

Ago4 Cas9-KO Strategy

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Project Overview

Project Name

Ago4

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ago4* gene. The schematic diagram is as follows:



- The *Ago4* gene has 2 transcripts. According to the structure of *Ago4* gene, exon2 of *Ago4-201* (ENSMUST00000084289.4) transcript is recommended as the knockout region. The region contains 166bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ago4* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, male mice homozygous for a null mutation display oligozoospermia, decreased testis weight, premature entry into meiosis and disruption of sex body formation. However both males and females are fertile.
- This strategy may affect the 5-terminal regulation function of *Gm12934* gene.
- The *Ago4* gene is located on the Chr4. 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)

Ago4 argonaute RISC catalytic subunit 4 [*Mus musculus* (house mouse)]

Gene ID: 76850, updated on 10-Oct-2019

Summary

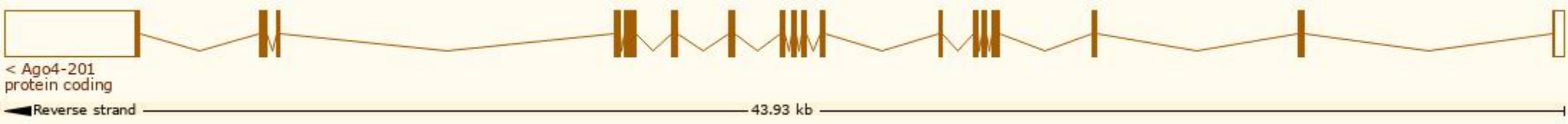
Official Symbol	Ago4 provided by MGI
Official Full Name	argonaute RISC catalytic subunit 4 provided by MGI
Primary source	MGI:MGI:1924100
See related	Ensembl:ENSMUSG000000042500
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Eif2c4; AI481660; 5730550L01Rik
Expression	Broad expression in whole brain E14.5 (RPKM 3.1), CNS E18 (RPKM 2.7) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

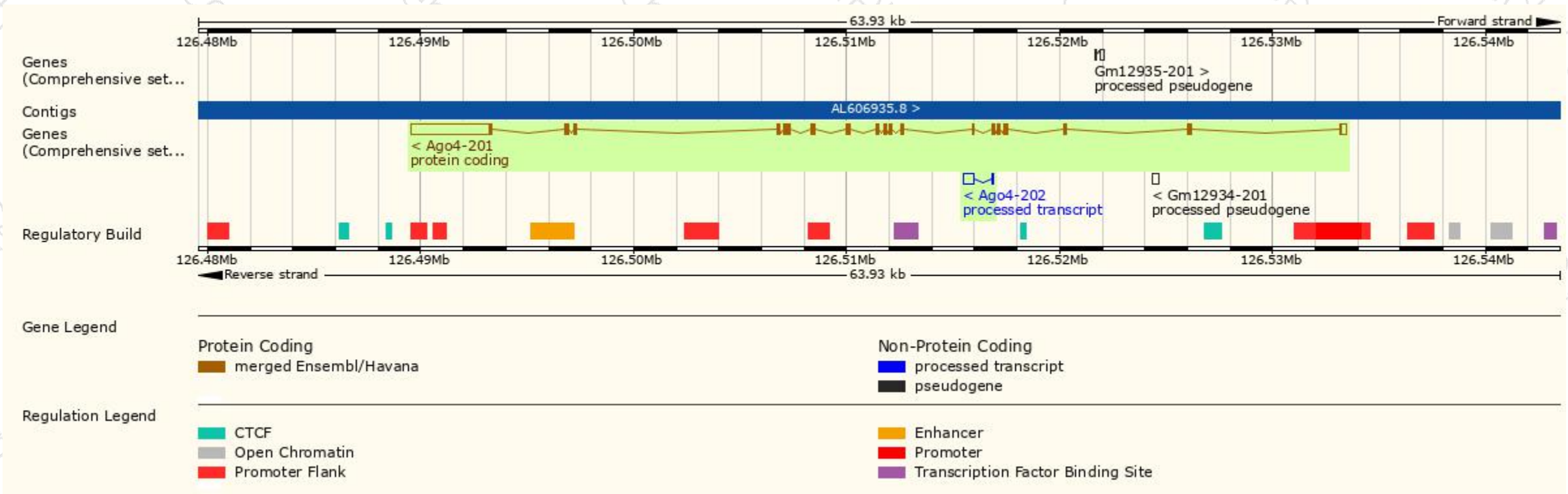
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ago4-201	ENSMUST00000084289.4	6537	861aa	Protein coding	CCDS18654	Q8CJF8	TSL:1 GENCODE basic APPRIS P1
Ago4-202	ENSMUST00000122951.1	574	No protein	Processed transcript	-	-	TSL:2

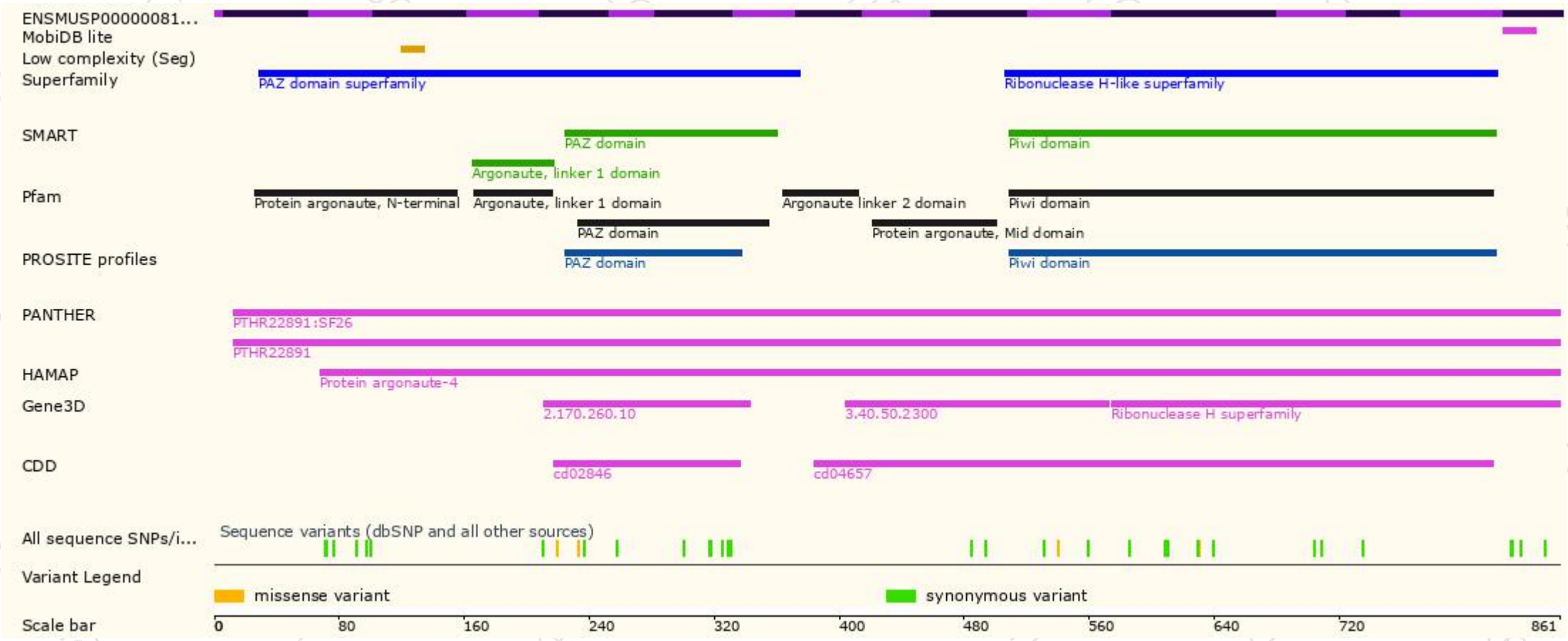
The strategy is based on the design of *Ago4-201* transcript,the transcription is shown below:



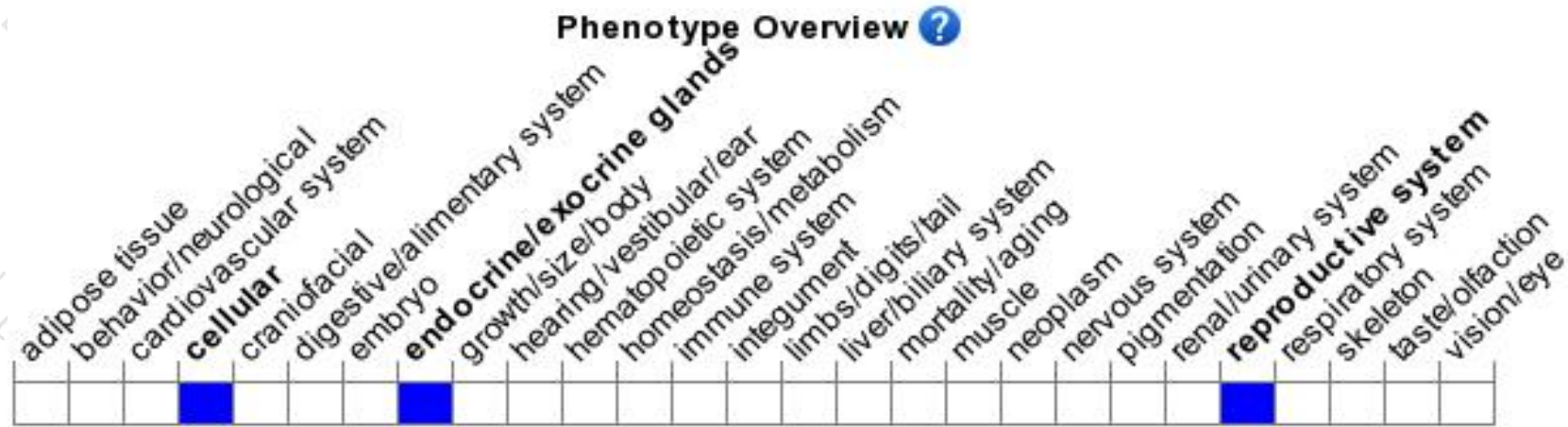
Genomic location distribution



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, Male mice homozygous for a null mutation display oligozoospermia, decreased testis weight, premature entry into meiosis and disruption of sex body formation. However both males and females are fertile.

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

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