S100b Cas9-CKO Strategy

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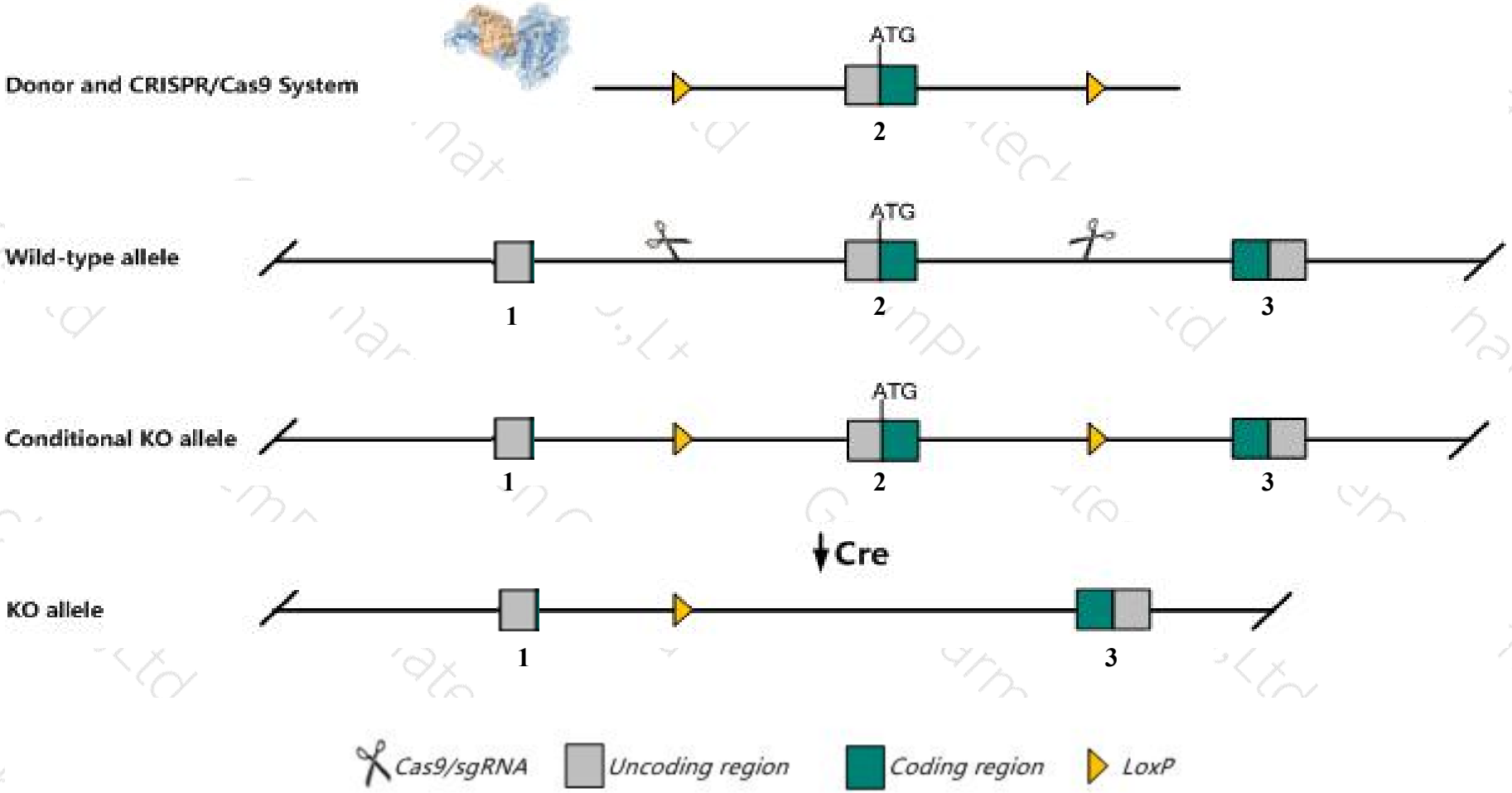
Project Overview

Project Name	***S100b***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *S100b* gene. The schematic diagram is as follows:



Technical routes

- The *S100b* gene has 1 transcript. According to the structure of *S100b* gene, exon2 of *S100b-201* (ENSMUST00000036387.7) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *S100b* 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 targeted null mutations exhibit enhanced spatial memory, fear memory, and long-term potentiation in the hippocampal CA1 region, and more rapid and severe seizures as the result of an amygdala kindling paradigm.

