Mrps6 Cas9-CKO Strategy

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Project Overview

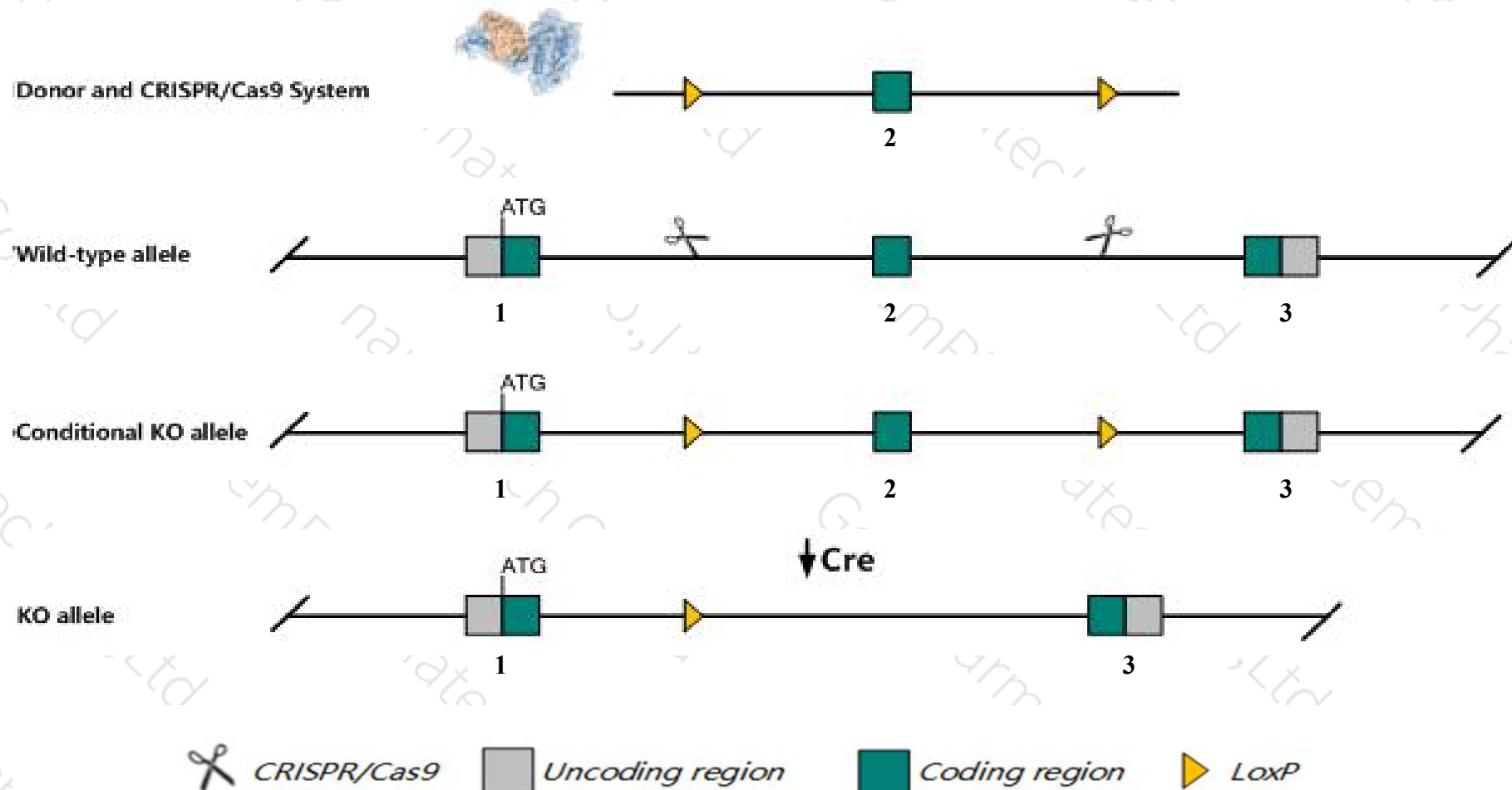|	
Project Name	*Mrps6*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mrps6* gene. The schematic diagram is as follows:

➢ The *Mrps6* gene has 3 transcripts. According to the structure of *Mrps6* gene, exon2 of *Mrps6-201* (ENSMUST00000047429.8) transcript is recommended as the knockout region.The region contains Ens 140bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Mrps6* gene. The brief process is as follows:CRISPR/Cas9 system 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 *Mrps6* gene is located on the Chr16. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

