Fosb Cas9-KO Strategy

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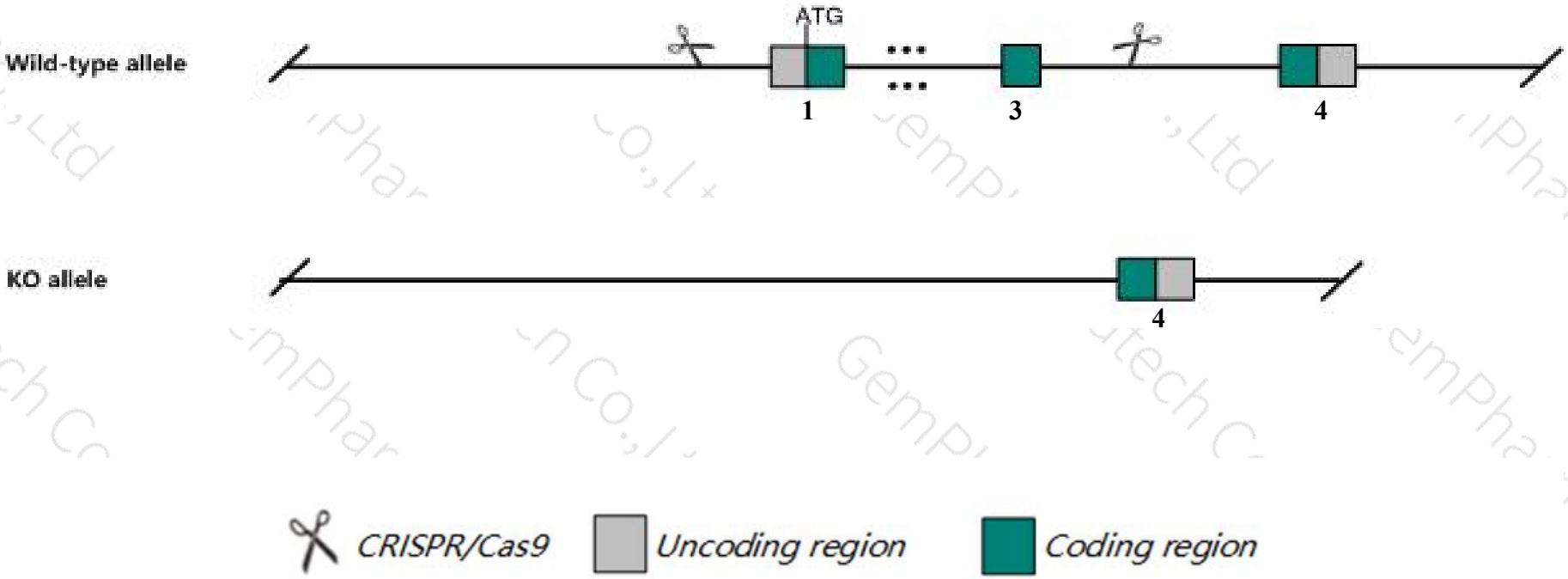
Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Fosb* gene has 7 transcripts. According to the structure of *Fosb* gene, exon1-exon3 of *Fosb-201* (ENSMUST00000003640.3) 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 *Fosb* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Homozygotes for a null allele show impaired nurturing behavior, altered behavioral tolerance to repeated motor seizures, reduced NMDA-mediated synaptic currents, and altered paradoxical sleep. Aging mice homozygous for another null allele may exhibit occasional tonic-clonic or generalized seizures.

- The *Fosb* gene is located on the Chr7. 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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Fosb FBJ osteosarcoma oncogene B [*Mus musculus* (house mouse)]

Gene ID: 14282, updated on 11-Sep-2019

Summary

Official Symbol	Fosb provided by MGI
Official Full Name	FBJ osteosarcoma oncogene B provided by MGI
Primary source	MGI:MGI:95575
See related	Ensembl:ENSMUSG00000003545
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	Broad expression in frontal lobe adult (RPKM 2.7), small intestine adult (RPKM 1.8) and 18 other tissues See more
Orthologs	human all

