

Cpsf3 Cas9-CKO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Cpsf3

Project type

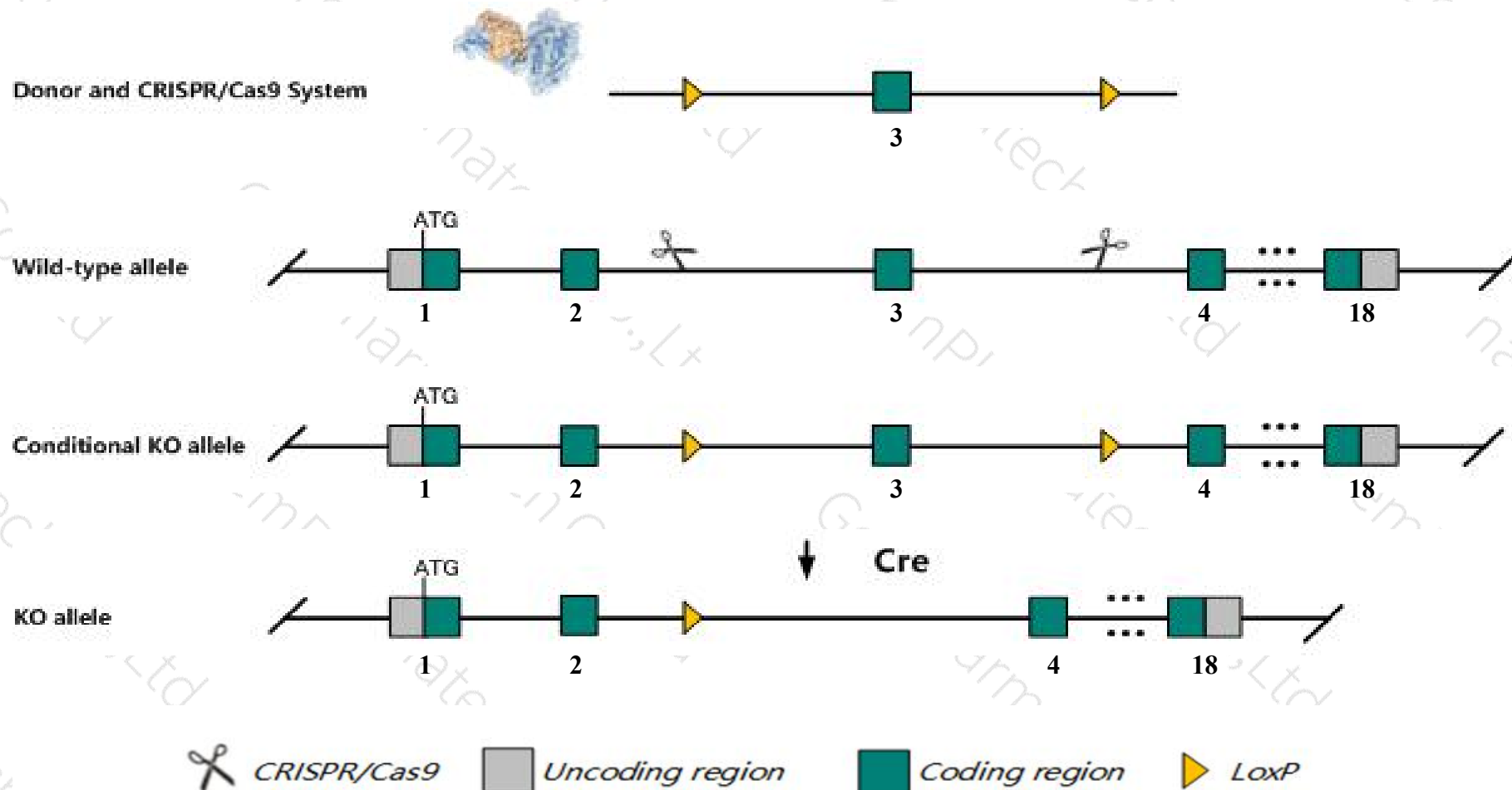
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cpsf3* gene. The schematic diagram is as follows:



- The *Cpsf3* gene has 11 transcripts. According to the structure of *Cpsf3* gene, exon3 of *Cpsf3-201* (ENSMUST00000067284.9) transcript is recommended as the knockout region. The region contains 98bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cpsf3* 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 *Cpsf3* gene is located on the Chr12. 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.
- Transcript *Cpsf3-207,209* may not be affected.
- 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)

Cpsf3 cleavage and polyadenylation specificity factor 3 [Mus musculus (house mouse)]

Gene ID: 54451, updated on 31-Jan-2019

Summary



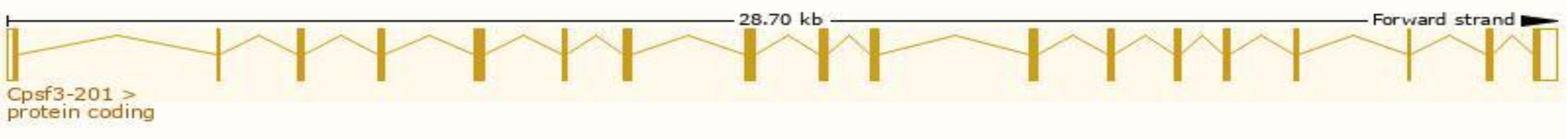
Official Symbol	Cpsf3 provided by MGI
Official Full Name	cleavage and polyadenylation specificity factor 3 provided by MGI
Primary source	MGI:MGI:1859328
See related	Ensembl:ENSMUSG00000054309
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Ubiquitous expression in CNS E11.5 (RPKM 20.1), CNS E14 (RPKM 16.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

