

Cas1 Cas9-KO Strategy

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Project Overview

Project Name

Cascl

Project type

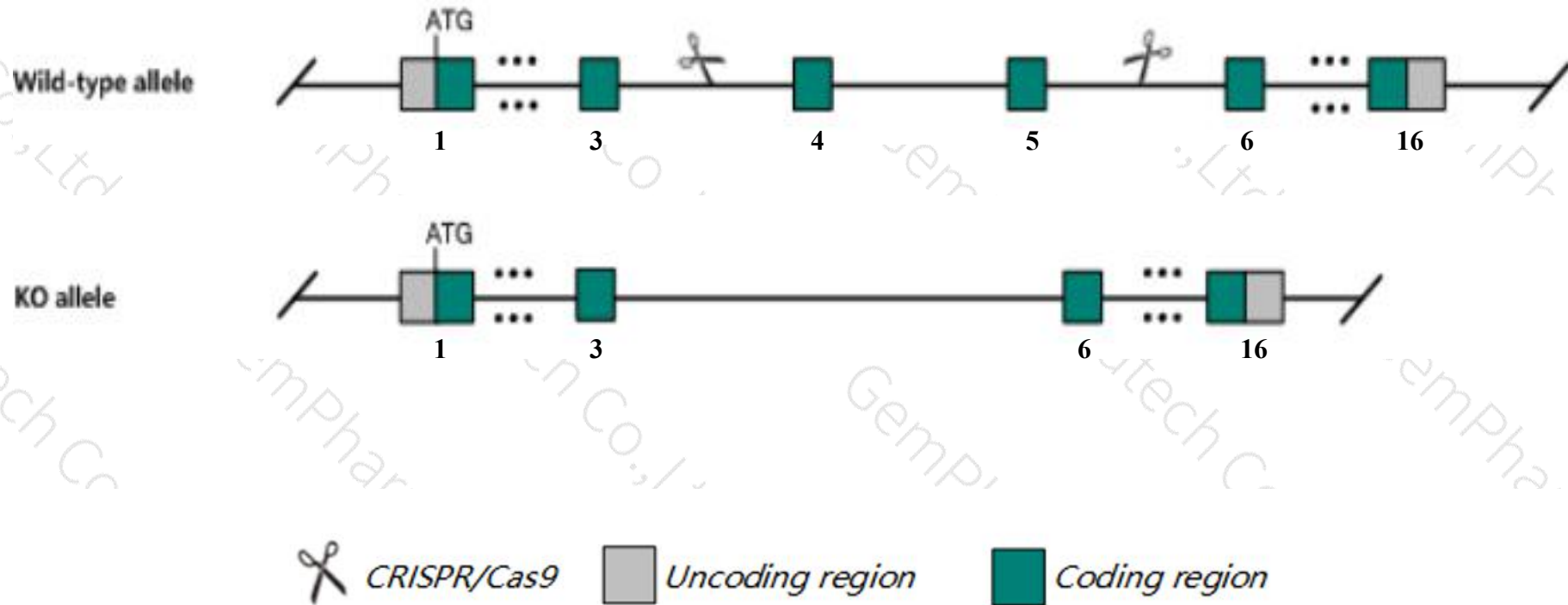
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cas1* gene. The schematic diagram is as follows:



- The *Cas1* gene has 9 transcripts. According to the structure of *Cas1* gene, exon4-exon5 of *Cas1-201* (ENSMUST00000060797.9) transcript is recommended as the knockout region. The region contains 194bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cas1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice with disruptions of this gene display a higher incidence of lung tumors.
- The *Cascl* gene is located on the Chr6. 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)

Casc1 cancer susceptibility candidate 1 [Mus musculus (house mouse)]

Gene ID: 320662, updated on 13-Mar-2020

Summary



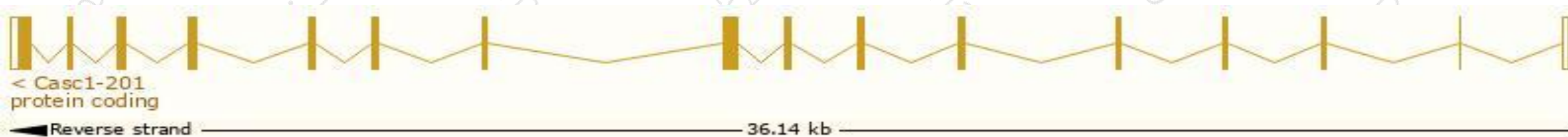
Official Symbol	Casc1 provided by MGI
Official Full Name	cancer susceptibility candidate 1 provided by MGI
Primary source	MGI:MGI:2444480
See related	Ensembl:ENSMUSG00000043541
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A230084G12Rik, Las1
Expression	Biased expression in testis adult (RPKM 5.2), spleen adult (RPKM 4.7) and 9 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