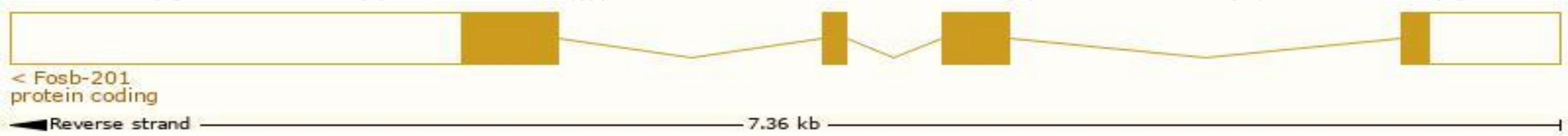
Chromosome 7 - NC_000073.6

Transcript information（Ensembl）

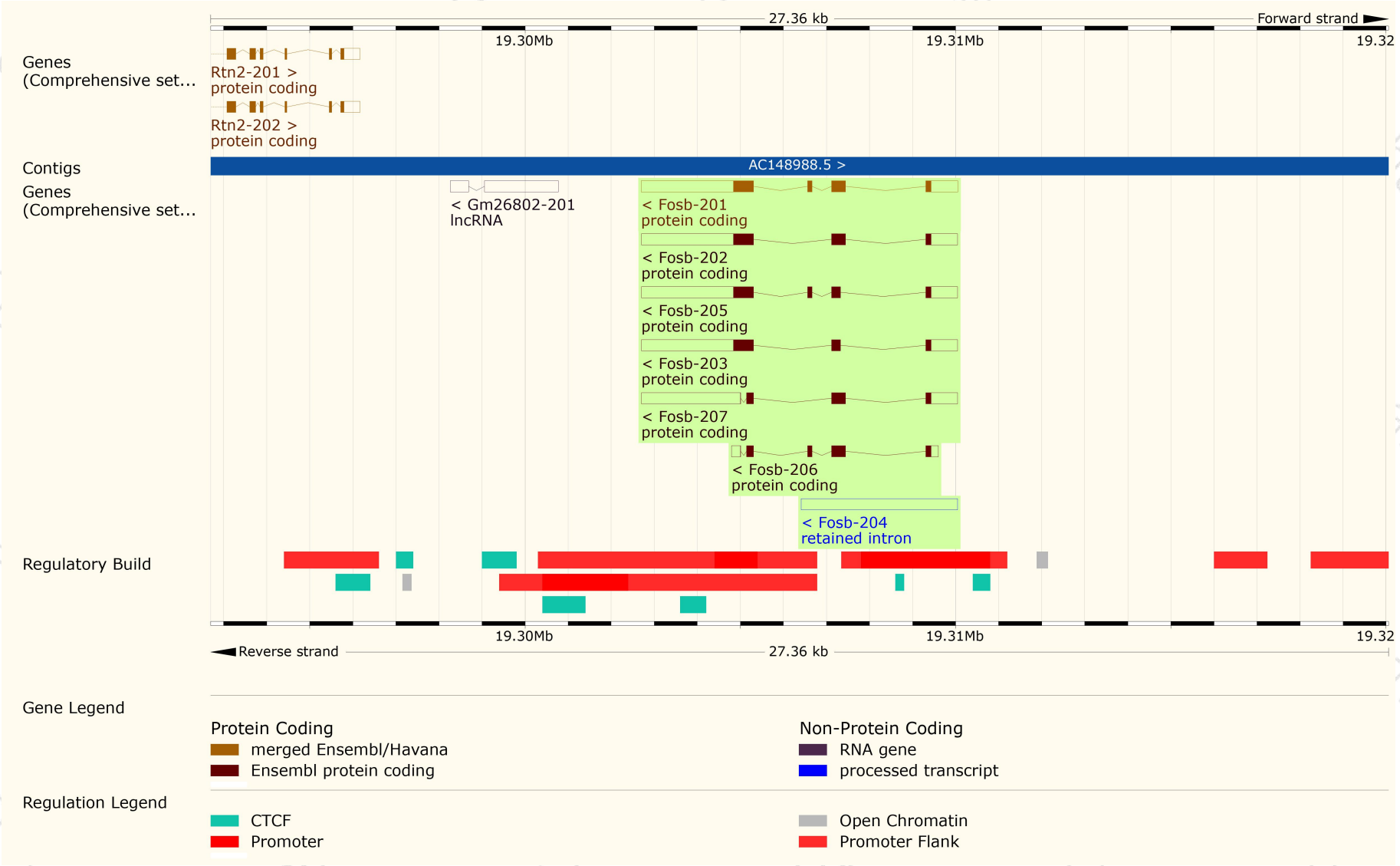
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Fosb-201	ENSMUST00000003640.3	3782	338aa	ENSMUSP00000003640.2	Protein coding	CCDS20897	A2RSD4 P13346	TSL:1 GENCODE basic APPRIS P1
Fosb-206	ENSMUST00000208446.1	1090	237aa	ENSMUSP00000146789.1	Protein coding	CCDS85225	A0A140LIE4	TSL:1 GENCODE basic
Fosb-202	ENSMUST00000207334.1	3664	302aa	ENSMUSP00000147210.1	Protein coding	-	A0A140LJH0	TSL:5 GENCODE basic
Fosb-205	ENSMUST00000208326.1	3654	299aa	ENSMUSP00000146569.1	Protein coding	-	A0A140LHW0	TSL:5 GENCODE basic
Fosb-203	ENSMUST00000207716.1	3546	263aa	ENSMUSP00000146949.1	Protein coding	-	A0A140LIT4	TSL:5 GENCODE basic
Fosb-207	ENSMUST00000208505.1	3523	201aa	ENSMUSP00000146525.1	Protein coding	-	A0A140LHS3	TSL:5 GENCODE basic
Fosb-204	ENSMUST00000208230.1	3629	No protein	-	Retained intron	-	-	TSL:NA

