Anks3 Cas9-KO Strategy

Designer: Jing Jin

Reviewer: Yang Zeng

Design Date: 2019-11-16

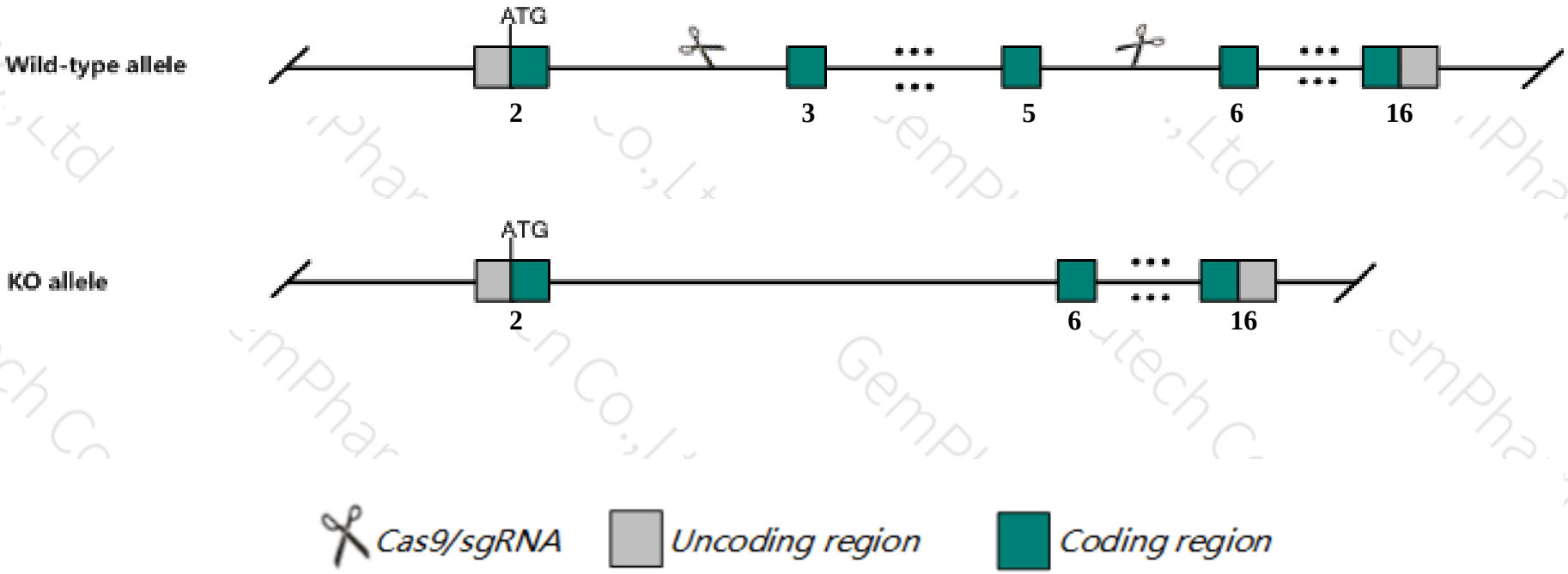
集萃药康 GemPharmatech
GemPharmatech Co.,Ltd

Project Overview

Project Name	***Anks3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Anks3* gene. The schematic diagram is as follows:



Technical routes

➢ The *Anks3* gene has 13 transcripts. According to the structure of *Anks3* gene, exon3-exon5 of *Anks3-201* (ENSMUST00000023157.5) transcript is recommended as the knockout region.The region contains 403bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Anks3* 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.

Notice

➢ Transcript *Anks3-203/204/205/207/208/209/210/213* may not be affected.

