Crebbp Cas9-CKO Strategy

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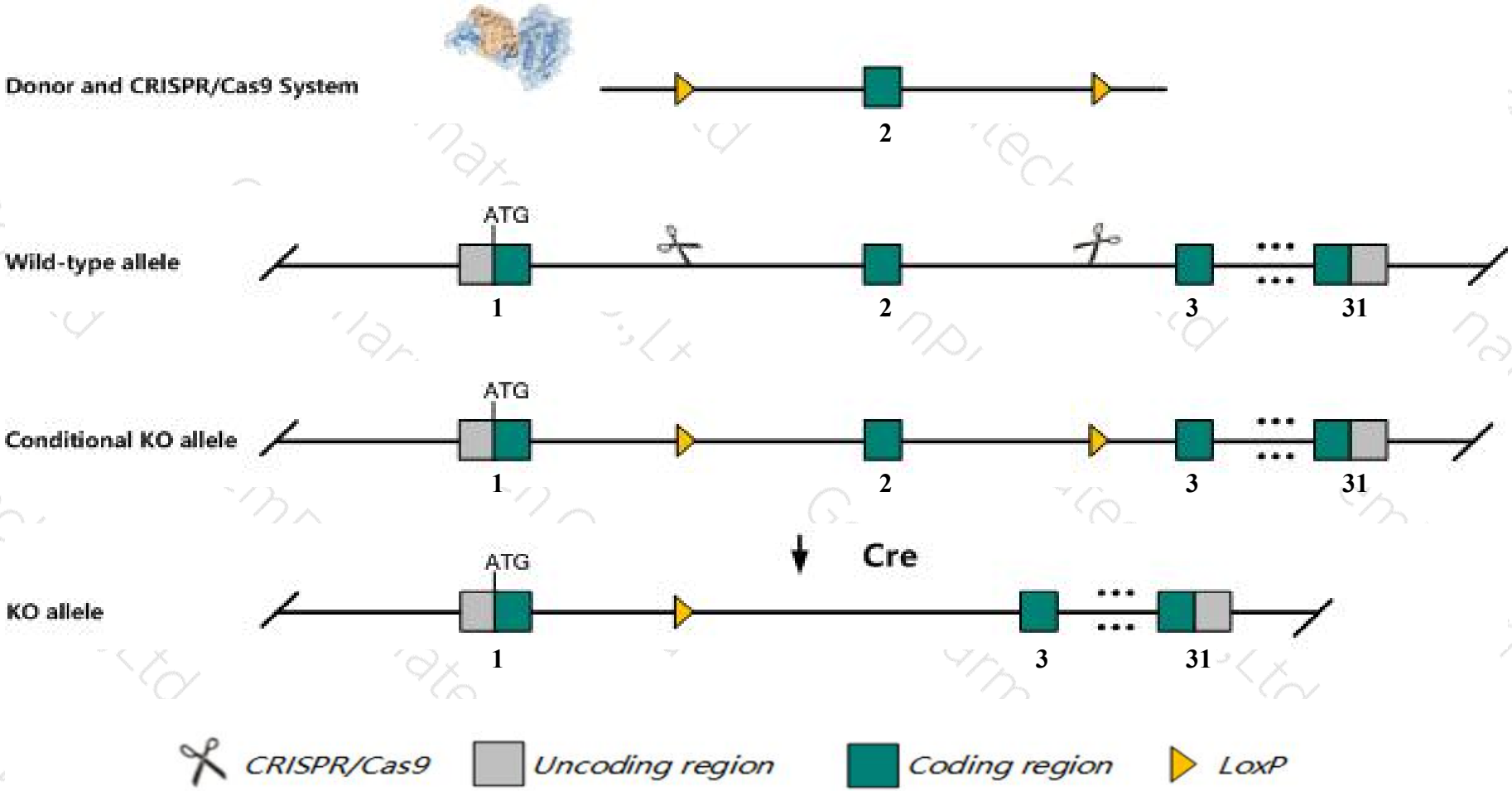
Design Date: 2019-8-5

Project Overview

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

Conditional Knockout strategy

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



Technical routes

- The *Crebbp* gene has 8 transcripts. According to the structure of *Crebbp* gene, exon2 of *Crebbp-201* (ENSMUST00000023165.8) transcript is recommended as the knockout region.The region contains 710bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Crebbp* 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

- According to the existing MGI data,Homozygotes for null or altered alleles die around midgestation with defects in hemopoiesis, blood vessel formation, and neural tube closure. Heterozygotes may exhibit skeletal, cardiac, and hematopoietic defects, retarded growth, and hematologic tumors.