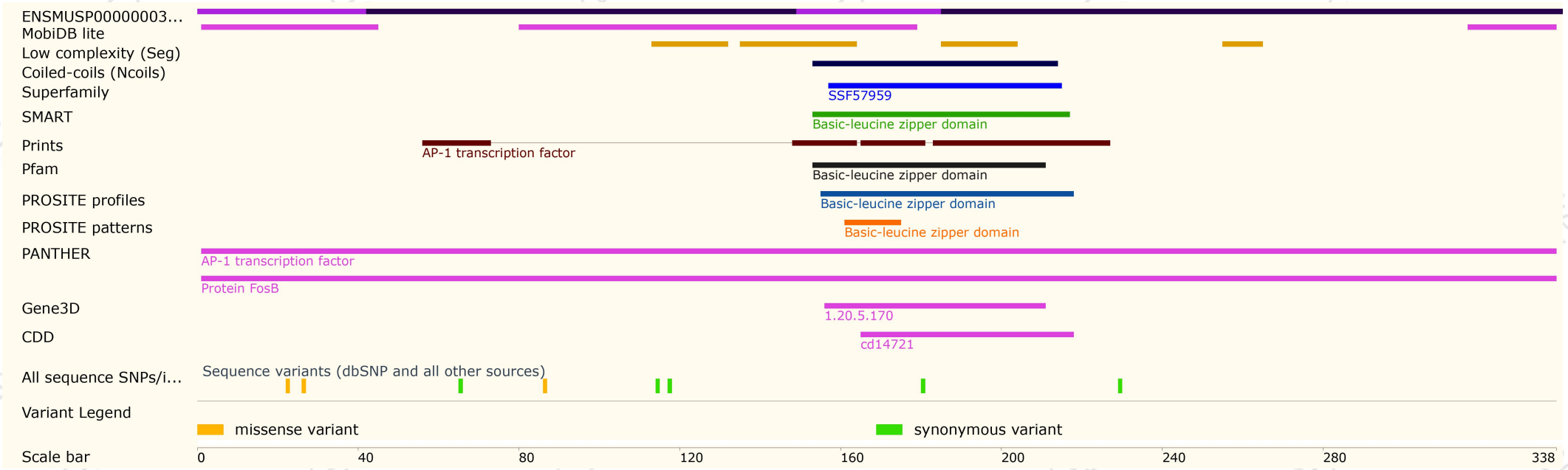
The strategy is based on the design of *Fosb-201* transcript,The transcription is shown below



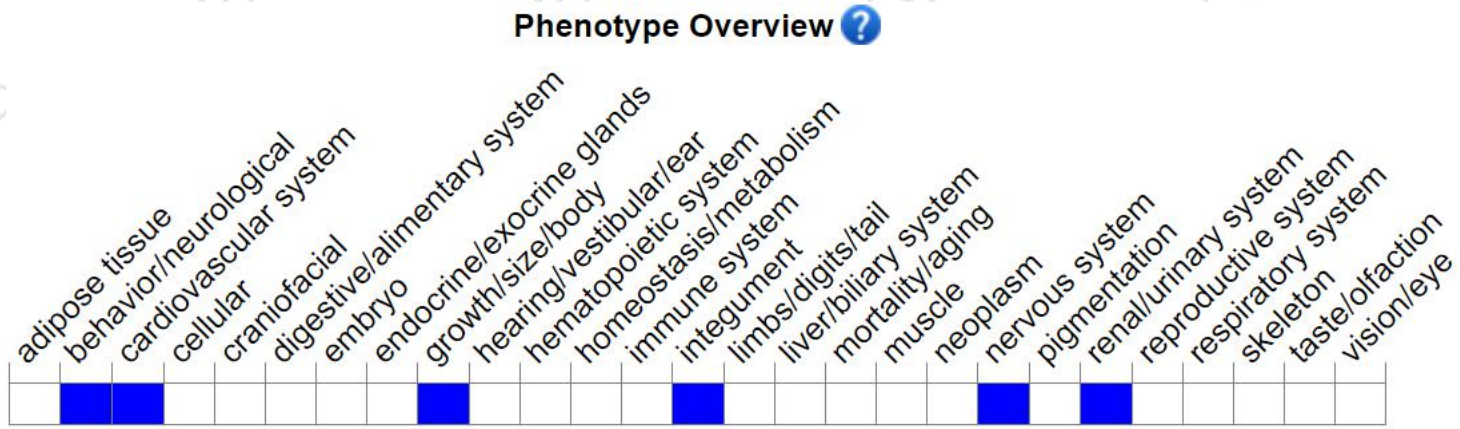
Genomic location distribution



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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