Rpsa Cas9-KO *Strategy*

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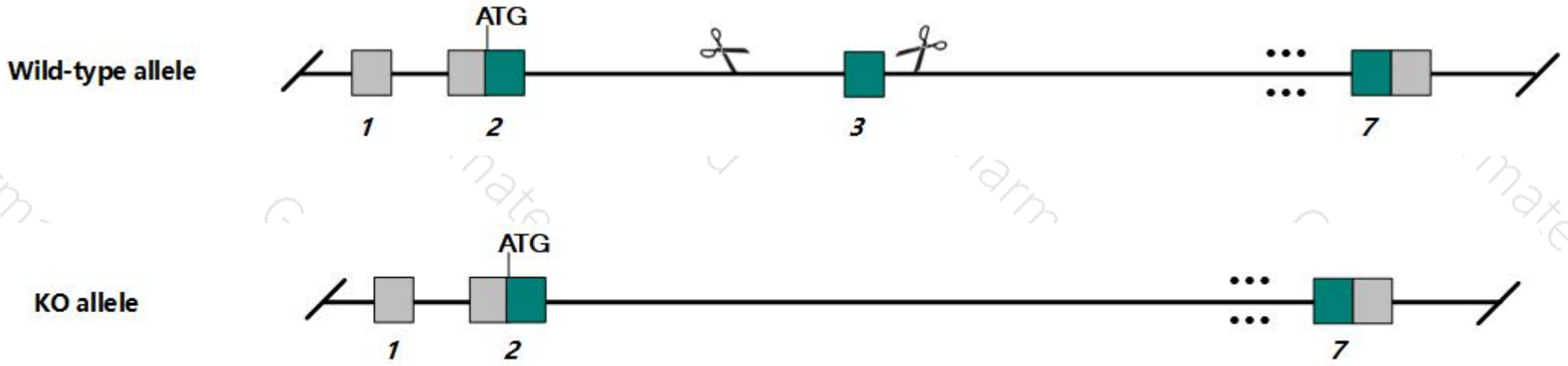
Project Overview

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

Conditional Knockout strategy

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



Technical routes

- The *Rpsa* gene has 6 transcript. According to the structure of *Rpsa* gene, exon3 of *Rpsa*-201 transcript is recommended as the knockout region.The region contains coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Rpsa* gene. The brief process is as follows: gRNA was transcribed in vitro.Cas9, gRNA 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.

Notice

- According to the existing MGI data，Spontaneous mutants show right ventricular cardiomyocyte degeneration and higher susceptibility to arrhythmia. Homozygous null mice fail to develop past E3.5; heterozygotes show craniofacial defects, low mean corpuscular hemoglobin concentration and reduced insulin content in pancreatic islet cells.
- The KO region contains functional region of the *GM24044,GM26448* gene.Knockout the region may affect the function of *GM24044,GM26448* gene.
- The *Rpsa* gene is located on the Chr*. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

集萃药康 GemPharmatech

Rpsa ribosomal protein SA [*Mus musculus* (house mouse)]

Gene ID: 16785, updated on 8-Dec-2018

Summary

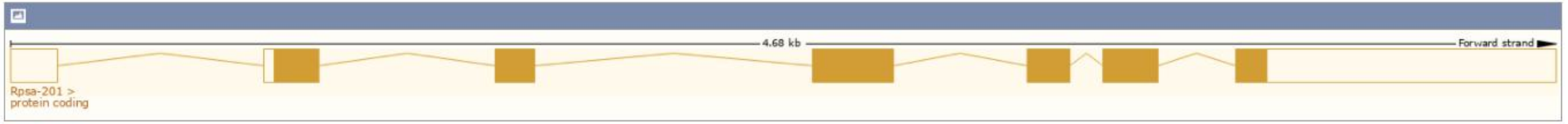
Official Symbol	Rpsa provided by MGI
Official Full Name	ribosomal protein SA provided by MGI
Primary source	MGI:MGI:105381
See related	Ensembl:ENSMUSG00000032518
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	MLR; P40; 67lr; Lamr; 67kDa; Lamr1; P40-3; P40-8; Lamrl1; AL022858
Expression	Ubiquitous expression in ovary adult (RPKM 874.9), thymus adult (RPKM 760.4) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

