Celf4 Cas9-KO Strategy

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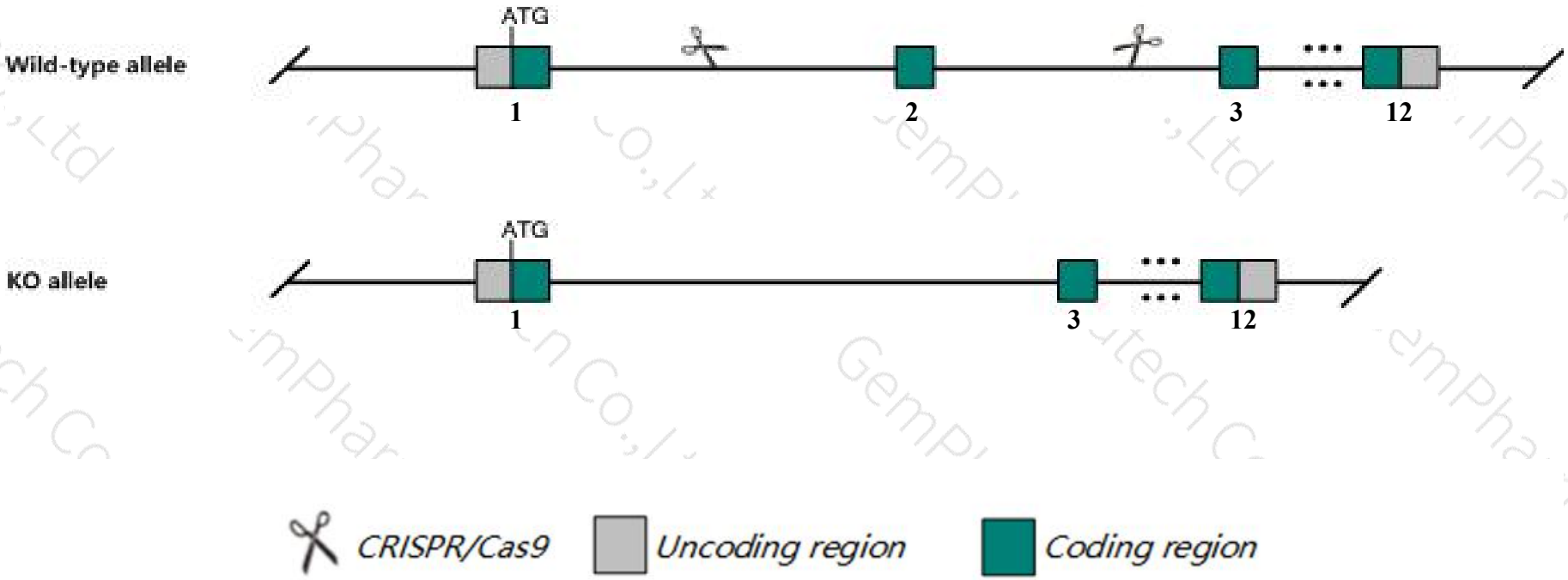
Project Overview

Project Name	***Celf4***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Celf4* gene. The schematic diagram is as follows:



Technical routes

➢ The *Celf4* gene has 10 transcripts. According to the structure of *Celf4* gene, exon2 of *Celf4-202* (ENSMUST00000115816.2) transcript is recommended as the knockout region.The region contains 83bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Celf4* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ According to the existing MGI data,Mice homozygous for a null allele exhibit neonatal lethality, shortened life span dependent on genetic background, and seizures. Mice heterozygous for a null allele exhibit complex seizures and abnormal body weights depending on age.

➢ The *Celf4* gene is located on the Chr18. 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 gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Celf4 CUGBP, Elav-like family member 4 [Mus musculus (house mouse)]

Gene ID: 108013, updated on 31-Jan-2019

Summary

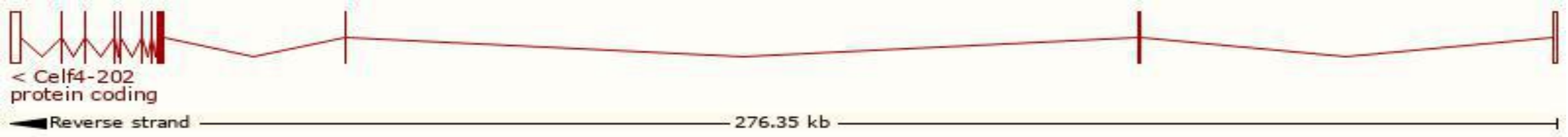
Official Symbol	Celf4 provided by MGI
Official Full Name	CUGBP, Elav-like family member 4 provided by MGI
Primary source	MGI:MGI:1932407
See related	Ensembl:ENSMUSG00000024268
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A230070D14Rik, BRUNOL-4, Brul4, Brunol4, C130060B05Rik
Expression	Biased expression in frontal lobe adult (RPKM 30.6), CNS E18 (RPKM 25.8) and 5 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