➢ The *Anks3* 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）

集萃药康 GemPharmatech

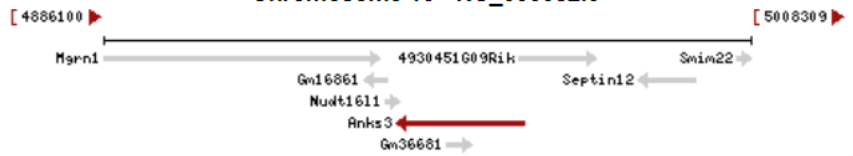
Anks3 ankyrin repeat and sterile alpha motif domain containing 3 [*Mus musculus* (house mouse)]

Gene ID: 72615, updated on 28-Oct-2019

Summary

Official Symbol	Anks3 provided by MGI
Official Full Name	ankyrin repeat and sterile alpha motif domain containing 3 provided by MGI
Primary source	MGI:MGI:1919865
See related	Ensembl:ENSMUSG00000022515
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	C81345; mKIAA1977; 2700067D09Rik
Expression	Ubiquitous expression in CNS E14 (RPKM 12.6), CNS E18 (RPKM 12.3) and 28 other tissues See more
Orthologs	human all

Chromosome 16 - NC_000082.6

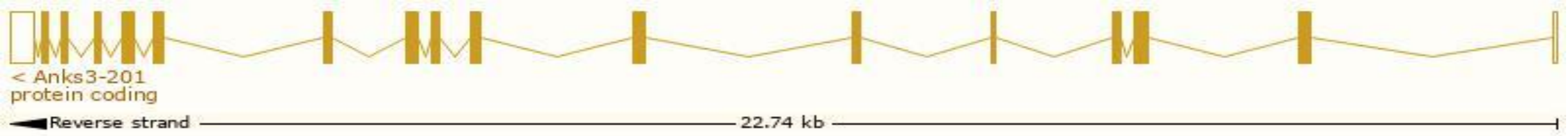


Transcript information（Ensembl）

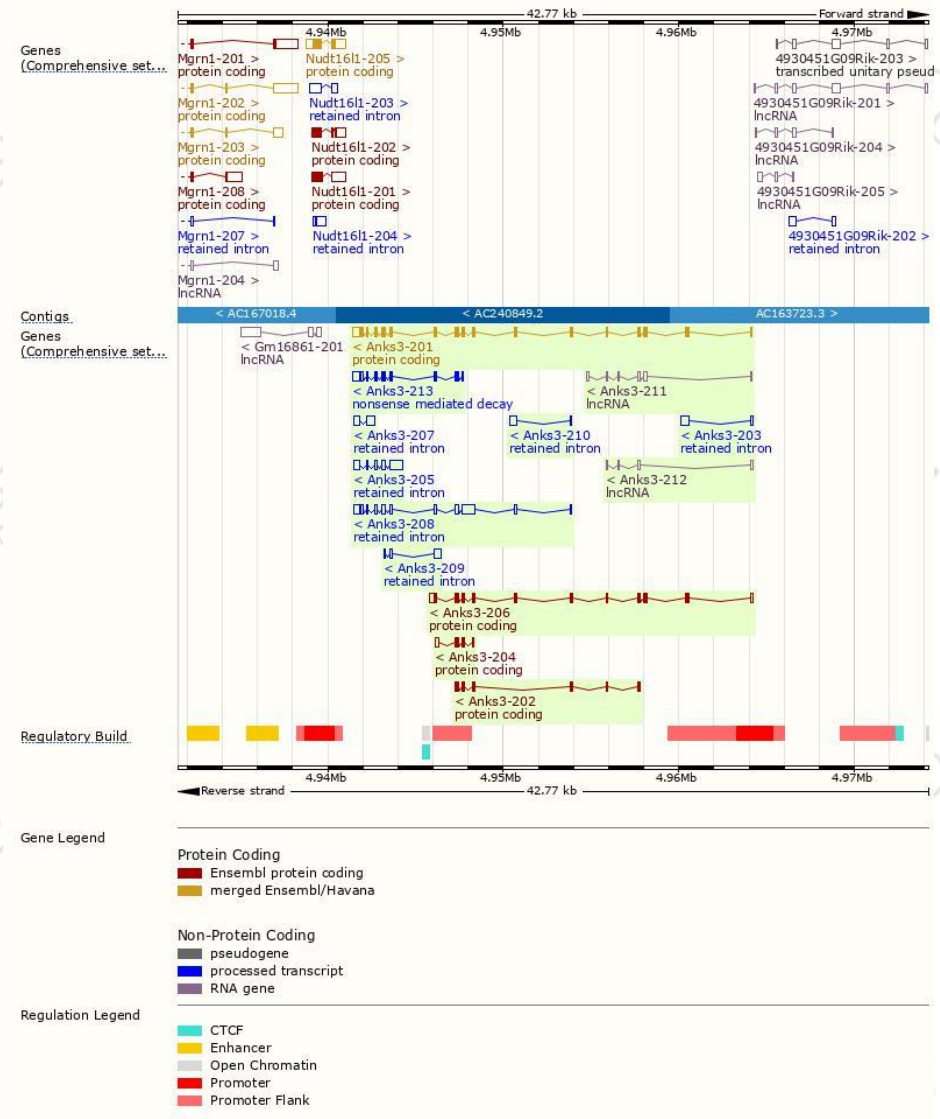
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Anks3-201	ENSMUST00000023157.5	2398	655aa	ENSMUSP00000023157.4	Protein coding	CCDS27928	Q9CZK6	TSL:1 GENCODE basic APPRIS P1
Anks3-206	ENSMUST00000229765.1	1779	469aa	ENSMUSP00000155302.1	Protein coding	-	Q80XC9	GENCODE basic
Anks3-202	ENSMUST00000229017.1	739	246aa	ENSMUSP00000155720.1	Protein coding	-	A0A2R8VI44	CDS 5' and 3' incomplete
Anks3-204	ENSMUST00000229272.1	608	140aa	ENSMUSP00000155421.1	Protein coding	-	A0A2R8VKE4	CDS 5' incomplete
Anks3-213	ENSMUST00000231036.1	1289	266aa	ENSMUSP00000155247.1	Nonsense mediated decay	-	A0A2R8VHN6	CDS 5' incomplete
Anks3-208	ENSMUST00000230083.1	2144	No protein	-	Retained intron	-	-	-
Anks3-205	ENSMUST00000229477.1	1372	No protein	-	Retained intron	-	-	-
Anks3-207	ENSMUST00000229898.1	799	No protein	-	Retained intron	-	-	-
Anks3-209	ENSMUST00000230466.1	592	No protein	-	Retained intron	-	-	-
Anks3-203	ENSMUST00000229077.1	537	No protein	-	Retained intron	-	-	-
Anks3-210	ENSMUST00000230493.1	476	No protein	-	Retained intron	-	-	-
Anks3-211	ENSMUST00000230721.1	668	No protein	-	lncRNA	-	-	-
Anks3-212	ENSMUST00000230771.1	360	No protein	-	lncRNA	-	-	-

