Abi2 Cas9-KO Strategy

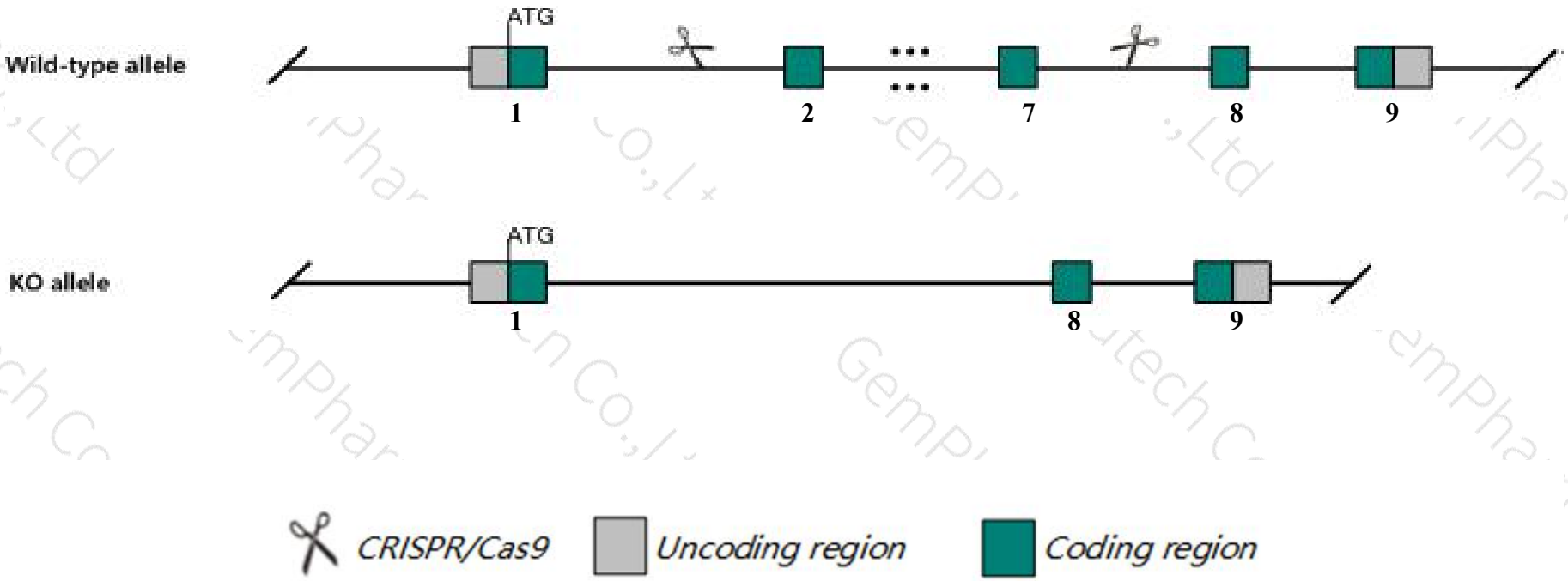
Designer:Xueting Zhang
Reviewer:Yanhua Shen
Date:2019-10-20

Project Overview

Project Name	***Abi2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Abi2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Abi2* gene has 12 transcripts. According to the structure of *Abi2* gene, exon2-exon7 of *Abi2-201* (ENSMUST00000052332.14) transcript is recommended as the knockout region.The region contains 874bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Abi2* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Homozygous null mice display microphthalmia, abnormal lens development, abnormal corpus callosum, cerebral cortex, and hippocampus morphology, and impaired contextual conditioning.

- The effect on transcript *Abi2*-202&203&204&211 is unknown.

- The *Abi2* gene is located on the Chr1. 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）

集萃药康 GemPharmatech

Abi2 abl-interactor 2 [*Mus musculus* (house mouse)]

Gene ID: 329165, updated on 12-Aug-2019

Summary

Official Symbol	Abi2 provided by MGI
Official Full Name	abl-interactor 2 provided by MGI
Primary source	MGI:MGI:106913
See related	Ensembl:ENSMUSG00000026782
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	AblBP3; ArgBP1; AI839867; C130078H13; 8430425M24Rik
Expression	Broad expression in frontal lobe adult (RPKM 18.9), CNS E18 (RPKM 17.1) and 17 other tissues See more
Orthologs	human all

