Msl1 Cas9-KO Strategy

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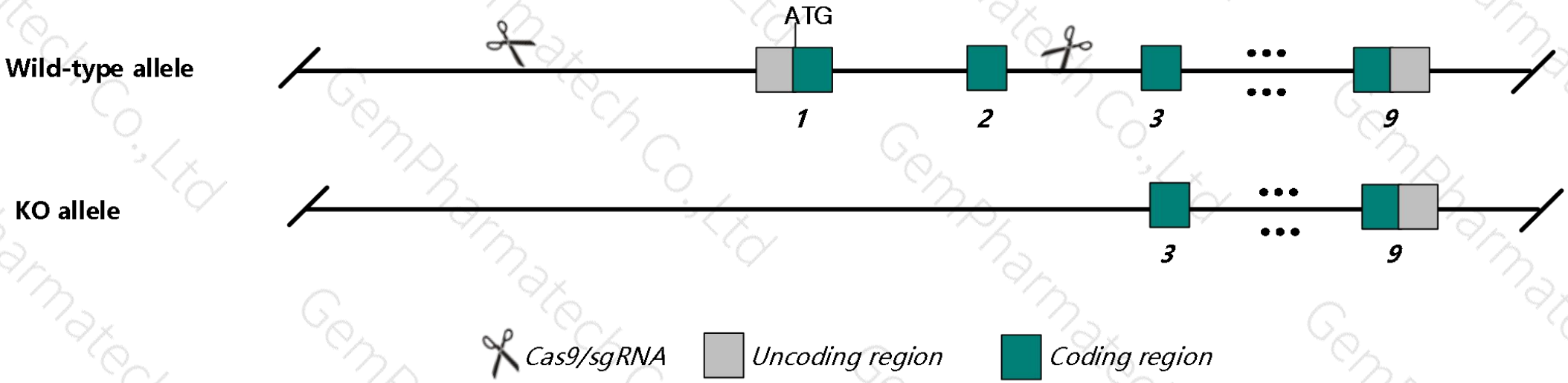
Design Date: 2020-3-24

Project Overview

Project Name	***Msl1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Msl1* gene. The schematic diagram is as follows:



Technical routes

The *Msl1* gene has 6 transcripts. According to the structure of *Msl1* gene, exon1 of *Msl1-201* (ENSMUST00000037915.8) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Msl1* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

➢ The flox region overlap with part of the *Gm12359* gene, which may affect the regulation of this gene.

➢ Transcript 205 CDS 5' and 3' incomplete the influences is unknown.

➢ The Msl1 gene is located on the Chr11. 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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Msl1 male specific lethal 1 [*Mus musculus* (house mouse)]

Gene ID: 74026, updated on 13-Mar-2020

Summary

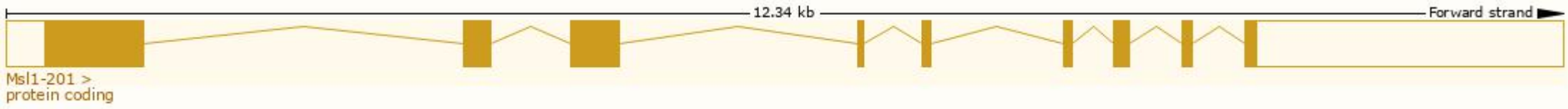
Official Symbol	Msl1 provided by MGI
Official Full Name	male specific lethal 1 provided by MGI
Primary source	MGI:MGI:1921276
See related	Ensembl:ENSMUSG00000052915
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Msl-1; AA682082; 2810017F12Rik; 4121402D02Rik; 4930463F05Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 22.2), testis adult (RPKM 20.8) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

