S100a8 Cas9-KO *Strategy*

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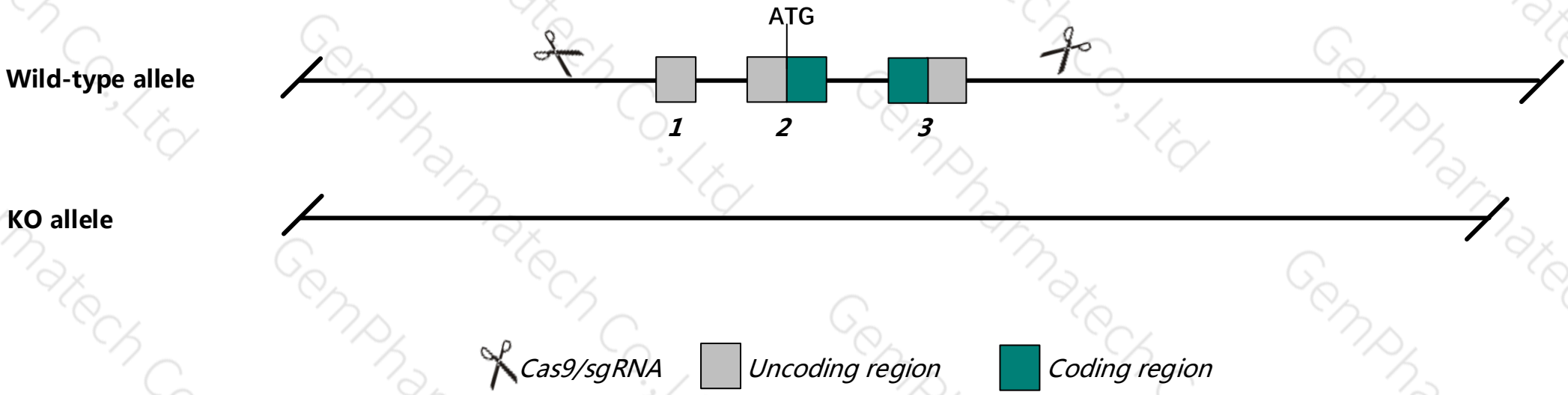
Project Overview

Project Name	*S100a8*
Project type	Cas9-KO
Animal background	C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *S100a8* gene. The schematic diagram is as follows:



Technical routes

- The *S100a8* gene has 2 transcripts, According to the structure of *S100a8* gene, exon1-exon3 of *S100a8-201* transcript is recommended as the knockout region.The region contains the all of coding seqence.Knock out the region,result in destruction of protein.

- This project uses CRISPR/Cas9 technology to modify *S100a8* gene. The brief process is as follows: sgRNA was transcribed in vitro, Cas9, sgRNA were microinjected into fertilized eggs of C57BL/6JGpt mice and homologous recombination was carried out to obtain F0 mice. A stable and hereditary F1 generation mouse model was obtained by mating F0 generation mice with C57BL/6JGpt mice which were confirmed positive by PCR-sequencing.

Notice

- According to the existing MGI data，Homozygous disruption of this gene results in complete embryonic lethality. The exact timing of lethality varies between alleles.

- The *S100a8* gene is located in the Chr3. If the knockout mice are mixed with other mice, two target genes are avoided on the same chromosome as possible, otherwise the offspring of mice with double gene positive and homozygous gene knockout can not be obtained.

- 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）

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S100a8 S100 calcium binding protein A8 (calgranulin A) [*Mus musculus* (house mouse)]

Gene ID: 20201, updated on 19-Mar-2019

Summary

Official Symbol	S100a8 provided by MGI
Official Full Name	S100 calcium binding protein A8 (calgranulin A) provided by MGI
Primary source	MGI:MGI:88244
See related	Ensembl:ENSMUSG00000056054
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	p8; B8Ag; CFAg; Caga; MRP8; CP-10; 60B8Ag; AI323541
Expression	Biased expression in liver E18 (RPKM 1430.9), liver E14 (RPKM 237.0) and 1 other tissue See more
Orthologs	human all