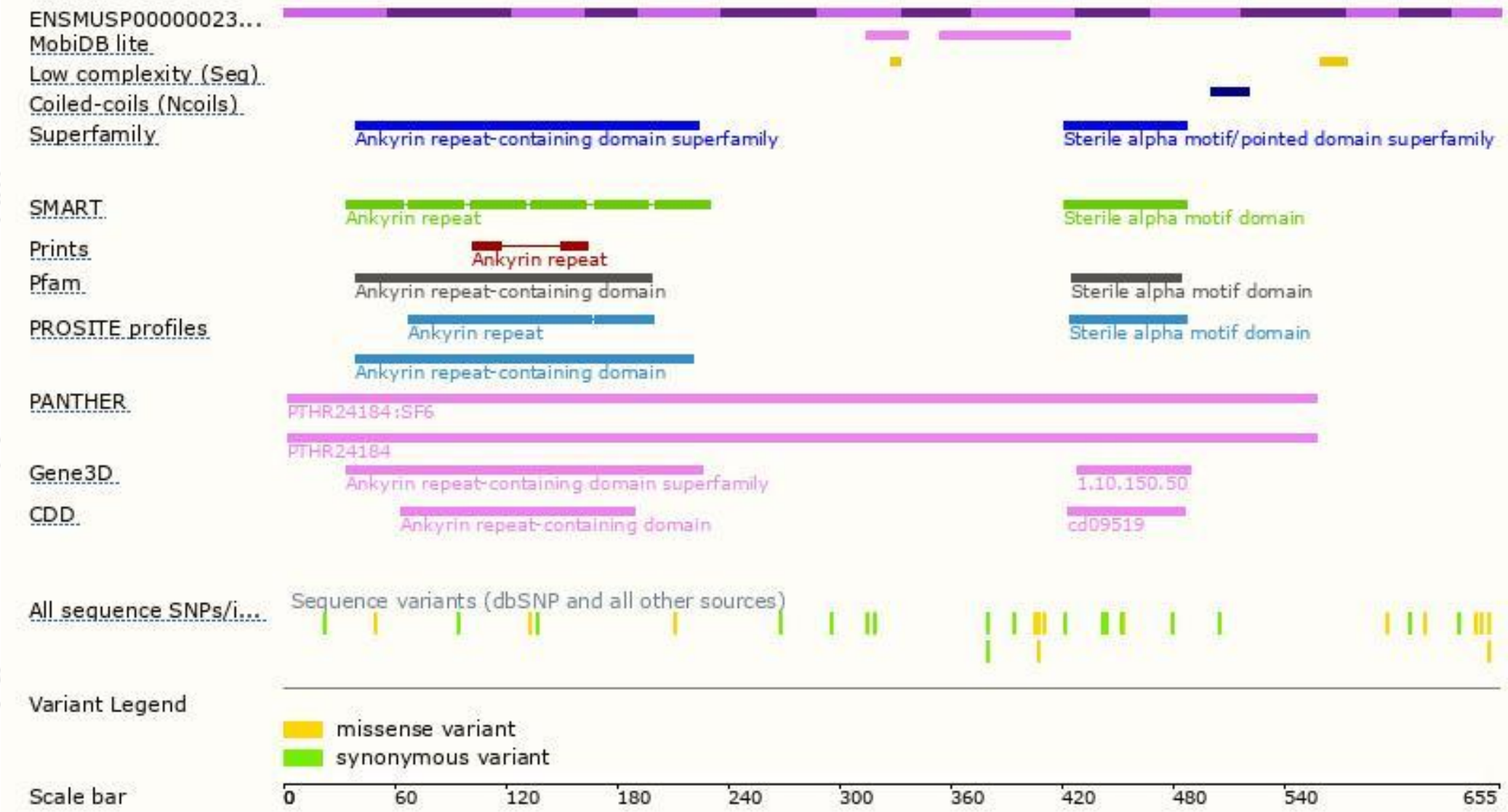
The strategy is based on the design of *Anks3-201* transcript,The transcription is shown below



