

***Maged2* Cas9-CKO Strategy**

Designer: Huimin Su

Project Overview

Project Name

Maged2

Project type

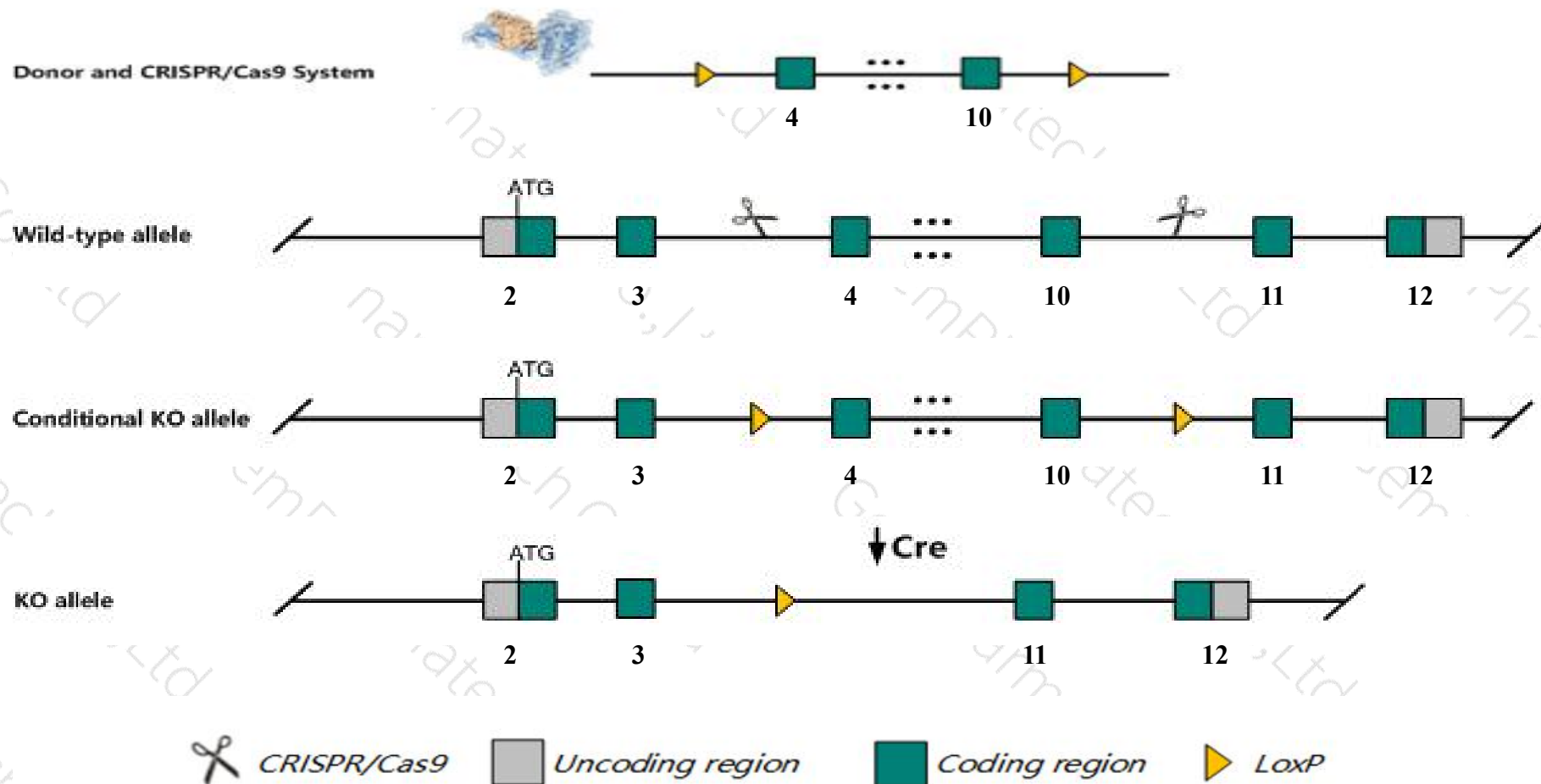
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Maged2* gene. The schematic diagram is as follows:



- The *Maged2* gene has 10 transcripts. According to the structure of *Maged2* gene, exon4-exon10 of *Maged2*-201 (ENSMUST00000026302.12) transcript is recommended as the knockout region. The region contains 734bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Maged2* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA and Donor 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.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- The *Maged2* 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.
- The distance between exon10 of *Maged2* and *Gm24907* is about 0.6 kb, *Gm24907* may be affect.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Maged2 melanoma antigen, family D, 2 [Mus musculus (house mouse)]

Gene ID: 80884, updated on 31-Jan-2019

Summary



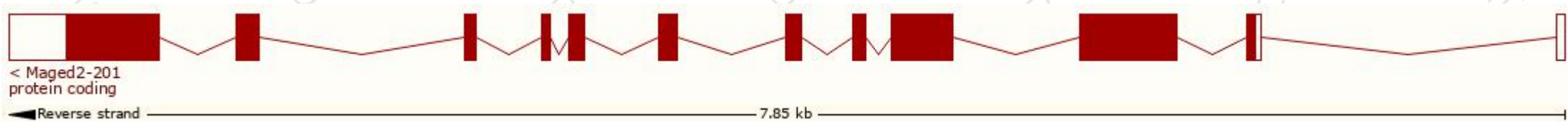
Official Symbol	Maged2 provided by MGI
Official Full Name	melanoma antigen, family D, 2 provided by MGI
Primary source	MGI:MGI:1933391
See related	Ensembl:ENSMUSG00000025268
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4833439A22Rik, Mage-d2, ORF1
Expression	Broad expression in limb E14.5 (RPKM 115.6), placenta adult (RPKM 69.2) and 21 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

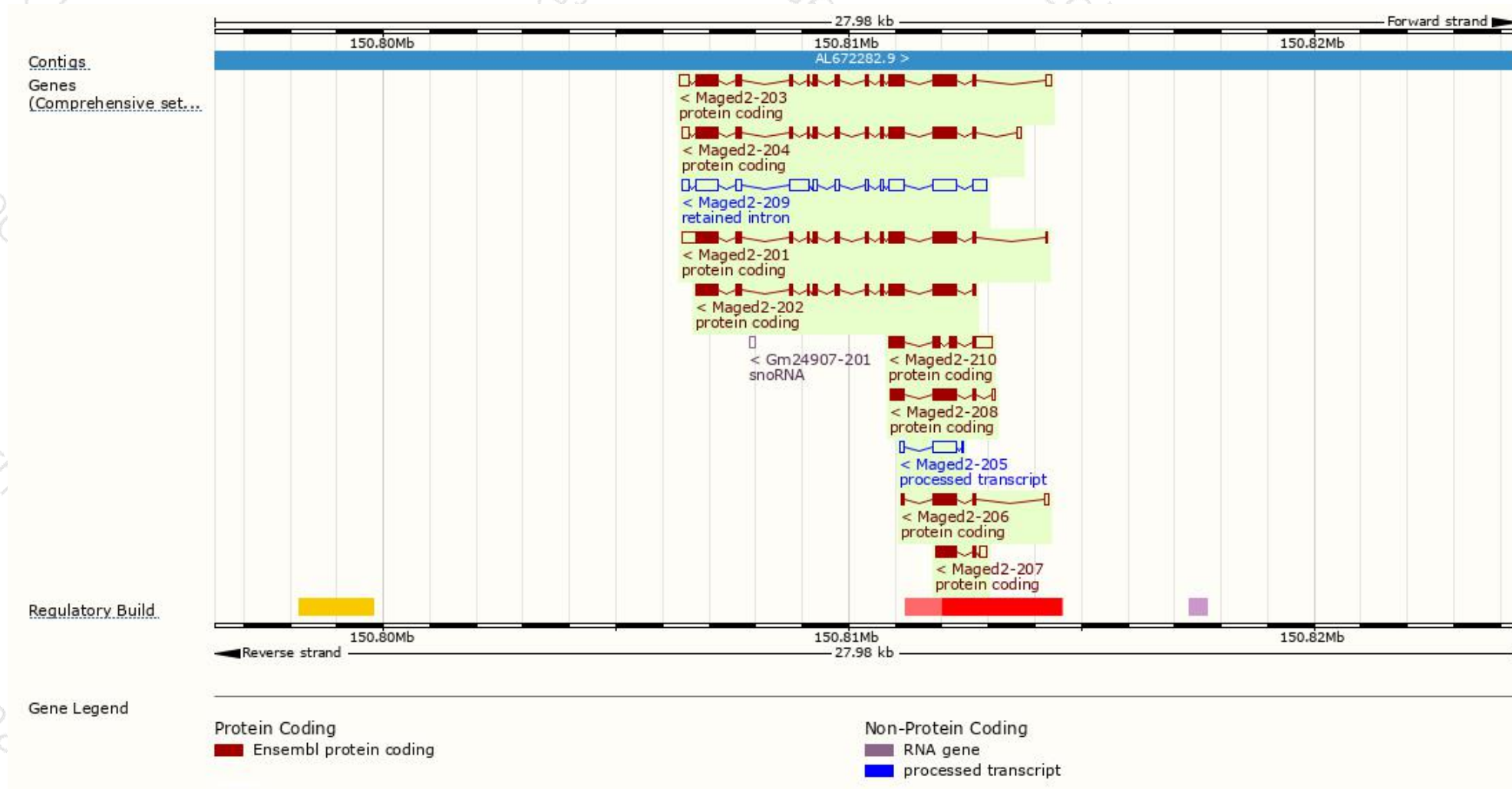
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Maged2-201	ENSMUST00000026302.12	2207	616aa	Protein coding	CCDS30466	Q9ER67	TSL:5 GENCODE basic APPRIS P1
Maged2-203	ENSMUST00000112699.8	2183	616aa	Protein coding	CCDS30466	Q9ER67	TSL:1 GENCODE basic APPRIS P1
Maged2-204	ENSMUST00000112700.7	2107	616aa	Protein coding	CCDS30466	Q9ER67	TSL:1 GENCODE basic APPRIS P1
Maged2-202	ENSMUST00000112697.9	1851	616aa	Protein coding	CCDS30466	Q9ER67	TSL:1 GENCODE basic APPRIS P1
Maged2-210	ENSMUST00000147152.2	1002	213aa	Protein coding	-	A2AG47	CDS 3' incomplete TSL:5
Maged2-208	ENSMUST00000143843.7	933	276aa	Protein coding	-	A2AG46	CDS 3' incomplete TSL:3
Maged2-206	ENSMUST00000129768.7	684	194aa	Protein coding	-	A2AG48	CDS 3' incomplete TSL:5
Maged2-207	ENSMUST00000131241.1	645	161aa	Protein coding	-	A2AG49	CDS 3' incomplete TSL:2
Maged2-205	ENSMUST00000124537.1	615	No protein	Processed transcript	-	-	TSL:5
Maged2-209	ENSMUST00000145342.7	2572	No protein	Retained intron	-	-	TSL:2

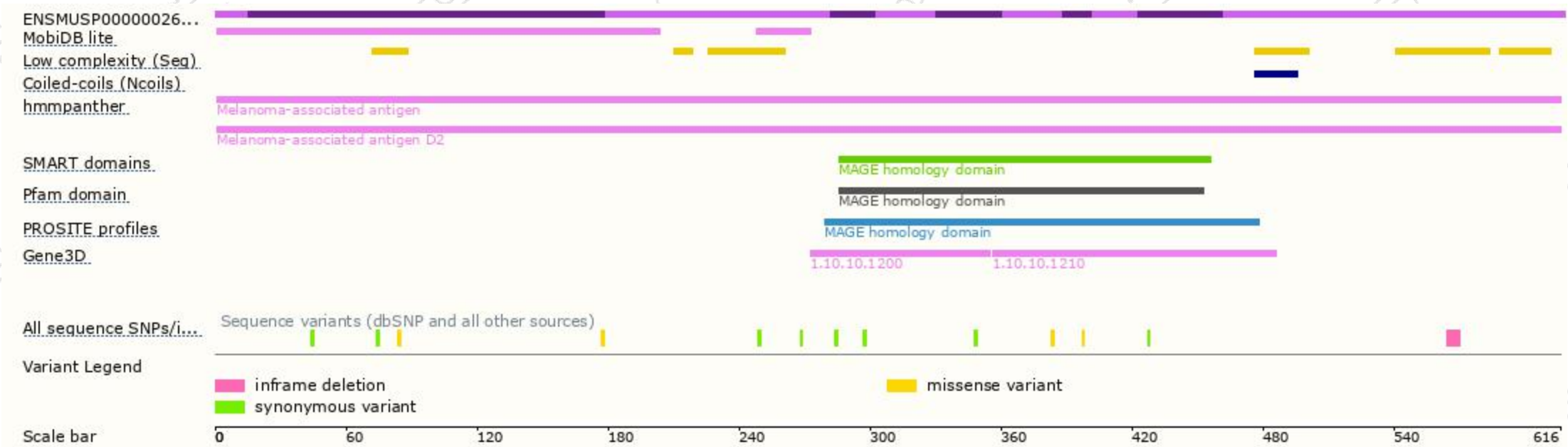
The strategy is based on the design of *Maged2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

