

Anp32a Cas9-CKO Strategy

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Reviewer:

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Project Overview



Project Name

Anp32a

Project type

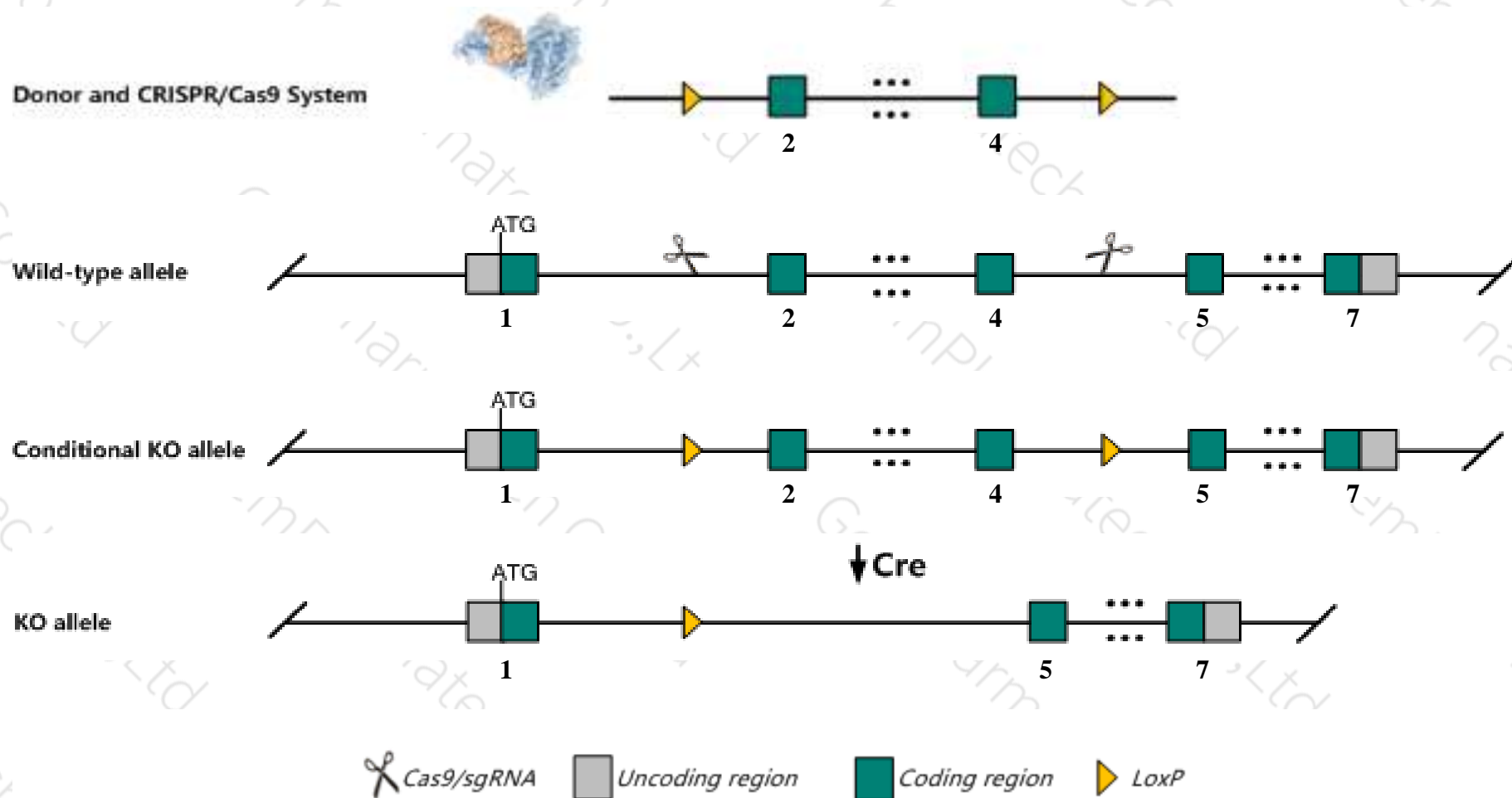
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Anp32a* gene. The schematic diagram is as follows:



- The *Anp32a* gene has 10 transcripts. According to the structure of *Anp32a* gene, exon2-exon4 of *Anp32a-201* (ENSMUST00000085519.12) transcript is recommended as the knockout region. The region contains 466bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Anp32a* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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, Homozygous mutant mice are viable, fertile, behaviorally normal, and show no defects of the central nervous system.
- The effect of transcript 210, is unknown.
- The *Anp32a* gene is located on the Chr9. 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.

