

***Anapc4* Cas9-KO Strategy**

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Project Overview

Project Name

Anapc4

Project type

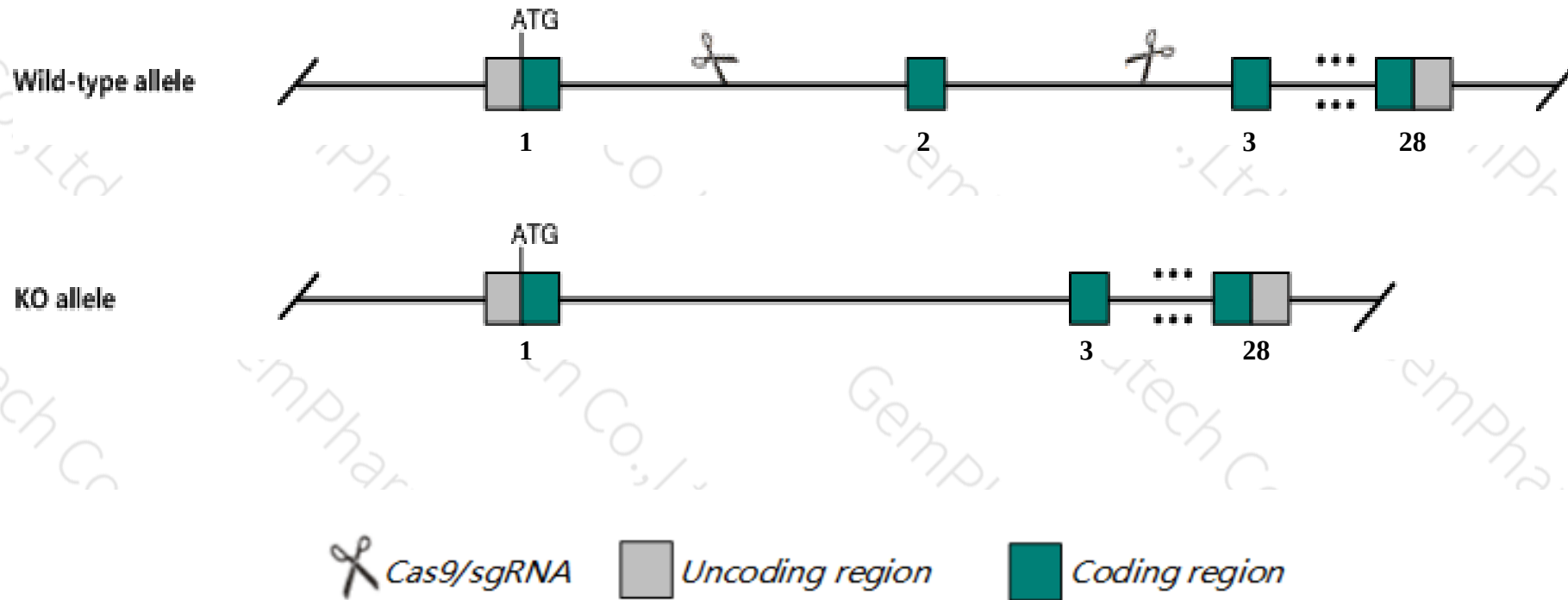
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Anapc4* gene. The schematic diagram is as follows:



- The *Anapc4* gene has 12 transcripts. According to the structure of *Anapc4* gene, exon2 of *Anapc4*-201(ENSMUST00000031072.13) transcript is recommended as the knockout region. The region contains 106bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Anapc4* 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.

- Transcript *Anapc4*-209, *Anapc4*-211 may not be affected.
- The *Anapc4* gene is located on the Chr5. 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)

Anapc4 anaphase promoting complex subunit 4 [Mus musculus (house mouse)]

Gene ID: 52206, updated on 13-Mar-2020

Summary



Official Symbol	Anapc4 provided by MGI
Official Full Name	anaphase promoting complex subunit 4 provided by MGI
Primary source	MGI:MGI:1098673
See related	Ensembl:ENSMUSG00000029176
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	2610306D21Rik, APC4, D5Ert249e
Expression	Broad expression in CNS E11.5 (RPKM 38.1), CNS E14 (RPKM 29.2) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

