Ankfy1 Cas9-KO Strategy

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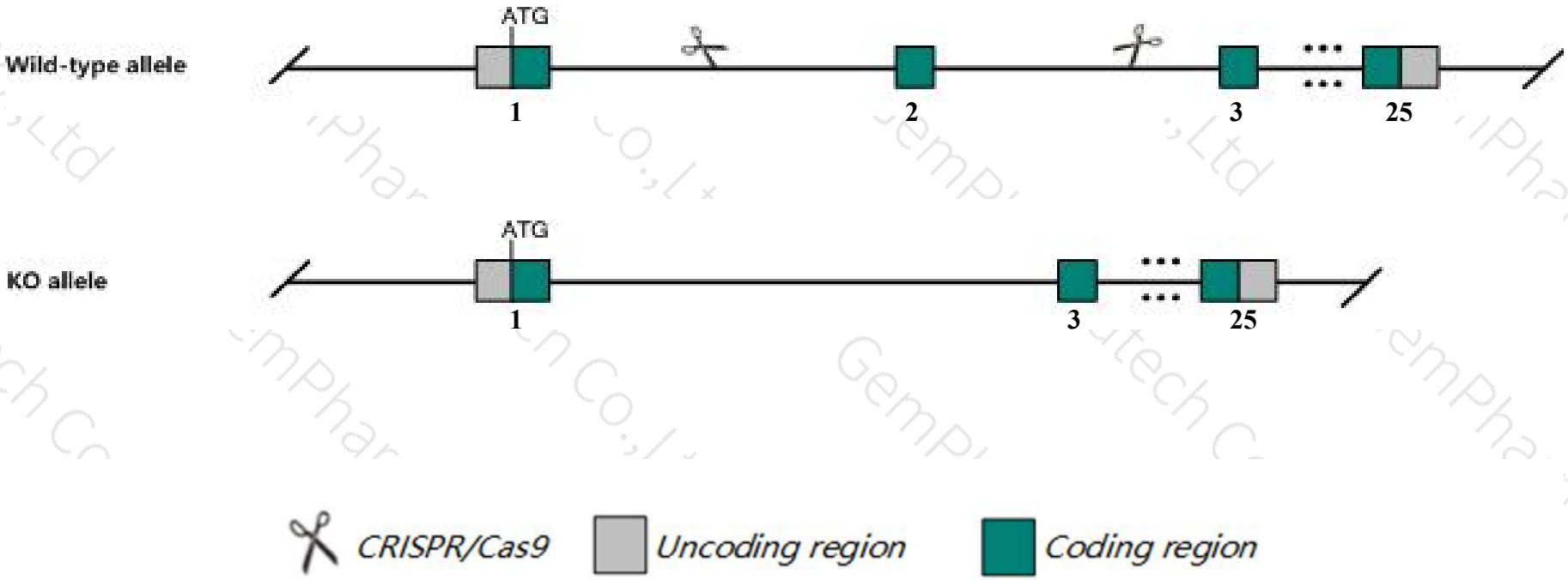
Project Overview

Project Name	***Ankfy1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ankfy1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ankfy1* gene has 6 transcripts. According to the structure of *Ankfy1* gene, exon2 of *Ankfy1-206* (ENSMUST00000155998.1) transcript is recommended as the knockout region.The region contains 193bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ankfy1* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit partial embryonic lethality with no apparent neural developmental defects on a mixed genetic background but show complete embryonic lethality on highly homogenous genetic backgrounds.