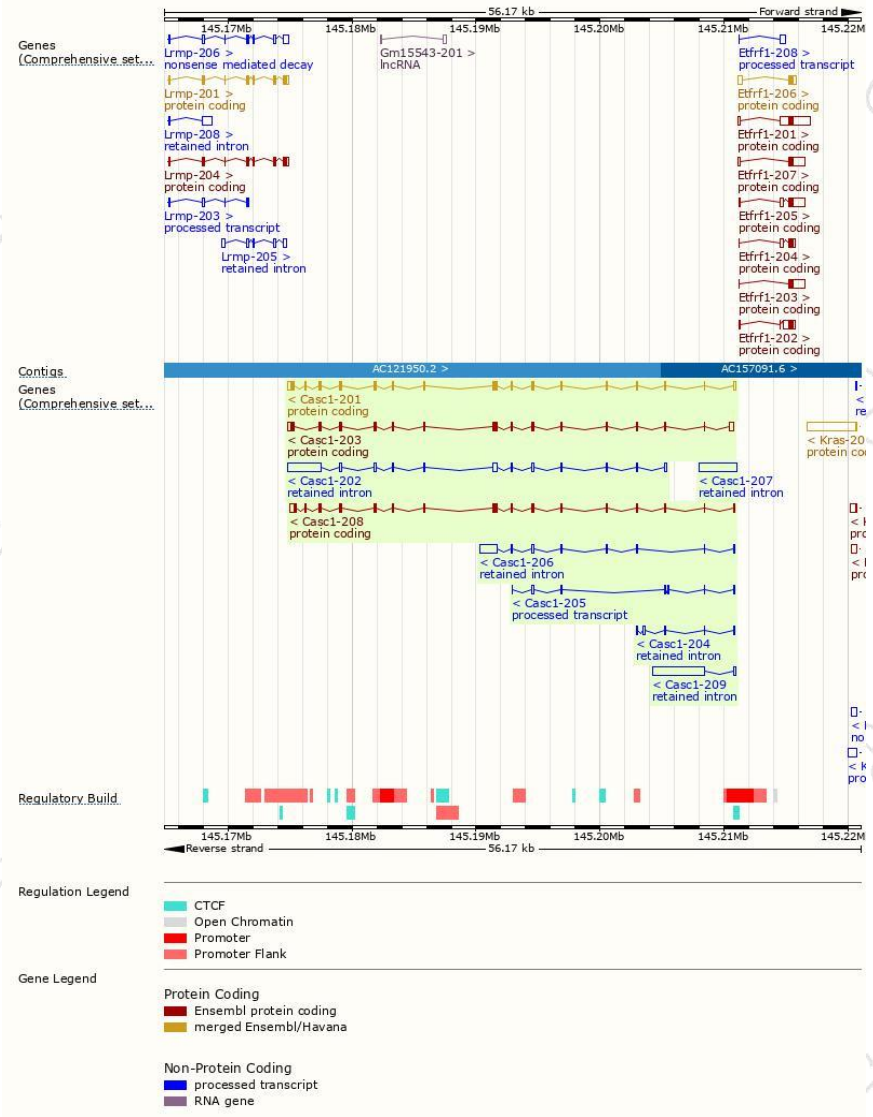
The gene has 9 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Casc1-201	ENSMUST00000060797.9	2572	730aa	Protein coding	CCDS39705	A0A0R4J0S9	TSL:1 GENCODE basic APPRIS P2
Casc1-203	ENSMUST00000111728.7	2682	679aa	Protein coding	-	A0A0R4J1G3	TSL:2 GENCODE basic APPRIS ALT2
Casc1-208	ENSMUST00000204105.1	2425	644aa	Protein coding	-	A0A0N4SUQ9	TSL:1 GENCODE basic APPRIS ALT2
Casc1-205	ENSMUST00000133671.7	595	No protein	Processed transcript	-	-	TSL:5
Casc1-202	ENSMUST00000111727.7	4308	No protein	Retained intron	-	-	TSL:1
Casc1-209	ENSMUST00000205162.1	4268	No protein	Retained intron	-	-	TSL:2
Casc1-207	ENSMUST00000203558.1	3023	No protein	Retained intron	-	-	TSL:NA
Casc1-206	ENSMUST00000152138.7	2121	No protein	Retained intron	-	-	TSL:2
Casc1-204	ENSMUST00000128070.1	448	No protein	Retained intron	-	-	TSL:3