- The *Crebbp* 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）

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Crebbp CREB binding protein [Mus musculus (house mouse)]

Gene ID: 12914, updated on 12-Mar-2019

Summary

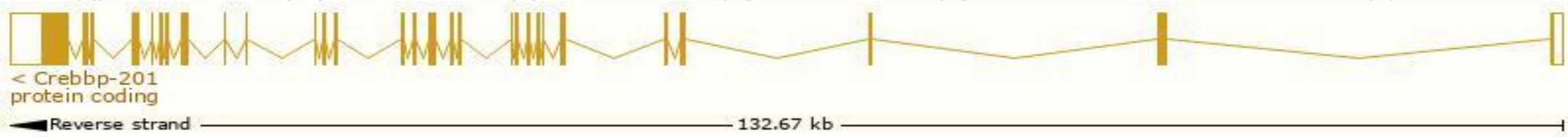
Official Symbol	Crebbp provided by MGI
Official Full Name	CREB binding protein provided byMGI
Primary source	MGI:MGI:1098280
See related	Ensembl:ENSMUSG00000022521
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW558298, CBP, CBP/p300, KAT3A, p300/CBP
Expression	Ubiquitous expression in thymus adult (RPKM 18.7), spleen adult (RPKM 14.3) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

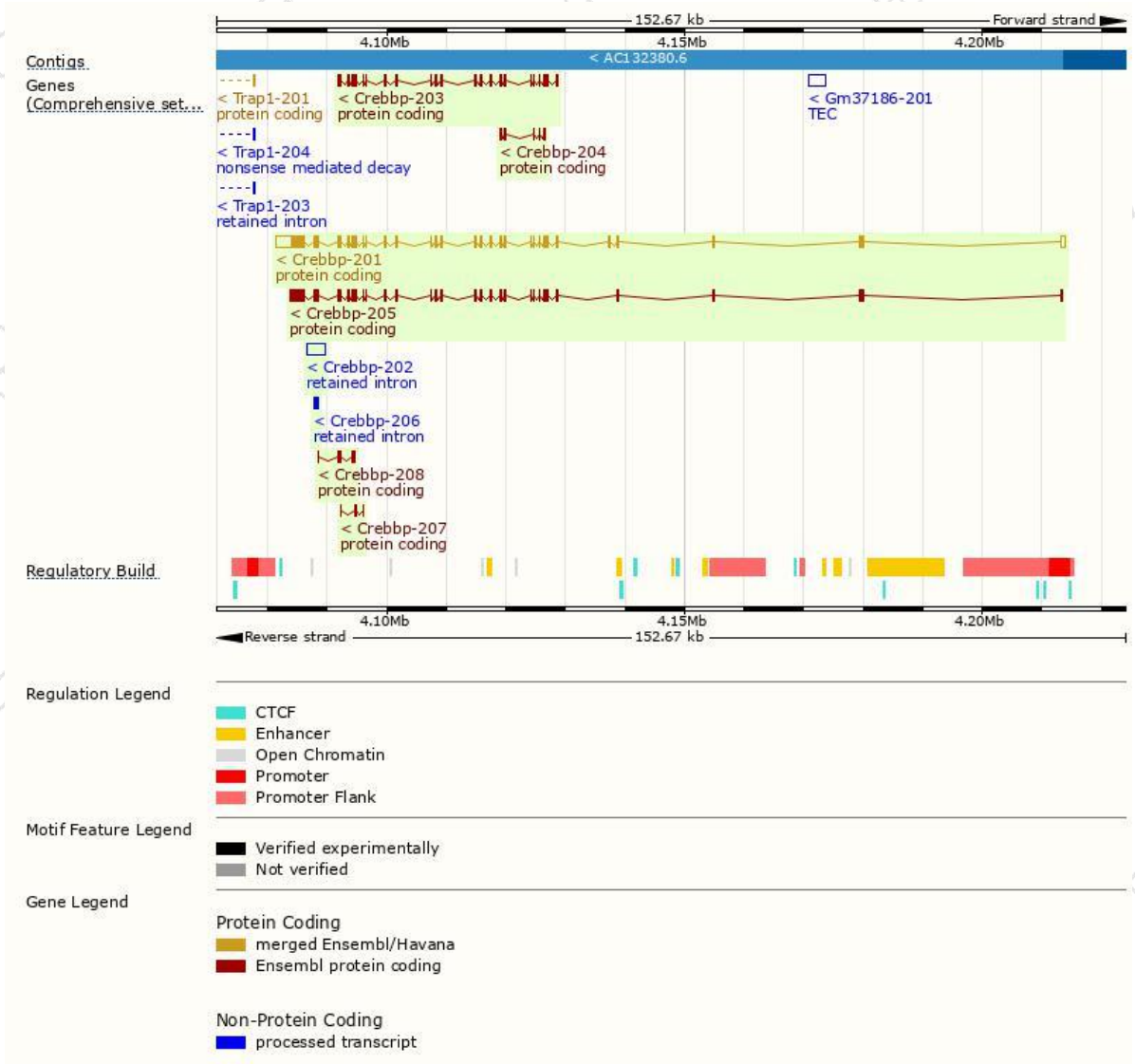
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Crebbp-201	ENSMUST00000023165.8	10820	2441aa	Protein coding	CCDS27915	F8VPR5	TSL:1 GENCODE basic APPRIS P2
Crebbp-205	ENSMUST00000205765.1	7749	2403aa	Protein coding	-	A0A0U1RQB6	TSL:5 GENCODE basic APPRIS ALT2
Crebbp-203	ENSMUST00000205344.1	3322	1107aa	Protein coding	-	A0A0U1RPL2	CDS 5' and 3' incomplete TSL:1
Crebbp-204	ENSMUST00000205685.1	740	247aa	Protein coding	-	A0A0U1RPQ3	CDS 5' and 3' incomplete TSL:5
Crebbp-208	ENSMUST00000206464.1	516	172aa	Protein coding	-	A0A0U1RP23	CDS 5' and 3' incomplete TSL:5
Crebbp-207	ENSMUST00000206098.1	381	127aa	Protein coding	-	A0A0U1RP46	CDS 5' and 3' incomplete TSL:5
Crebbp-202	ENSMUST00000191387.1	3134	No protein	Retained intron	-	-	TSL:NA
Crebbp-206	ENSMUST00000205945.1	514	No protein	Retained intron	-	-	TSL:2