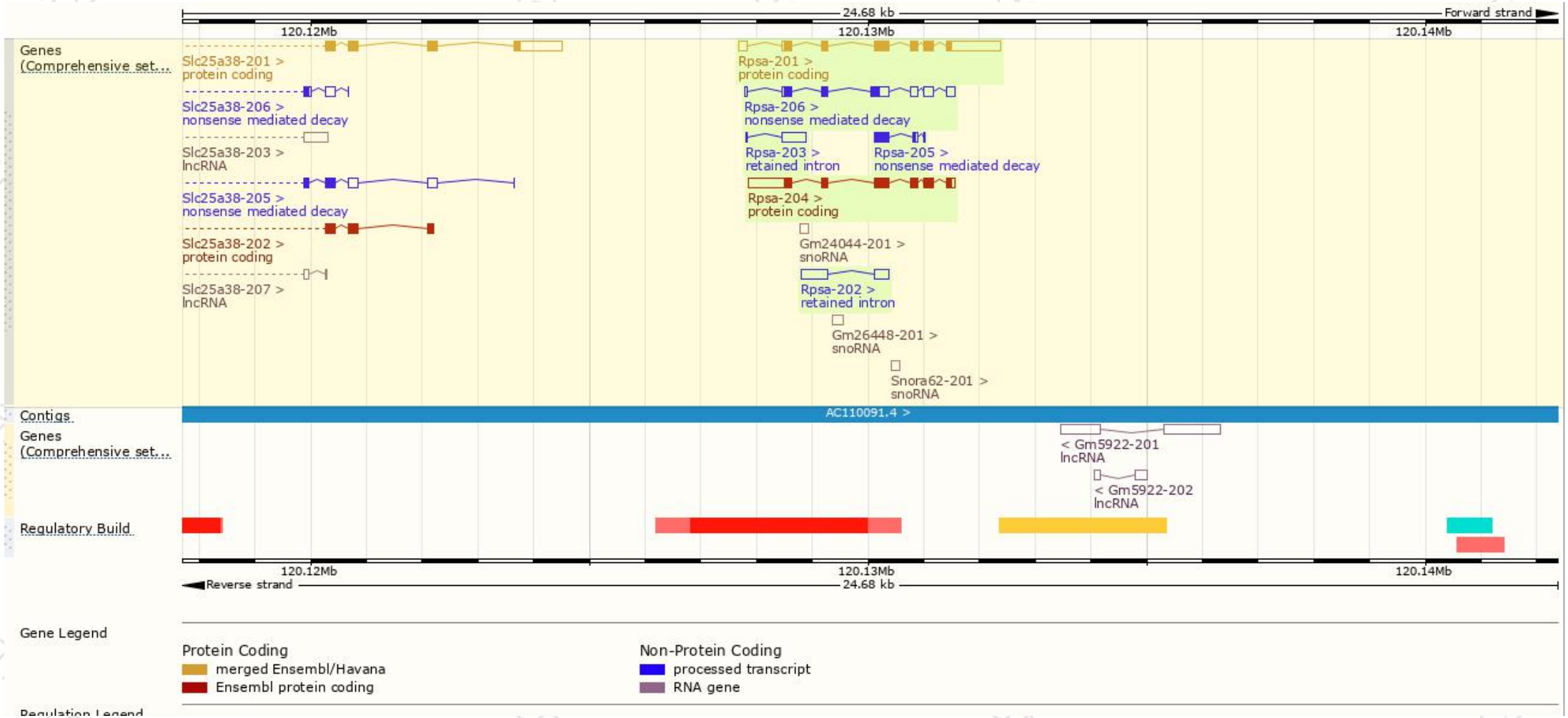
The gene has * transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Rpsa-201	ENSMUST00000035105.6	1938	295aa	Protein coding	CCDS23623	P14206	NM_011029 NP_035159	TSL:1 GENCODE basic APPRIS P1
Rpsa-202	ENSMUST00000215568.1	728	No protein	Retained intron	-	-	-	TSL:1
Rpsa-203	ENSMUST00000216813.1	461	No protein	Retained intron	-	-	-	TSL:2
Rpsa-204	ENSMUST00000217317.1	1599	295aa	Protein coding	CCDS23623	P14206	-	TSL:1 GENCODE basic APPRIS P1
Rpsa-205	ENSMUST00000217352.1	347	93aa	Nonsense mediated decay	-	A0A1L1SRW0	-	CDS 5' incomplete TSL:3
Rpsa-206	ENSMUST00000217356.1	1101	133aa	Nonsense mediated decay	-	A0A1L1SUK3	-	TSL:1

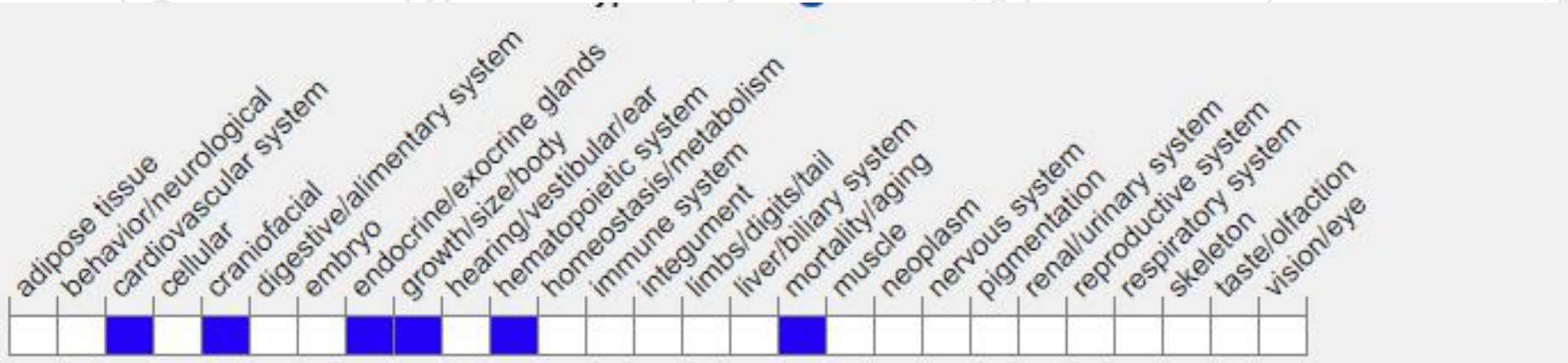
The strategy is based on the design of *Rpsa*-201 transcript,The transcription is shown below



Genomic location distribution



Mouse phenotype description(MGI)



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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