Sell Cas9-KO Strategy

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Reviewer: **Ruirui Zhang**

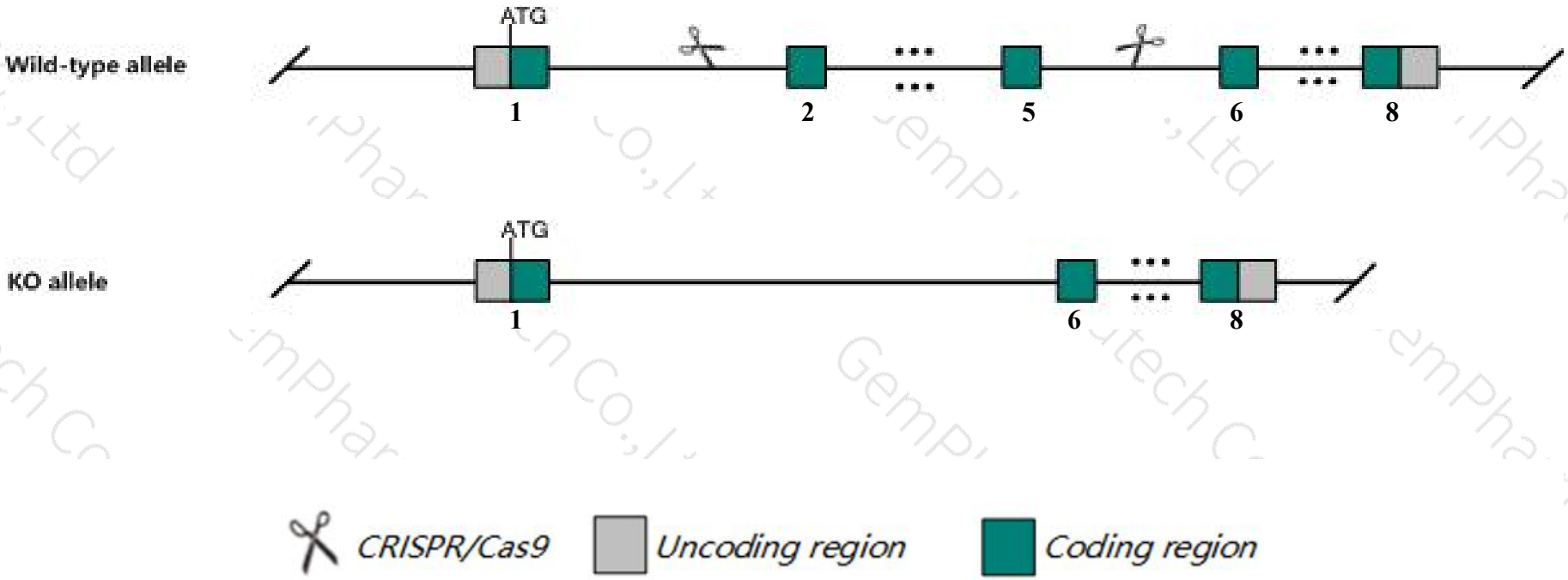
Design Date: **2019/9/5**

Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Sell* gene has 4 transcripts. According to the structure of *Sell* gene, exon2-exon5 of *Sell-203* (ENSMUST00000192047.5) transcript is recommended as the knockout region.The region contains 841bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

- According to the existing MGI data,Homozygotes for targeted null mutations exhibit lack of lymphocyte binding to high endothelial venules of peripheral lymph nodes and defects in leukocyte rolling and neutrophil migration into the peritoneum following an inflammatory stimulus. Tumor cellsurvival is also reduced.

- The *Sell* gene is located on the Chr1. 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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Sell selectin, lymphocyte [*Mus musculus* (house mouse)]

Gene ID: 20343, updated on 14-Aug-2019

Summary

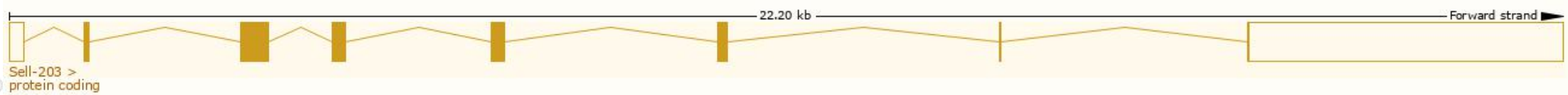
Official Symbol	Sell provided by MGI
Official Full Name	selectin, lymphocyte provided by MGI
Primary source	MGI:MGI:98279
See related	Ensembl:ENSMUSG00000026581
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Lnhr; CD62L; Ly-22; Lyam1; Ly-m22; Lyam-1; LECAM-1; AI528707; L-selectin
Expression	Biased expression in spleen adult (RPKM 21.5), thymus adult (RPKM 14.5) and 5 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

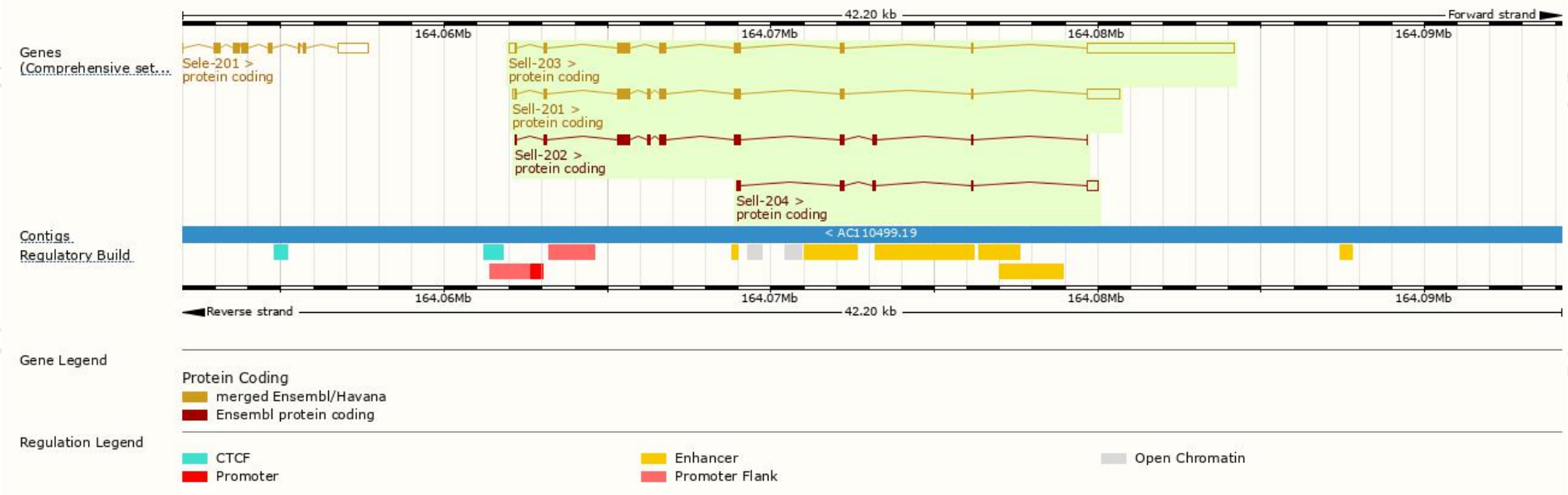
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sell-203	ENSMUST00000192047.5	5703	336aa	Protein coding	CCDS48421	Q3TCF3	TSL:1 GENCODE basic
Sell-201	ENSMUST00000027871.12	2199	372aa	Protein coding	CCDS35753	P18337 Q3UV83	TSL:1 GENCODE basic APPRIS P2
Sell-202	ENSMUST00000097491.9	1215	387aa	Protein coding	-	B1B507	TSL:5 GENCODE basic APPRIS ALT2
Sell-204	ENSMUST00000195358.1	613	100aa	Protein coding	-	A0A0A6YW25	CDS 5' incomplete TSL:5

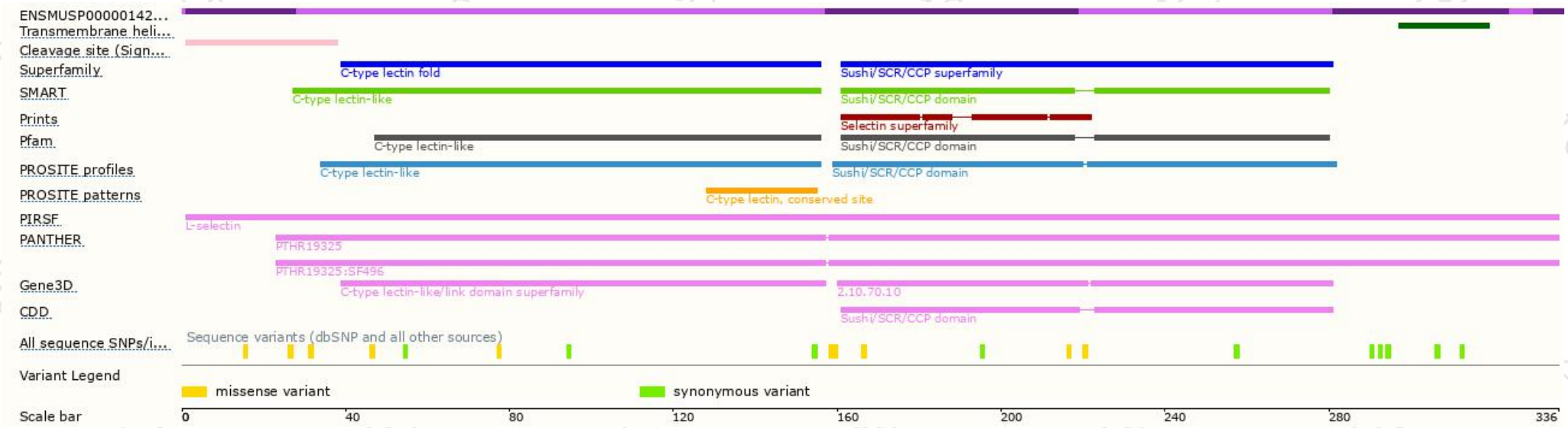
The strategy is based on the design of *Sell-203* transcript,The transcription is shown below



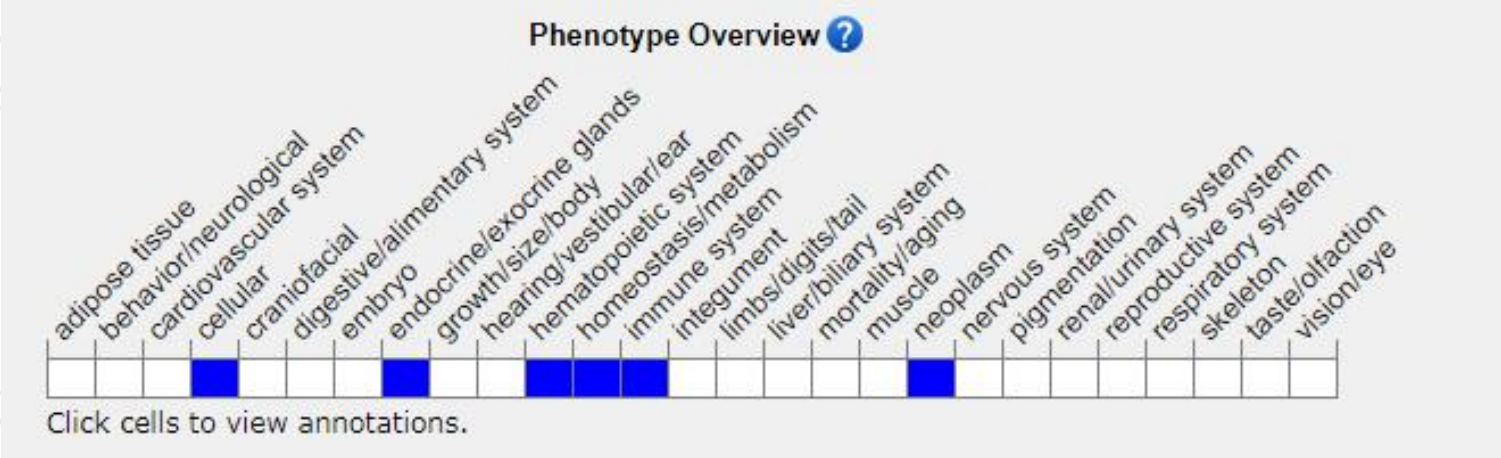
Genomic location distribution



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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