

Ahnak2 Cas9-KO Strategy

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Overview

Target Gene Name

- Ahnak2

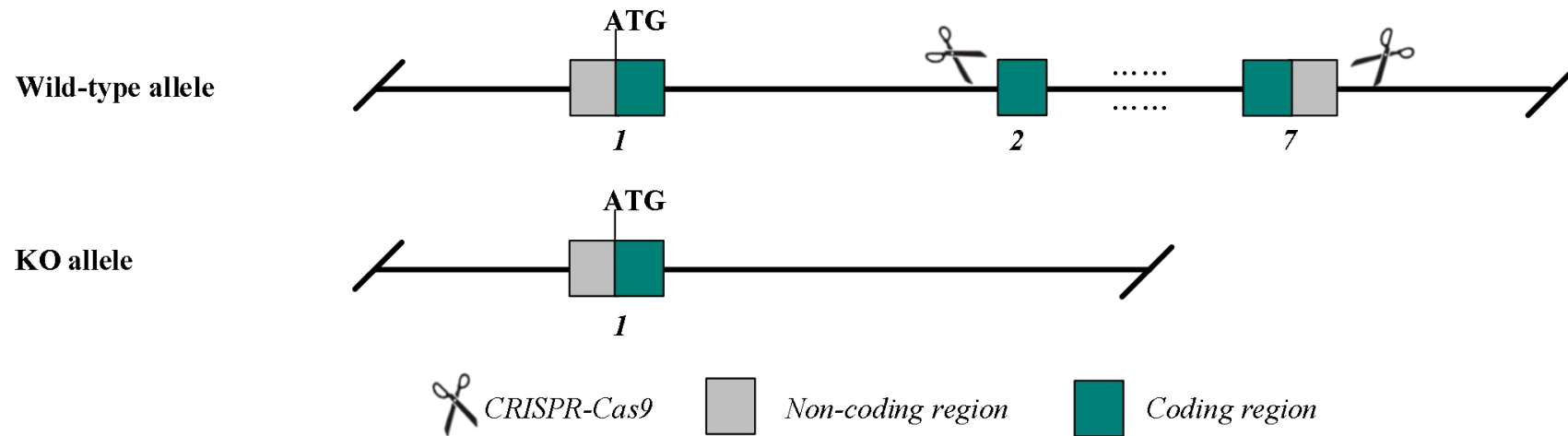
Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Ahnak2* gene.

Technical Information

- The *Ahnak2* gene has 1 transcript. According to the structure of *Ahnak2* gene, exon 2-7 of *Ahnak2*-201 (ENSMUST00000239525.1) transcript is recommended as the knockout region. The region contains most of coding sequences. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Ahnak2* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

Gene Information

Ahnak2 AHNAK nucleoprotein 2 [*Mus musculus* (house mouse)]

Gene ID: 100041194, updated on 8-Mar-2024

[Download Datasets](#)

Summary

| | |
|--------------------|--|
| Official Symbol | Ahnak2 provided by MGI |
| Official Full Name | AHNAK nucleoprotein 2 provided by MGI |
| Primary source | MGI:MGI:2144831 |
| See related | Ensembl:ENSMUSG00000118667 AllianceGenome:MGI:2144831 |
| 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 | Gm72; Gm1185 |
| Summary | Predicted to be involved in regulation of RNA splicing. Predicted to be located in cytosol and plasma membrane. Predicted to be active in cytoplasm and nucleus. Is expressed in dorsal root ganglion and trigeminal ganglion. Orthologous to human AHNAK2 (AHNAK nucleoprotein 2). [provided by Alliance of Genome Resources, Apr 2022] |
| Expression | Biased expression in ovary adult (RPKM 46.7), colon adult (RPKM 40.7) and 13 other tissues See more |
| Orthologs | human all |
| NEW | Try the new Gene table |
| | Try the new Transcript table |

Genomic context

Location: 12 F1; 12 61.2 cM

See Ahnak2 in [Genome Data Viewer](#)

Exon count: 8

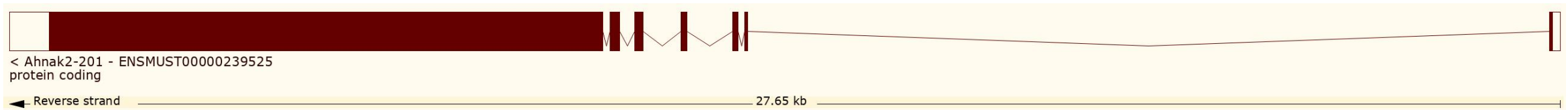
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

The gene has 1 transcript, all transcript are shown below:

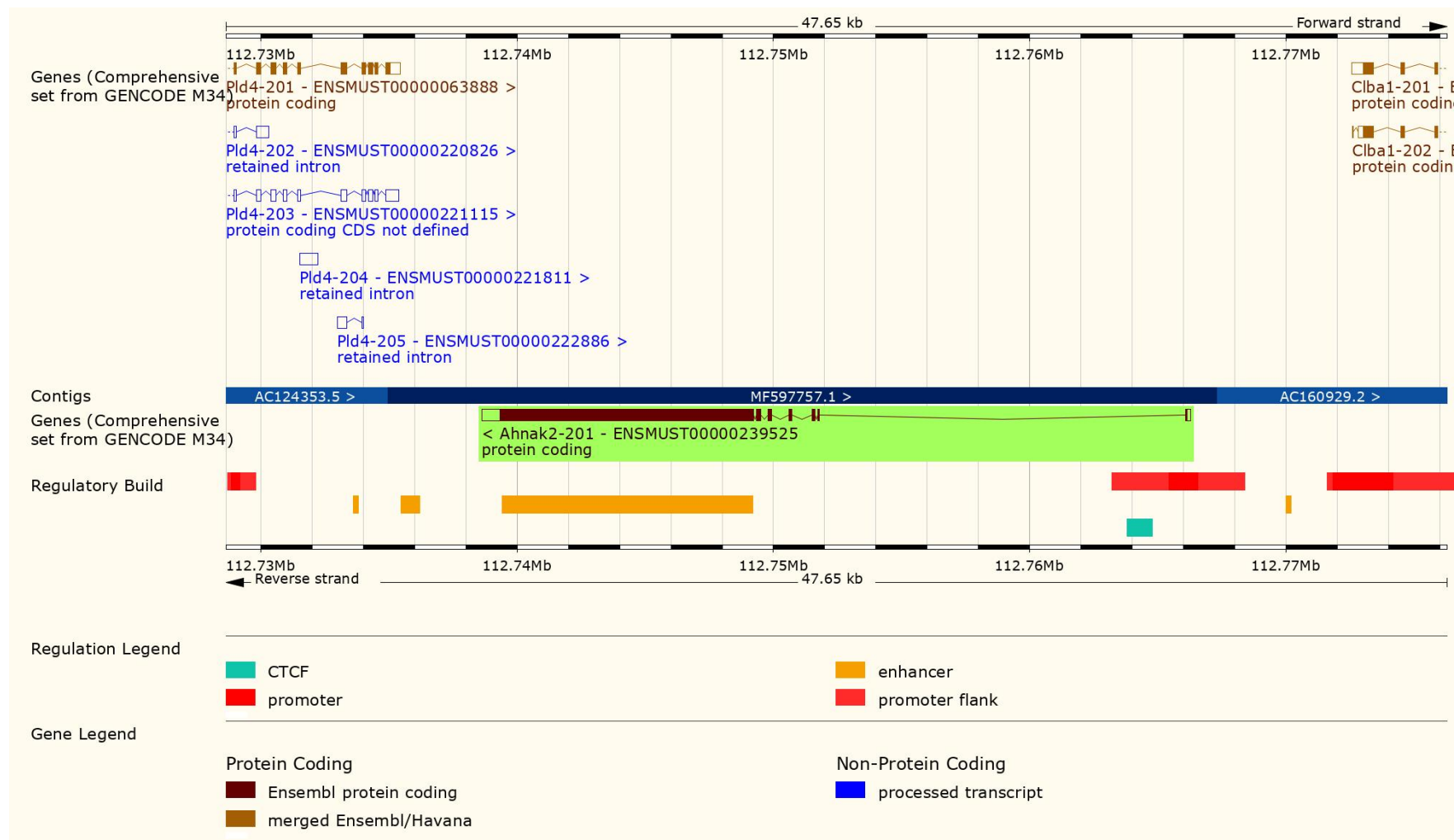
| Transcript ID | Name | bp | Protein | Biotype | CCDS | UniProt Match | Flags |
|--------------------------------------|------------|-------|------------------------|----------------|------|----------------------------|---|
| ENSMUST00000239525.1 | Ahnak2-201 | 11349 | 3501aa | Protein coding | | A0A7N9VR94 | Ensembl Canonical Gencode basic APPRIS P1 |

The strategy is based on the design of *Ahnak2-201* transcript, the transcription is shown below:

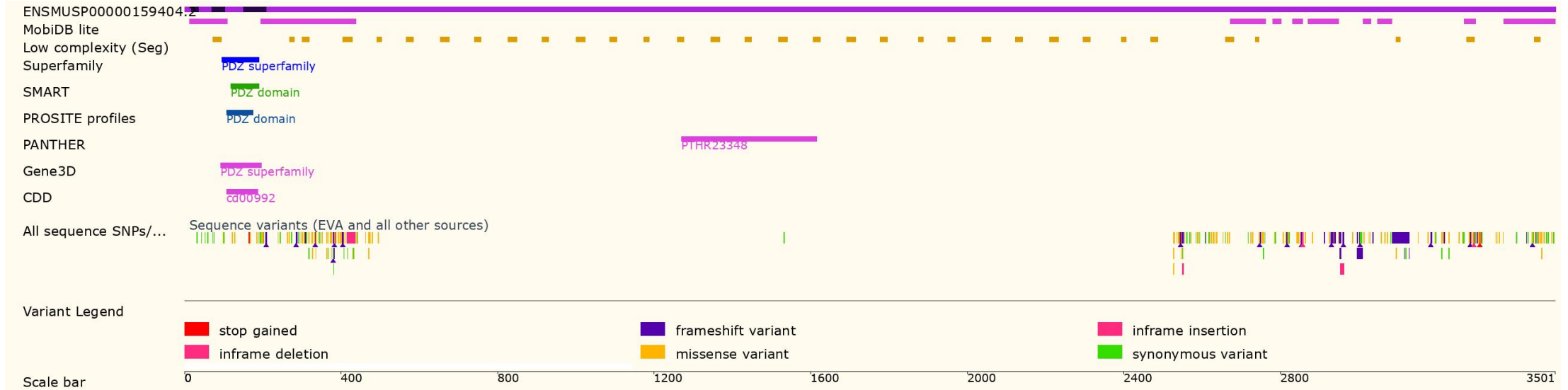


Source: <https://www.ensembl.org>

Genomic Information



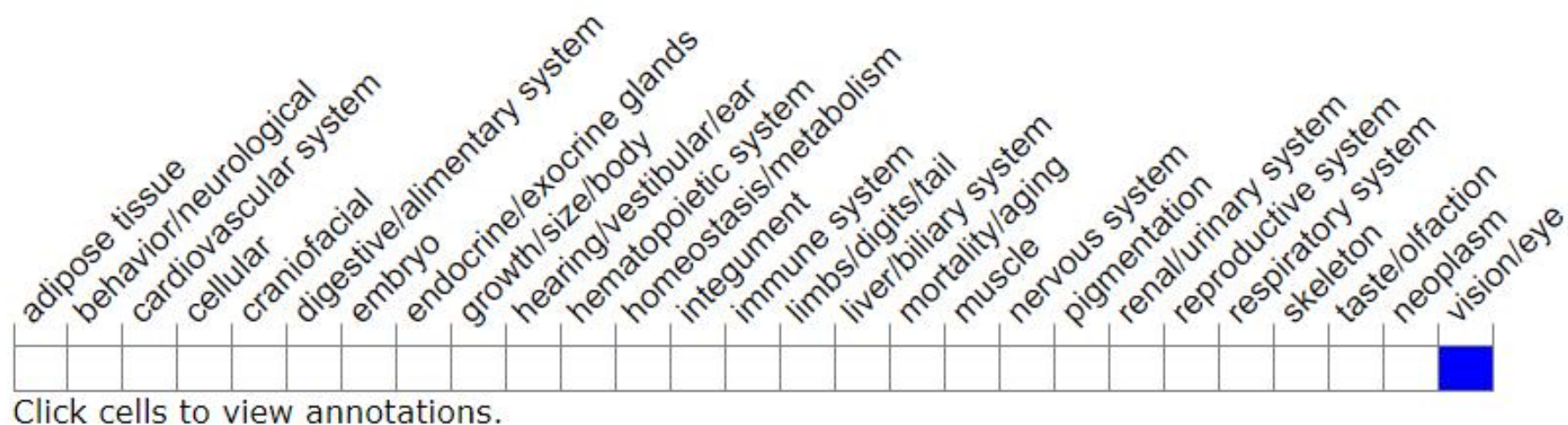
Protein Information



Important Information

- *Abnak2* is located on Chr 12. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<https://www.informatics.jax.org/marker/MGI:2144831>)