Genomic context

Location: 1; 1 C2

See Abi2 in Genome Data Viewer

Exon count: 12

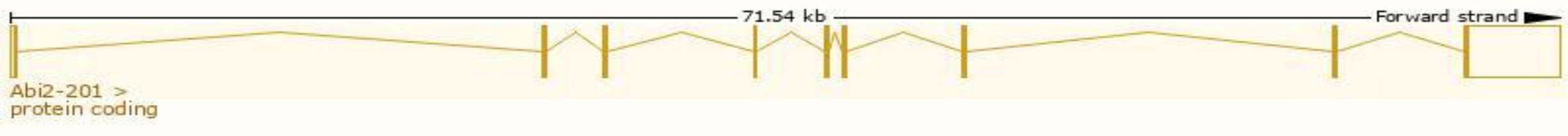
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	1	NC_000067.6 (60405768..60481945)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	1	NC_000067.5 (60466642..60538002)

Transcript information（Ensembl）

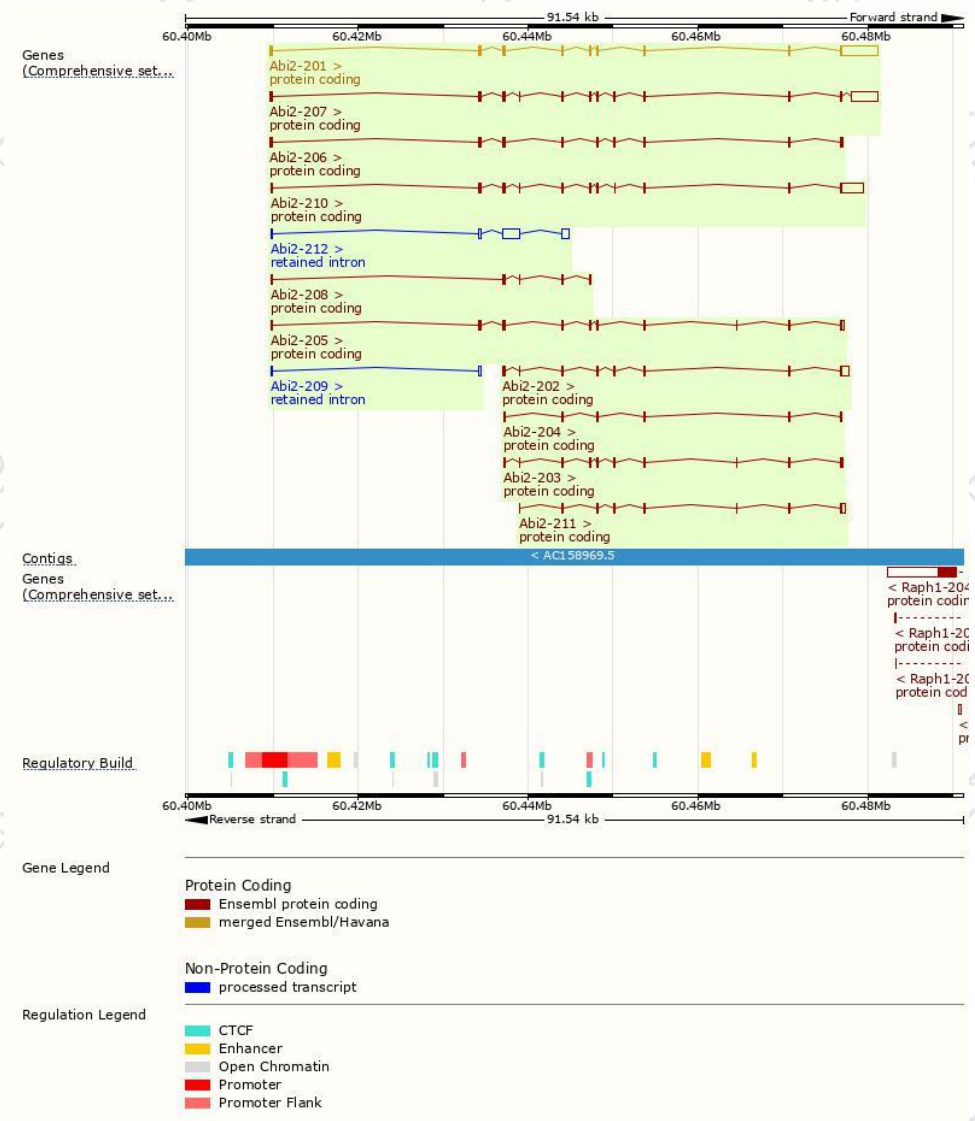
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Abi2-201	ENSMUST00000052332.14	5768	446aa	Protein coding	CCDS14991	P62484	TSL:1 GENCODE basic APPRIS P2
Abi2-207	ENSMUST00000188618.6	4723	487aa	Protein coding	CCDS78593	Q6AXD2	TSL:1 GENCODE basic
Abi2-210	ENSMUST00000189980.6	4115	480aa	Protein coding	CCDS78594	Q6AXH6	TSL:1 GENCODE basic
Abi2-202	ENSMUST00000185788.6	1926	360aa	Protein coding	-	A0A087WNT3	CDS 5' incomplete TSL:5
Abi2-205	ENSMUST00000187709.6	1671	475aa	Protein coding	-	A0A087WPP8	TSL:5 GENCODE basic APPRIS ALT1
Abi2-206	ENSMUST00000188594.6	1658	458aa	Protein coding	-	A0A087WRS3	TSL:5 GENCODE basic
Abi2-211	ENSMUST00000190158.1	1403	337aa	Protein coding	-	A0A087WPE6	CDS 5' incomplete TSL:5
Abi2-203	ENSMUST00000186097.6	1356	395aa	Protein coding	-	A0A087WNU9	CDS 5' incomplete TSL:5
Abi2-204	ENSMUST00000187400.6	763	252aa	Protein coding	-	A0A087WP64	CDS 5' incomplete TSL:5
Abi2-208	ENSMUST00000189082.6	463	151aa	Protein coding	-	A0A087WR90	CDS 3' incomplete TSL:5
Abi2-212	ENSMUST00000191493.1	3005	No protein	Retained intron	-	-	TSL:1
Abi2-209	ENSMUST00000189649.1	362	No protein	Retained intron	-	-	TSL:2

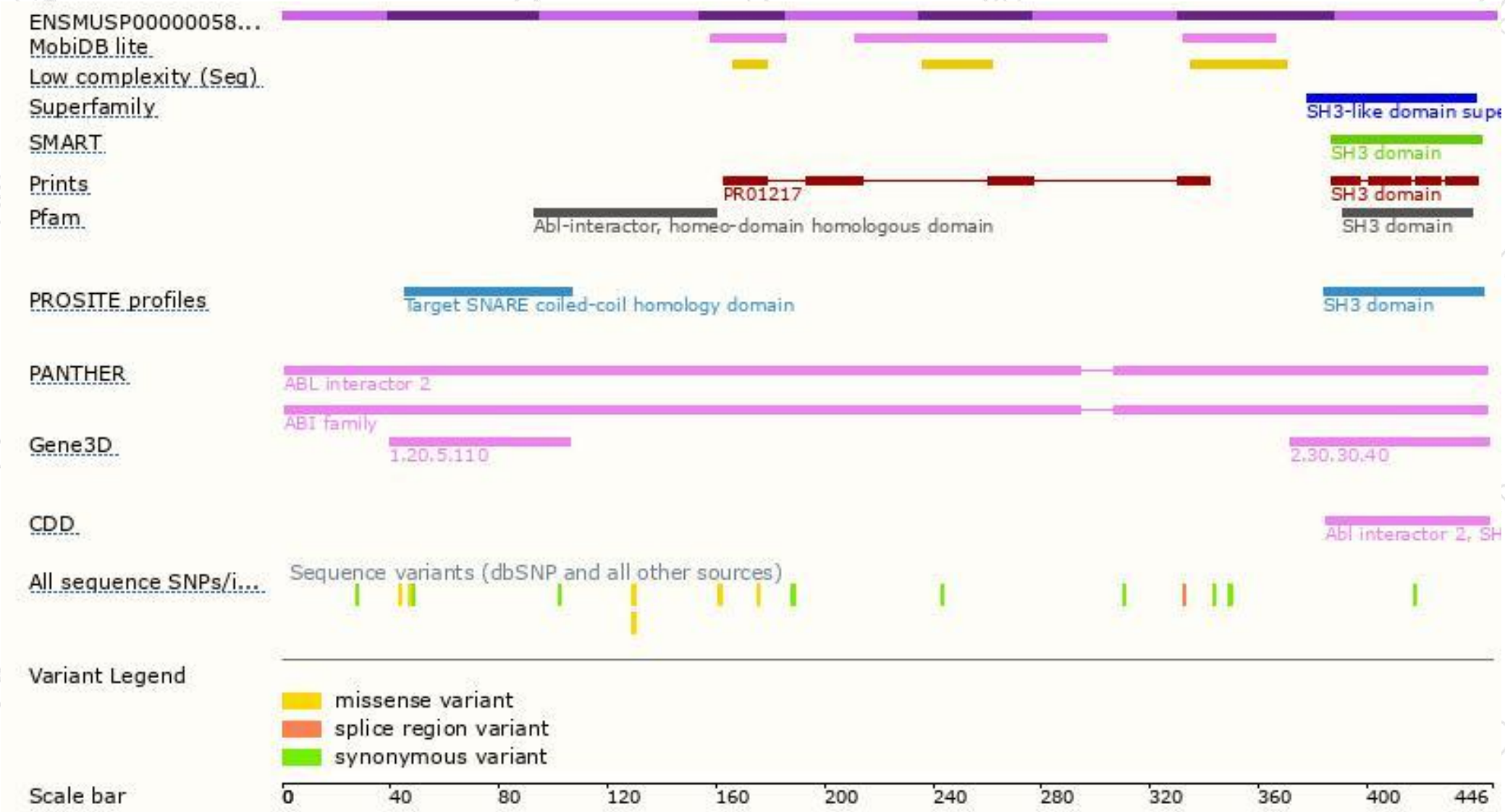
The strategy is based on the design of *Abi2-201* transcript,The transcription is shown below