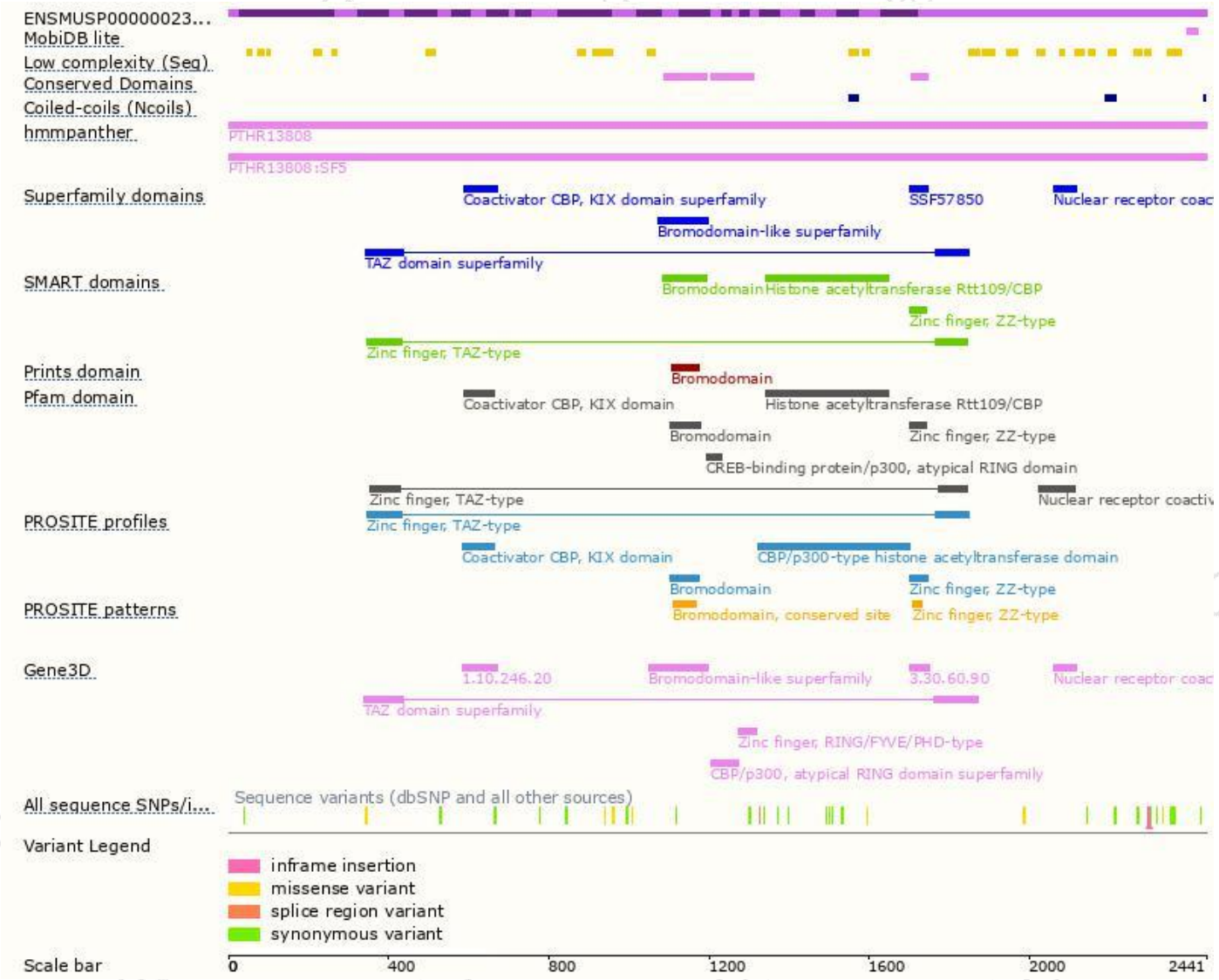
The strategy is based on the design of *Crebbp-201* transcript,The transcription is shown below



