Sdc3 Cas9-KO Strategy

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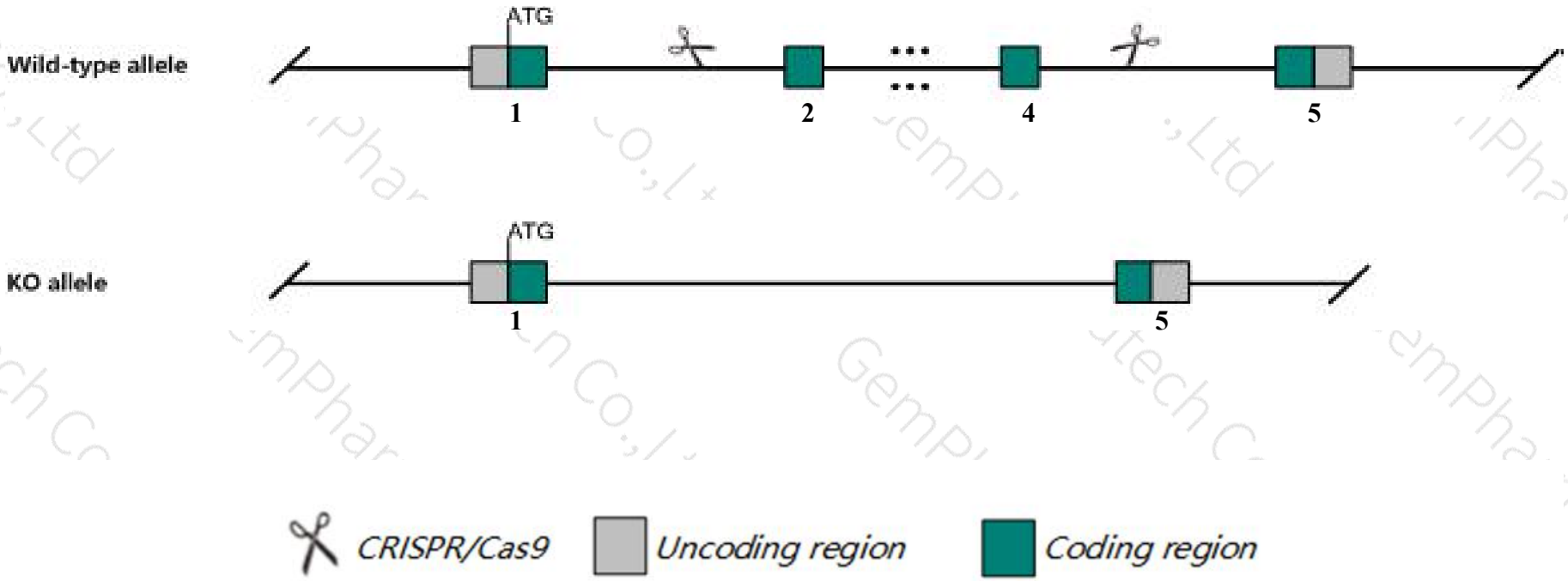
Design Date: 2019-12-18

Project Overview

Project Name	***Sdc3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sdc3* gene. The schematic diagram is as follows:



Technical routes

➢ The *Sdc3* gene has 5 transcripts. According to the structure of *Sdc3* gene, exon2-exon4 of *Sdc3-201* (ENSMUST00000070478.3) transcript is recommended as the knockout region.The region contains 1030bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Sdc3* gene. The brief process is as follows: CRISPR/Cas9 system we

Notice

➢ According to the existing MGI data,Homozygotes for a targeted null mutation exhibit reduced susceptibility to diet-induced obesity to a greater extent in male versus female mice. Mice heterozygous for a null allele exhibit decreased susceptibility to diet-induced obesity.

➢ The *Sdc3* gene is located on the Chr4. 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）

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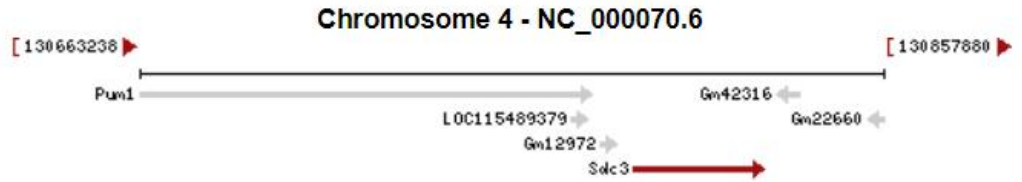
Sdc3 syndecan 3 [*Mus musculus* (house mouse)]

Gene ID: 20970, updated on 12-Aug-2019

Summary

Official Symbol	Sdc3 provided by MGI
Official Full Name	syndecan 3 provided by MGI
Primary source	MGI:MGI:1349163
See related	Ensembl:ENSMUSG00000025743
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	Synd3; syn-3; mKIAA0468
Expression	Broad expression in adrenal adult (RPKM 206.8), CNS E18 (RPKM 53.9) and 21 other tissues See more
Orthologs	human all

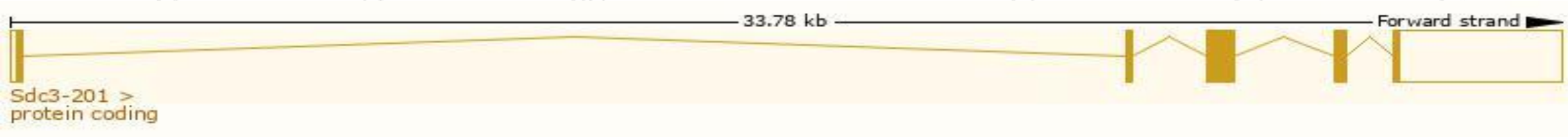


Transcript information（Ensembl）

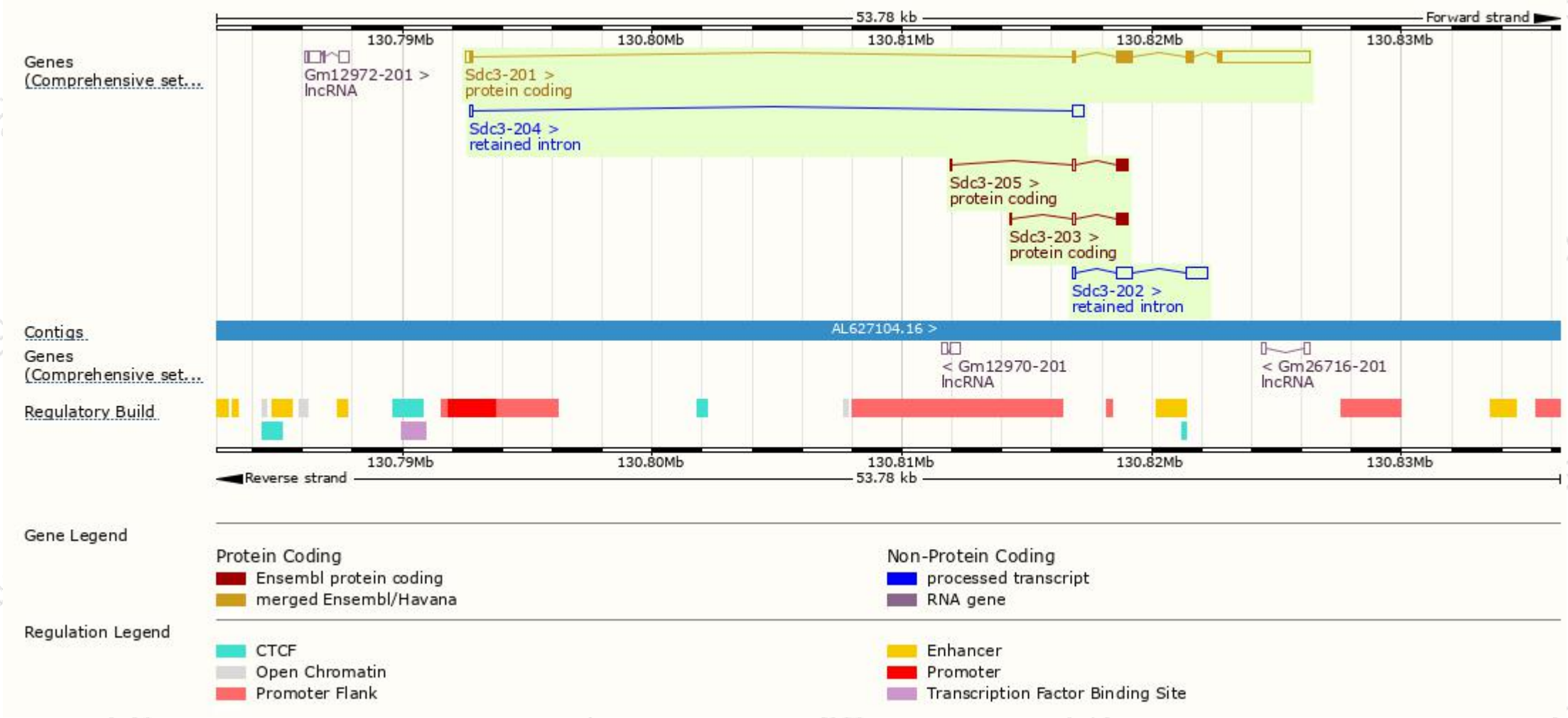
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Sdc3-201	ENSMUST00000070478.3	4973	442aa	ENSMUSP00000065877.3	Protein coding	CCDS38894	Q64519	TSL:1 GENCODE basic APPRIS P1
Sdc3-203	ENSMUST00000141297.7	659	148aa	ENSMUSP00000123608.1	Protein coding	-	B1ASF6	CDS 3' incomplete TSL:3
Sdc3-205	ENSMUST00000152591.7	644	148aa	ENSMUSP00000118685.1	Protein coding	-	B1ASF6	CDS 3' incomplete TSL:3
Sdc3-202	ENSMUST00000140623.1	1624	No protein	-	Retained intron	-	-	TSL:2
Sdc3-204	ENSMUST00000146093.1	528	No protein	-	Retained intron	-	-	TSL:2

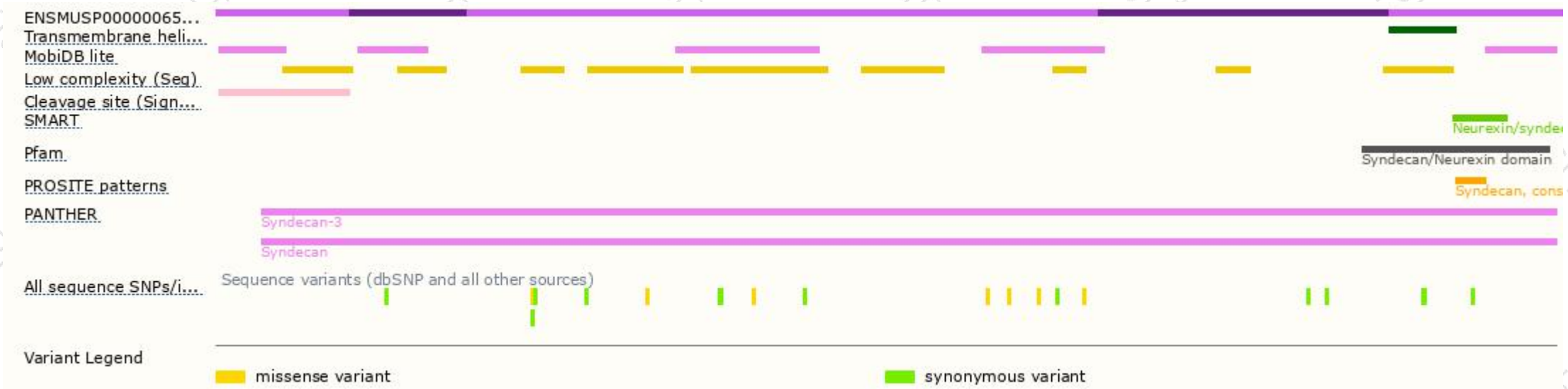
The strategy is based on the design of *Sdc3-201* transcript,The transcription is shown below



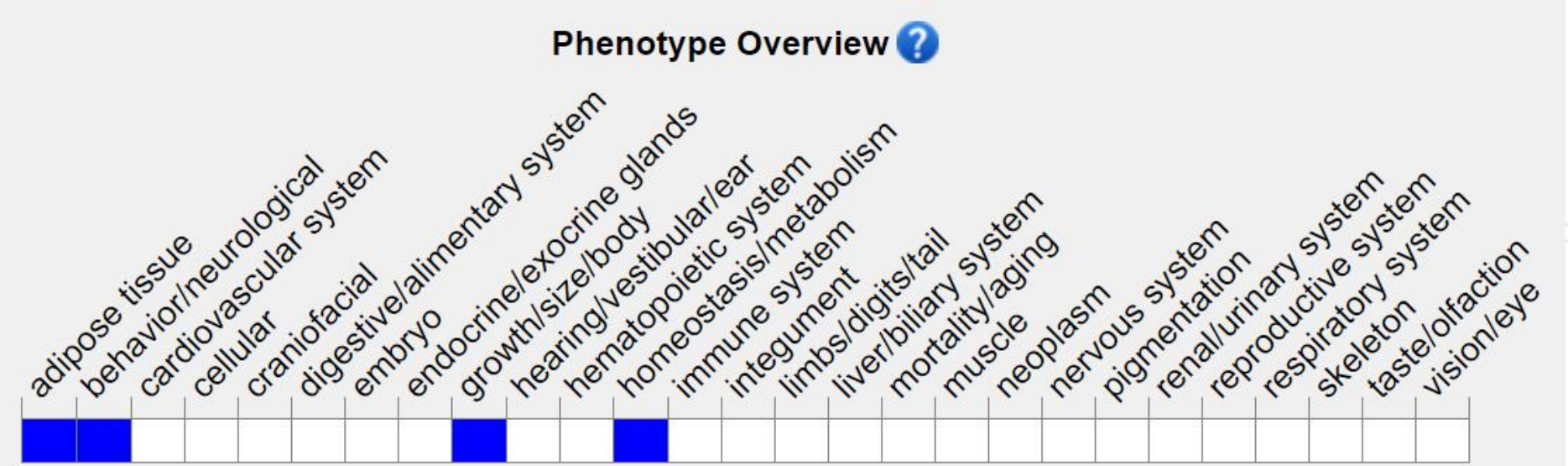
Genomic location distribution



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/).

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

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