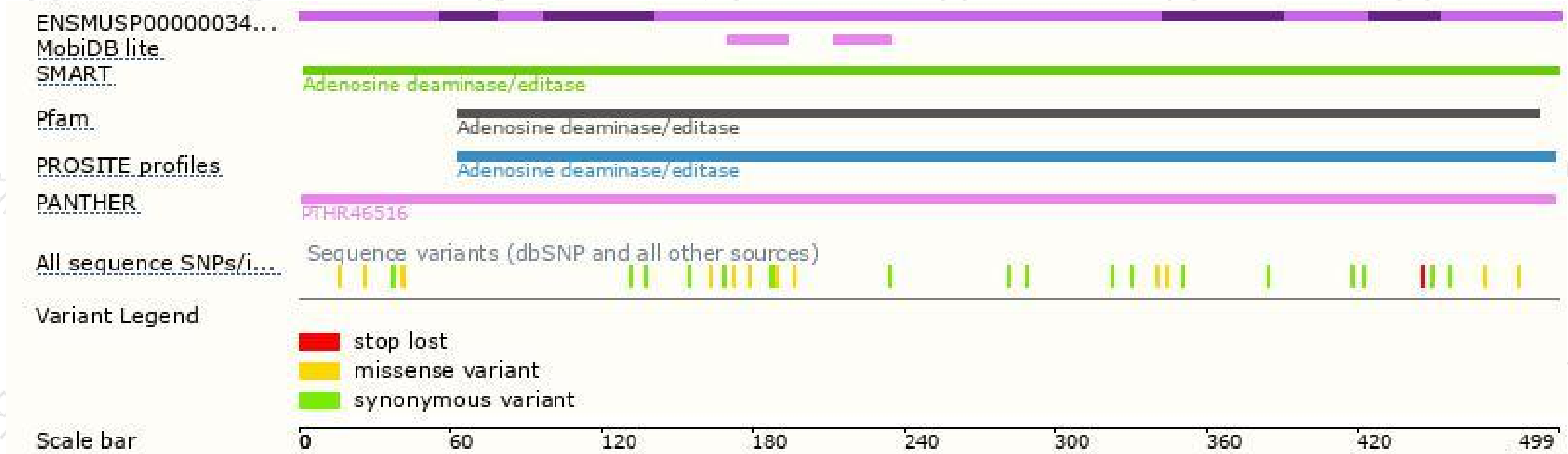
The strategy is based on the design of *Adat1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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