

Acap3 Cas9-KO Strategy

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Project Overview

Project Name

Acap3

Project type

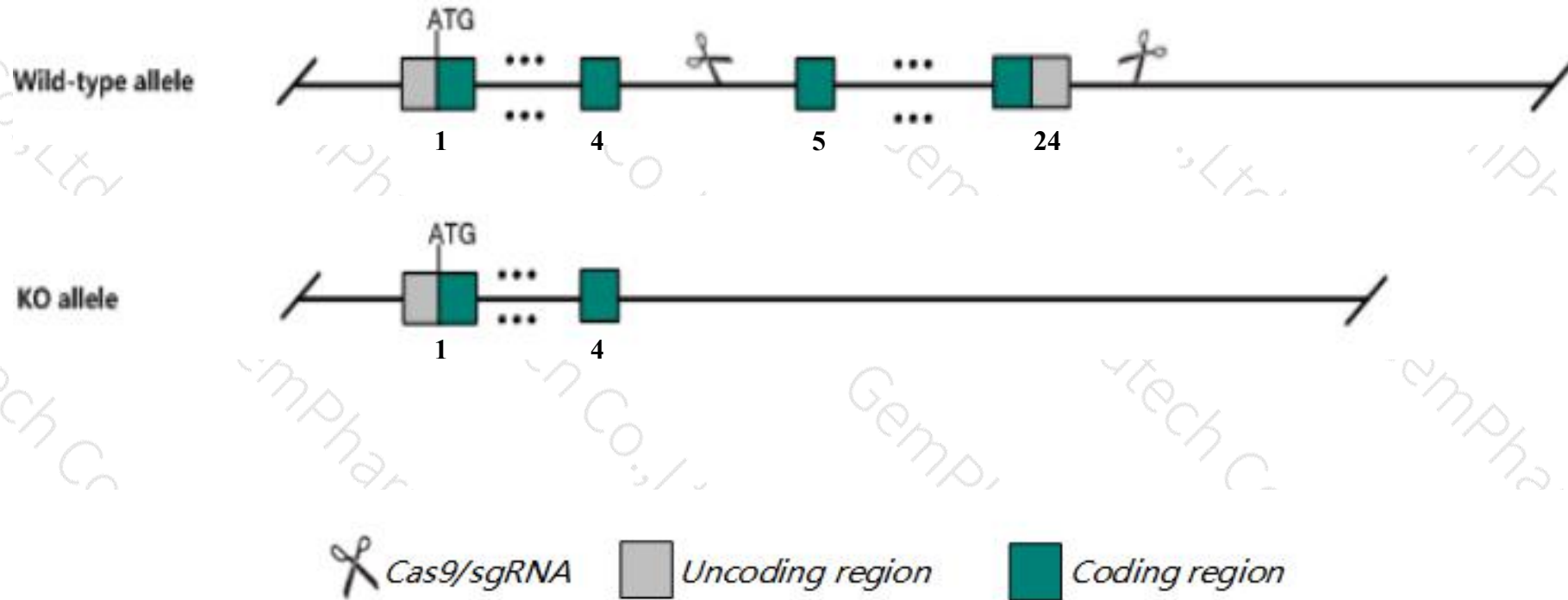
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Acap3* gene. The schematic diagram is as follows:



- The *Acap3* gene has 9 transcripts. According to the structure of *Acap3* gene, exon5-exon24 of *Acap3*-202(ENSMUST00000105584.9) transcript is recommended as the knockout region. The region contains most 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 *Acap3* 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.

