

Sart1 Cas9-CKO Strategy

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Reviewer :

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Design Date:

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Project Overview

Project Name

Sart1

Project type

Cas9-CKO

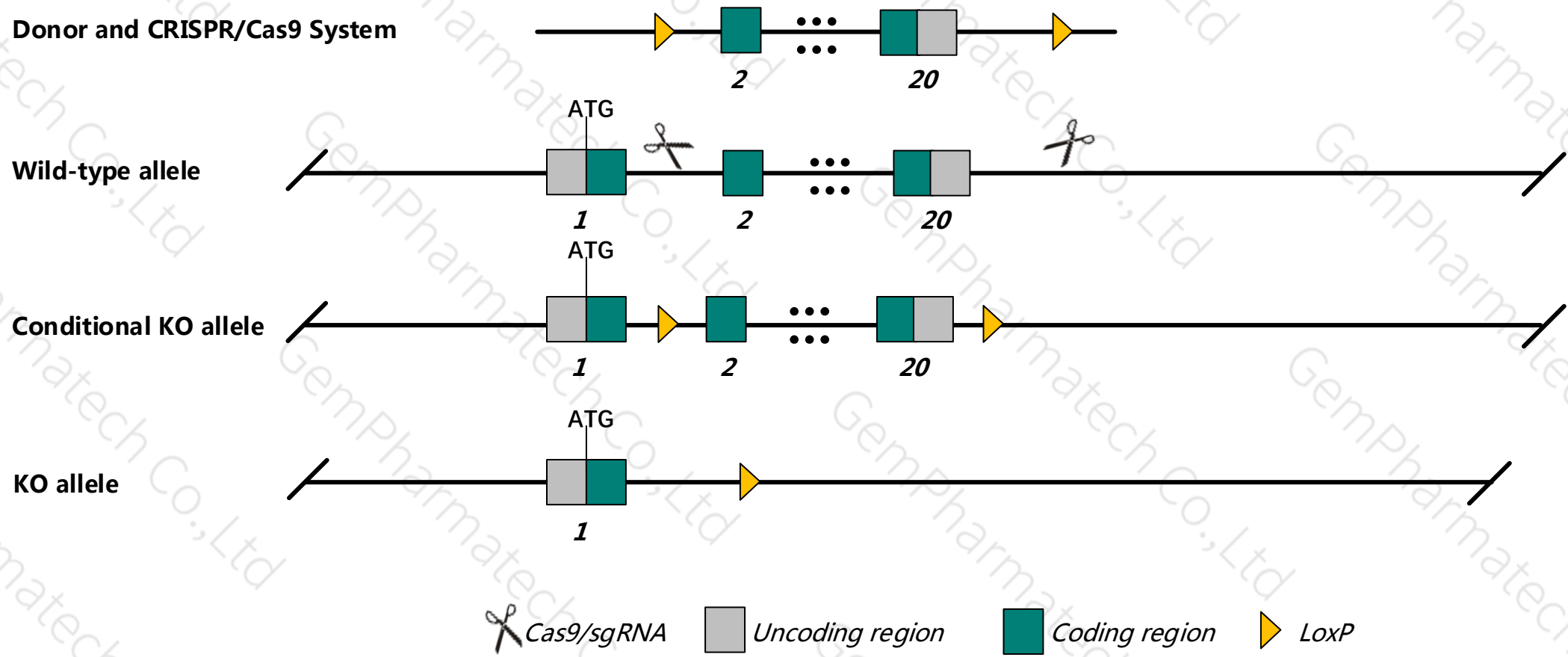
Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sart1* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System



- The *Sart1* gene has 6 transcripts. According to the structure of *Sart1* gene, exon2-exon20 of *Sart1*-201 (ENSMUST00000044207.4) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Sart1* 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 or cell types.

Notice

- This strategy may affect the 5-terminal regulation of the *D330050I16Rik* gene.
- The *Sart1* gene is located on the Chr19. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Sart1 squamous cell carcinoma antigen recognized by T cells 1 [*Mus musculus* (house mouse)]

Gene ID: 20227, updated on 12-Aug-2019

Summary

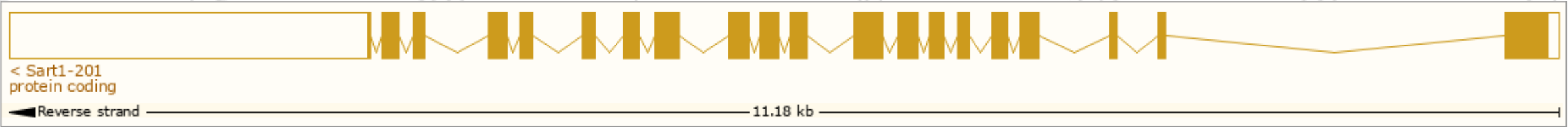
Official Symbol	Sart1 provided by MGI
Official Full Name	squamous cell carcinoma antigen recognized by T cells 1 provided by MGI
Primary source	MGI:MGI:1309453
See related	Ensembl:ENSMUSG00000039148
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	U5-110K
Expression	Ubiquitous expression in CNS E11.5 (RPKM 15.0), CNS E14 (RPKM 7.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

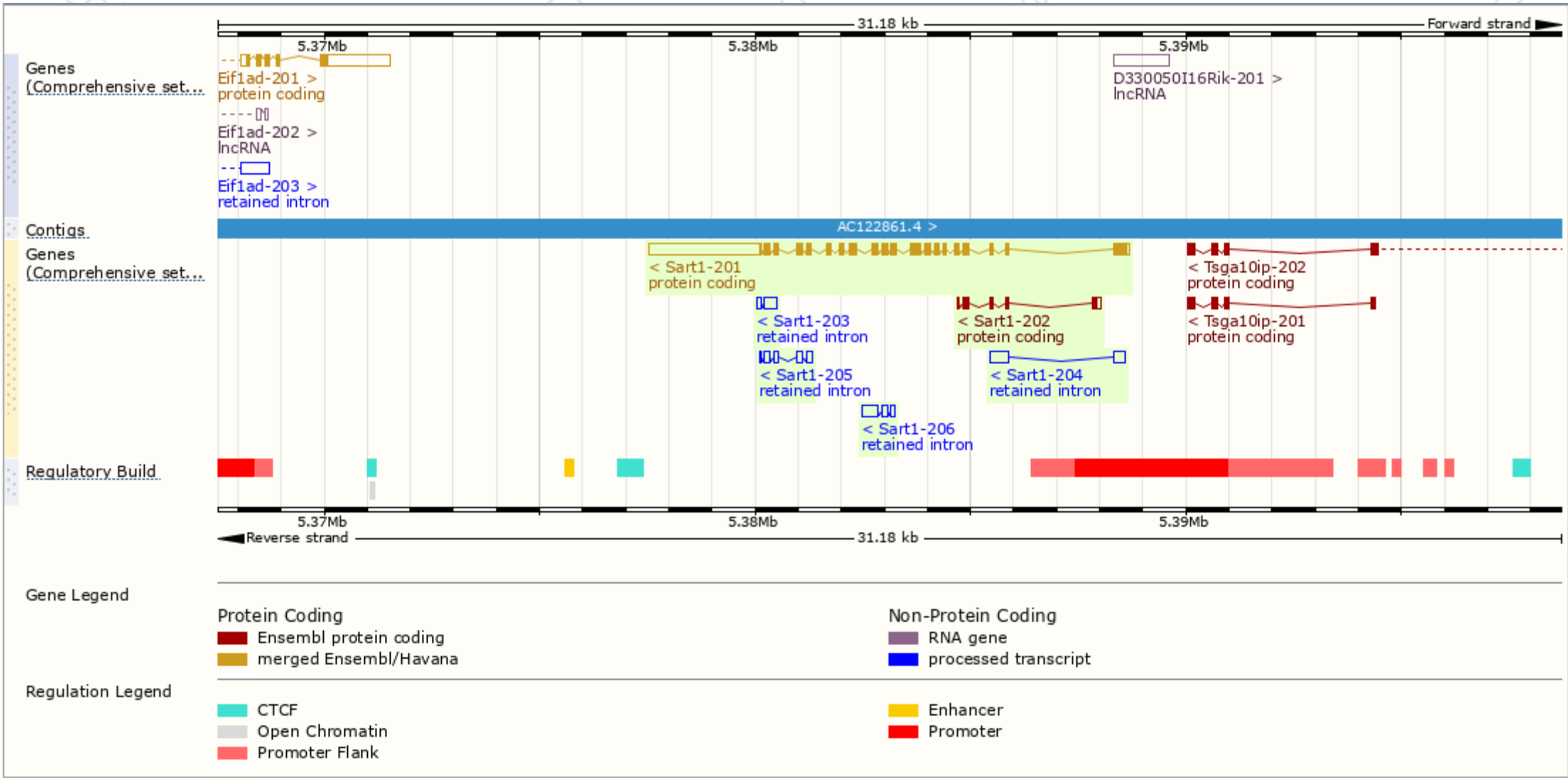
The gene has 6 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sart1-201	ENSMUST00000044207.4	5091	806aa	Protein coding	CCDS29460	Q9Z315	TSL:1 GENCODE basic APPRIS P1
Sart1-202	ENSMUST00000235654.1	428	113aa	Protein coding	-	A0A494B9E9	CDS 3' incomplete
Sart1-204	ENSMUST00000235908.1	671	No protein	Retained intron	-	-	-
Sart1-206	ENSMUST00000237915.1	595	No protein	Retained intron	-	-	-
Sart1-205	ENSMUST00000236511.1	494	No protein	Retained intron	-	-	-
Sart1-203	ENSMUST00000235855.1	360	No protein	Retained intron	-	-	-