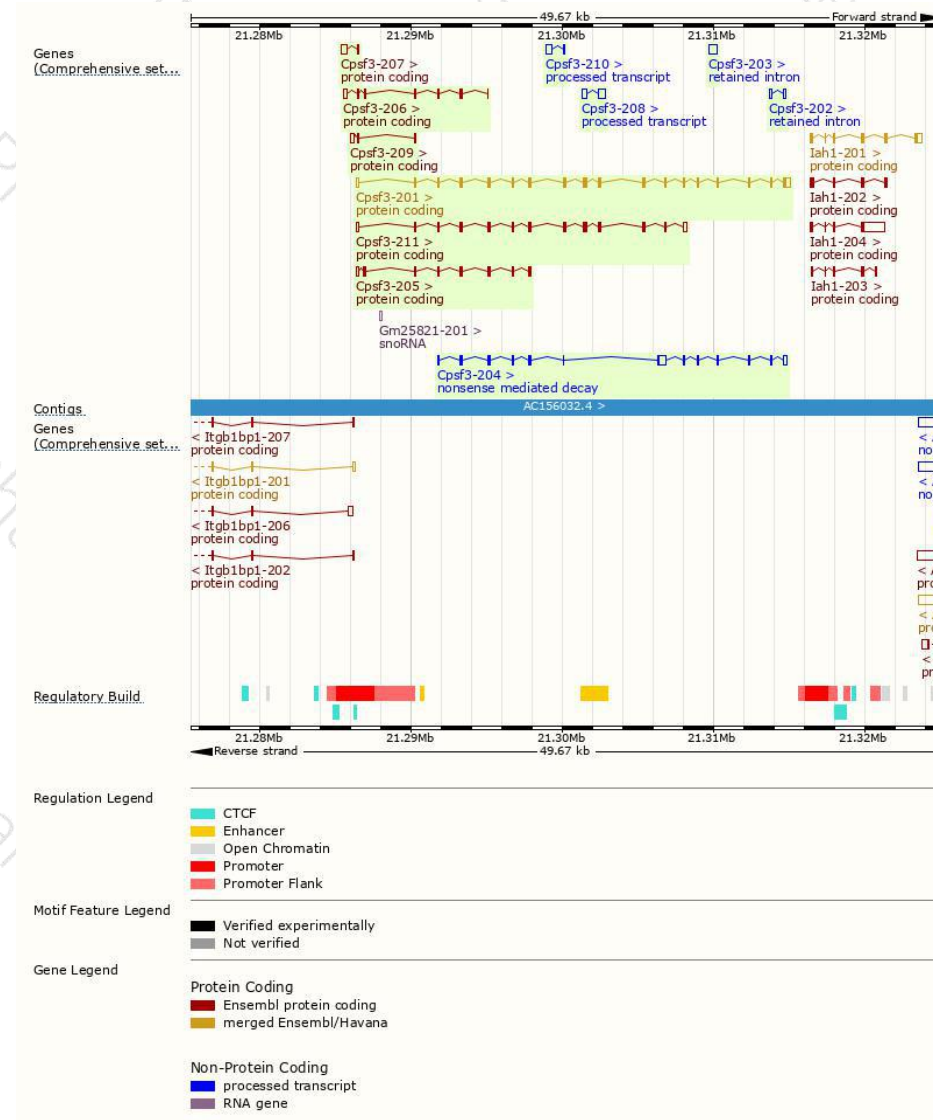
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cpsf3-201	ENSMUST00000067284.9	2499	684aa	Protein coding	CCDS25834	Q9QXK7	TSL:1 GENCODE basic APPRIS P1
Cpsf3-211	ENSMUST00000222968.1	1858	512aa	Protein coding	-	A0A1Y7VLY3	TSL:1 GENCODE basic
Cpsf3-205	ENSMUST00000221145.1	1001	247aa	Protein coding	-	A0A1Y7VJ97	CDS 3' incomplete TSL:5
Cpsf3-206	ENSMUST00000221507.1	724	156aa	Protein coding	-	A0A1Y7VJU9	CDS 3' incomplete TSL:3
Cpsf3-207	ENSMUST00000221711.1	416	15aa	Protein coding	-	A0A1Y7VJV9	CDS 3' incomplete TSL:3
Cpsf3-209	ENSMUST00000222474.1	336	28aa	Protein coding	-	A0A1Y7VNI9	CDS 3' incomplete TSL:3
Cpsf3-204	ENSMUST00000221042.1	1892	241aa	Nonsense mediated decay	-	A0A1Y7VIZ9	CDS 5' incomplete TSL:1
Cpsf3-208	ENSMUST00000221992.1	780	No protein	Processed transcript	-	-	TSL:3
Cpsf3-210	ENSMUST00000222883.1	496	No protein	Processed transcript	-	-	TSL:3
Cpsf3-203	ENSMUST00000220940.1	554	No protein	Retained intron	-	-	TSL:NA
Cpsf3-202	ENSMUST00000220665.1	253	No protein	Retained intron	-	-	TSL:2

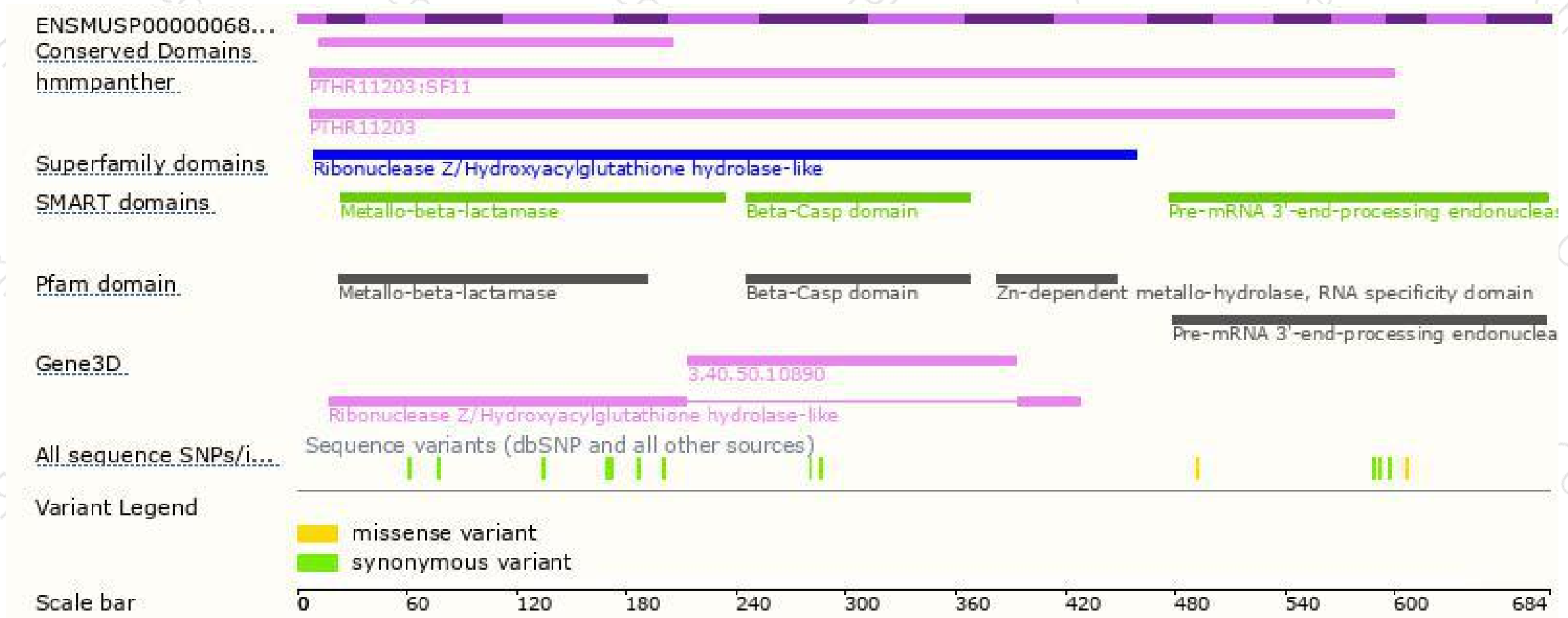
The strategy is based on the design of *Cpsf3-201* transcript,The transcription is shown below



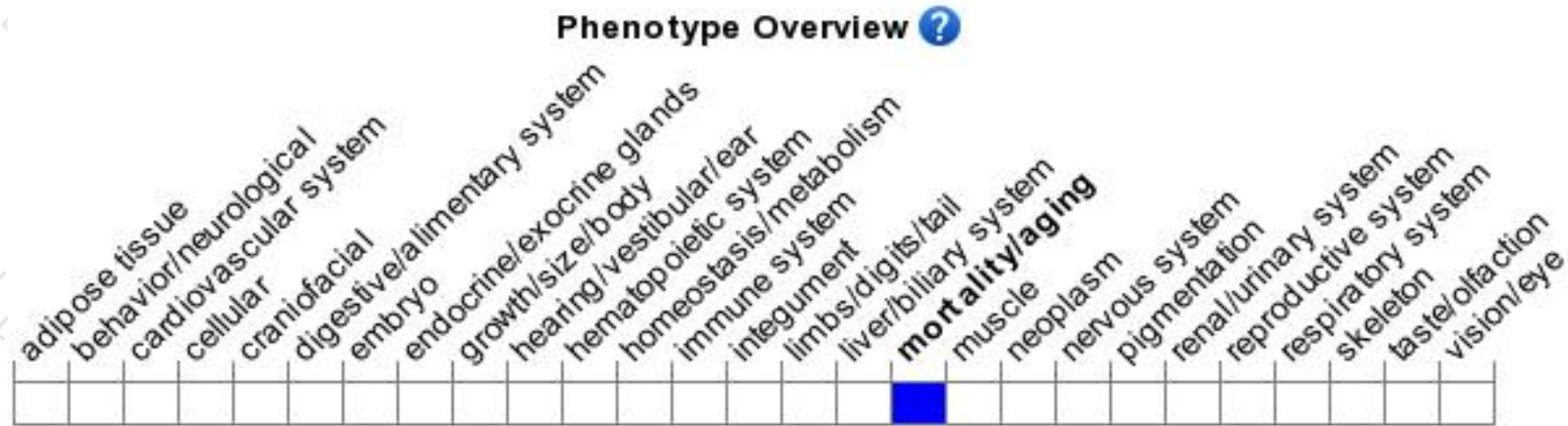
Genomic location distribution



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/>).

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

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