- The *Ankfy1* gene is located on the Chr11. 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）

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Ankfy1 ankyrin repeat and FYVE domain containing 1 [Mus musculus (house mouse)]

Gene ID: 11736, updated on 31-Jan-2019

Summary

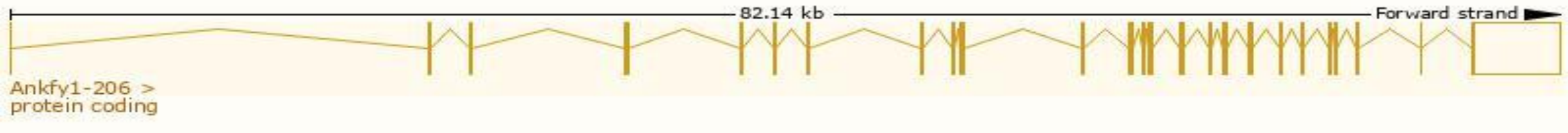
Official Symbol	Ankfy1 provided by MGI
Official Full Name	ankyrin repeat and FYVE domain containing 1 provided by MGI
Primary source	MGI:MGI:1337008
See related	Ensembl:ENSMUSG00000020790
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ankhzn, ZFYVE14, mKIAA1255
Expression	Ubiquitous expression in CNS E18 (RPKM 14.1), large intestine adult (RPKM 13.9) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

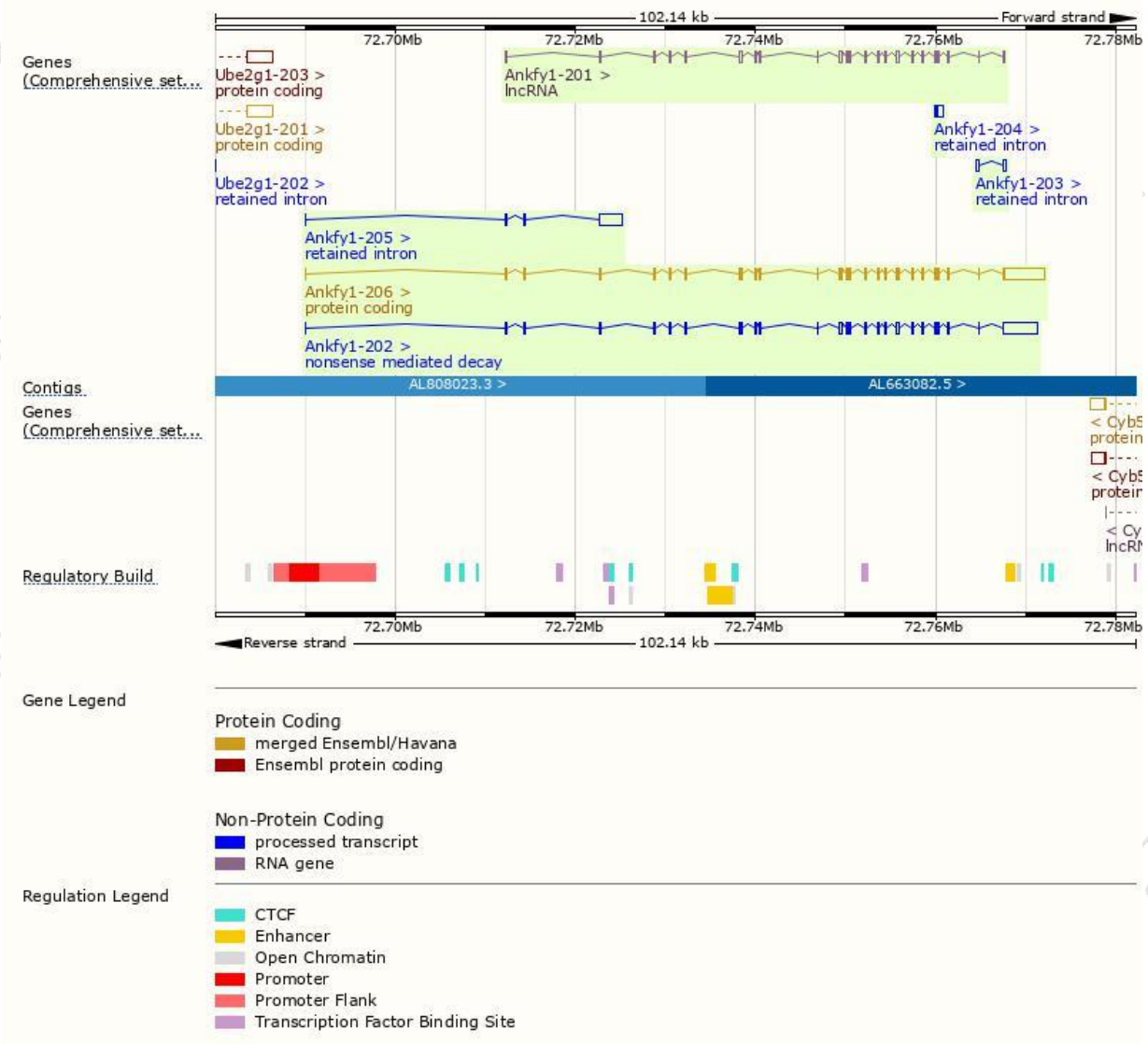
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ankfy1-206	ENSMUST00000155998.1	8030	1169aa	Protein coding	CCDS24989	Q810B6	TSL:1 GENCODE basic APPRIS P1
Ankfy1-202	ENSMUST00000127610.7	7154	439aa	Nonsense mediated decay	-	Q810B6	TSL:1
Ankfy1-205	ENSMUST00000150172.7	2894	No protein	Retained intron	-	-	TSL:1
Ankfy1-204	ENSMUST00000147195.1	742	No protein	Retained intron	-	-	TSL:2
Ankfy1-203	ENSMUST00000132889.1	642	No protein	Retained intron	-	-	TSL:2
Ankfy1-201	ENSMUST00000102548.10	3324	No protein	lncRNA	-	-	TSL:5

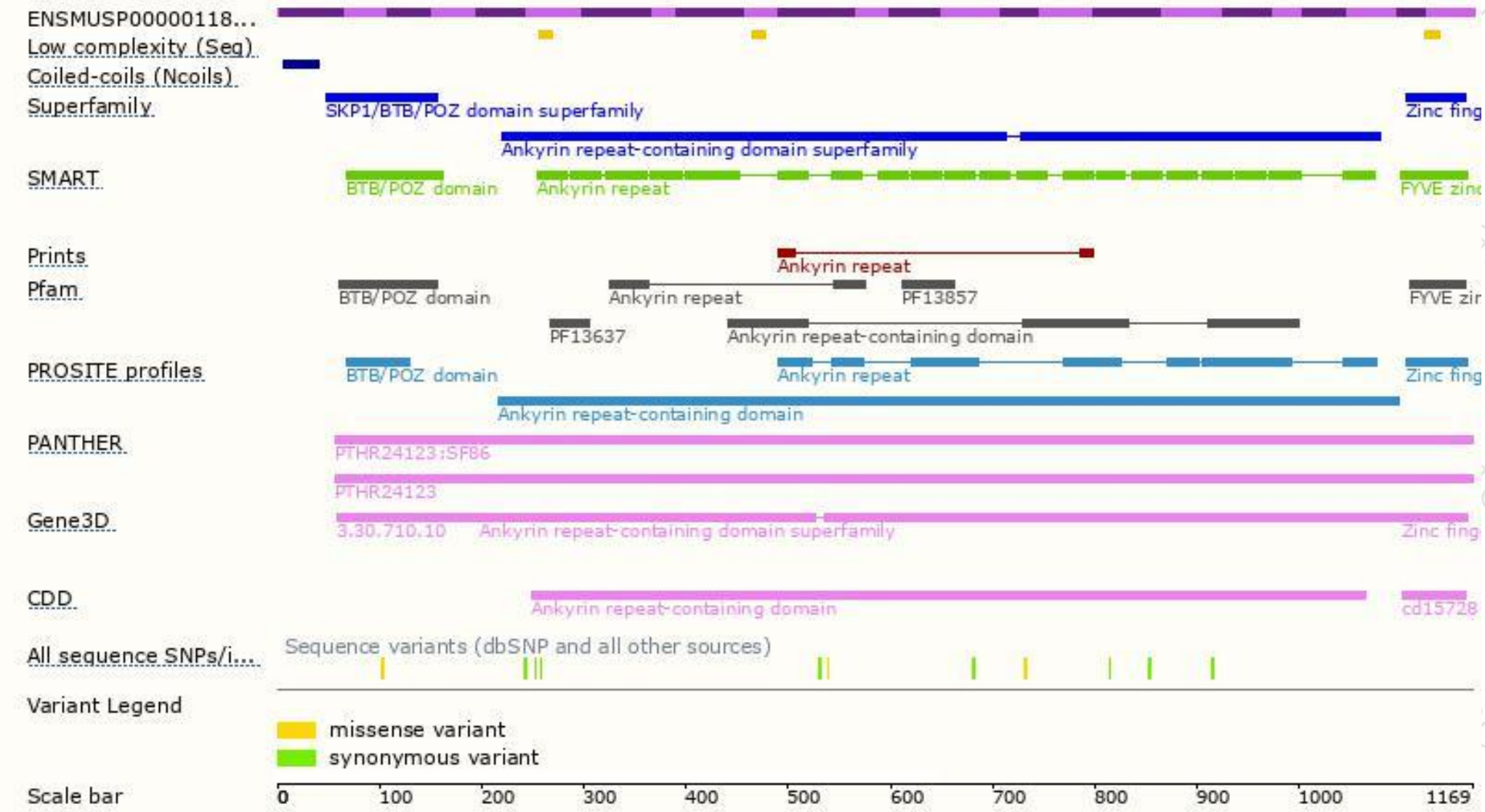
The strategy is based on the design of *Ankfy1-206* transcript,The transcription is shown below



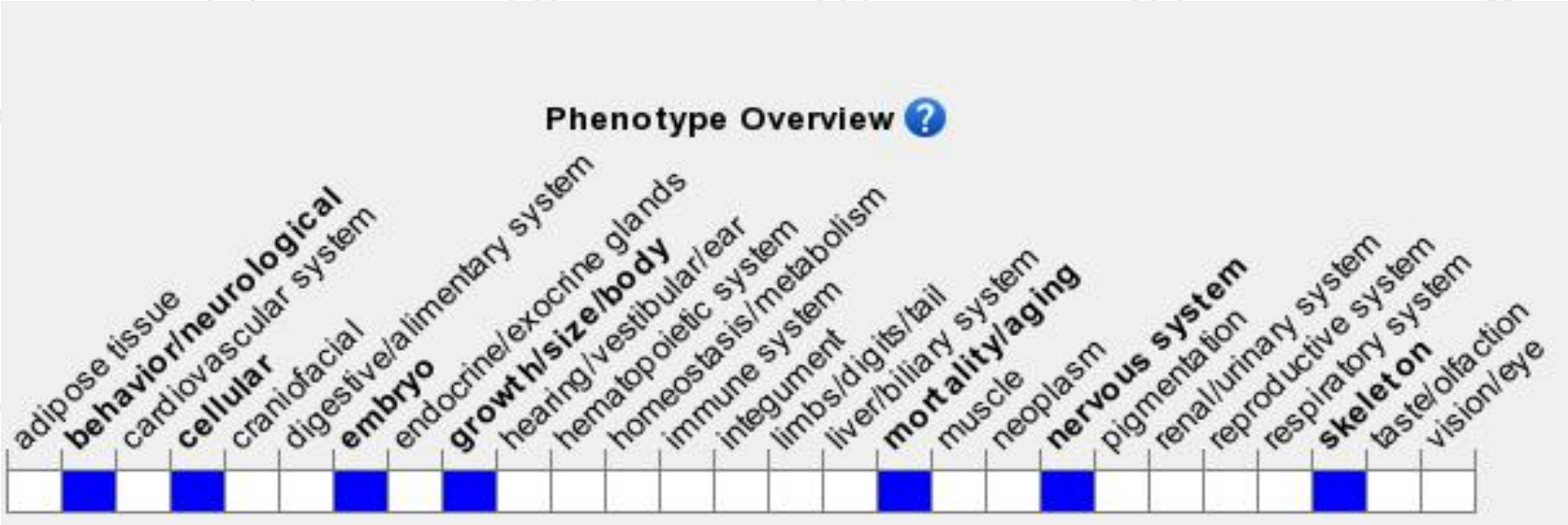
Genomic location distribution



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/).

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

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