

Ago3 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Ago3

Project type

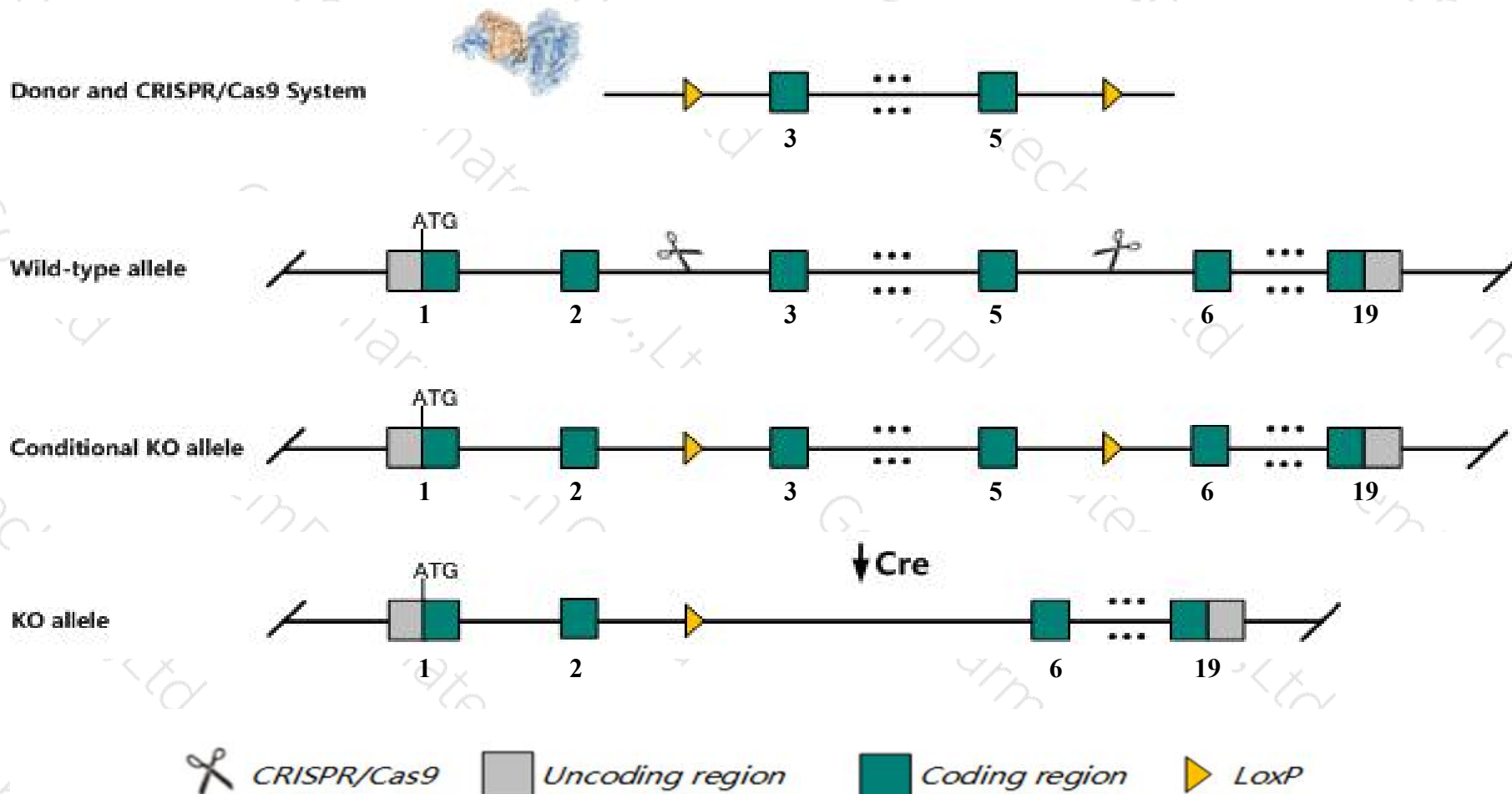
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ago3* gene. The schematic diagram is as follows:



- The *Ago3* gene has 6 transcripts. According to the structure of *Ago3* gene, exon3-exon5 of *Ago3-201* (ENSMUST00000069097.12) transcript is recommended as the knockout region. The region contains 467bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ago3* 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.

Notice

- The *Ago3* 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.
- Transcript *Ago3-203*, *Ago3-204* may not be affected.
- 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)

Ago3 argonaute RISC catalytic subunit 3 [*Mus musculus* (house mouse)]

Gene ID: 214150, updated on 10-Oct-2019

Summary

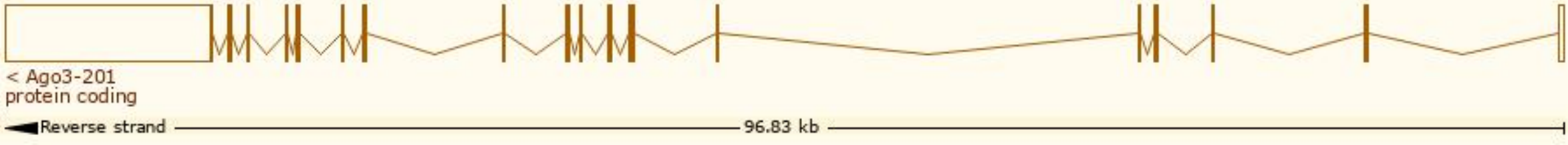
Official Symbol	Ago3 provided by MGI
Official Full Name	argonaute RISC catalytic subunit 3 provided by MGI
Primary source	MGI:MGI:2446634
See related	Ensembl:ENSMUSG00000028842
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Eif2c3; AW048688; C130014L07Rik
Expression	Ubiquitous expression in cerebellum adult (RPKM 2.8), frontal lobe adult (RPKM 2.4) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

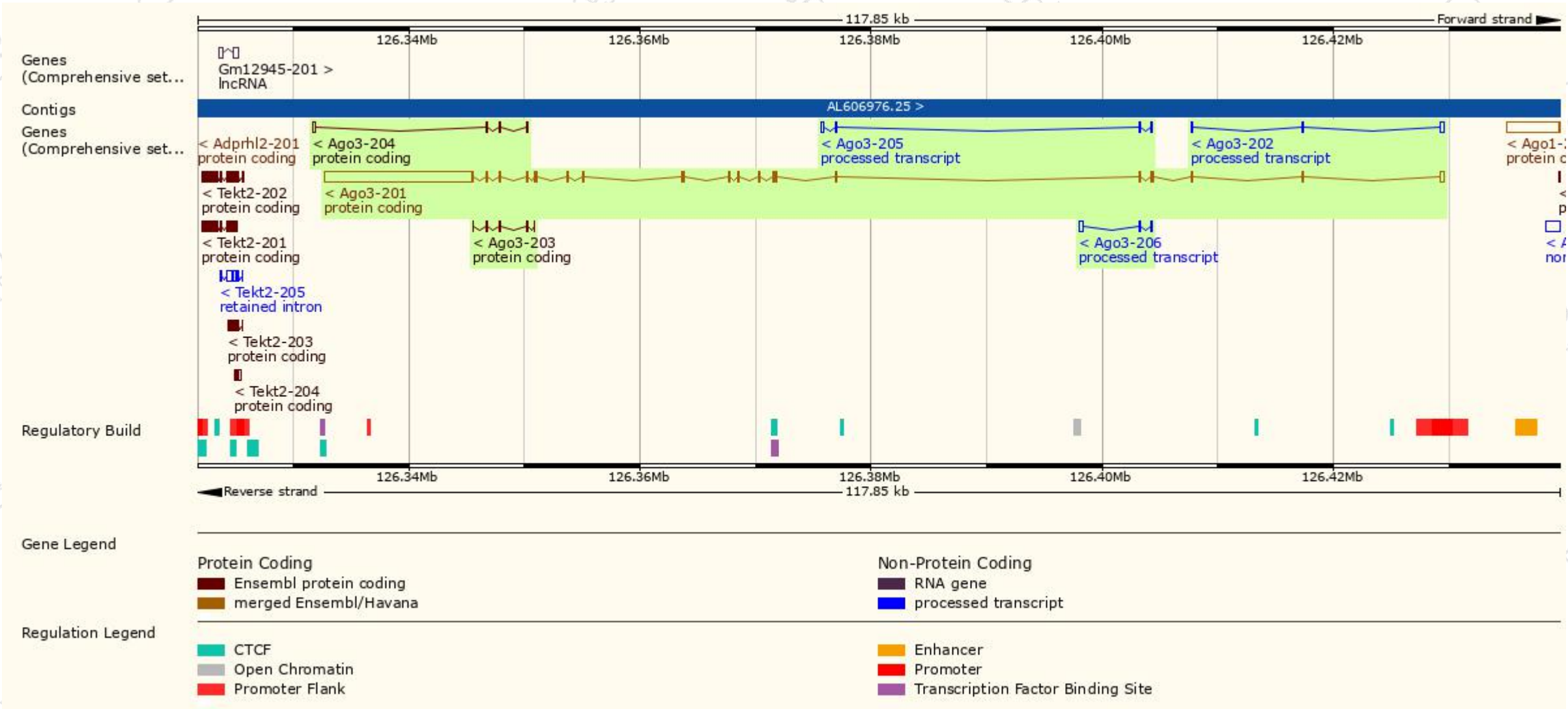
The gene has 6 transcripts,all transcripts are shown below:

Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲
Ago3-201	ENSMUST00000069097.12	15595	860aa	Protein coding	CCDS18652	Q8CJF9	TSL:1 GENCODE basic APPRIS P1
Ago3-202	ENSMUST00000123233.1	613	No protein	Processed transcript	-	-	TSL:2
Ago3-203	ENSMUST00000127831.1	433	144aa	Protein coding	-	A3KFX7	CDS 5' and 3' incomplete TSL:5
Ago3-204	ENSMUST00000132123.7	682	161aa	Protein coding	-	A3KFX6	CDS 5' incomplete TSL:3
Ago3-205	ENSMUST00000151179.7	625	No protein	Processed transcript	-	-	TSL:2
Ago3-206	ENSMUST00000155645.1	690	No protein	Processed transcript	-	-	TSL:3

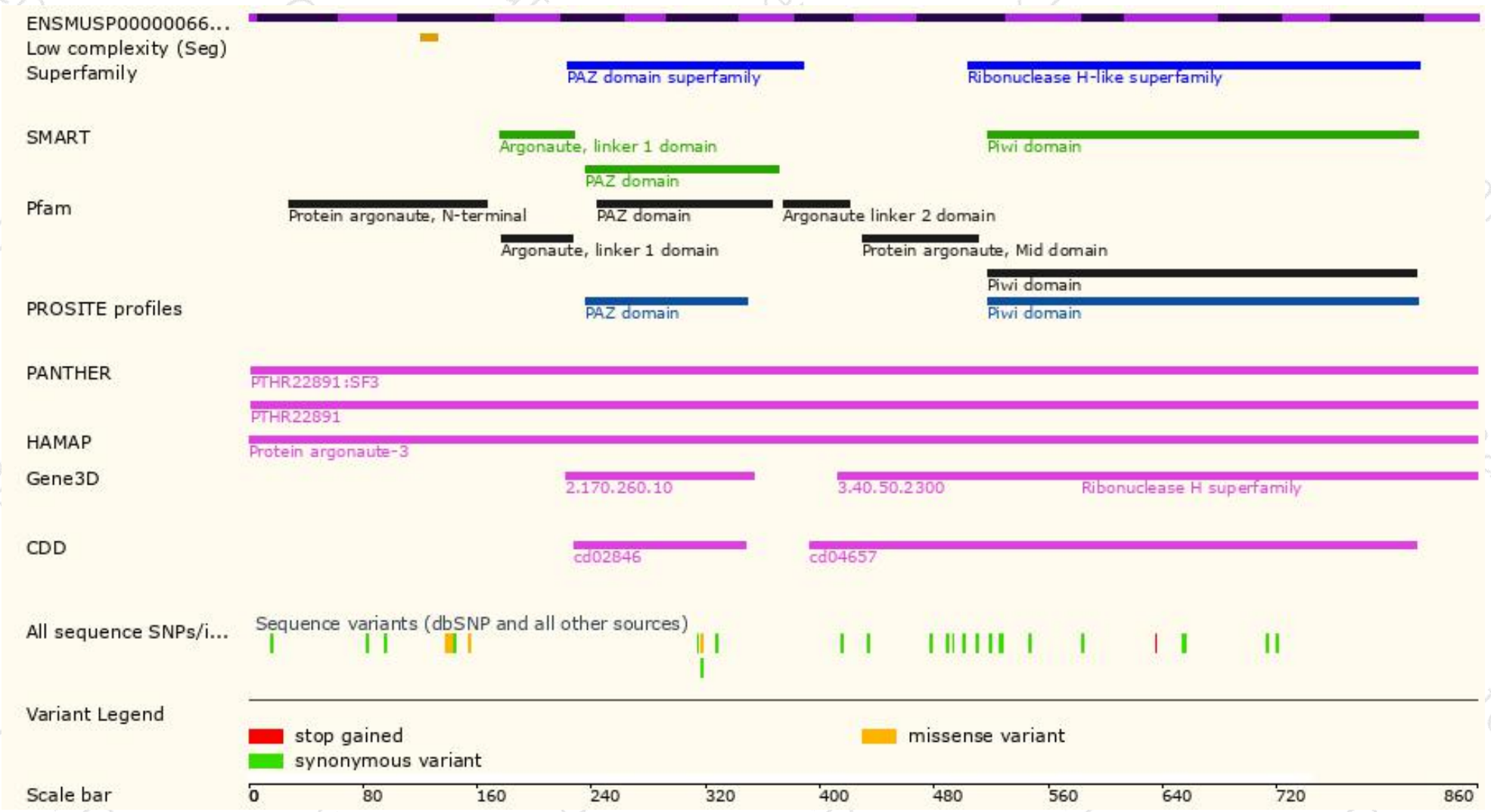
The strategy is based on the design of Ago3-201 transcript,the transcription is shown below:



Genomic location distribution

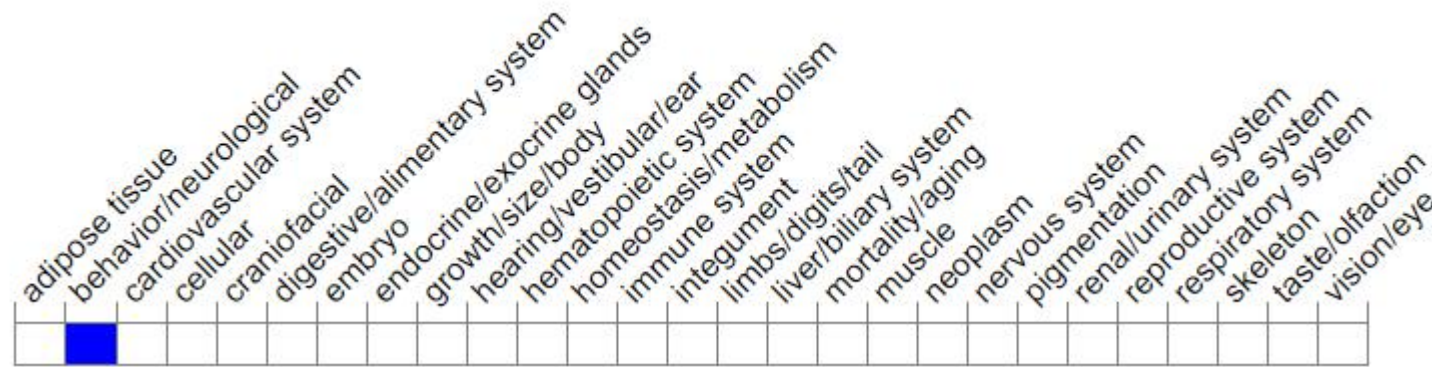


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



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

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

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