- The *Acap3* gene is located on the Chr4. 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)

Acap3 ArfGAP with coiled-coil, ankyrin repeat and PH domains 3 [Mus musculus (house mouse)]

Gene ID: 140500, updated on 20-Mar-2020

Summary



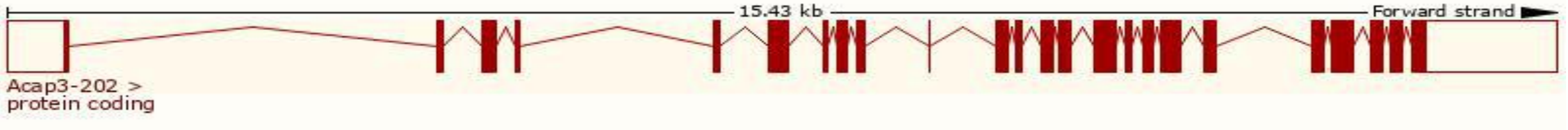
Official Symbol	Acap3 provided by MGI
Official Full Name	ArfGAP with coiled-coil, ankyrin repeat and PH domains 3 provided by MGI
Primary source	MGI:MGI:2153589
See related	Ensembl:ENSMUSG00000029033
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Centb5, Kiaa1716-hp, mKIAA1716
Expression	Ubiquitous expression in whole brain E14.5 (RPKM 26.0), CNS E18 (RPKM 24.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

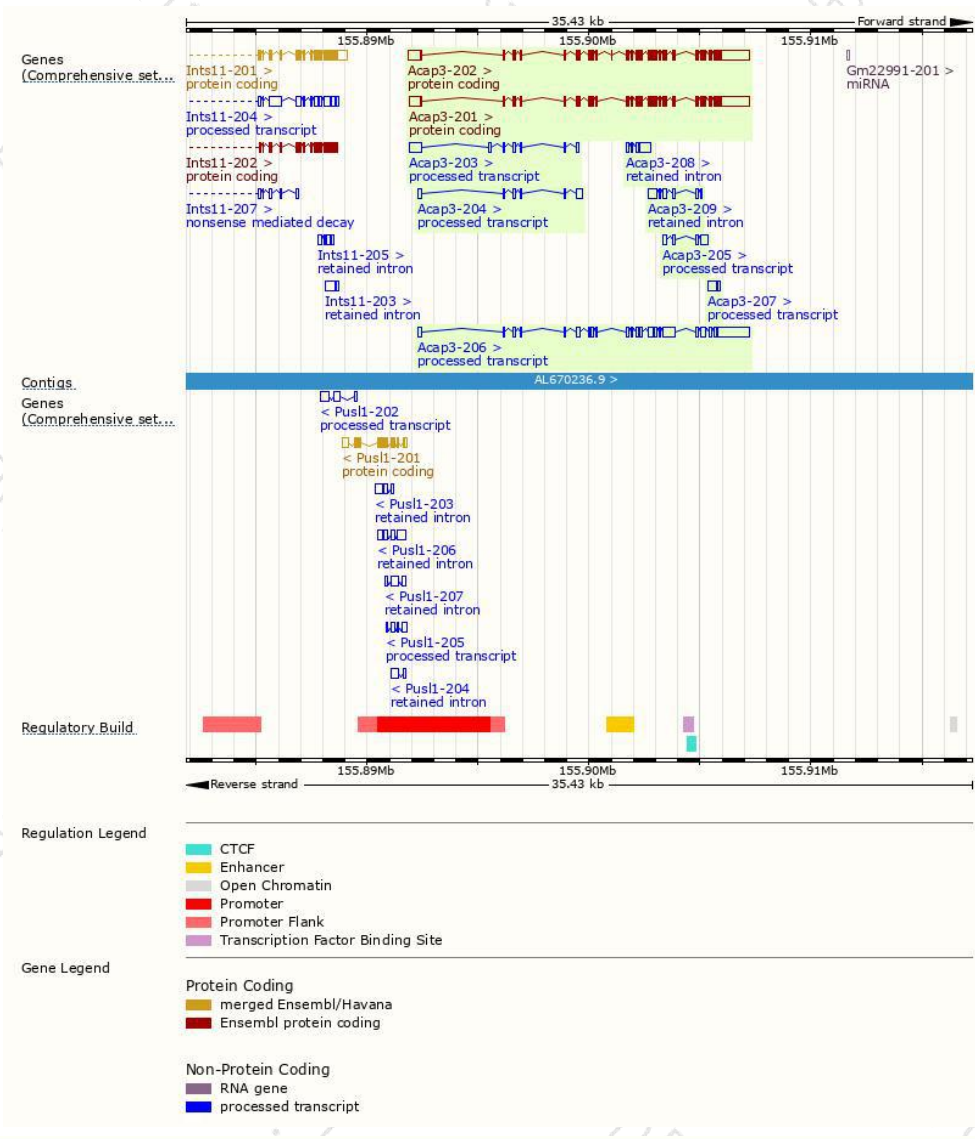
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Acap3-202	ENSMUST00000105584.9	4365	833aa	Protein coding	CCDS38997	Q6NXL5	TSL:1 GENCODE basic APPRIS P1
Acap3-201	ENSMUST00000079031.5	4301	829aa	Protein coding	-	A2ADA6	TSL:5 GENCODE basic
Acap3-206	ENSMUST00000137726.7	4101	No protein	Processed transcript	-	-	TSL:5
Acap3-203	ENSMUST00000126582.7	1049	No protein	Processed transcript	-	-	TSL:5
Acap3-204	ENSMUST00000131168.7	736	No protein	Processed transcript	-	-	TSL:3
Acap3-205	ENSMUST00000131372.1	729	No protein	Processed transcript	-	-	TSL:2
Acap3-207	ENSMUST00000140855.1	465	No protein	Processed transcript	-	-	TSL:2
Acap3-209	ENSMUST00000145654.7	928	No protein	Retained intron	-	-	TSL:5
Acap3-208	ENSMUST00000140902.1	739	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Acap3-202* transcript,the transcription is shown below:



Genomic location distribution



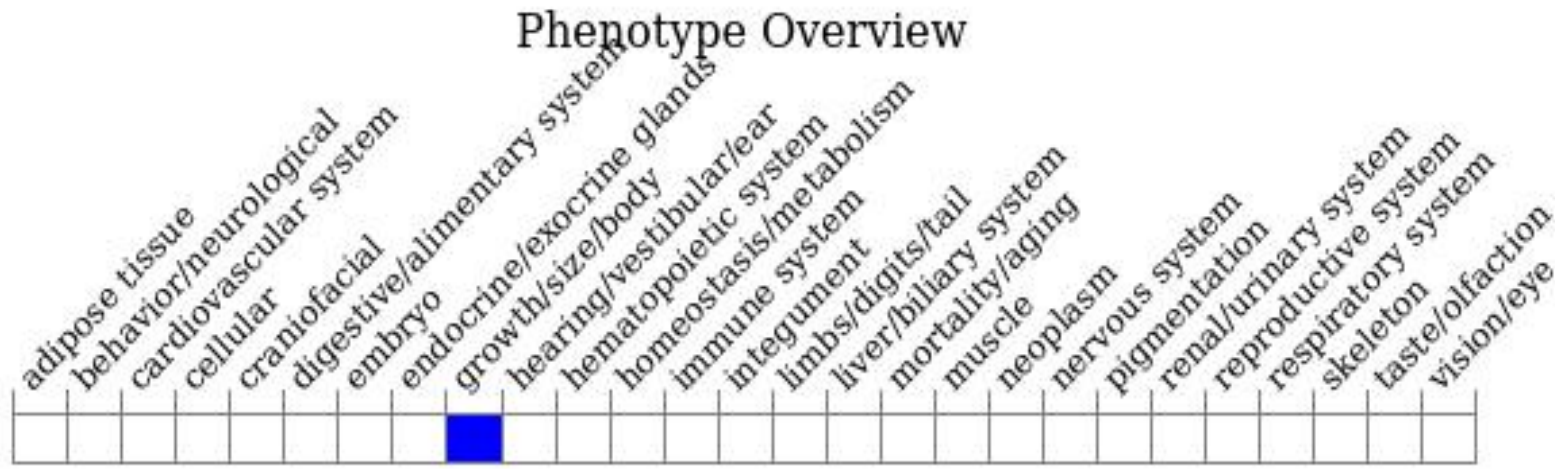
Protein domain



集萃药康
GemPharmatech



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(<http://www.informatics.jax.org/>).

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

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