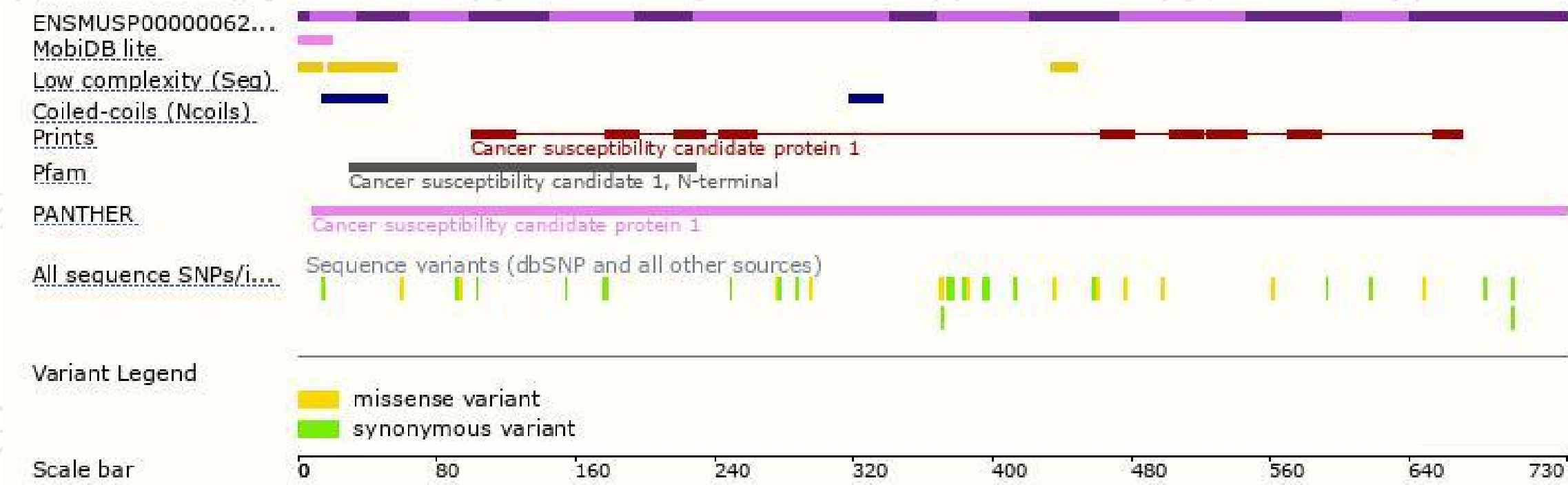
The strategy is based on the design of *Casc1-201* transcript, The transcription is shown below



Genomic location distribution

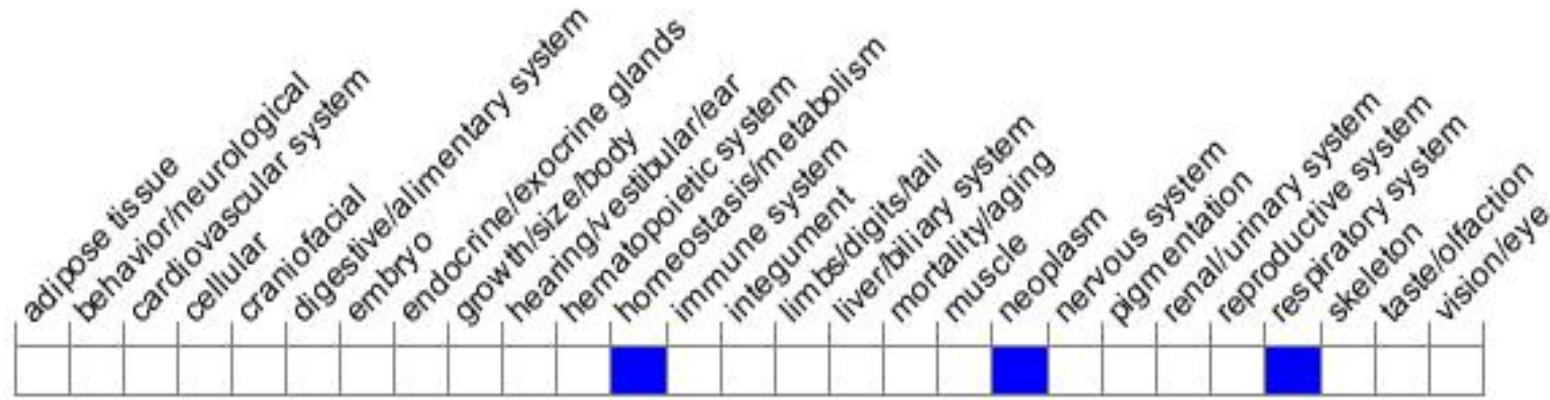


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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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