

Cpeb3 Cas9-KO Strategy

Designer:

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Project Overview

Project Name

Cpeb3

Project type

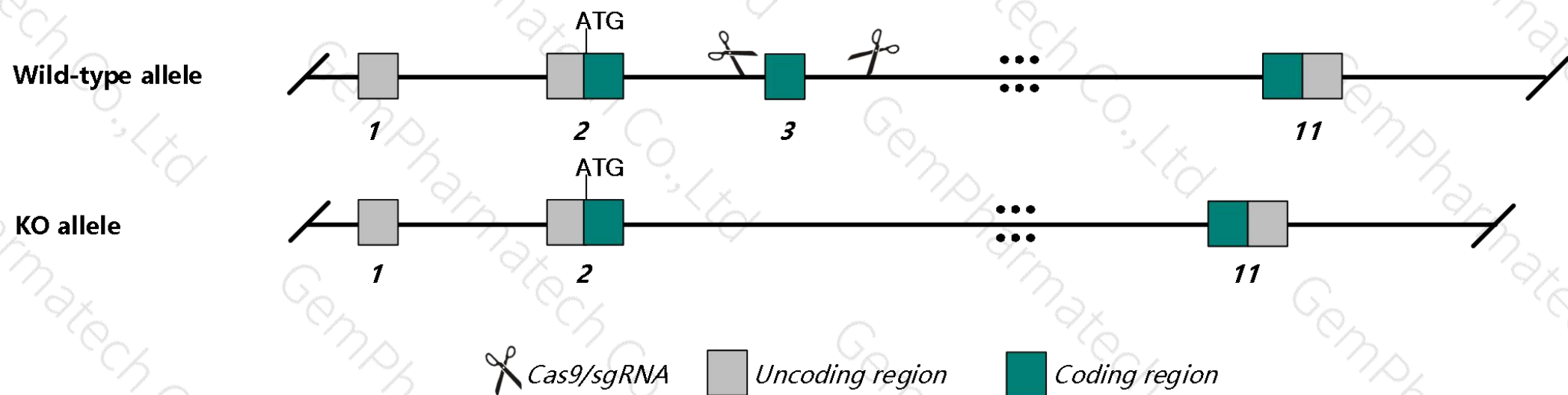
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cpeb3* gene. The schematic diagram is as follows:



Technical routes

- The *Cpeb3* gene has 12 transcripts. According to the structure of *Cpeb3* gene, exon3 of *Cpeb3*-201 transcript is recommended as the knockout region. The region contains 160bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cpeb3* 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.

- Transcript *Cpeb3-206, Cpeb3-207, Cpeb3-209* and *Cpeb3-211* may not be affected.
- The *Cpeb3* gene is located on the Chr19. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Cpeb3 cytoplasmic polyadenylation element binding protein 3 [*Mus musculus* (house mouse)]

Gene ID: 208922, updated on 31-Jan-2019

Summary

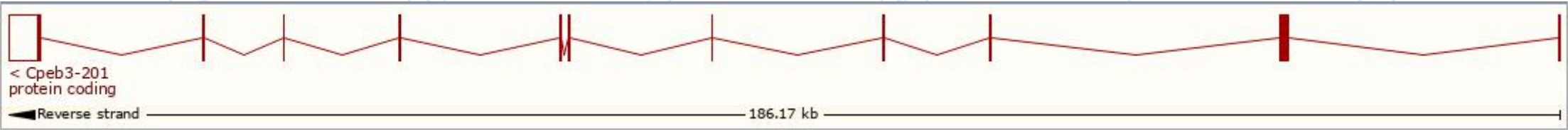
Official Symbol	Cpeb3 provided by MGI
Official Full Name	cytoplasmic polyadenylation element binding protein 3 provided by MGI
Primary source	MGI:MGI:2443075
See related	Ensembl:ENSMUSG00000039652
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<i>Mus musculus</i>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	CPE-BP3; mKIAA0940; 4831444O18Rik
Expression	Broad expression in testis adult (RPKM 7.9), cerebellum adult (RPKM 6.7) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

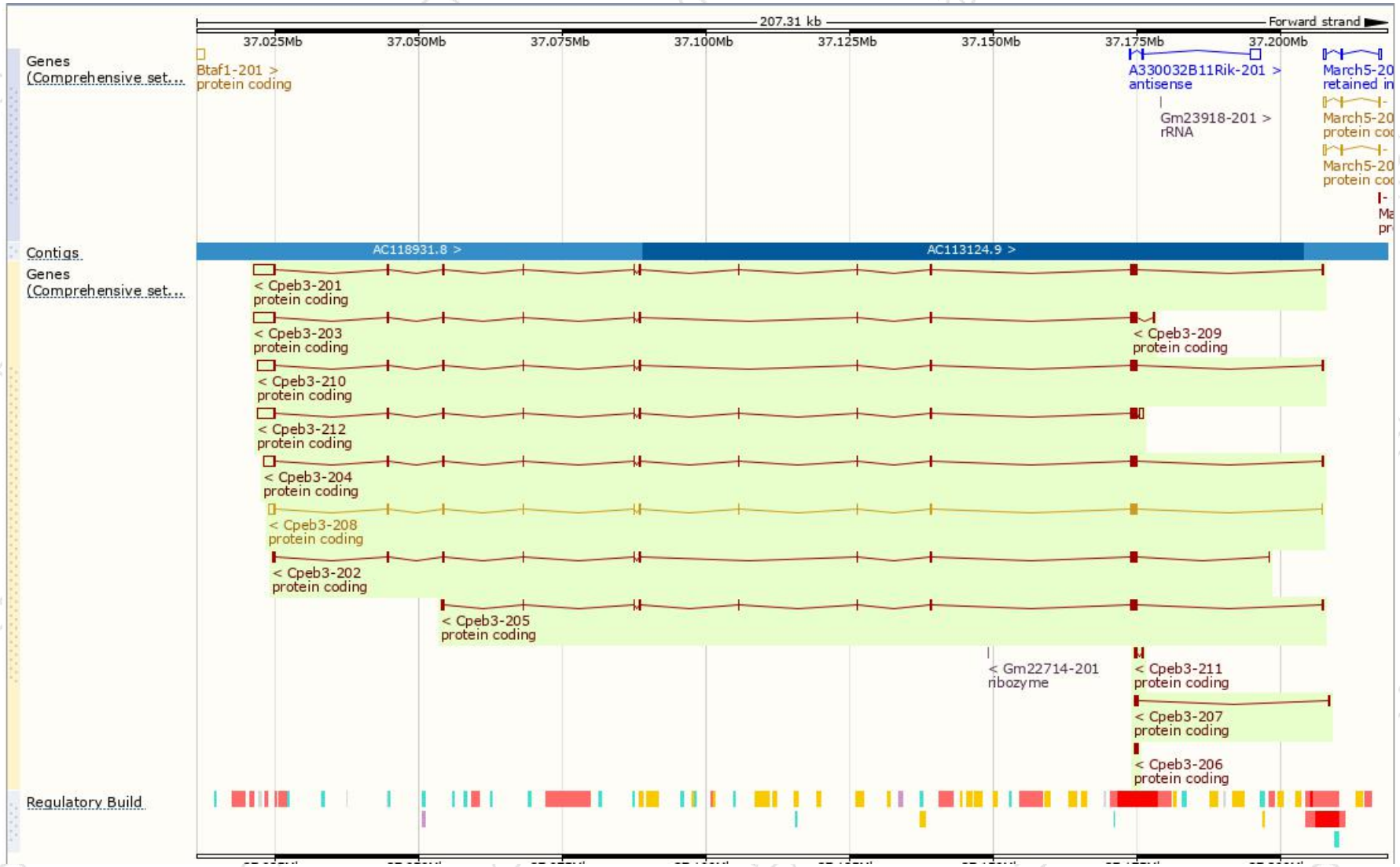
The gene has 12 transcripts, and all transcripts are shown below :

Show/hide columns (1 hidden)							Filter		
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags		
Cpeb3-201	ENSMUST00000079754.10	5899	716aa	Protein coding	CCDS29775	A0A0R4J102	TSL:1	GENCODE basic	APPRIS P3
Cpeb3-212	ENSMUST00000154376.7	5671	716aa	Protein coding	CCDS29775	A0A0R4J102	TSL:1	GENCODE basic	APPRIS P3
Cpeb3-204	ENSMUST00000126188.7	4224	693aa	Protein coding	CCDS70947	Q7TN99	TSL:1	GENCODE basic	APPRIS ALT2
Cpeb3-208	ENSMUST00000132580.7	3148	716aa	Protein coding	CCDS29775	A0A0R4J102	TSL:1	GENCODE basic	APPRIS P3
Cpeb3-202	ENSMUST00000123727.7	2411	685aa	Protein coding	CCDS70946	D3Z1R6	TSL:1	GENCODE basic	APPRIS ALT2
Cpeb3-210	ENSMUST00000136286.7	5260	699aa	Protein coding	-	D3Z5R9	TSL:5	GENCODE basic	APPRIS ALT2
Cpeb3-203	ENSMUST00000124158.7	4811	415aa	Protein coding	-	F6T0J8	CDS 5' incomplete	TSL:5	
Cpeb3-205	ENSMUST00000126781.1	2095	561aa	Protein coding	-	Q7TN99	TSL:1	GENCODE basic	
Cpeb3-207	ENSMUST00000131917.1	665	117aa	Protein coding	-	D3YUL6	CDS 3' incomplete	TSL:3	
Cpeb3-209	ENSMUST00000133988.1	659	179aa	Protein coding	-	D3Z3Z5	CDS 3' incomplete	TSL:3	
Cpeb3-211	ENSMUST00000142973.1	557	127aa	Protein coding	-	D3Z5F3	CDS 3' incomplete	TSL:2	
Cpeb3-206	ENSMUST00000128642.1	450	95aa	Protein coding	-	D3YXB8	CDS 3' incomplete	TSL:3	

The strategy is based on the design of *Cpeb3*-201 transcript, The transcription is shown below



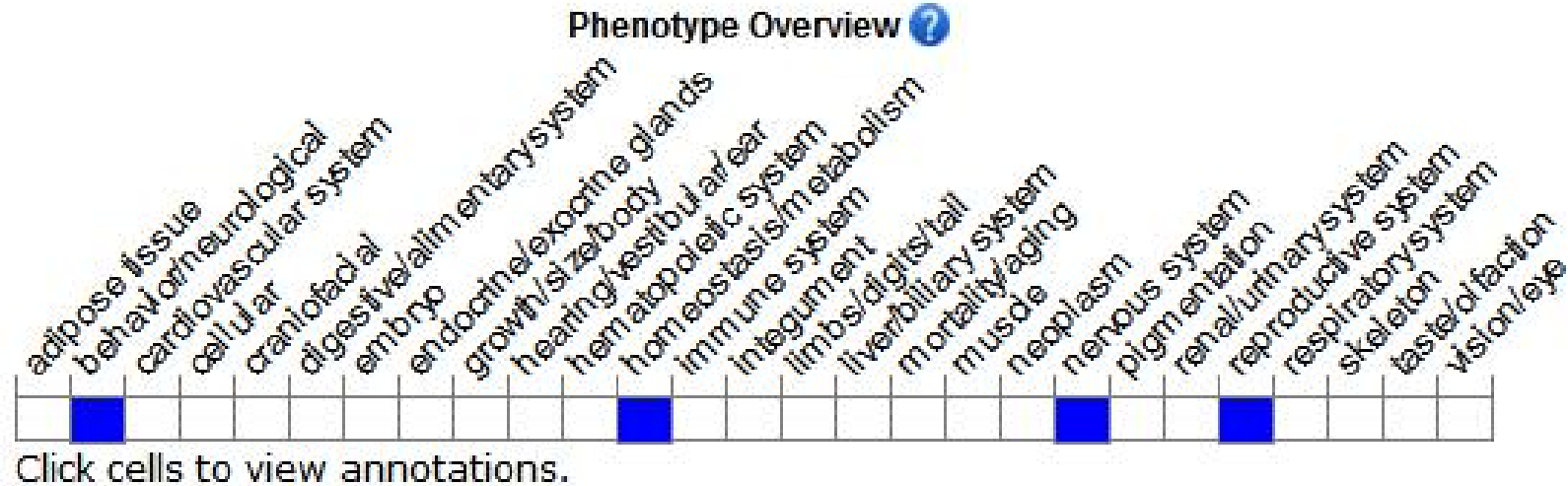
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit reduced female fertility, increased anxiety-related response, enhanced contextual conditioning behavior, abnormal spatial reference memory, hypoactivity and abnormal hippocampus pyramidal cells.

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