Sh2b2 Cas9-KO Strategy

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Project Overview

Project Name	***Sh2b2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sh2b2* gene. The schematic diagram is as follows:

Technical routes

➢ The *Sh2b2* gene has 5 transcripts. According to the structure of *Sh2b2* gene, exon2-exon9 of *Sh2b2-201* (ENSMUST00000005188.13) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Sh2b2* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Inactivation of this gene results in increased insulin sensitivity accompanied by hypoinsulinemia.

- The *Sh2b2* gene is located on the Chr5. 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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Sh2b2 SH2B adaptor protein 2 [Mus musculus (house mouse)]

Gene ID: 23921, updated on 31-Jan-2019

Summary

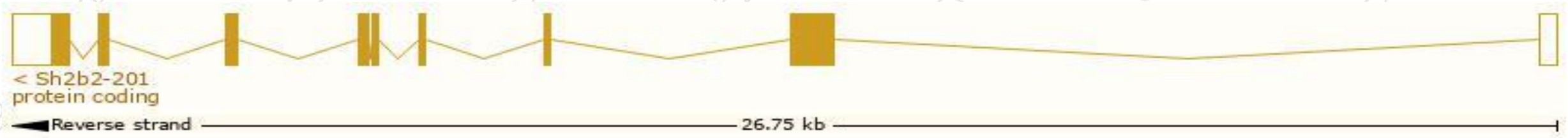
Official Symbol	Sh2b2 provided by MGI
Official Full Name	SH2B adaptor protein 2 provided byMGI
Primary source	MGI:MGI:1345171
See related	Ensembl:ENSMUSG00000005057
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Aps
Expression	Biased expression in mammary gland adult (RPKM 32.6), adrenal adult (RPKM 26.0) and 14 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

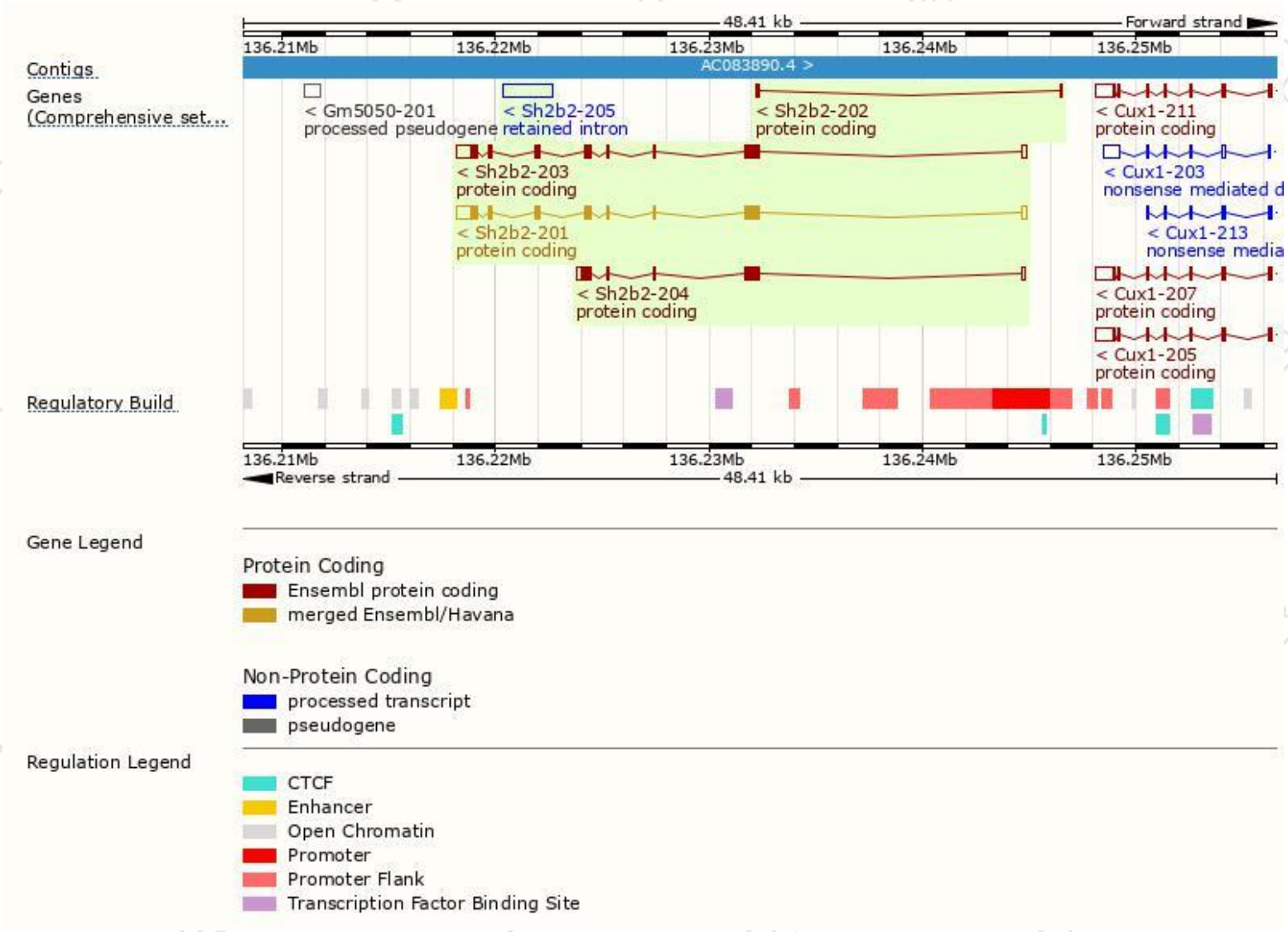
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sh2b2-201	ENSMUST00000005188.13	2848	621aa	Protein coding	CCDS39327	Q9JID9	TSL:1 GENCODE basic APPRIS P1
Sh2b2-203	ENSMUST00000196397.4	2797	621aa	Protein coding	CCDS39327	Q9JID9	TSL:1 GENCODE basic APPRIS P1
Sh2b2-204	ENSMUST00000196447.1	1783	420aa	Protein coding	CCDS80431	A0A0G2JED4	TSL:1 GENCODE basic
Sh2b2-202	ENSMUST00000196245.1	242	44aa	Protein coding	-	A0A0G2JDV1	CDS 3' incomplete TSL:3
Sh2b2-205	ENSMUST00000197324.1	2296	No protein	Retained intron	-	-	TSL:NA

