

Vsig1 Cas9-KO Strategy

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Project Overview

Project Name

Vsig1

Project type

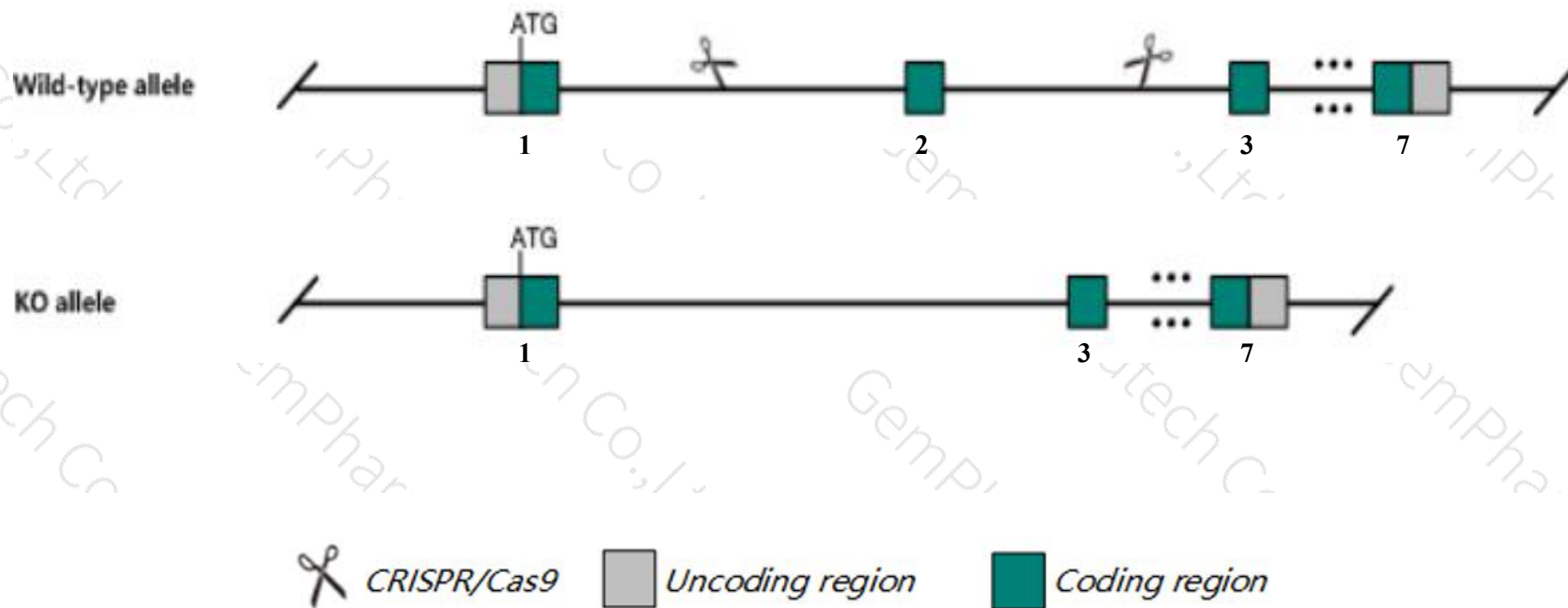
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Vsig1* gene. The schematic diagram is as follows:



➤ The *Vsig1* gene has 2 transcripts. According to the structure of *Vsig1* gene, exon2 of *Vsig1-201*(ENSMUST00000033806.4) transcript is recommended as the knockout region. The region contains 167bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Vsig1* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, male chimeras hemizygous for a knock-out allele exhibit abnormal differentiation of gastric epithelia.
- Transcript *Vsig1*-202 may not be affected.
- The *Vsig1* gene is located on the ChrX. 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)

Vsig1 V-set and immunoglobulin domain containing 1 [Mus musculus (house mouse)]

Gene ID: 78789, updated on 20-Mar-2020

Summary



Official Symbol	Vsig1 provided by MGI
Official Full Name	V-set and immunoglobulin domain containing 1 provided by MGI
Primary source	MGI:MGI:1926039
See related	Ensembl:ENSMUSG00000031430
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	1700062D20Rik, 4930405J24Rik
Expression	Biased expression in stomach adult (RPKM 25.5), testis adult (RPKM 16.6) and 1 other tissue See more
Orthologs	human all

Transcript information (Ensembl)

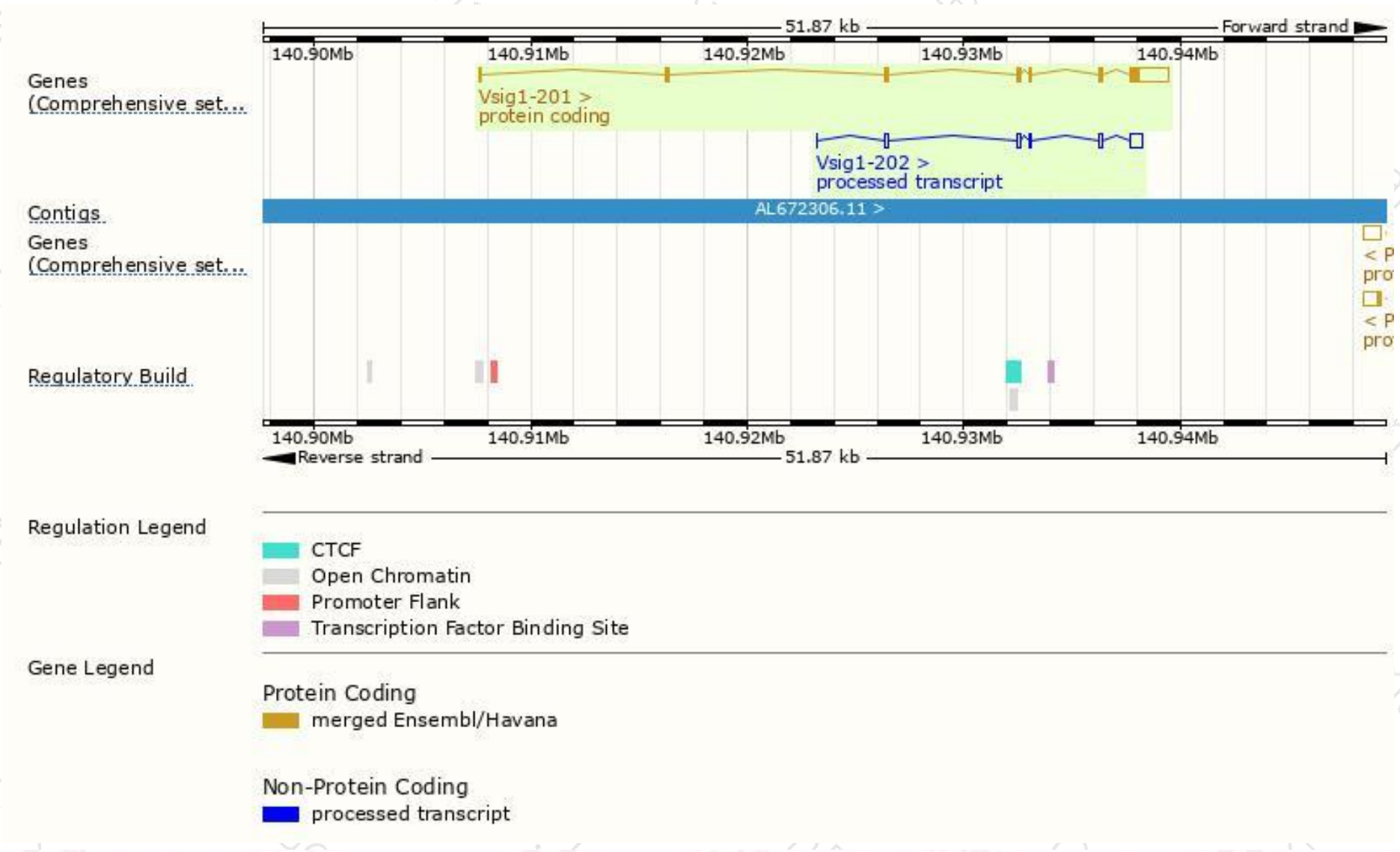
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Vsig1-201	ENSMUST00000033806.4	2707	407aa	Protein coding	CCDS30443	A0A0B4J1E9	TSL:1 GENCODE basic APPRIS P1
Vsig1-202	ENSMUST00000127629.1	1243	No protein	Processed transcript	-	-	TSL:1

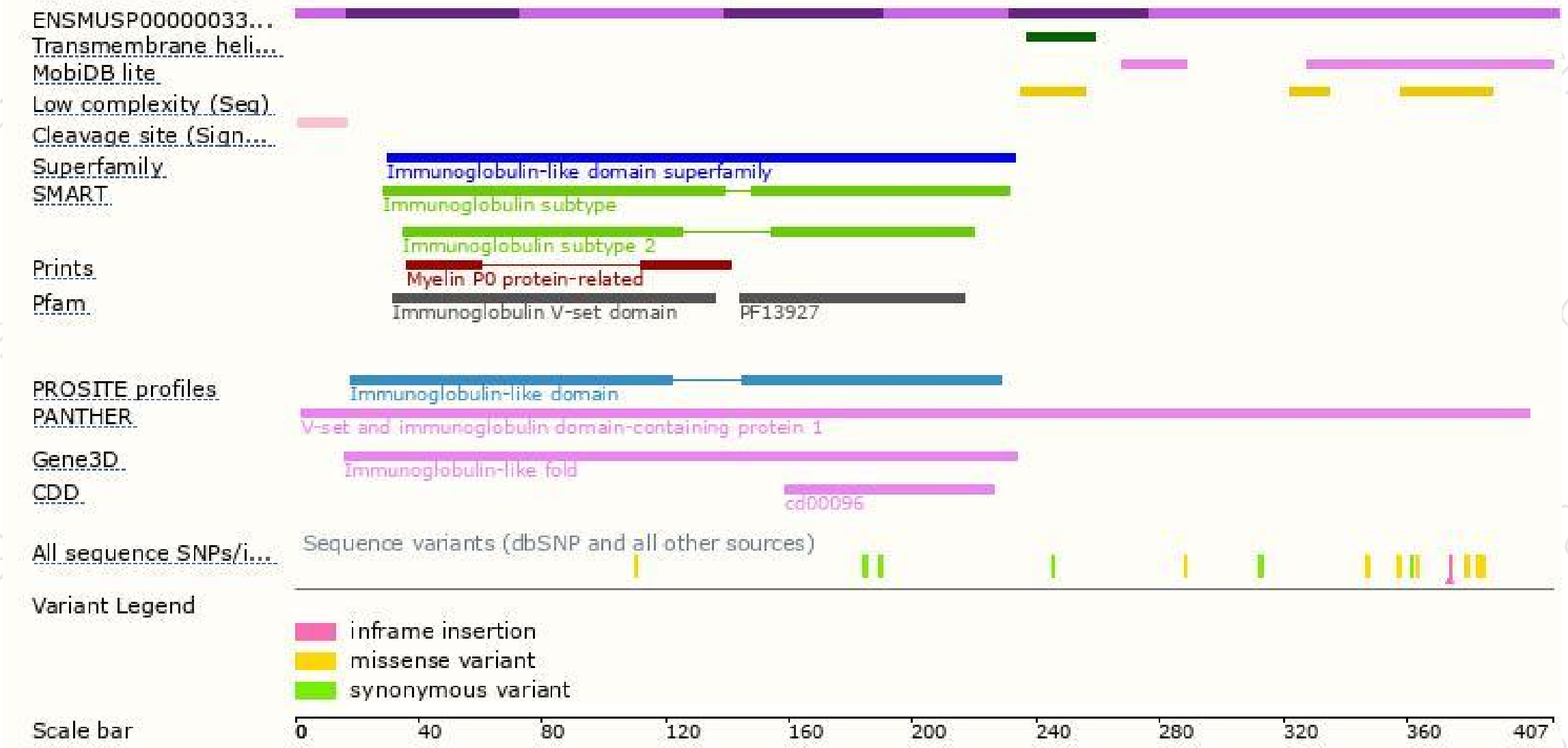
The strategy is based on the design of *Vsig1-201* transcript,the transcription is shown below:



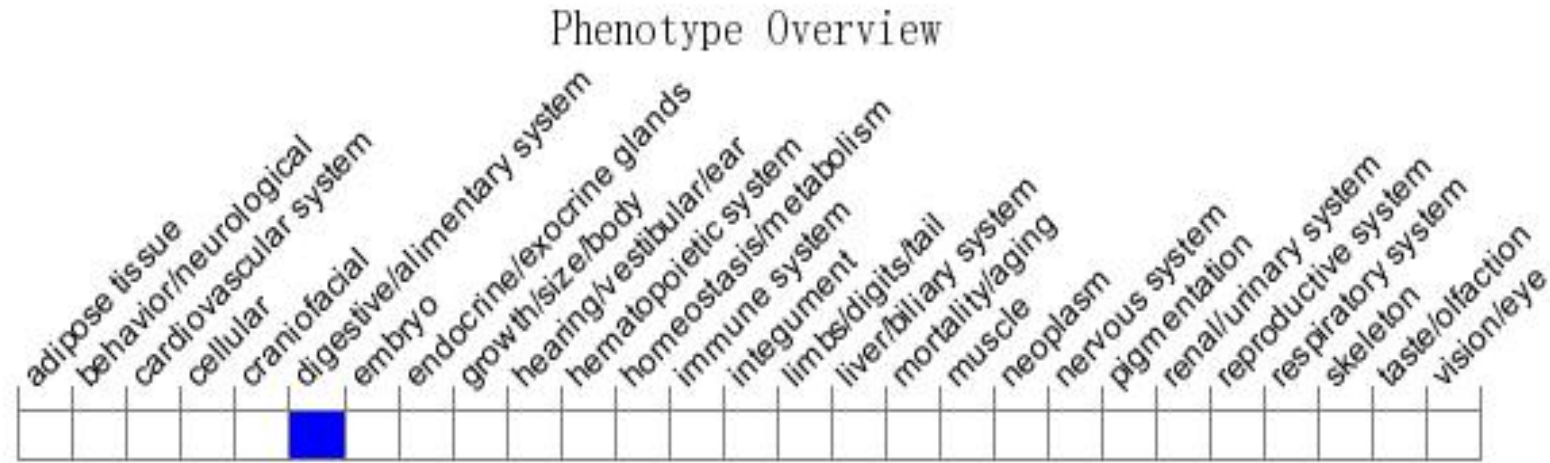
Genomic location distribution



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/>).

According to the existing MGI data, male chimeras hemizygous for a knock-out allele exhibit abnormal differentiation of gastric epithelia.

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

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