

Anapc5 Cas9-CKO Strategy

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Project Overview

Project Name

Anapc5

Project type

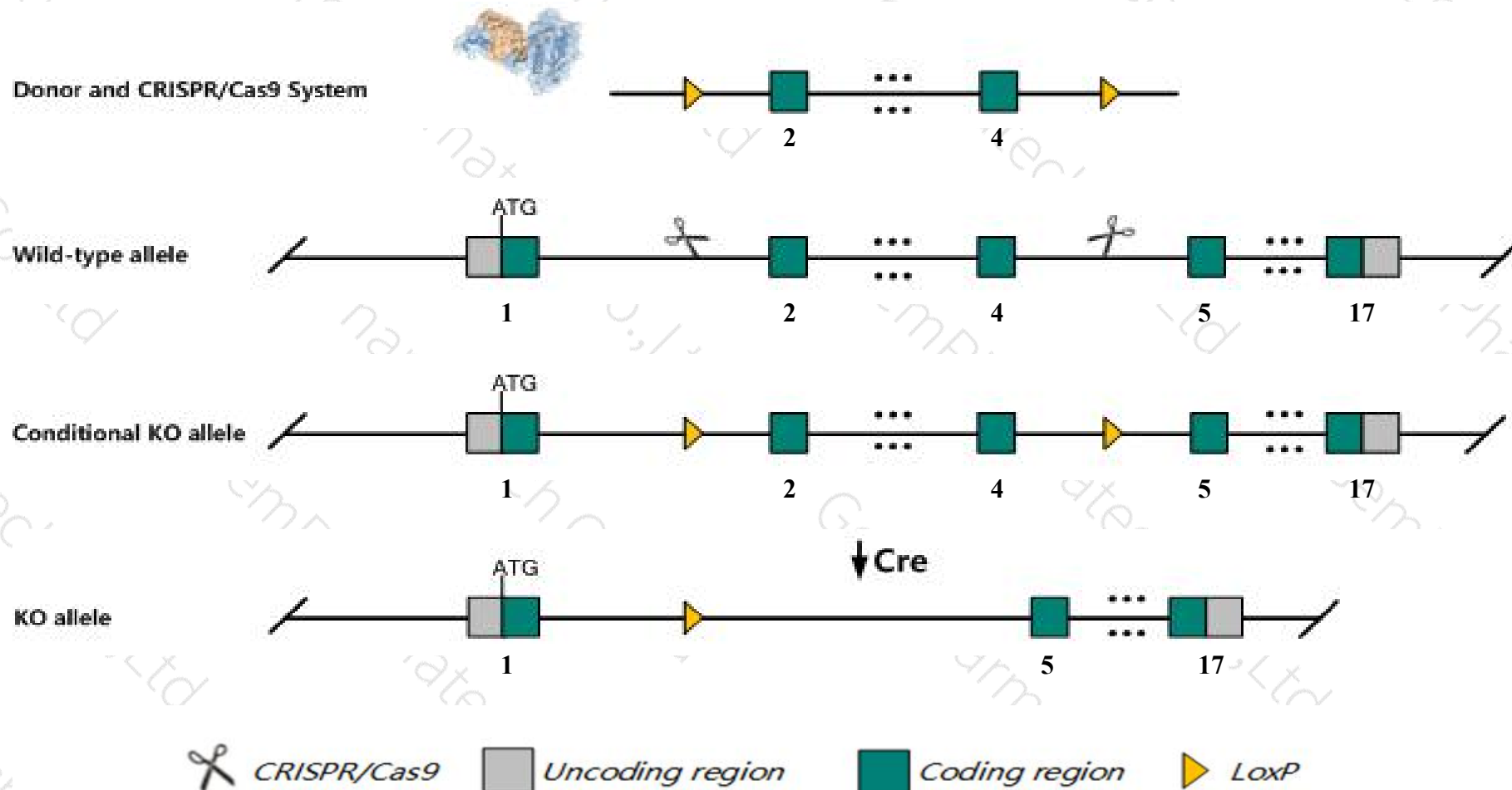
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Anapc5* gene. The schematic diagram is as follows:



Technical routes

- The *Anapc5* gene has 18 transcripts. According to the structure of *Anapc5* gene, exon2-exon4 of *Anapc5-201* (ENSMUST00000086216.8) transcript is recommended as the knockout region. The region contains 374bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Anapc5* 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.

- The *Anapc5* 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.
- Transcript *Anapc5-211* is incomplete, so the effect on it is unknown.
- 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)

Anapc5 anaphase-promoting complex subunit 5 [*Mus musculus* (house mouse)]

Gene ID: 59008, updated on 3-May-2020

Summary



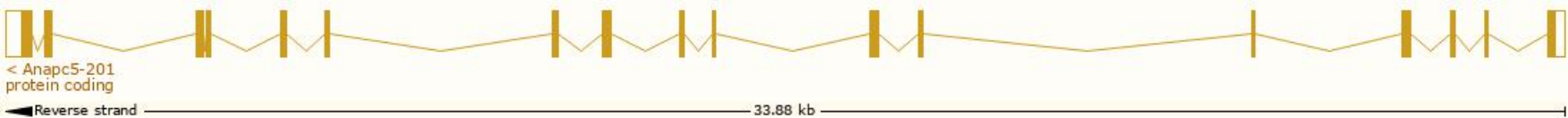
Official Symbol	Anapc5 provided by MGI
Official Full Name	anaphase-promoting complex subunit 5 provided by MGI
Primary source	MGI:MGI:1929722
See related	Ensembl:ENSMUSG00000029472
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	APC5; Anpc5; AA408751; AA536819; AA986414; 2510006G12Rik
Expression	Ubiquitous expression in limb E14.5 (RPKM 122.1), CNS E14 (RPKM 119.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

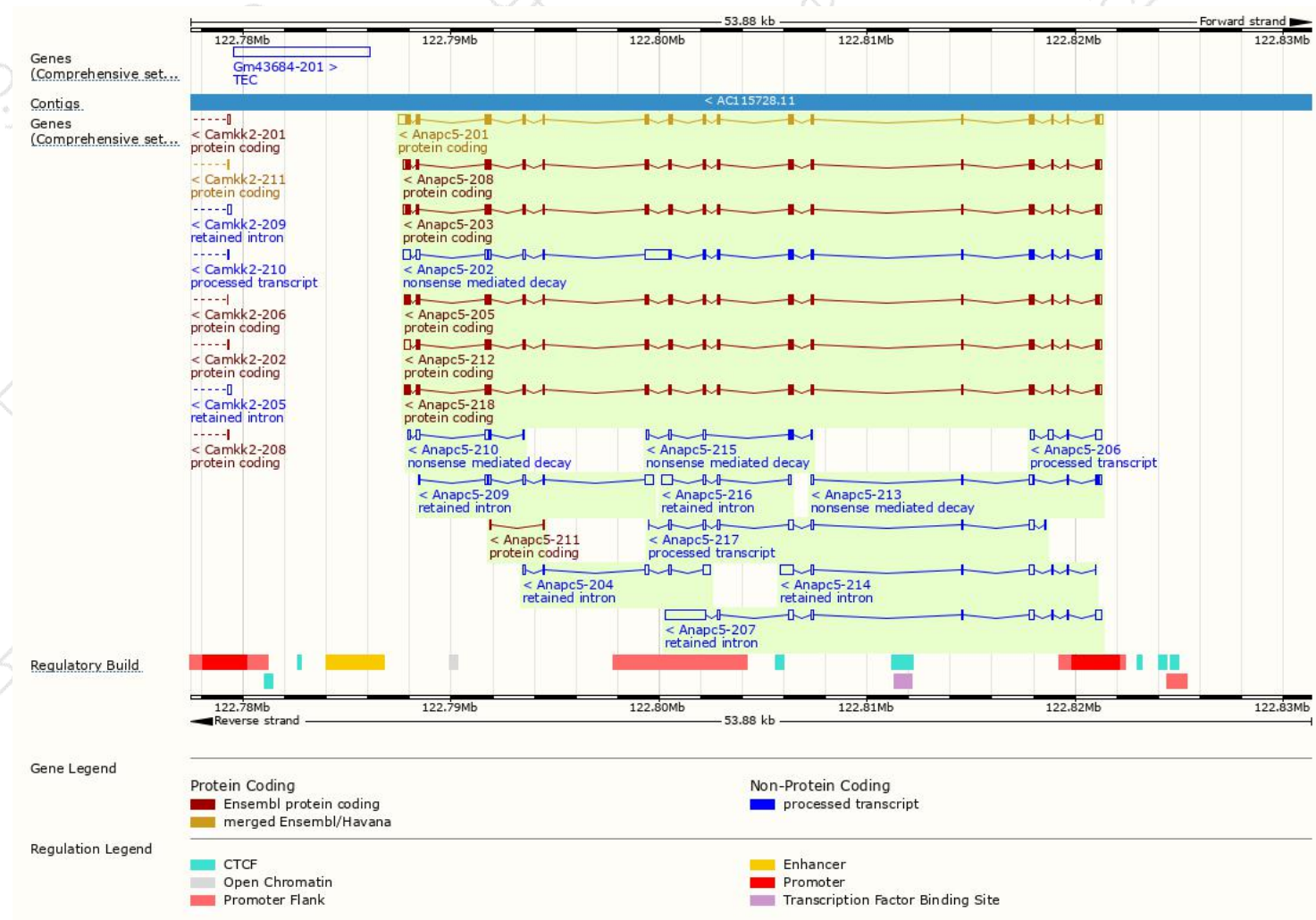
The gene has 18 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Anapc5-201	ENSMUST00000086216.8	2760	740aa	Protein coding	CCDS39258	Q8BTZ4	TSL:1 GENCODE basic APPRIS P3
Anapc5-203	ENSMUST00000196640.4	2422	732aa	Protein coding	CCDS80400	A0A0G2JDM7	TSL:1 GENCODE basic APPRIS ALT2
Anapc5-205	ENSMUST00000197074.4	2413	732aa	Protein coding	CCDS80398	Q3TWF7	TSL:1 GENCODE basic APPRIS ALT2
Anapc5-212	ENSMUST00000199406.4	2413	656aa	Protein coding	CCDS80399	A0A0G2JDE8	TSL:1 GENCODE basic APPRIS ALT2
Anapc5-218	ENSMUST00000200645.4	2404	727aa	Protein coding	CCDS80397	Q3UFC2 Q8BTZ4	TSL:1 GENCODE basic APPRIS ALT2
Anapc5-208	ENSMUST00000197719.4	2383	719aa	Protein coding	CCDS80396	A0A0G2JE03	TSL:1 GENCODE basic APPRIS ALT2
Anapc5-211	ENSMUST00000199191.1	135	45aa	Protein coding	-	A0A0G2JF95	CDS 5' and 3' incomplete TSL:1
Anapc5-202	ENSMUST00000196423.4	3376	407aa	Nonsense mediated decay	-	A0A0G2JFH0	TSL:2
Anapc5-213	ENSMUST00000199926.1	695	95aa	Nonsense mediated decay	-	A0A0G2JF12	TSL:3
Anapc5-210	ENSMUST00000199130.1	687	68aa	Nonsense mediated decay	-	A0A0G2JGE5	CDS 5' incomplete TSL:3
Anapc5-215	ENSMUST00000200148.4	548	78aa	Nonsense mediated decay	-	A0A0G2JG78	CDS 5' incomplete TSL:5
Anapc5-217	ENSMUST00000200415.4	905	No protein	Processed transcript	-	-	TSL:5
Anapc5-206	ENSMUST00000197331.1	752	No protein	Processed transcript	-	-	TSL:3
Anapc5-207	ENSMUST00000197554.4	3057	No protein	Retained intron	-	-	TSL:2
Anapc5-214	ENSMUST00000200058.4	1174	No protein	Retained intron	-	-	TSL:2
Anapc5-209	ENSMUST00000199025.4	895	No protein	Retained intron	-	-	TSL:3
Anapc5-216	ENSMUST00000200219.4	817	No protein	Retained intron	-	-	TSL:2
Anapc5-204	ENSMUST00000196753.4	799	No protein	Retained intron	-	-	TSL:2

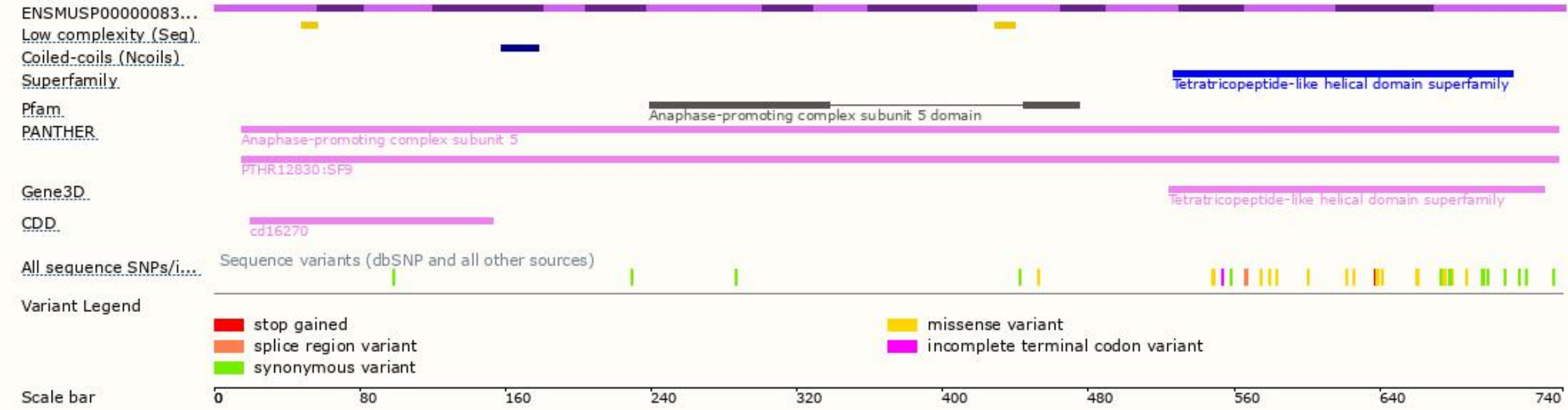
The strategy is based on the design of *Anapc5-201* transcript, the transcription is shown below



Genomic location distribution



Protein domain



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

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