

Aqr Cas9-KO Strategy

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Design Date: 2020-4-17

Project Overview

Project Name

Aqr

Project type

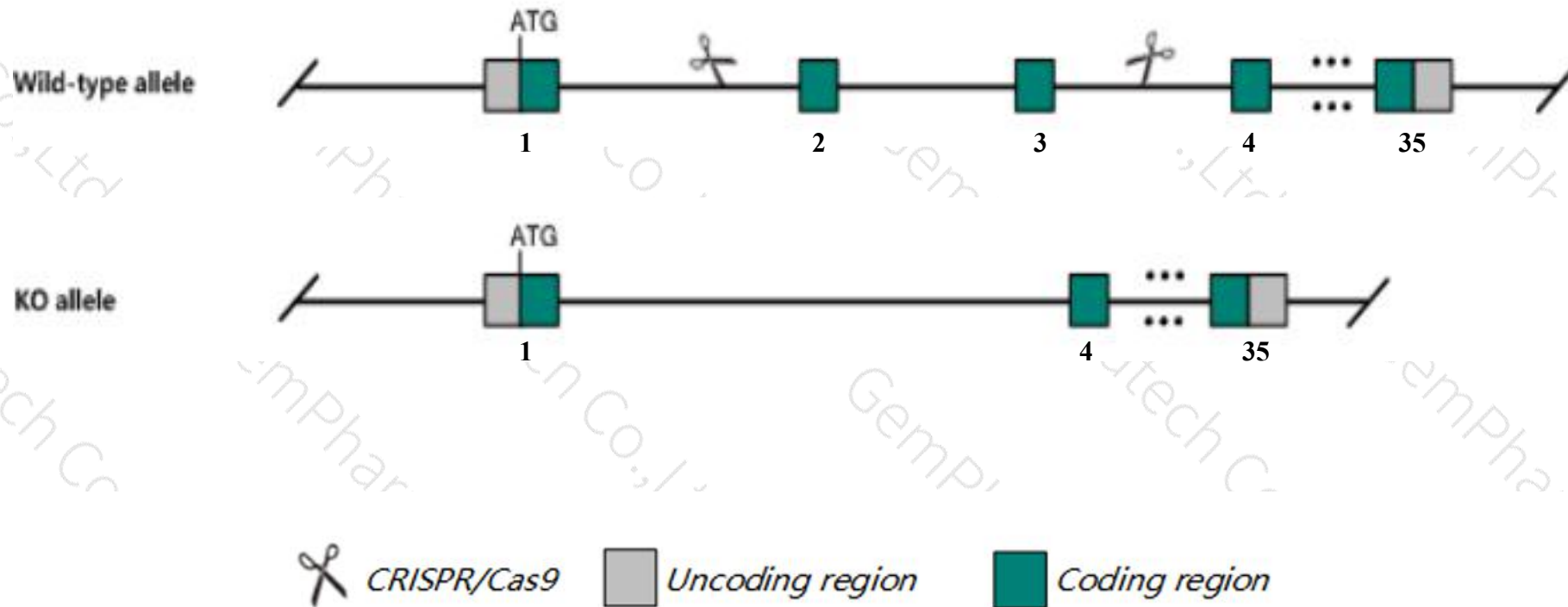
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Aqr* gene has 9 transcripts. According to the structure of *Aqr* gene, exon2-exon3 of *Aqr-201* (ENSMUST00000043160.12) transcript is recommended as the knockout region. The region contains 98bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Aqr* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, homozygotes for a targeted null mutation exhibit severe defects in placental vascularization with few vessels entering the placenta and little branching. mutants die between embryonic days 9.5 and 10.5.
- Transcript *Aqr*-204&207 may not be affected.
- The *Aqr* gene is located on the Chr2. 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)

Aqr aquarius [Mus musculus (house mouse)]

Gene ID: 11834, updated on 13-Mar-2020

Summary



Official Symbol Aqr provided by [MGI](#)

Official Full Name aquarius provided by [MGI](#)

Primary source [MGI:MGI:1276102](#)

See related [Ensembl:ENSMUSG00000040383](#)

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 AW495846, mKIAA0560

Expression Ubiquitous expression in CNS E11.5 (RPKM 15.8), limb E14.5 (RPKM 15.3) and 28 other tissues [See more](#)

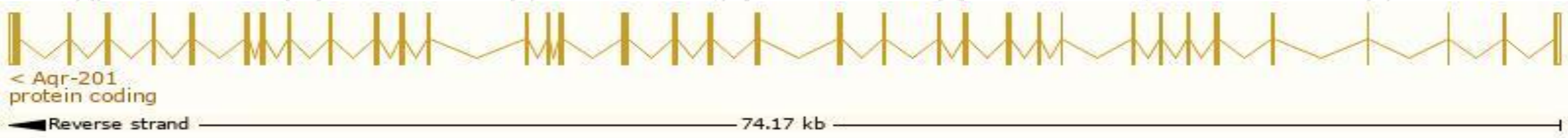
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

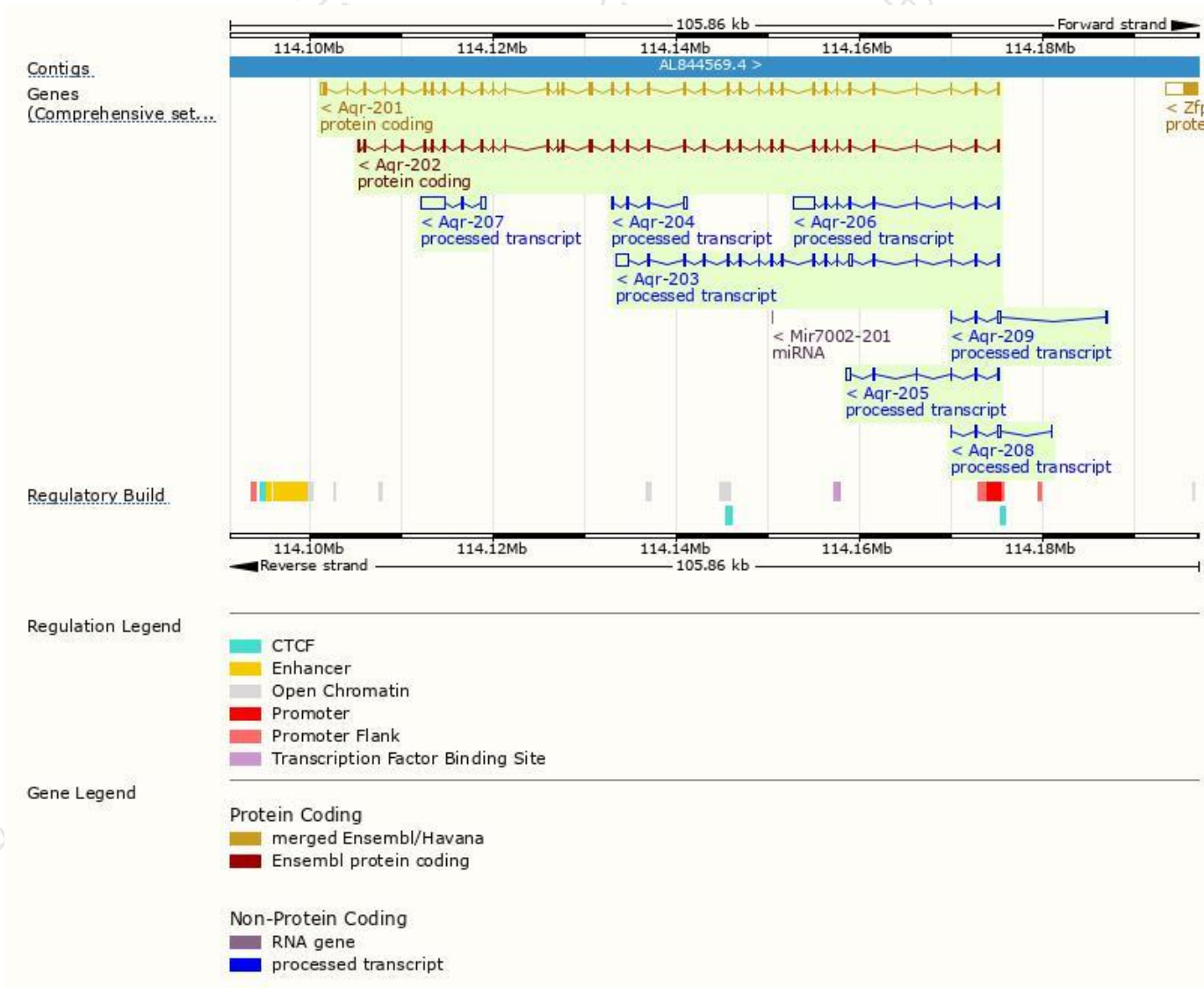
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Aqr-201	ENSMUST00000043160.12	4888	1481aa	Protein coding	CCDS16565	Q8CFQ3	TSL:1 GENCODE basic APPRIS P3
Aqr-202	ENSMUST00000102543.4	4352	1400aa	Protein coding	CCDS71114	A2AQA7	TSL:1 GENCODE basic APPRIS ALT2
Aqr-203	ENSMUST00000125460.7	3344	No protein	Processed transcript	-	-	TSL:1
Aqr-207	ENSMUST00000140441.1	3175	No protein	Processed transcript	-	-	TSL:1
Aqr-206	ENSMUST00000131785.7	3112	No protein	Processed transcript	-	-	TSL:1
Aqr-205	ENSMUST00000129504.7	914	No protein	Processed transcript	-	-	TSL:1
Aqr-204	ENSMUST00000126701.7	772	No protein	Processed transcript	-	-	TSL:2
Aqr-208	ENSMUST00000147191.7	504	No protein	Processed transcript	-	-	TSL:5
Aqr-209	ENSMUST00000154317.1	504	No protein	Processed transcript	-	-	TSL:5

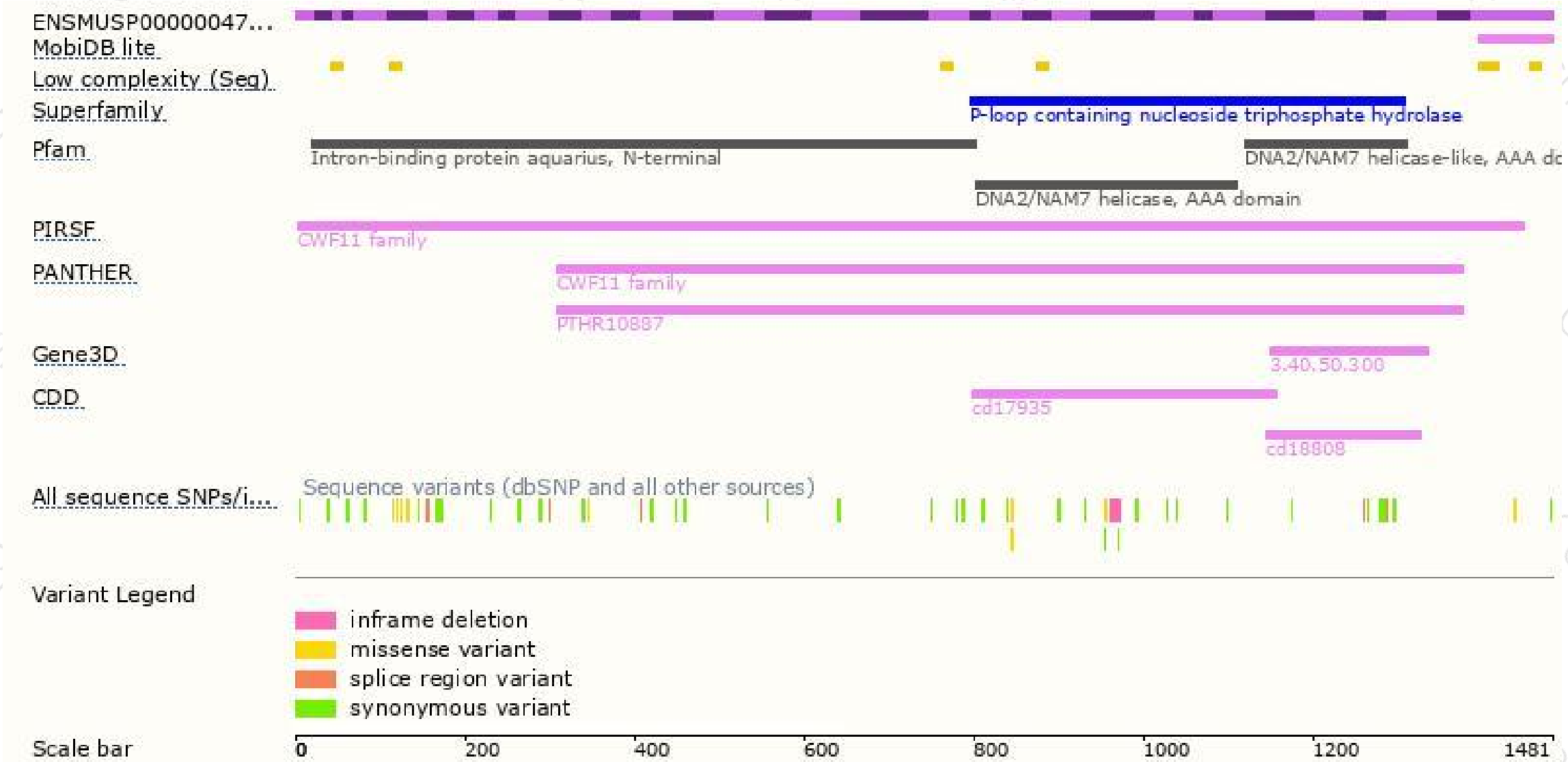
The strategy is based on the design of *Aqr-201* transcript,the transcription is shown below



Genomic location distribution



Protein domain



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

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