➢ The *S100b* gene is located on the Chr10. 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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S100b S100 protein, beta polypeptide, neural [*Mus musculus* (house mouse)]

Gene ID: 20203, updated on 22-Oct-2019

Summary

Official Symbol	S100b provided by MGI
Official Full Name	S100 protein, beta polypeptide, neural provided by MGI
Primary source	MGI:MGI:98217
See related	Ensembl:ENSMUSG00000033208
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	Bpb; AI850290
Expression	Biased expression in cerebellum adult (RPKM 164.7), frontal lobe adult (RPKM 54.2) and 1 other tissue See more
Orthologs	human all

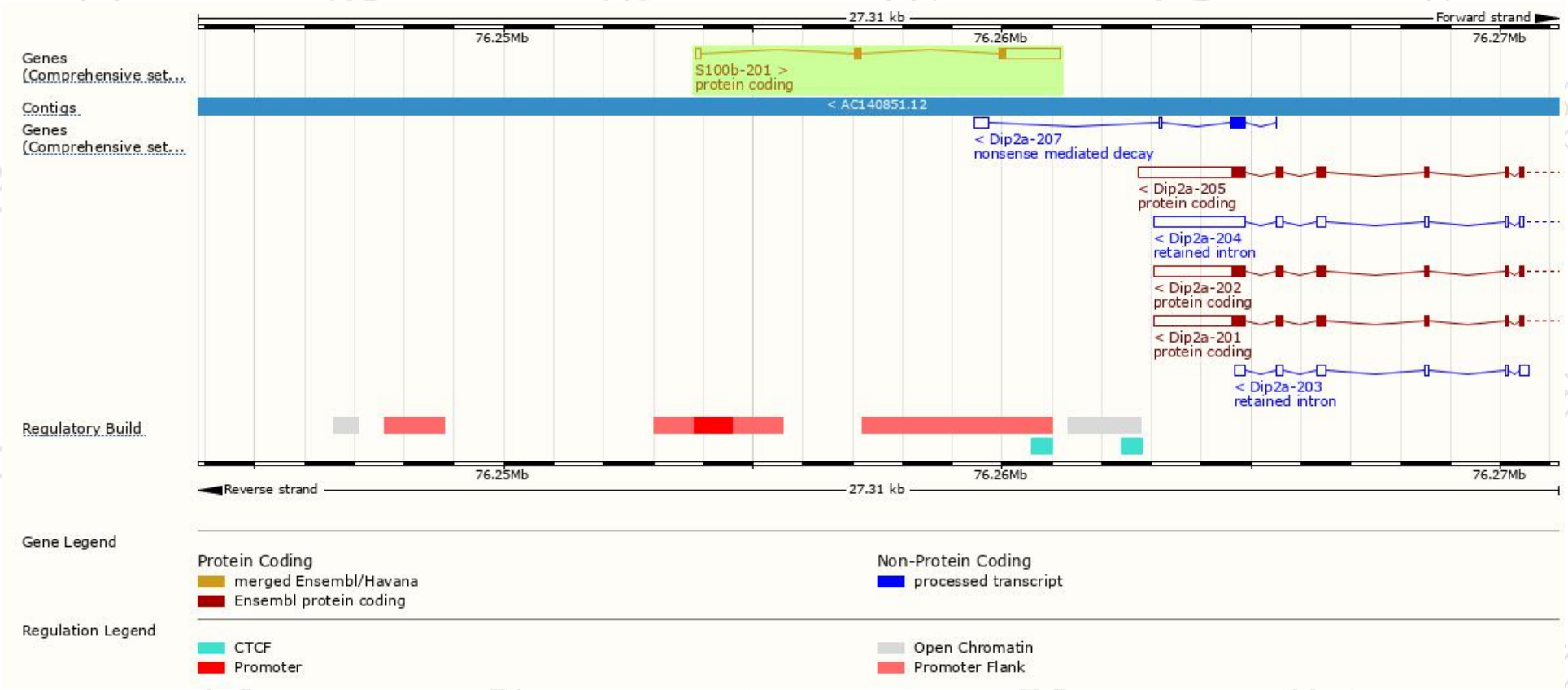
Transcript information（Ensembl）

The gene has 1 transcript,and the transcript is shown below:

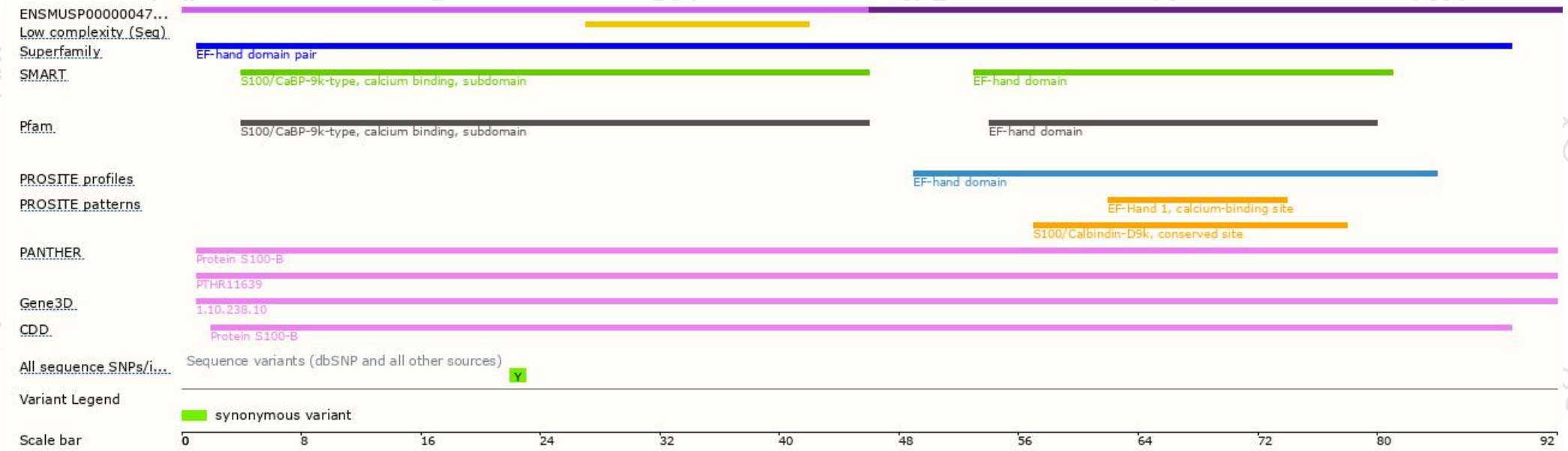
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
S100b-201	ENSMUST00000036387.7	1484	92aa	Protein coding	CCDS35943	P50114 Q3UY00	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *S100b-201* transcript,The transcription is shown below

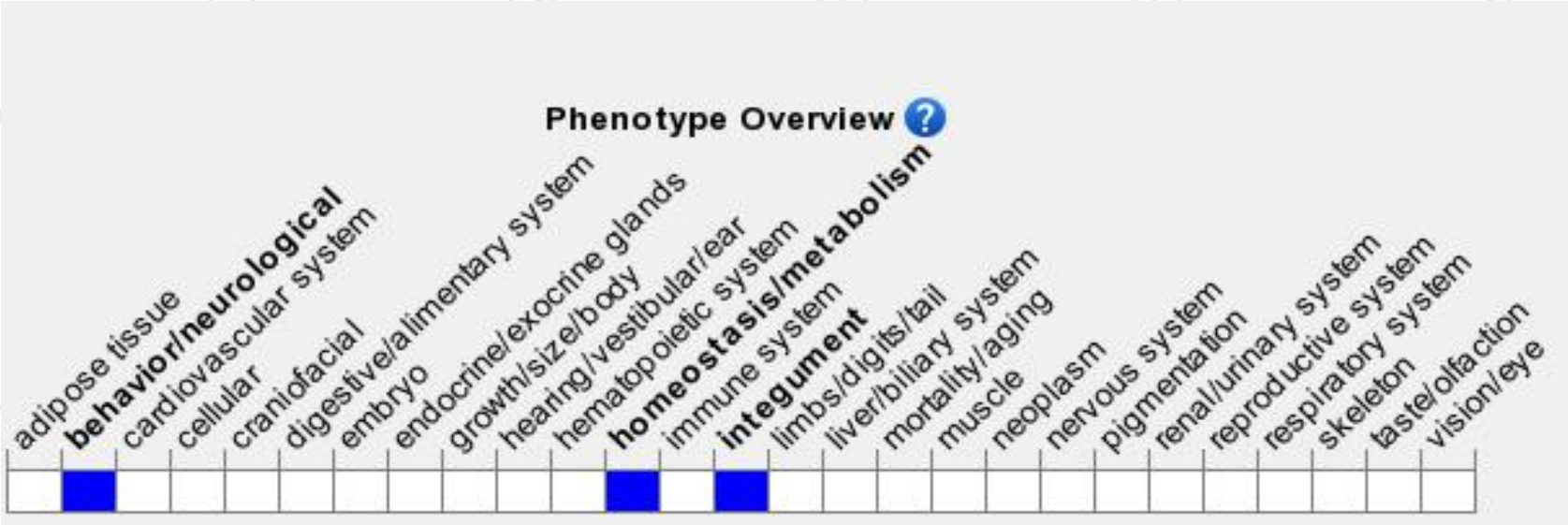
Genomic location distribution



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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