

Abi3bp Cas9-KO Strategy

Designer: Jinling Wang

Design Date: 2018/12/4

Project Overview



Project Name

Abi3bp

Project type

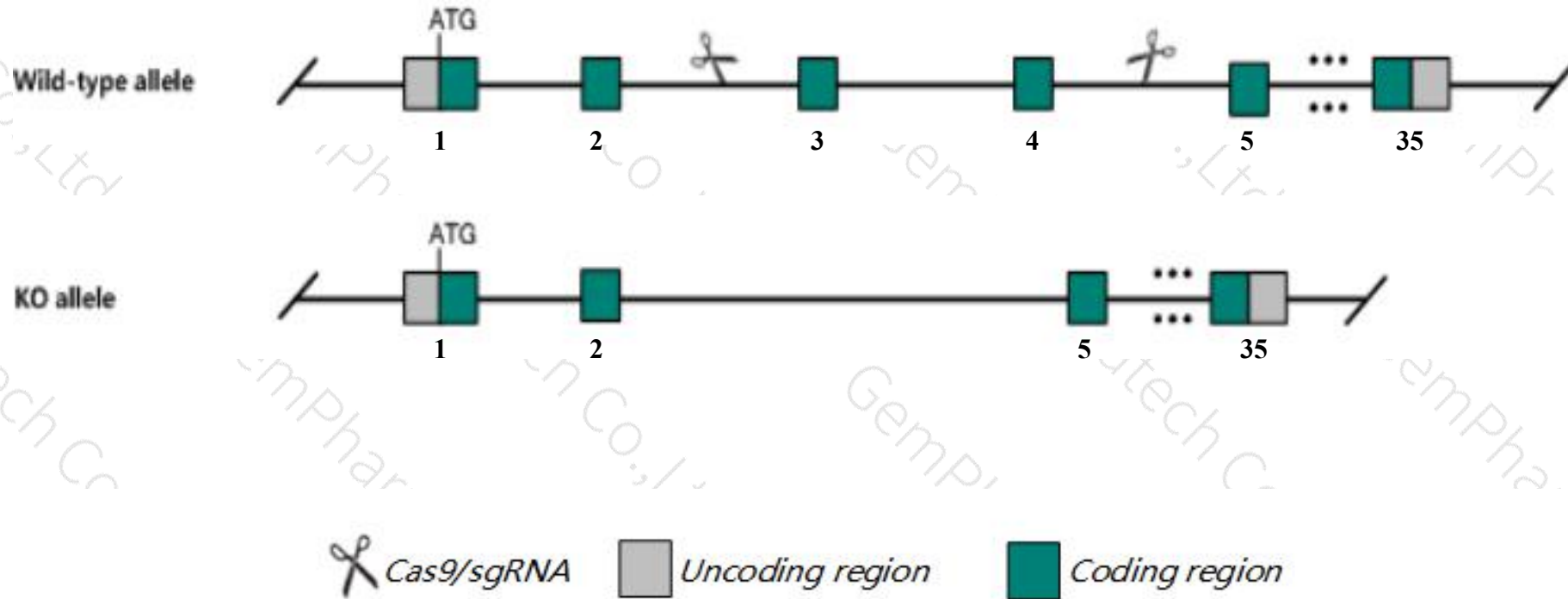
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Abi3bp* gene. The schematic diagram is as follows:



- The *Abi3bp* gene has 8 transcripts. According to the structure of *Abi3bp* gene, exon3-exon4 of *Abi3bp*-202(ENSMUST00000096012.10) transcript is recommended as the knockout region. The region contains 202bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Abi3bp* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit reduced distance traveled at the periphery of an open field, but normal olfactory function, anxiety and depressive behaviors, and NNK-induced lung tumorigenesis.
- The *Abi3bp* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Abi3bp ABI gene family, member 3 (NESH) binding protein [Mus musculus (house mouse)]

Gene ID: 320712, updated on 3-Feb-2019

Summary



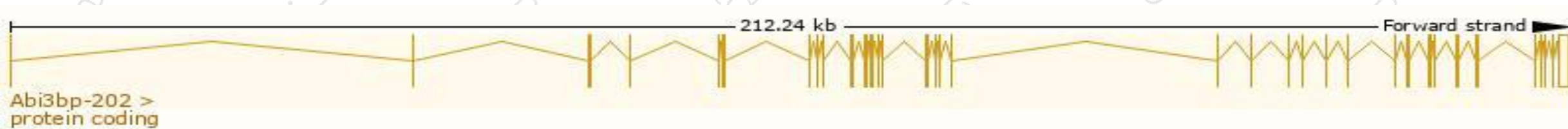
Official Symbol	Abi3bp provided by MGI
Official Full Name	ABI gene family, member 3 (NESH) binding protein provided by MGI
Primary source	MGI:MGI:2444583
See related	Ensembl:ENSMUSG00000035258
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5033411B22Rik, AI506287, BG172926, D930038M13Rik, TARSH, eratin
Expression	Broad expression in bladder adult (RPKM 9.2), limb E14.5 (RPKM 7.8) and 16 other tissues See 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
Abi3bp-202	ENSMUST00000096012.10	4340	1079aa	Protein coding	CCDS37361	Q59IW9	TSL:1 GENCODE basic APPRIS ALT2
Abi3bp-201	ENSMUST00000048471.14	3822	1179aa	Protein coding	CCDS37359	Q59IW6	TSL:1 GENCODE basic APPRIS P4
Abi3bp-203	ENSMUST00000096013.10	3630	1115aa	Protein coding	CCDS37360	Q59IW5	TSL:1 GENCODE basic APPRIS ALT2
Abi3bp-204	ENSMUST00000171000.2	3012	909aa	Protein coding	CCDS37362	E9Q8E3	TSL:1 GENCODE basic APPRIS ALT2
Abi3bp-206	ENSMUST00000231781.1	5196	1637aa	Protein coding	-	A0A338P6S8	GENCODE basic APPRIS ALT2
Abi3bp-208	ENSMUST00000231870.1	3582	1099aa	Protein coding	-	Q59IW7	GENCODE basic APPRIS ALT2
Abi3bp-207	ENSMUST00000231832.1	2800	884aa	Protein coding	-	A0A338P6W9	GENCODE basic APPRIS ALT2
Abi3bp-205	ENSMUST00000231337.1	2551	No protein	Retained intron	-	-	

The strategy is based on the design of *Abi3bp-202* transcript, the transcription is shown below:



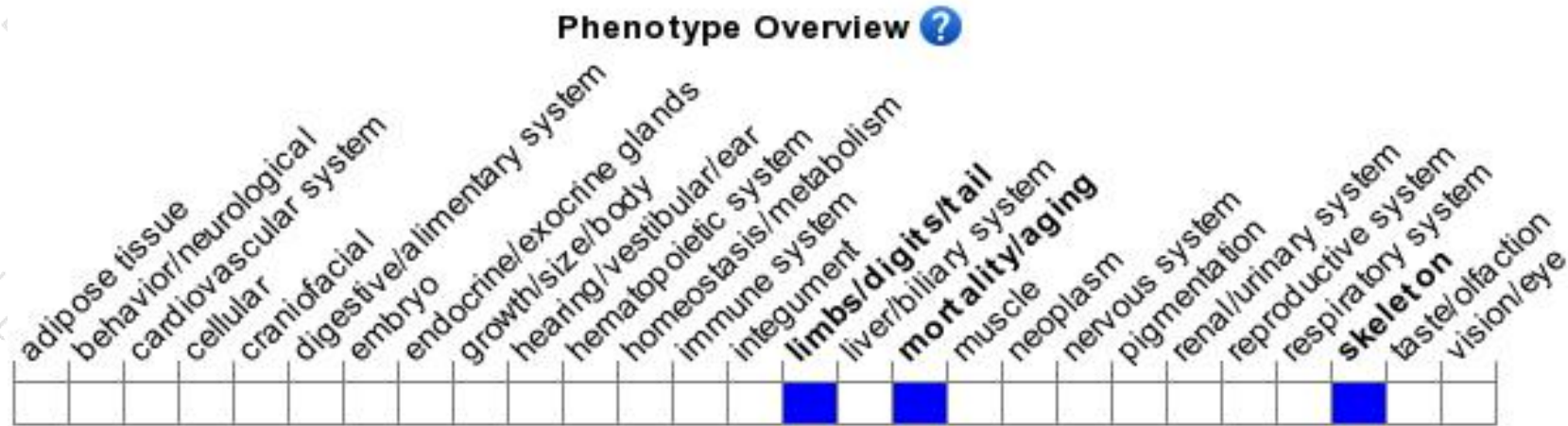
Genomic location distribution



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, mice homozygous for a knock-out allele exhibit reduced distance traveled at the periphery of an open field, but normal olfactory function, anxiety and depressive behaviors, and NNK-induced lung tumorigenesis.

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

Tel: 025-5864 1534