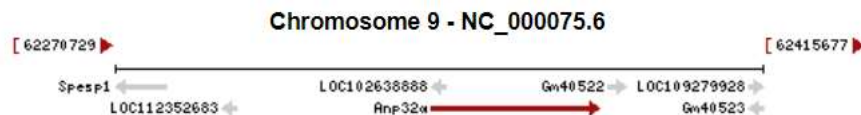
Gene information (NCBI)

Anp32a acidic (leucine-rich) nuclear phosphoprotein 32 family, member A [*Mus musculus* (house mouse)]

Gene ID: 11737, updated on 12-Oct-2019

Summary

Official Symbol	Anp32a provided by MGI
Official Full Name	acidic (leucine-rich) nuclear phosphoprotein 32 family, member A provided by MGI
Primary source	MGI:MGI:108447
See related	Ensembl:ENSMUSG00000032249
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	LANP; pp32; Anp32; PHAP1; I1PP2A; W91701
Expression	Broad expression in CNS E11.5 (RPKM 178.7), CNS E14 (RPKM 62.2) and 15 other tissues See more
Orthologs	human all

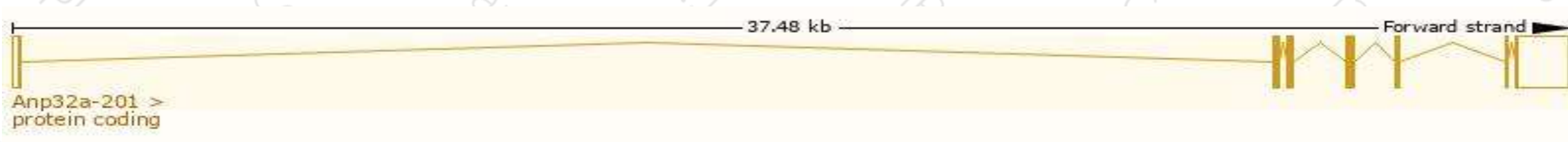


Transcript information (Ensembl)

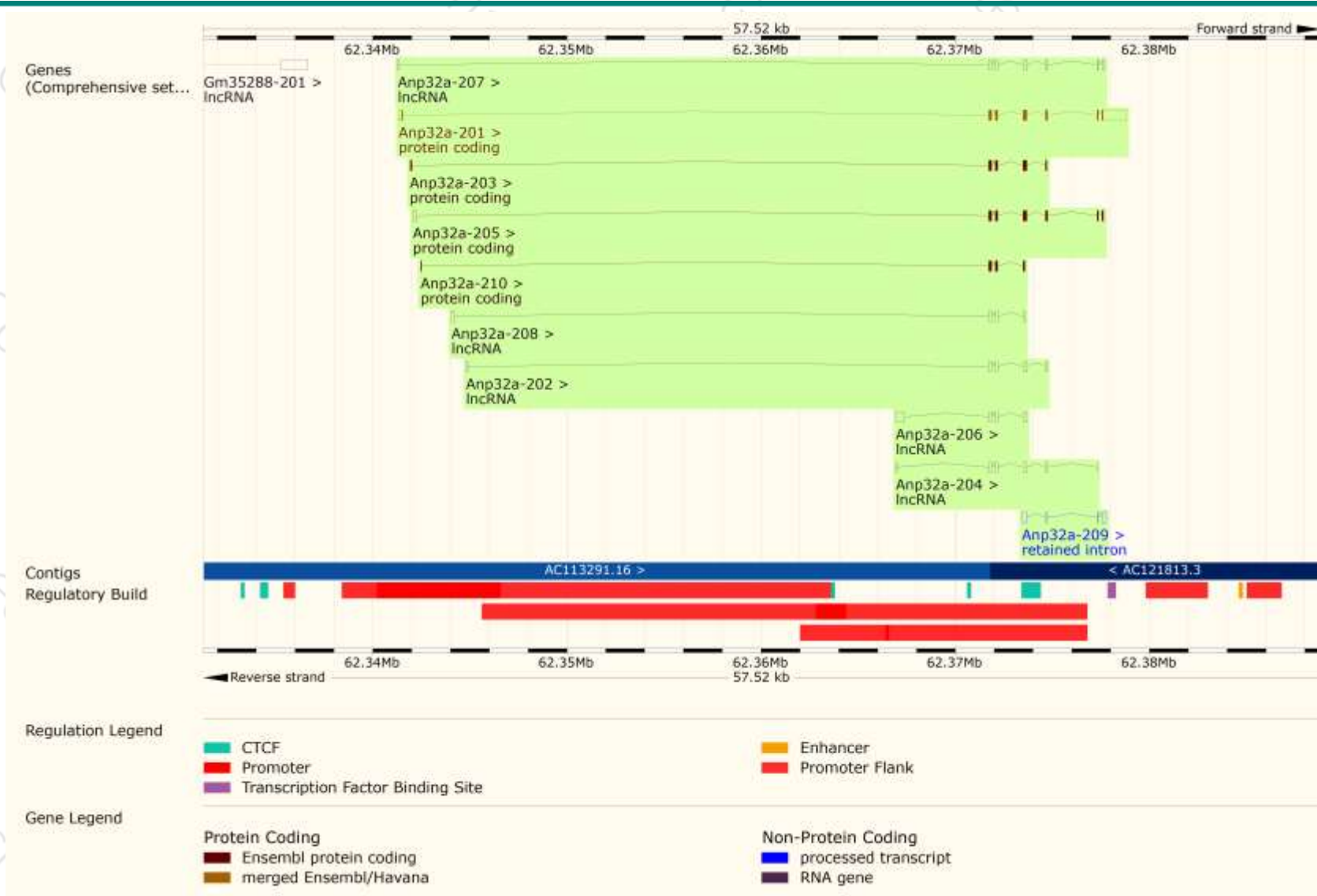
The gene has 10 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Anp32a-201	ENSMUST00000085519.12	2113	247aa	ENSMUSP00000082652.6	Protein coding	CCDS40663	O35381	TSL:1 GENCODE basic APPRIS P2
Anp32a-205	ENSMUST00000135395.7	924	233aa	ENSMUSP00000122165.1	Protein coding	-	D3Z7M9	TSL:5 GENCODE basic APPRIS ALT2
Anp32a-203	ENSMUST00000128636.7	640	198aa	ENSMUSP00000123574.1	Protein coding	-	D3YYE1	CDS 3' incomplete TSL:2
Anp32a-210	ENSMUST00000156461.1	412	138aa	ENSMUSP00000115293.1	Protein coding	-	F6UFG6	CDS 5' and 3' incomplete TSL:2
Anp32a-209	ENSMUST00000145679.1	629	No protein	-	Retained intron	-	-	TSL:2
Anp32a-206	ENSMUST00000136603.7	871	No protein	-	lncRNA	-	-	TSL:5
Anp32a-207	ENSMUST00000138226.7	835	No protein	-	lncRNA	-	-	TSL:5
Anp32a-204	ENSMUST00000129026.7	630	No protein	-	lncRNA	-	-	TSL:5
Anp32a-202	ENSMUST00000126451.7	617	No protein	-	lncRNA	-	-	TSL:3
Anp32a-208	ENSMUST00000141277.7	535	No protein	-	lncRNA	-	-	TSL:3