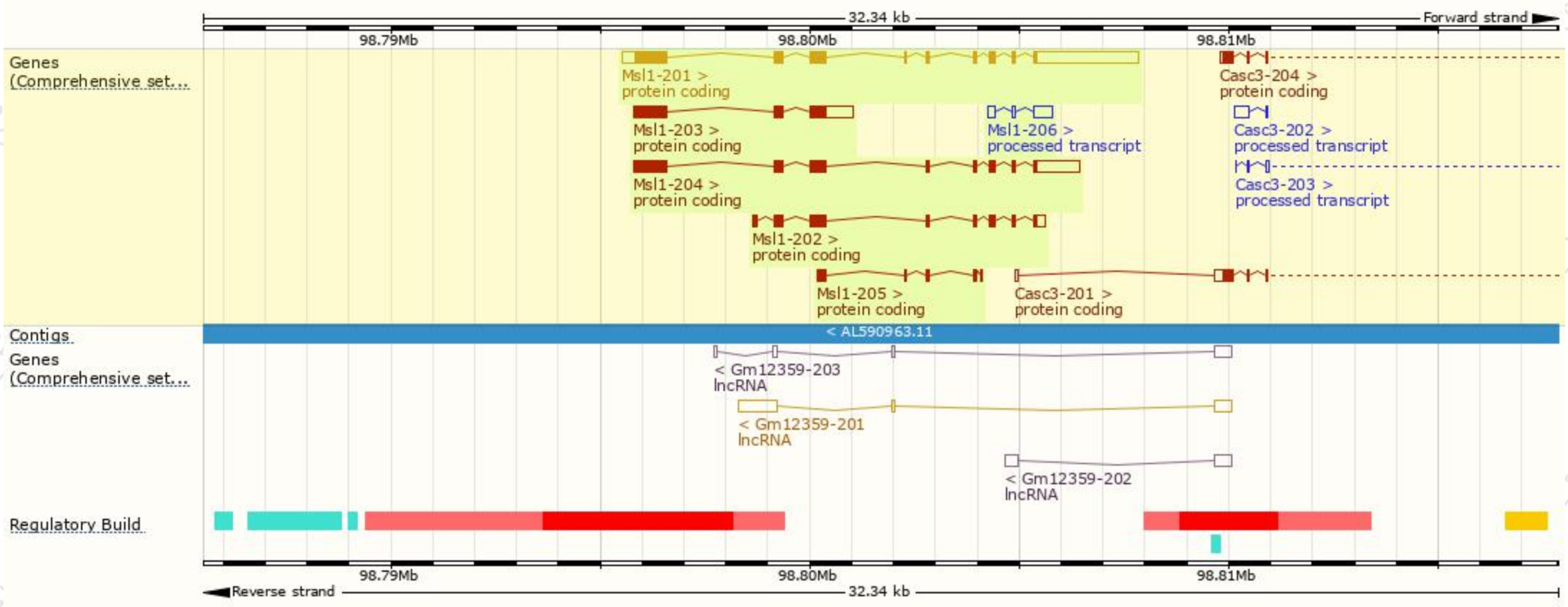
The gene has 6 transcripts,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Msl1-201	ENSMUST00000037915.8	4593	616aa	Protein coding	CCDS25364	Q6PDM1	TSL:1 GENCODE basic APPRIS P2
Msl1-204	ENSMUST00000107487.9	2836	600aa	Protein coding	-	Q6PDM1	TSL:2 GENCODE basic APPRIS ALT1
Msl1-203	ENSMUST00000107485.7	2091	463aa	Protein coding	-	Q6PDM1	TSL:1 GENCODE basic
Msl1-202	ENSMUST00000037930.12	1303	370aa	Protein coding	-	Q6PDM1	TSL:1 GENCODE basic
Msl1-205	ENSMUST00000126969.1	439	147aa	Protein coding	-	F7CR37	CDS 5' and 3' incomplete TSL:3
Msl1-206	ENSMUST00000141016.1	667	No protein	Processed transcript	-	-	TSL:2

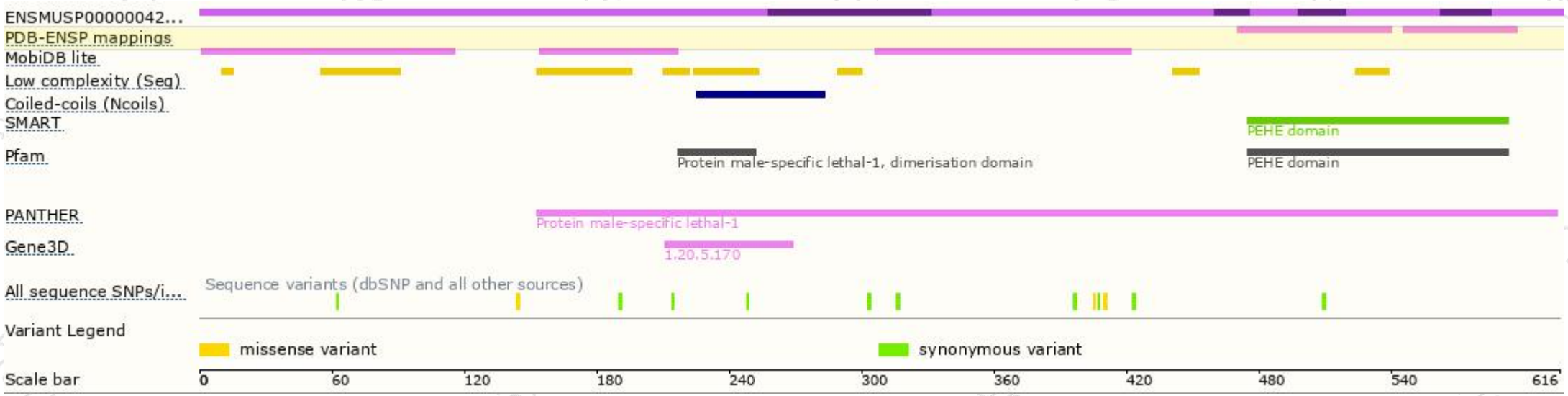
The strategy is based on the design of *Msl1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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