Mrps6 mitochondrial ribosomal protein S6 [Mus musculus (house mouse)]

Gene ID: 121022, updated on 13-Mar-2020

▲ Summary

|	
Official Symbol	Mrps6 provided by MGI
Official Full Name	mitochondrial ribosomal protein S6 provided by MGI
Primary source	MGI:MGI:2153111
See related	Ensembl:ENSMUSG00000039680
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW046321
Expression	Ubiquitous expression in genital fat pad adult (RPKM 60.3), placenta adult (RPKM 42.8) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

The gene has 3 transcripts,all transcripts are shown below:

| Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mrps6-201	ENSMUST00000047429.8	846	125aa	Protein coding	CCDS28332	P58064 Q3TLQ4	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Mrps6-203	ENSMUST00000232222.1	1115	No protein	Processed transcript	-	-	
Mrps6-202	ENSMUST00000138961.1	702	No protein	Processed transcript	-	-	TSL:2

The strategy is based on the design of *Mrps6-201* transcript,the transcription is shown below:
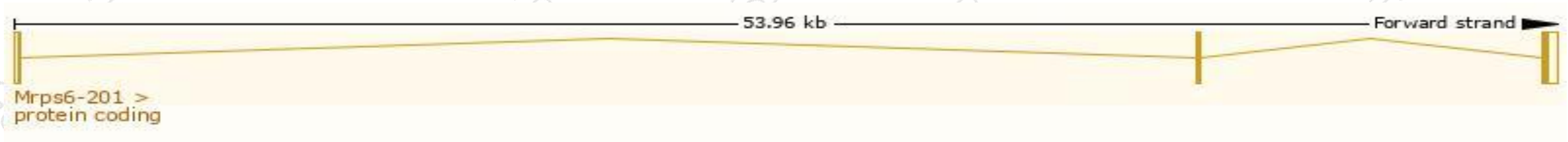
Genomic location distribution
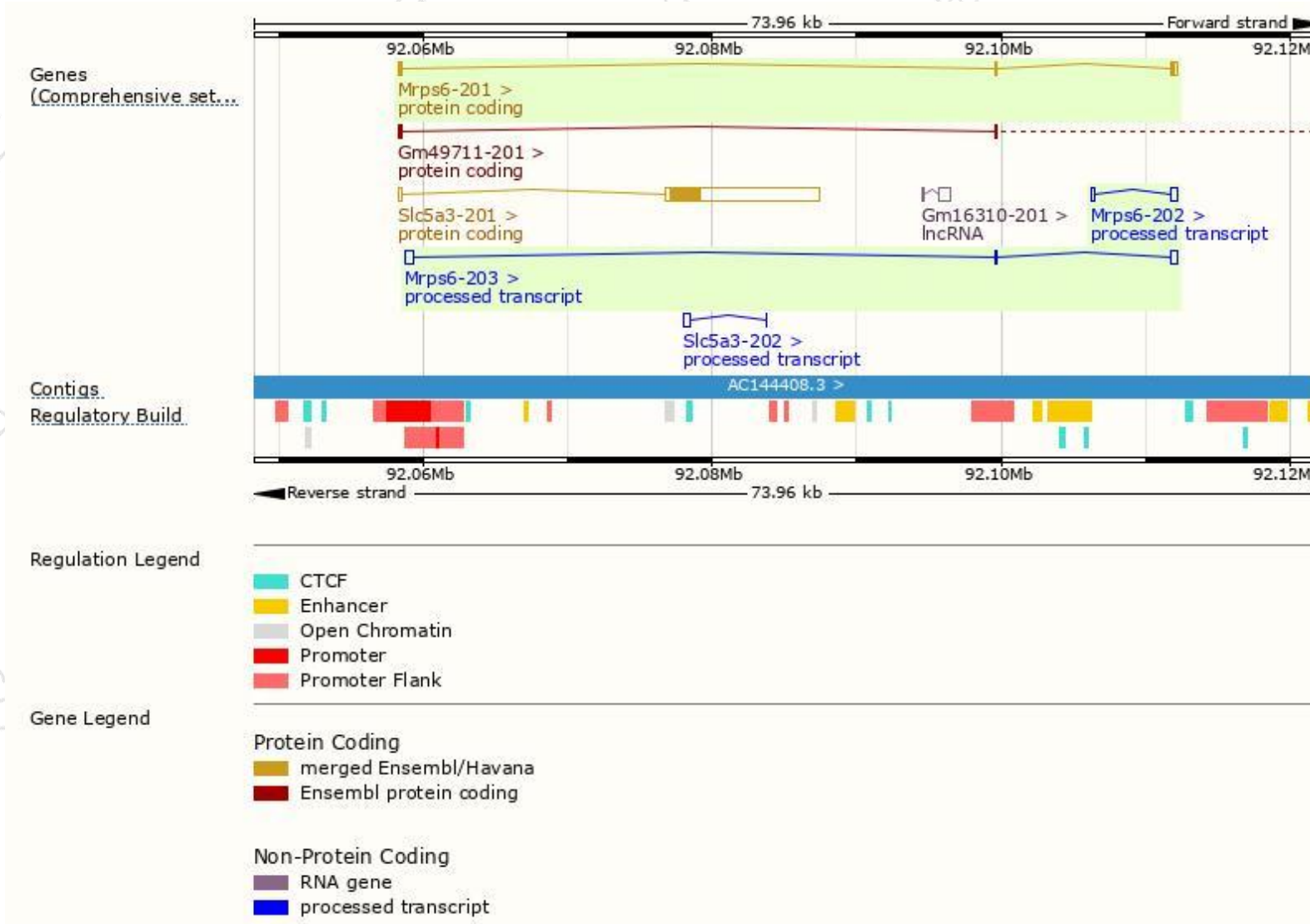
Protein domain
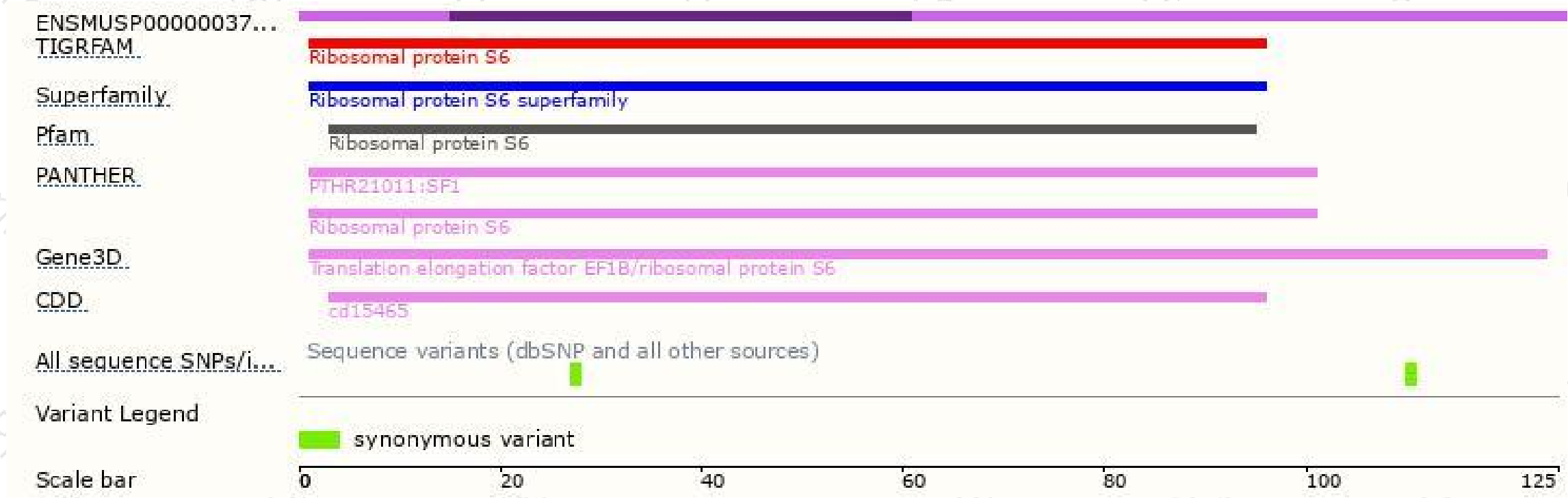
If you have any questions, you are welcome to inquire.
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