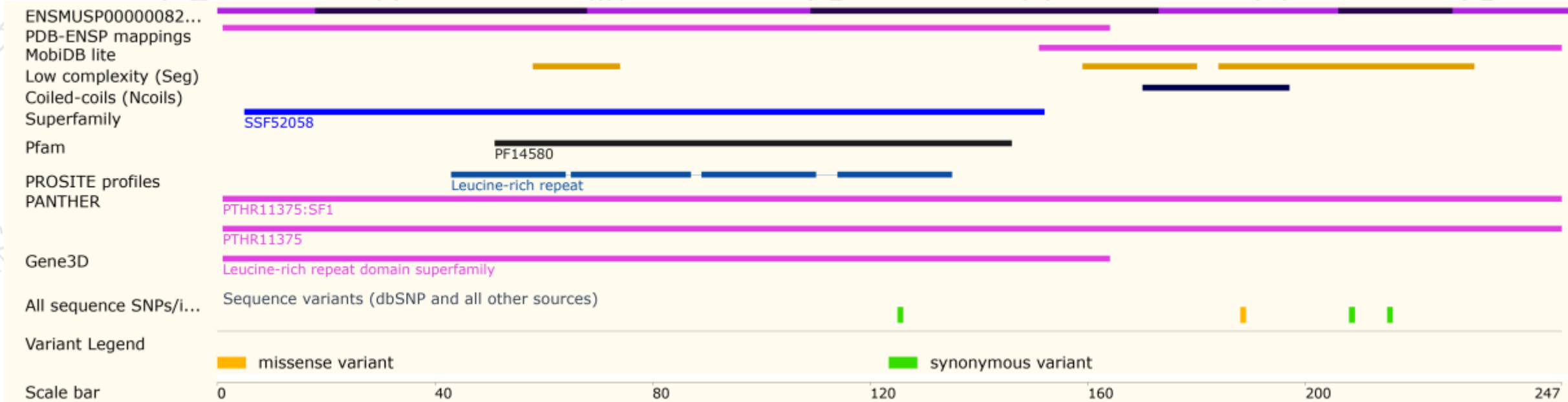
The strategy is based on the design of *Anp32a-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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

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