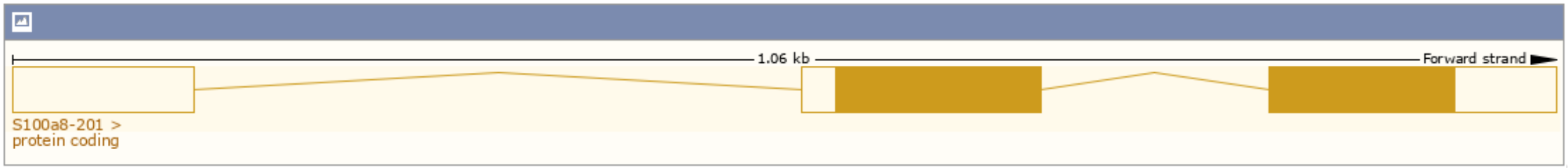
Transcript information （Ensembl）

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

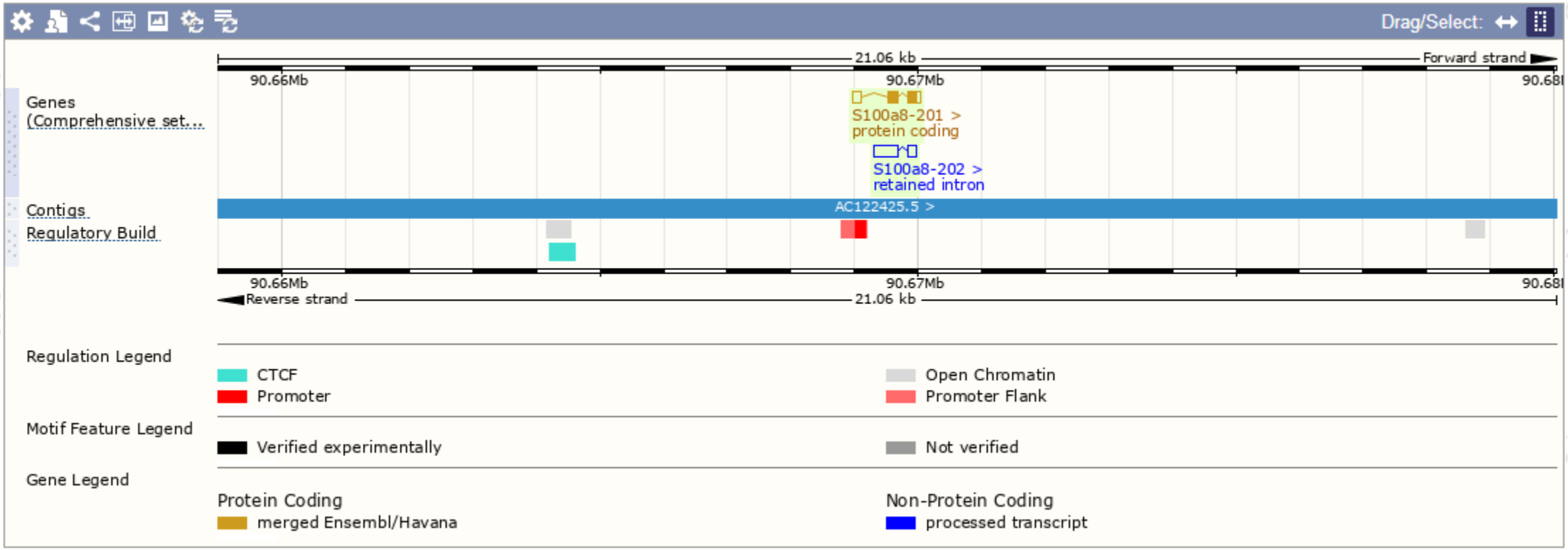
Show/hide columns (1 hidden) Filter

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
S100a8-201	ENSMUST00000069927.9	486	89aa	Protein coding	CCDS38507	P27005 Q53X15	TSL:1 GENCODE basic APPRIS P1
S100a8-202	ENSMUST00000198156.1	498	No protein	Retained intron	-	-	TSL:1

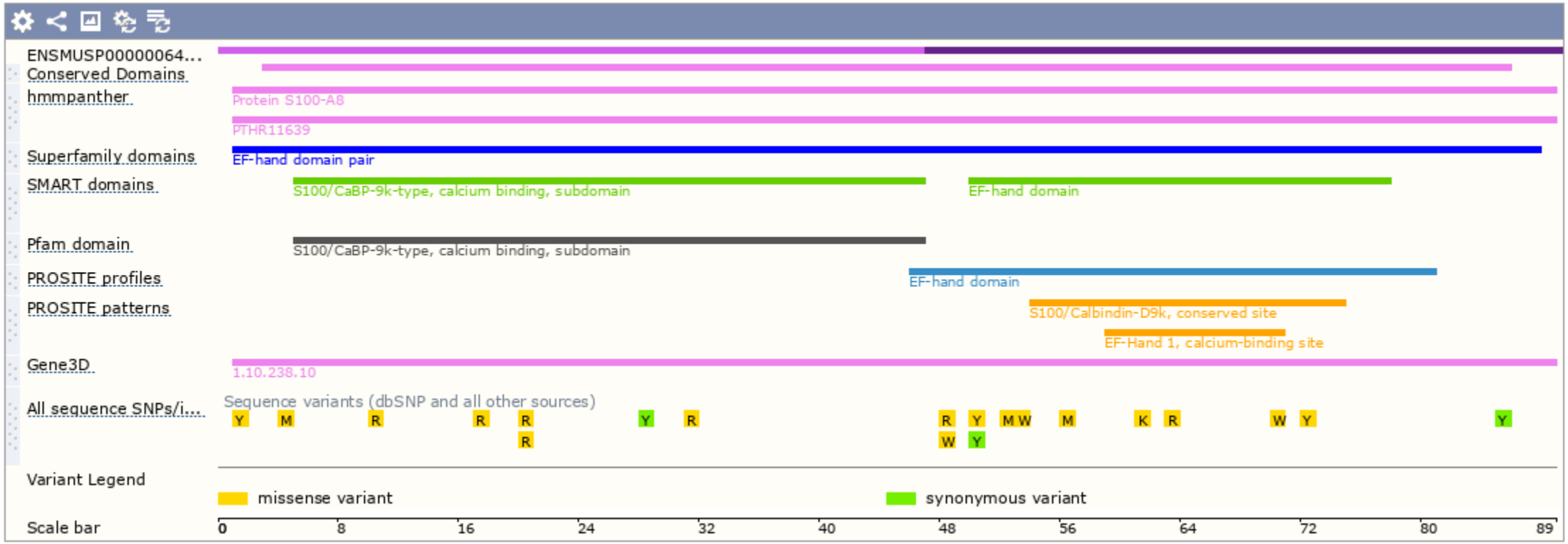
The strategy is based on the design of *S100a8-201* transcript,The transcription is shown below：



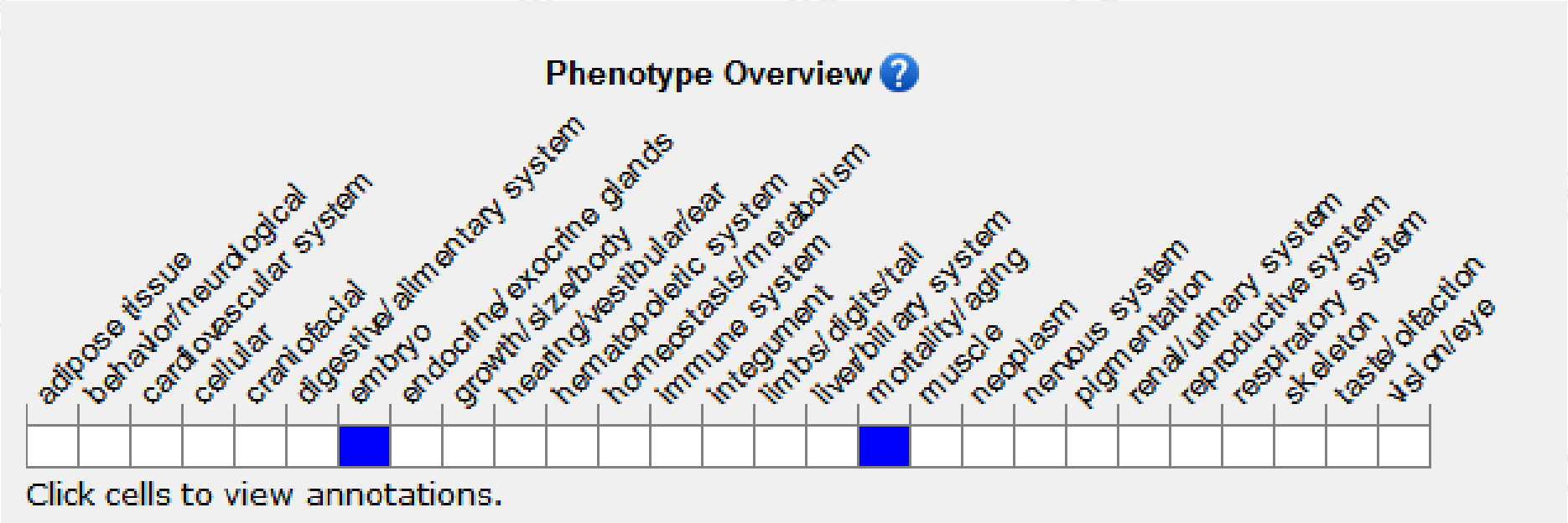
Genomic location distribution



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,Homozygous disruption of this gene results in complete embryonic lethality.

The exact timing of lethality varies between alleles.

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