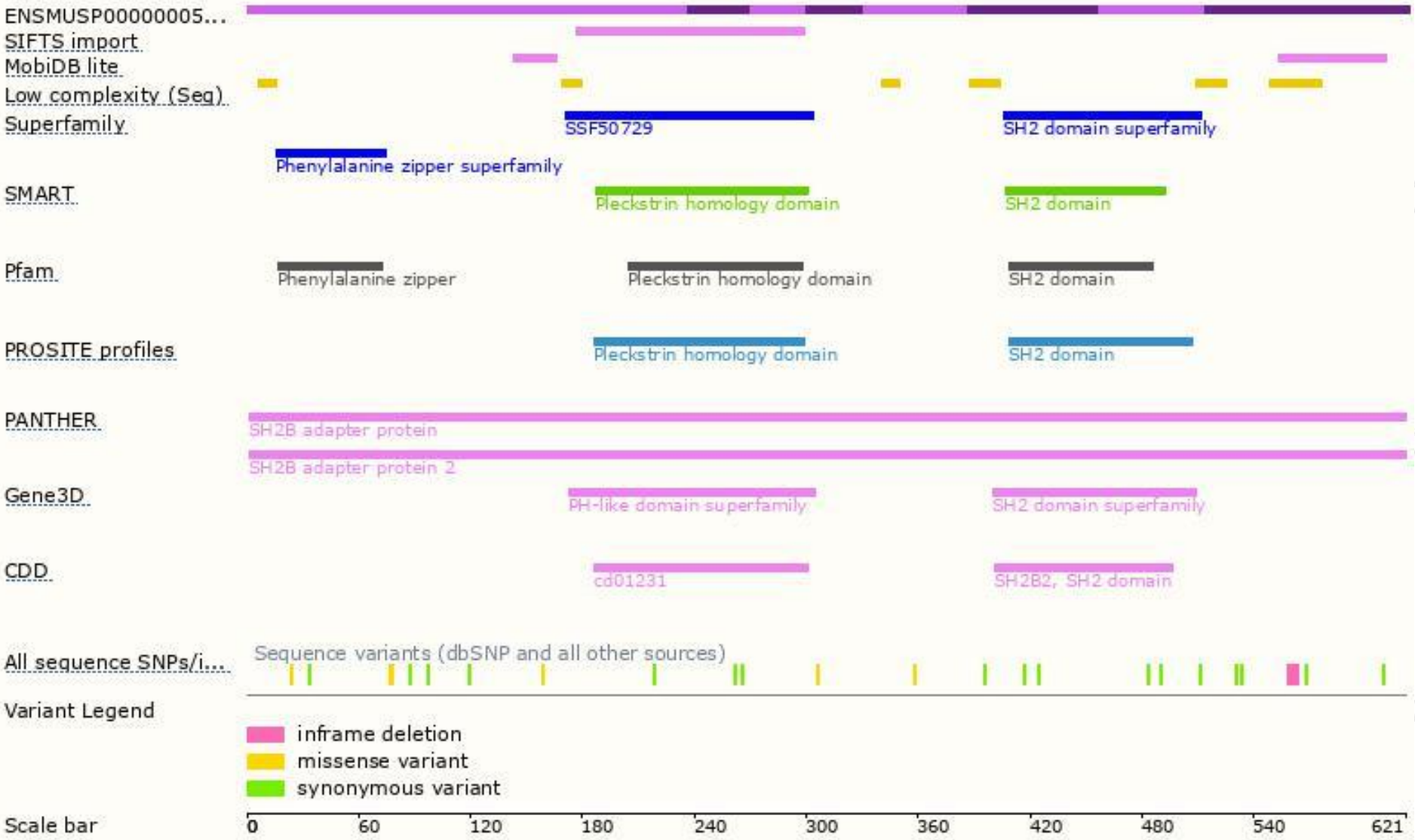
The strategy is based on the design of *Sh2b2-201* transcript,The transcription is shown below



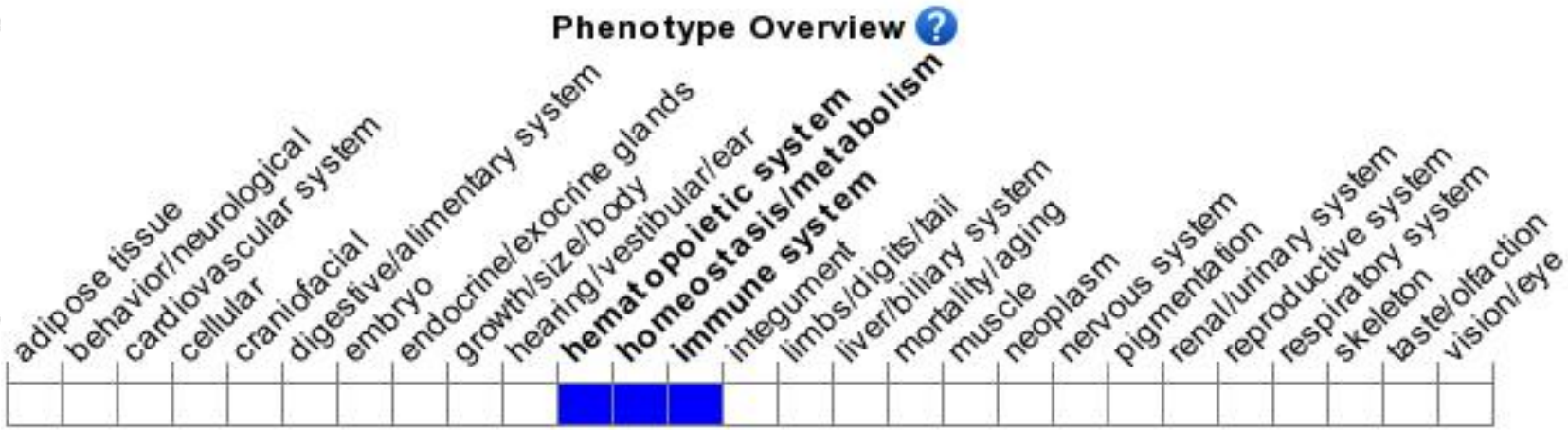
Genomic location distribution



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,Inactivation of this gene results in increased insulin sensitivity accompanied by hypoinsulinemia.

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

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