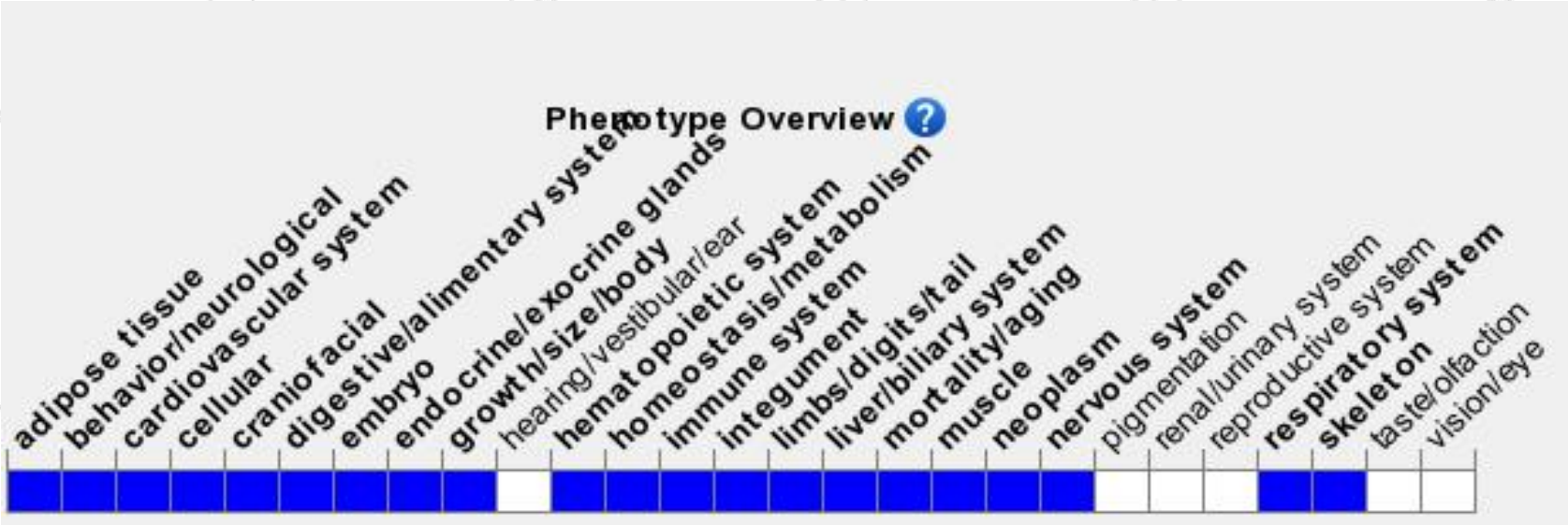
Genomic location distribution



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/).

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

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