Genomic location distribution



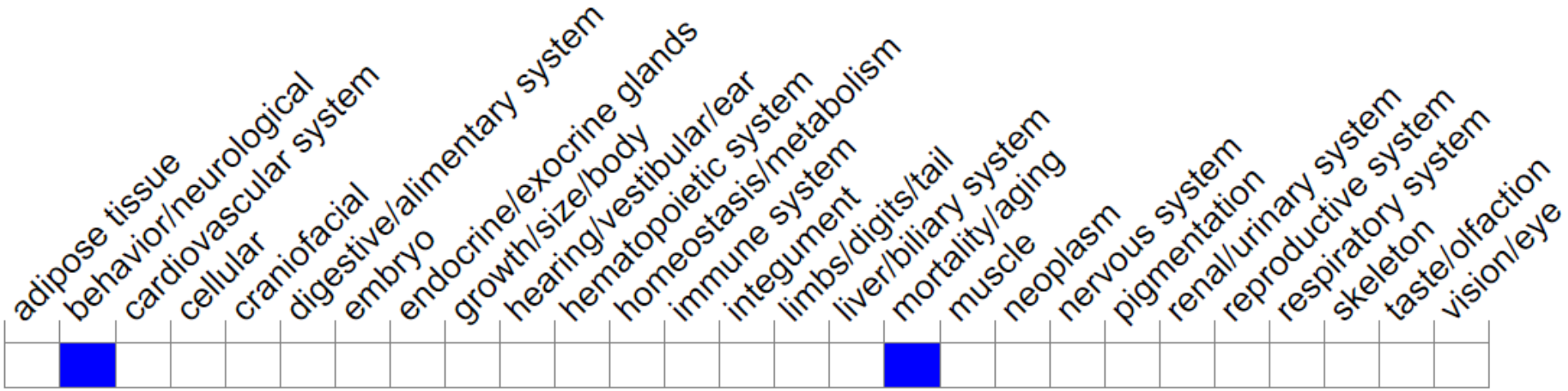
Protein domain



Mouse phenotype description(MGI)

集萃药康 GemPharmatech

Phenotype Overview



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.

Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd