

Ahnak Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Ahnak

Project type

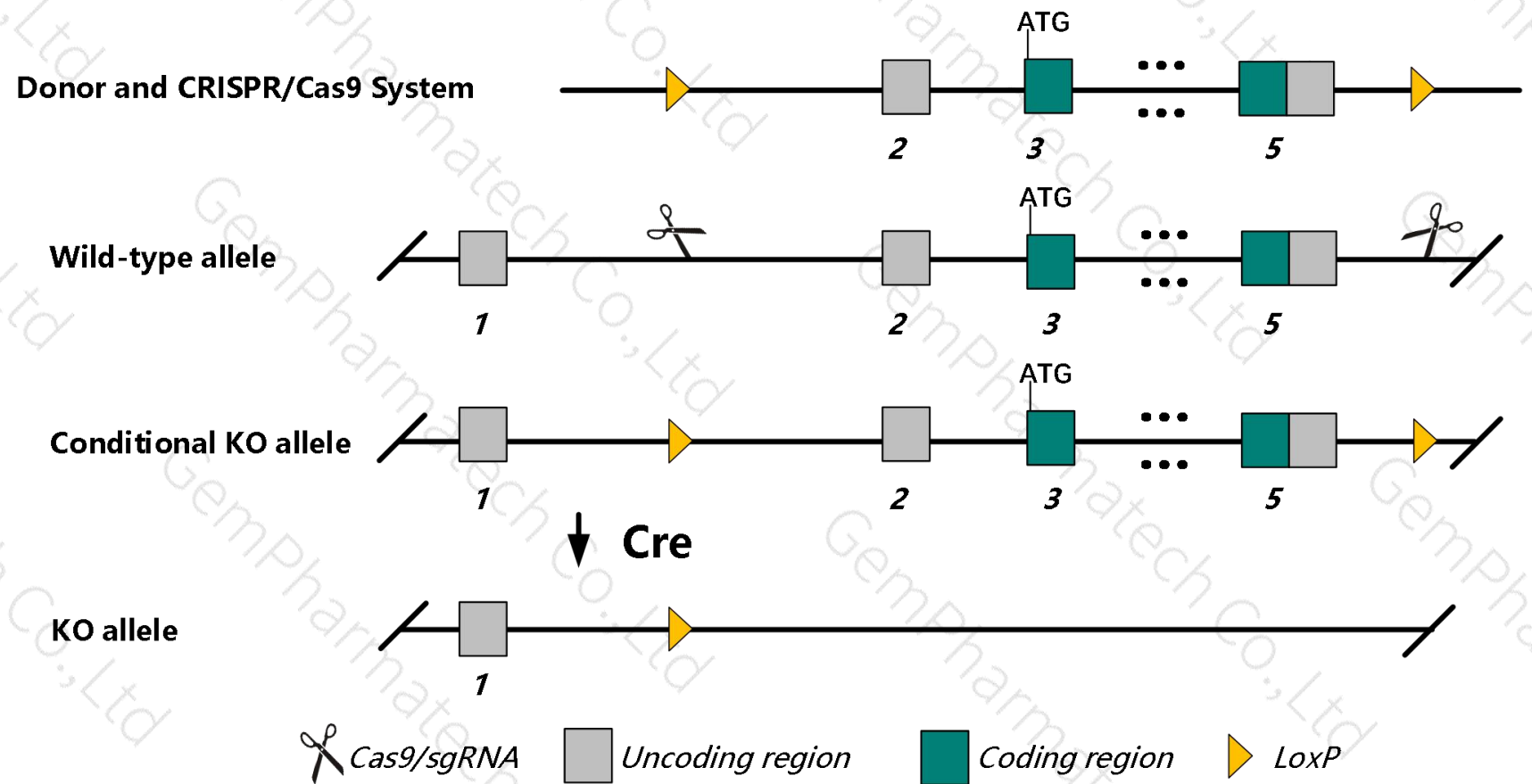
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Ahnak* gene has 5 transcripts. According to the structure of *Ahnak* gene, exon2-exon5 of *Ahnak*-202 (ENSMUST00000092956.3) 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 *Ahnak* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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 flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

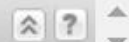
- According to the existing MGI data, Mice homozygous for one knock-out allele exhibit decreased T cell proliferation and increased susceptibility to parasitic infection.
- The *Ahnak* gene is located on the Chr19. If the knockout mice are crossed with other mice strains to obtain double gene positive 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