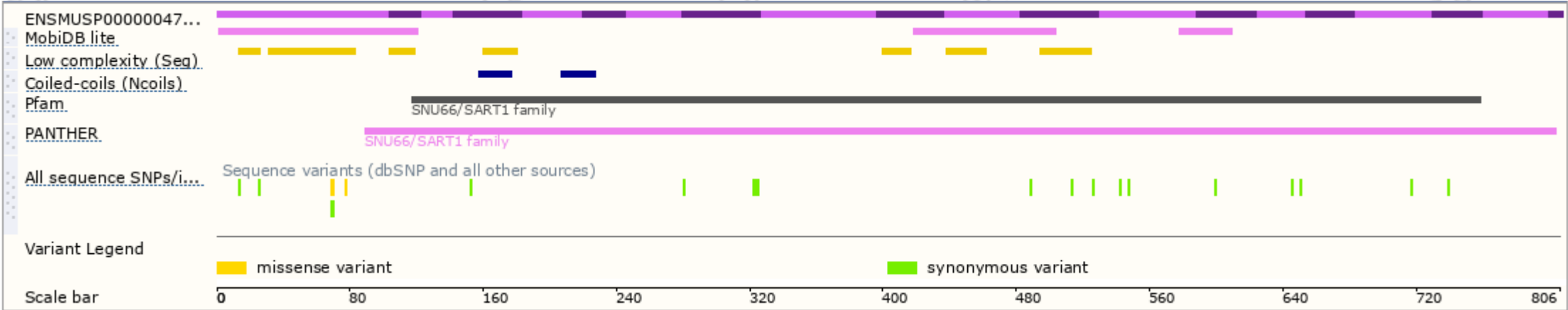
The strategy is based on the design of *Sart1*-201 transcript,The transcription is shown below



Genomic location distribution

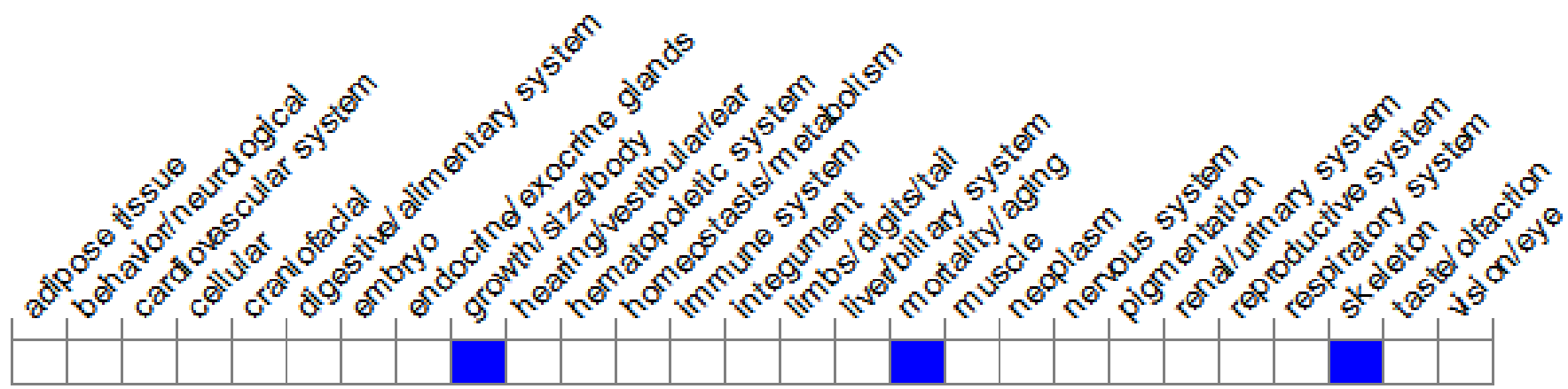


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



Click cells to view annotations.

Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>) .

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