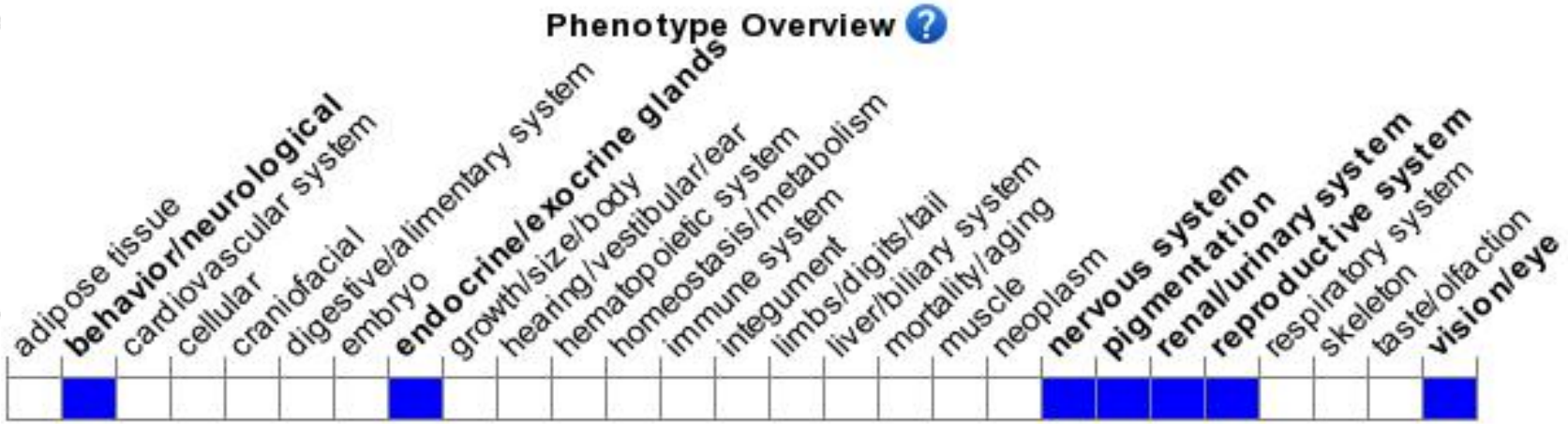
Genomic location distribution



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,Homozygous null mice display microphthalmia, abnormal lens development, abnormal corpus callosum, cerebral cortex, and hippocampus morphology, and impaired contextual conditioning.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd