

Anxa10 Cas9-CKO Strategy

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Project Overview

Project Name

Anxa10

Project type

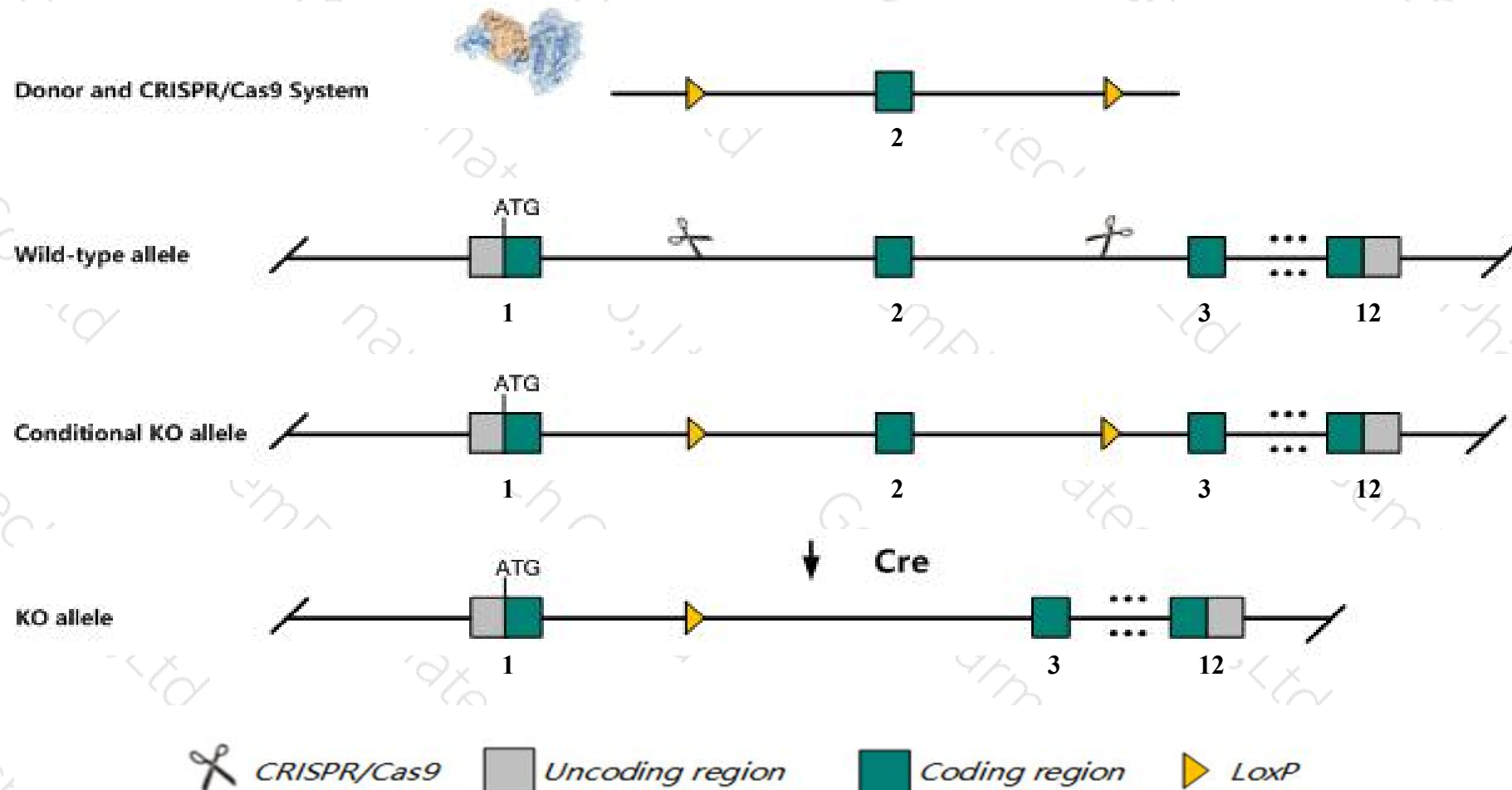
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Anxa10* gene. The schematic diagram is as follows:



Technical routes

- The *Anxa10* gene has 3 transcripts. According to the structure of *Anxa10* gene, exon2 of *Anxa10-201* (ENSMUST00000034052.13) transcript is recommended as the knockout region. The region contains 82bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Anxa10* 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, litter sizes from crosses of females that are either homozygous or heterozygous for a null allele contain fewer pups than wild-type females, indicating a dominant maternal effect on embryonic lethality. Embryos of homozygous null females die between e4.5 and e12.5.
- The *Anxa10* gene is located on the Chr8. 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)

Anxa10 annexin A10 [*Mus musculus* (house mouse)]

Gene ID: 26359, updated on 13-Mar-2020

Summary



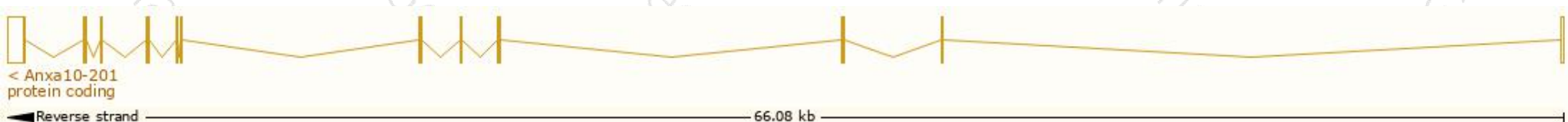
Official Symbol	Anxa10 provided by MGI
Official Full Name	annexin A10 provided by MGI
Primary source	MGI:MGI:1347090
See related	Ensembl:ENSMUSG00000031635
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Restricted expression toward stomach adult (RPKM 61.0) See more
Orthologs	human all

Transcript information (Ensembl)

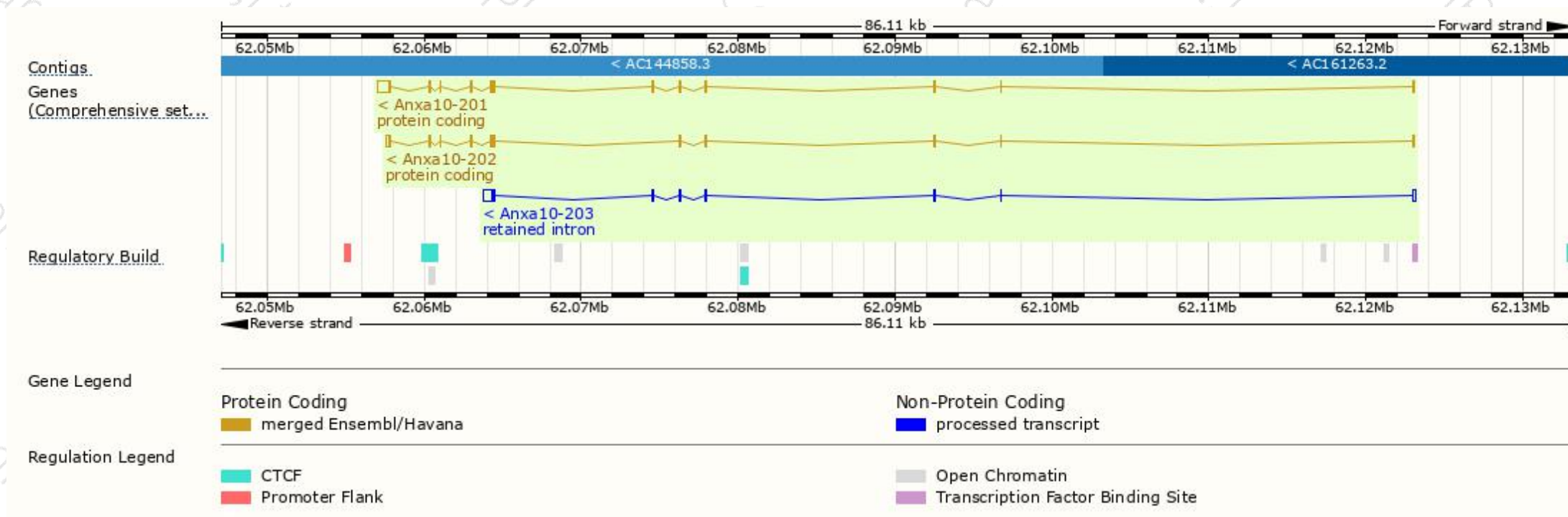
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Anxa10-201	ENSMUST00000034052.13	1763	324aa	Protein coding	CCDS52558	Q9QZ10	TSL:1 GENCODE basic APPRIS P1
Anxa10-202	ENSMUST00000034054.8	1222	304aa	Protein coding	CCDS52557	Q9D272	TSL:1 GENCODE basic
Anxa10-203	ENSMUST00000210799.1	1225	No protein	Retained intron	-	-	TSL:1

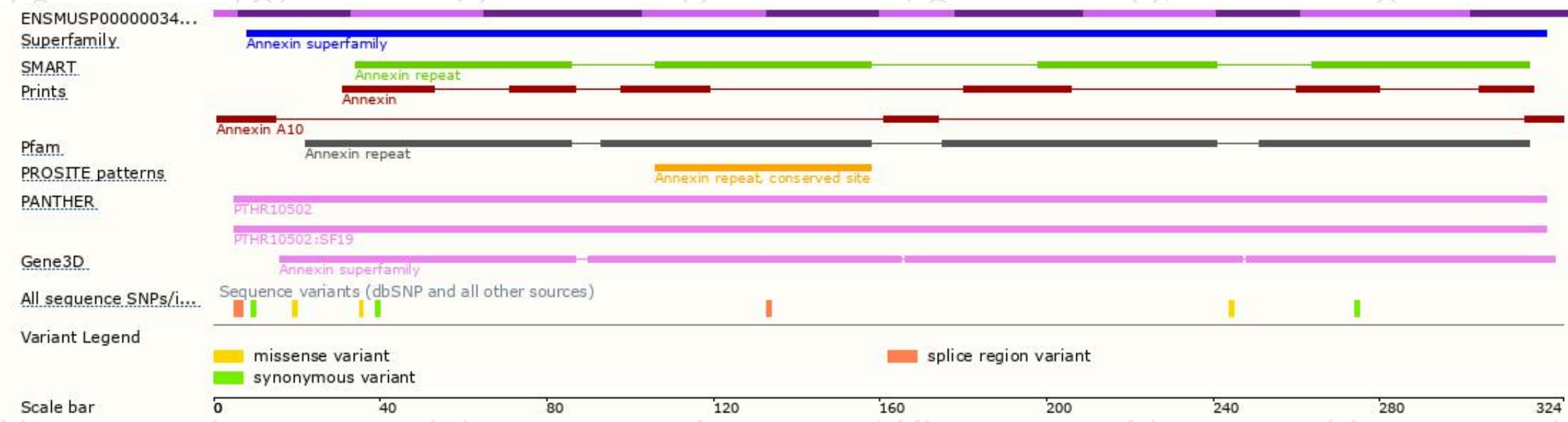
The strategy is based on the design of *Anxa10-201* transcript, the transcription is shown below



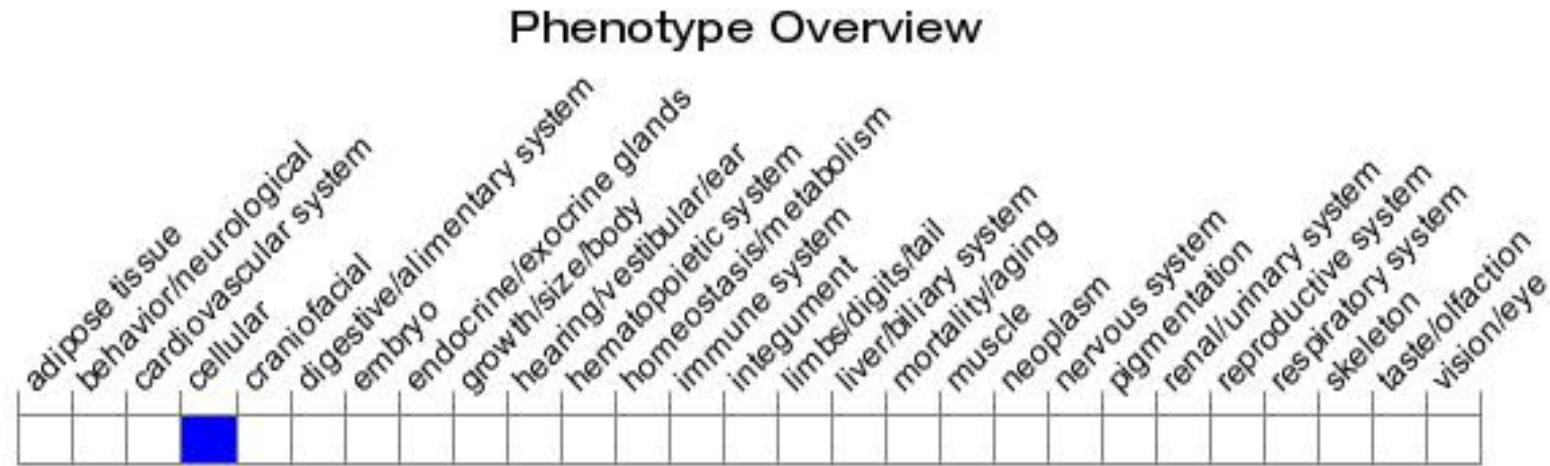
Genomic location distribution



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/>).

According to the existing MGI data, litter sizes from crosses of females that are either homozygous or heterozygous for a null allele contain fewer pups than wild-type females, indicating a dominant maternal effect on embryonic lethality. Embryos of homozygous null females die between E4.5 and E12.5.

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

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