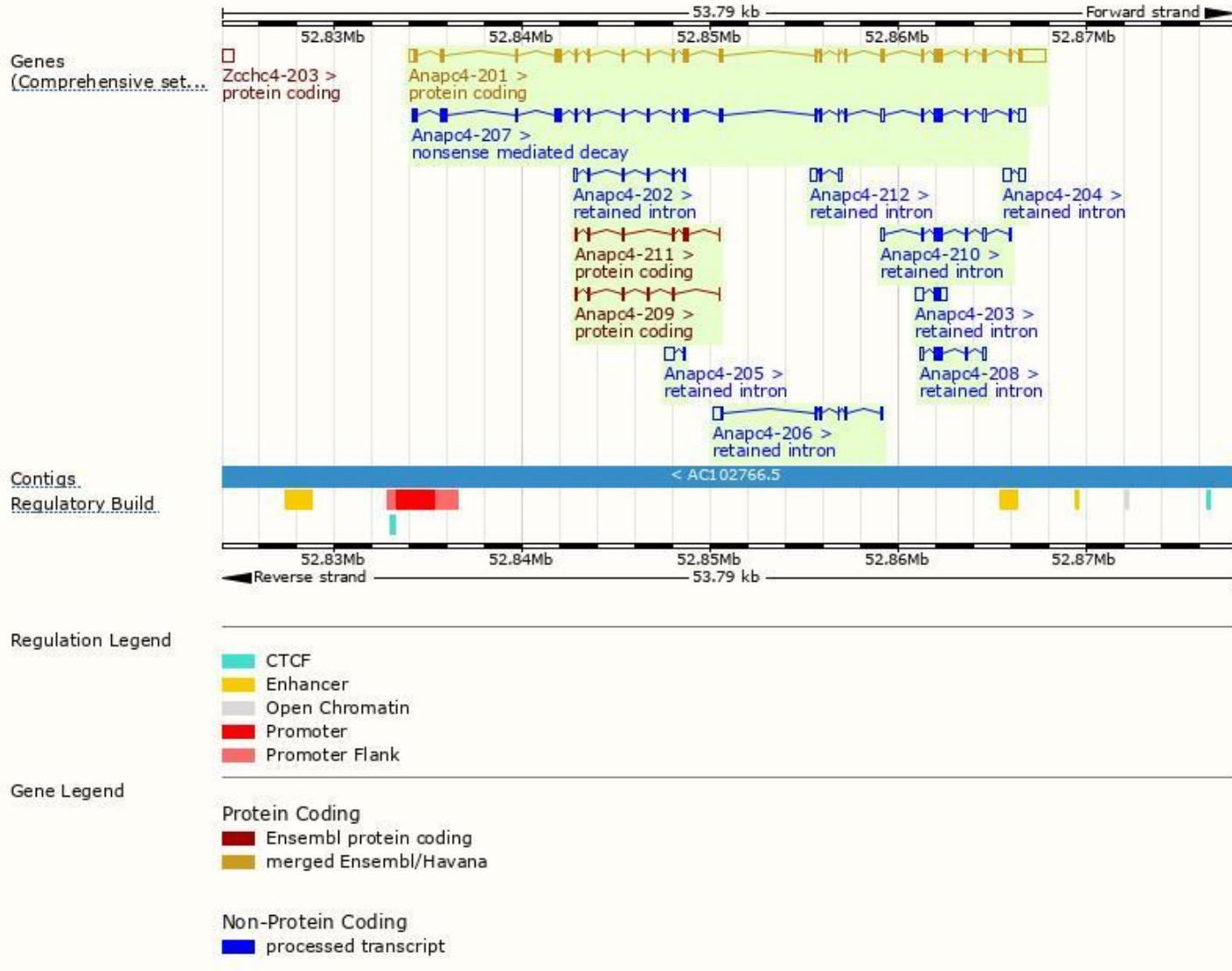
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Anapc4-201	ENSMUST00000031072.13	3854	807aa	Protein coding	CCDS19290	Q3TM92 Q91W96	TSL:1 GENCODE basic APPRIS P1
Anapc4-211	ENSMUST00000198207.4	512	171aa	Protein coding	-	A0A0G2JF77	CDS 5' and 3' incomplete TSL:5
Anapc4-209	ENSMUST00000150682.2	453	151aa	Protein coding	-	A0A0G2JGY2	CDS 5' and 3' incomplete TSL:5
Anapc4-207	ENSMUST00000144574.7	2758	82aa	Nonsense mediated decay	-	D6RDT6	TSL:1
Anapc4-203	ENSMUST00000131750.5	857	No protein	Retained intron	-	-	TSL:3
Anapc4-210	ENSMUST00000154980.7	801	No protein	Retained intron	-	-	TSL:2
Anapc4-204	ENSMUST00000138629.1	745	No protein	Retained intron	-	-	TSL:2
Anapc4-206	ENSMUST00000142035.5	739	No protein	Retained intron	-	-	TSL:3
Anapc4-208	ENSMUST00000145349.4	640	No protein	Retained intron	-	-	TSL:2
Anapc4-205	ENSMUST00000141641.1	600	No protein	Retained intron	-	-	TSL:3
Anapc4-202	ENSMUST00000130536.4	560	No protein	Retained intron	-	-	TSL:5
Anapc4-212	ENSMUST00000199850.1	506	No protein	Retained intron	-	-	TSL:3

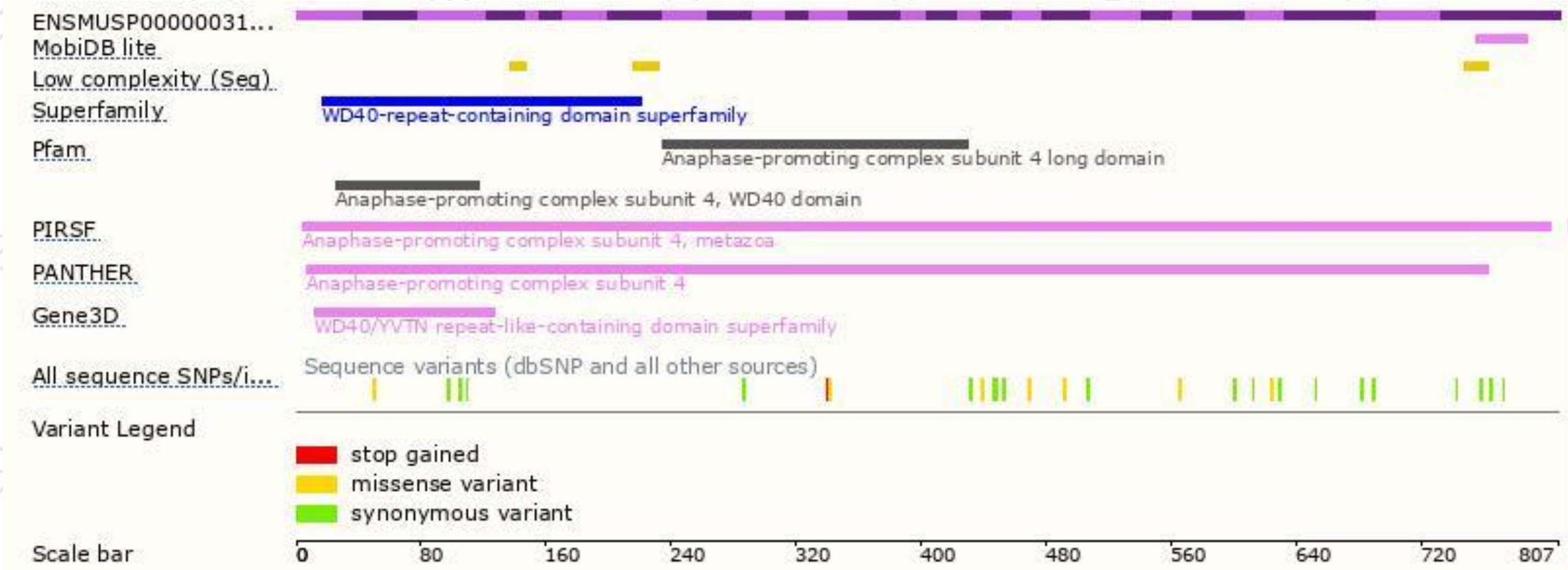
The strategy is based on the design of *Anapc4-201* transcript,the transcription is shown below:



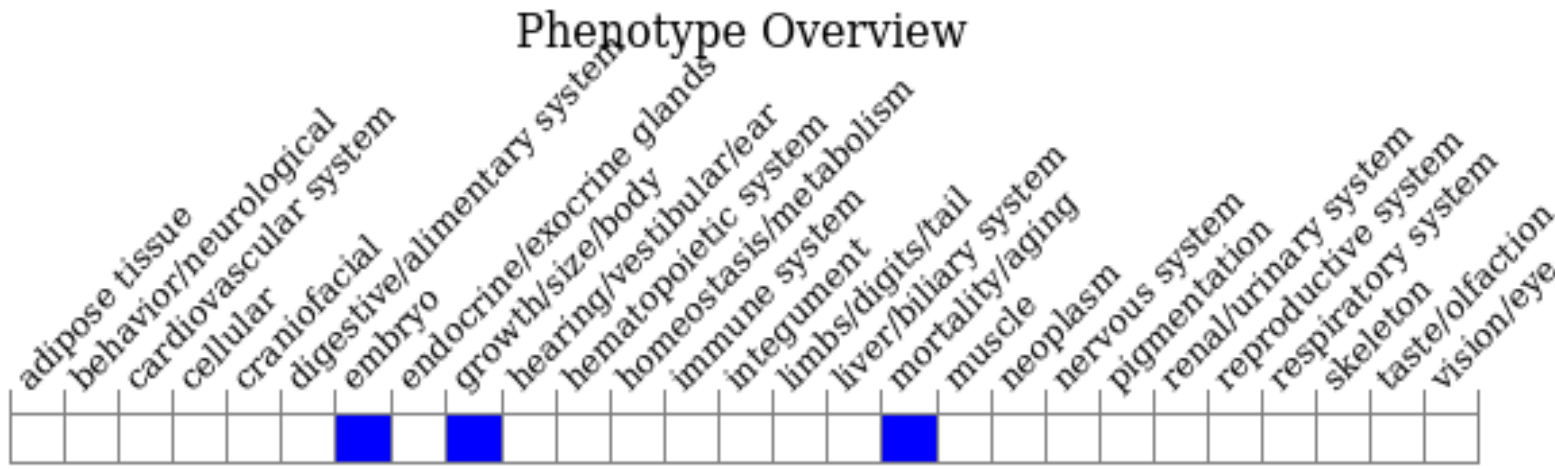
Genomic location distribution



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/>).

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

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