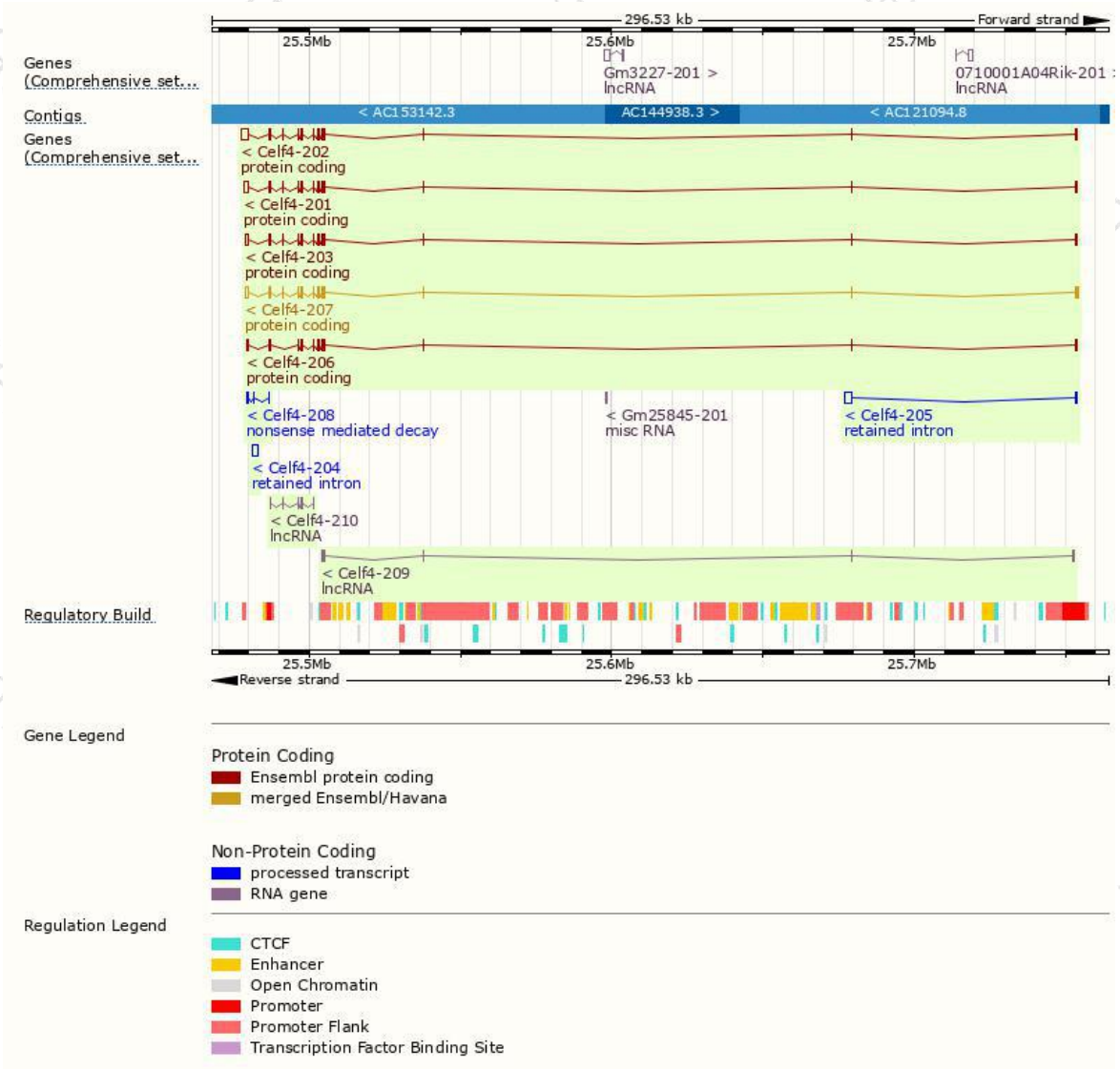
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Celf4-202	ENSMUST00000115816.2	3995	504aa	Protein coding	CCDS50241	Q7TSY6	TSL:1 GENCODE basic APPRIS P2
Celf4-207	ENSMUST00000225477.1	2626	484aa	Protein coding	CCDS29106	Q7TSY6	GENCODE basic
Celf4-201	ENSMUST00000025117.13	2899	495aa	Protein coding	-	Q7TSY6	TSL:1 GENCODE basic APPRIS ALT1
Celf4-203	ENSMUST00000223704.1	2492	485aa	Protein coding	-	Q7TSY6	GENCODE basic
Celf4-206	ENSMUST00000224553.1	1729	456aa	Protein coding	-	Q7TSY6	GENCODE basic
Celf4-208	ENSMUST00000225528.1	413	19aa	Nonsense mediated decay	-	A0A286YE56	CDS 5' incomplete
Celf4-205	ENSMUST00000224143.1	3236	No protein	Retained intron	-	-	
Celf4-204	ENSMUST00000224028.1	1699	No protein	Retained intron	-	-	
Celf4-209	ENSMUST00000225927.1	518	No protein	lncRNA	-	-	
Celf4-210	ENSMUST00000226091.1	324	No protein	lncRNA	-	-	

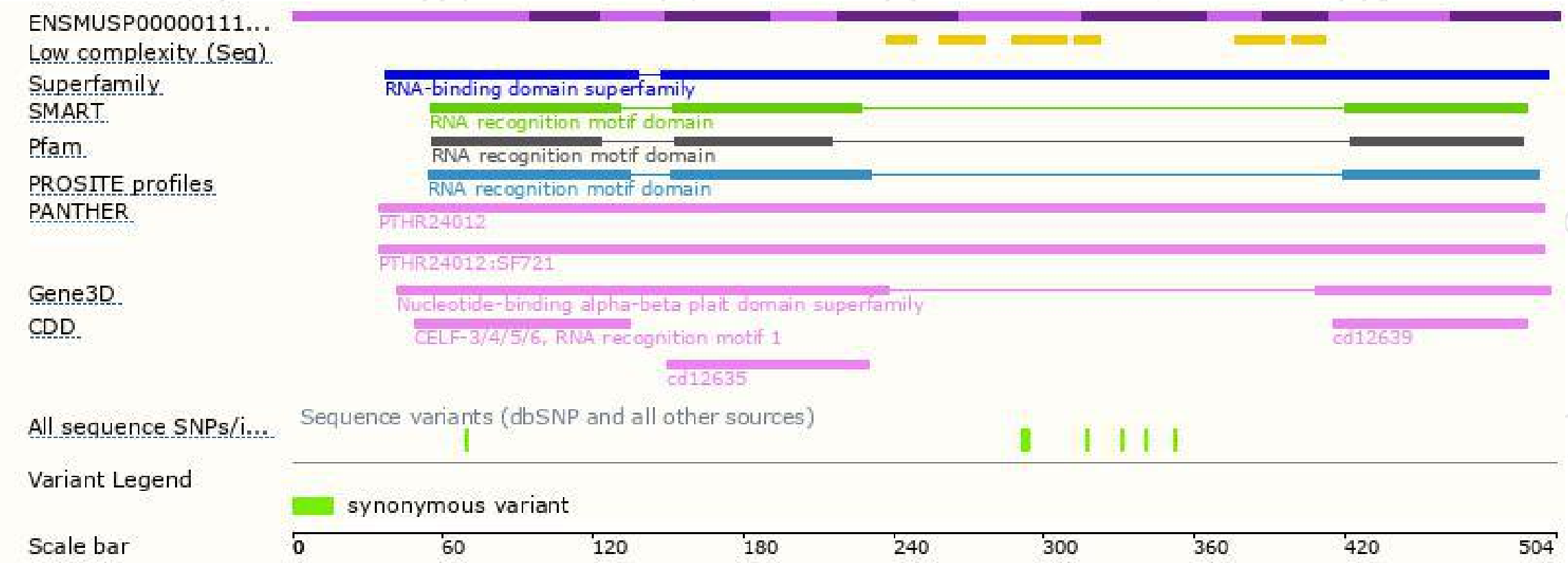
The strategy is based on the design of *Celf4-202* transcript,The transcription is shown below



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/).

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

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