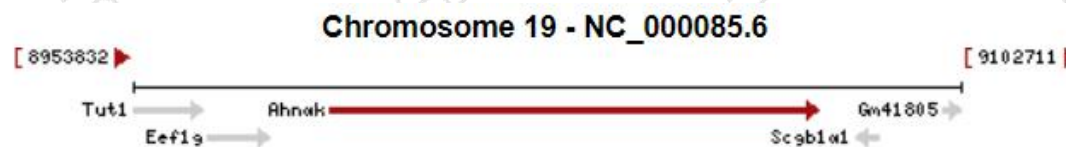
Ahnak AHNAK nucleoprotein (desmoyokin) [*Mus musculus* (house mouse)]

Gene ID: 66395, updated on 18-Nov-2019

Summary



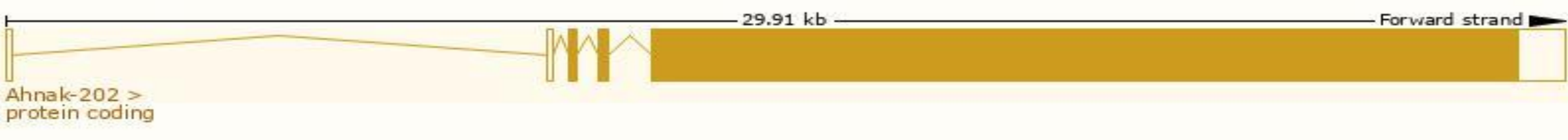
Official Symbol	Ahnak provided by MGI
Official Full Name	AHNAK nucleoprotein (desmoyokin) provided by MGI
Primary source	MGI:MGI:1316648
See related	Ensembl:ENSMUSG00000069833
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	DY6
Expression	Biased expression in bladder adult (RPKM 56.2), lung adult (RPKM 31.1) and 13 other tissues See more
Orthologs	human all



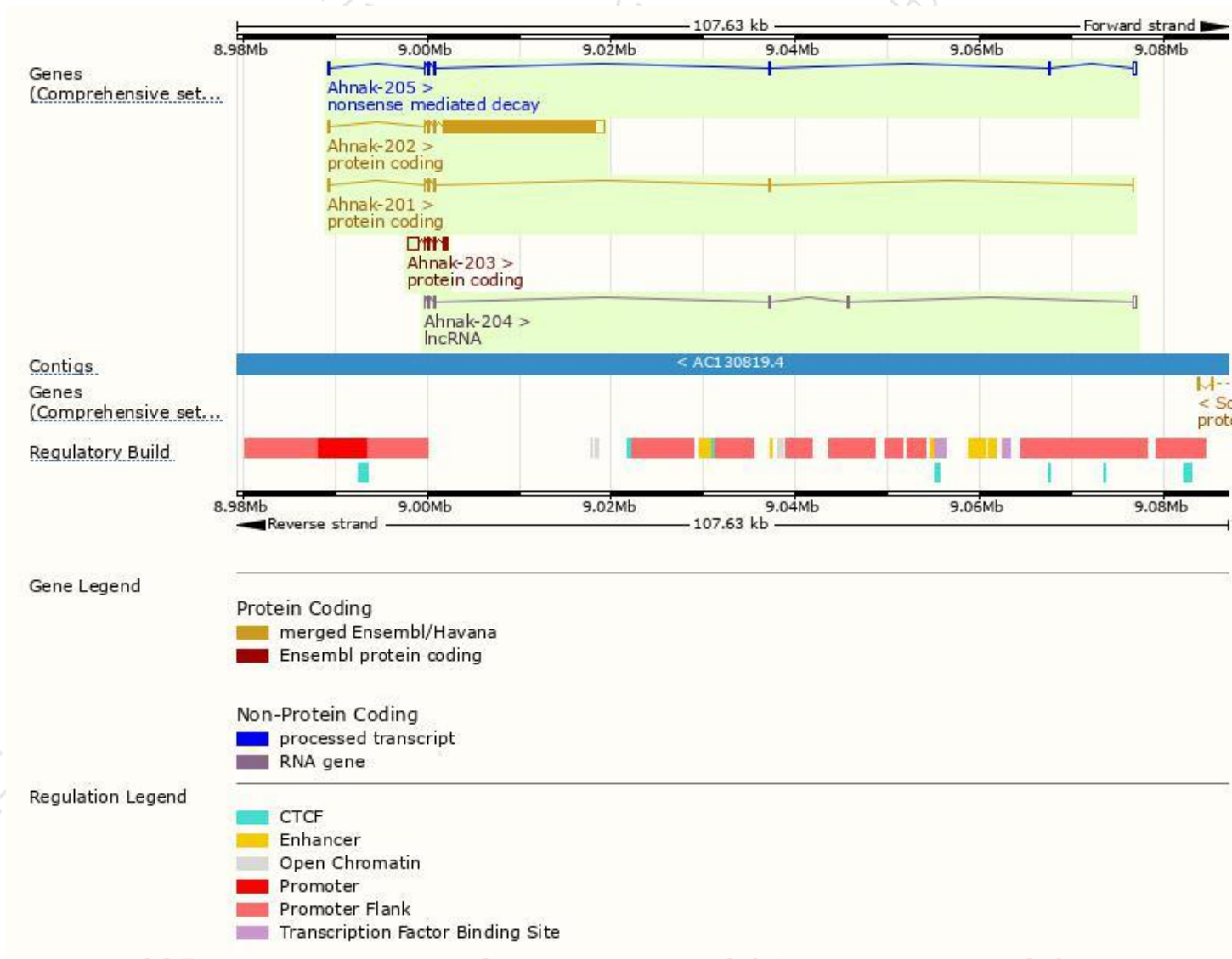
Transcript information (Ensembl)

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Ahnak-202	ENSMUST00000092956.3	18100	5656aa	ENSMUSP00000090633.2	Protein coding	CCDS29564	E9Q616	TSL:1 GENCODE basic
Ahnak-201	ENSMUST00000092955.10	830	150aa	ENSMUSP00000090632.3	Protein coding	CCDS50384	G5E8K8	TSL:2 GENCODE basic APPRIS P1
Ahnak-203	ENSMUST00000236390.1	2200	311aa	ENSMUSP00000158470.1	Protein coding	-	A0A494BBD5	CDS 3' incomplete
Ahnak-205	ENSMUST00000237912.1	1188	176aa	ENSMUSP00000157404.1	Nonsense mediated decay	-	A0A494B8Y7	-
Ahnak-204	ENSMUST00000237033.1	989	No protein	-	lncRNA	-	-	-

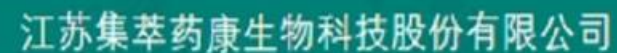
The strategy is based on the design of *Ahnak-202* transcript, The transcription is shown below



Genomic location distribution

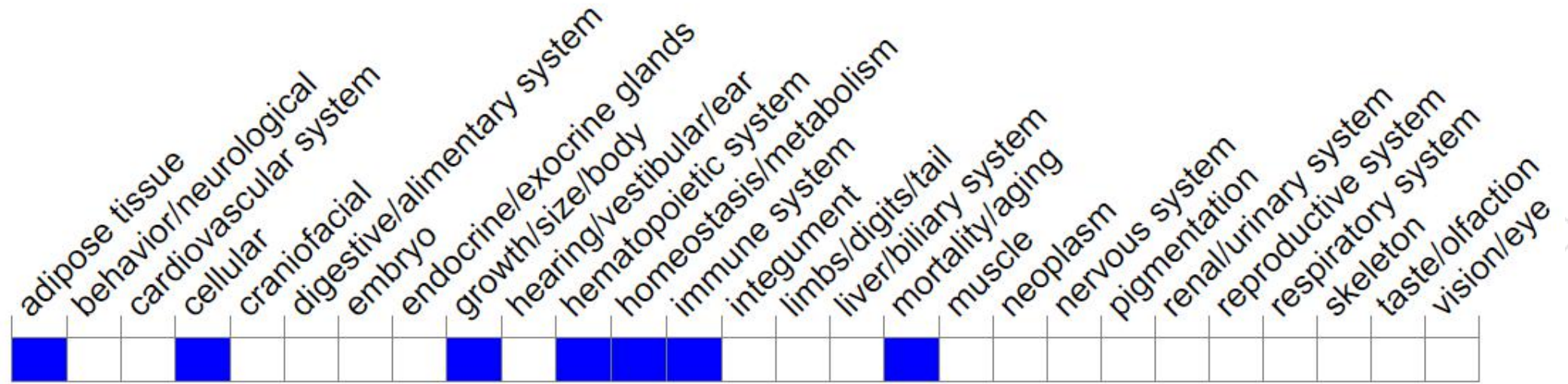


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Mouse phenotype description(MGI)

Phenotype Overview ?



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 one knock-out allele exhibit decreased T cell proliferation and increased susceptibility to parasitic infection.

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

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