

Arg2 Cas9-KO Strategy

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Project Overview

Project Name

Arg2

Project type

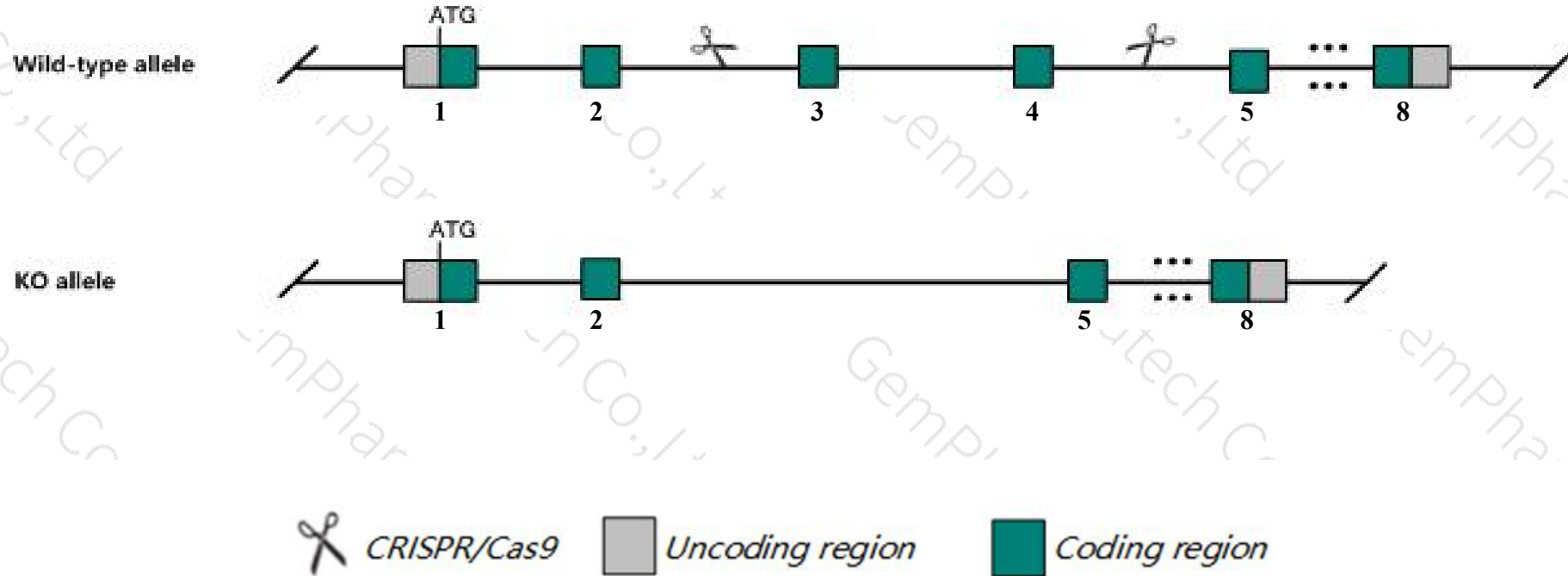
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arg2* gene. The schematic diagram is as follows:



- The *Arg2* gene has 1 transcript. According to the structure of *Arg2* gene, exon3-exon4 of *Arg2-201* (ENSMUST0000021550.6) transcript is recommended as the knockout region. The region contains 338bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arg2* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygous mutation of this gene results in elevated plasma arginine concentrations.
- *Gm48780* gene is about 0.9kb away from the knockout region, which may affect its regulation.
- The *Arg2* gene is located on the Chr12. 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)

Arg2 arginase type II [Mus musculus (house mouse)]

Gene ID: 11847, updated on 9-Apr-2019

Summary

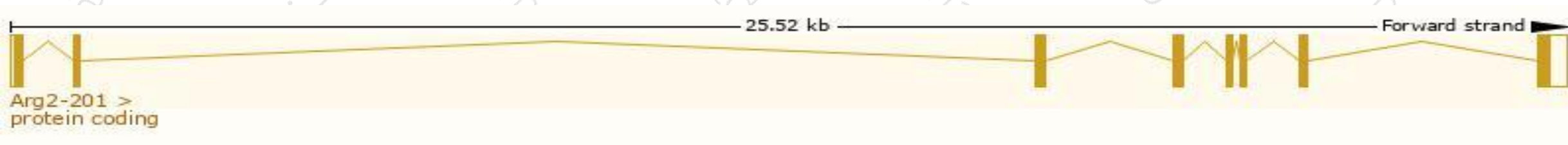
Official Symbol	Arg2 provided by MGI
Official Full Name	arginase type II provided by MGI
Primary source	MGI:MGI:1330806
See related	Ensembl:ENSMUSG00000021125
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	All, AU022422
Expression	Biased expression in duodenum adult (RPKM 66.9), small intestine adult (RPKM 62.2) and 8 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

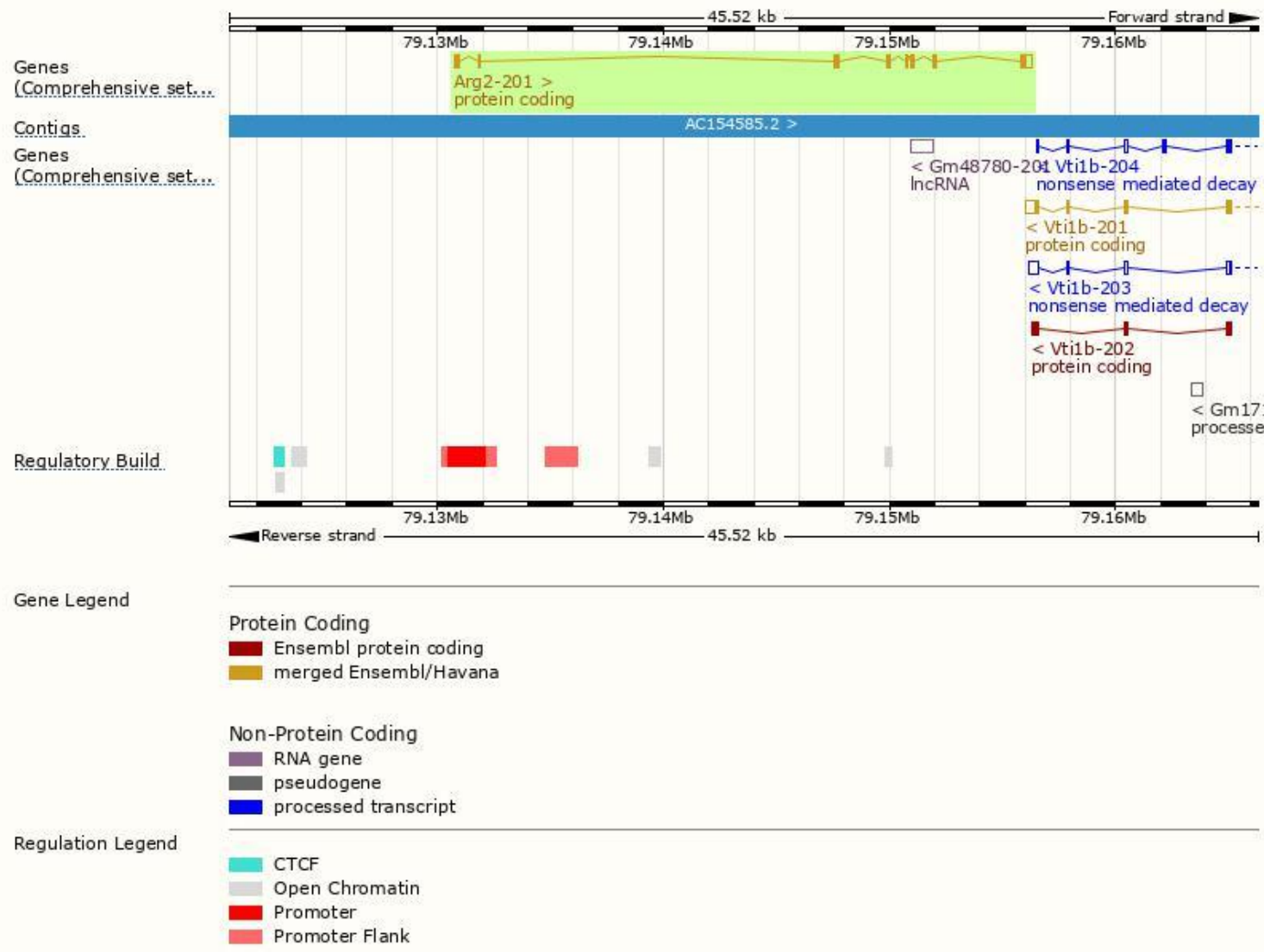
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arg2-201	ENSMUST00000021550.6	1428	354aa	Protein coding	CCDS26007	O08691	TSL:1 GENCODE basic APPRIS P1

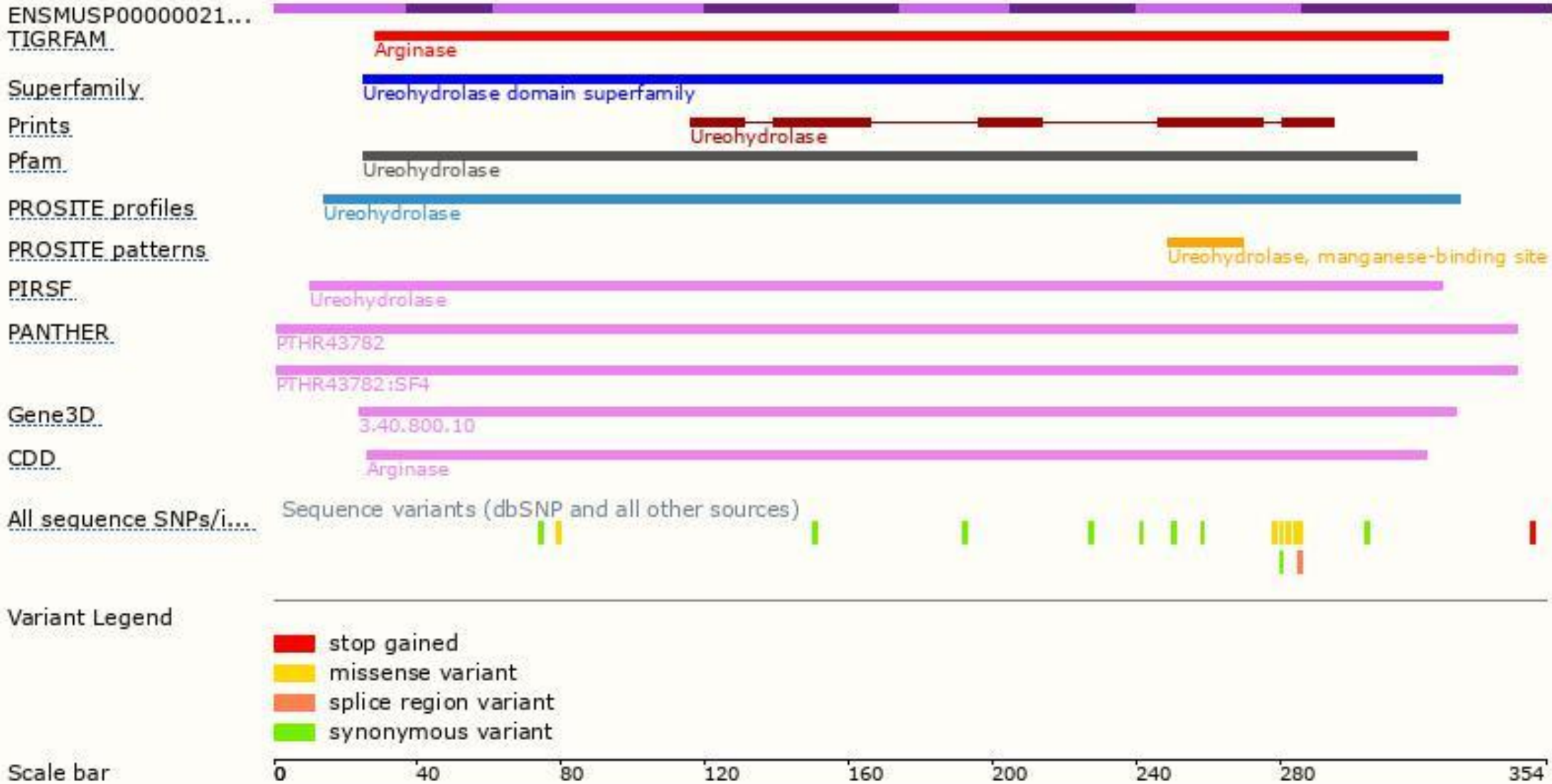
The strategy is based on the design of *Arg2-201* transcript, The transcription is shown below



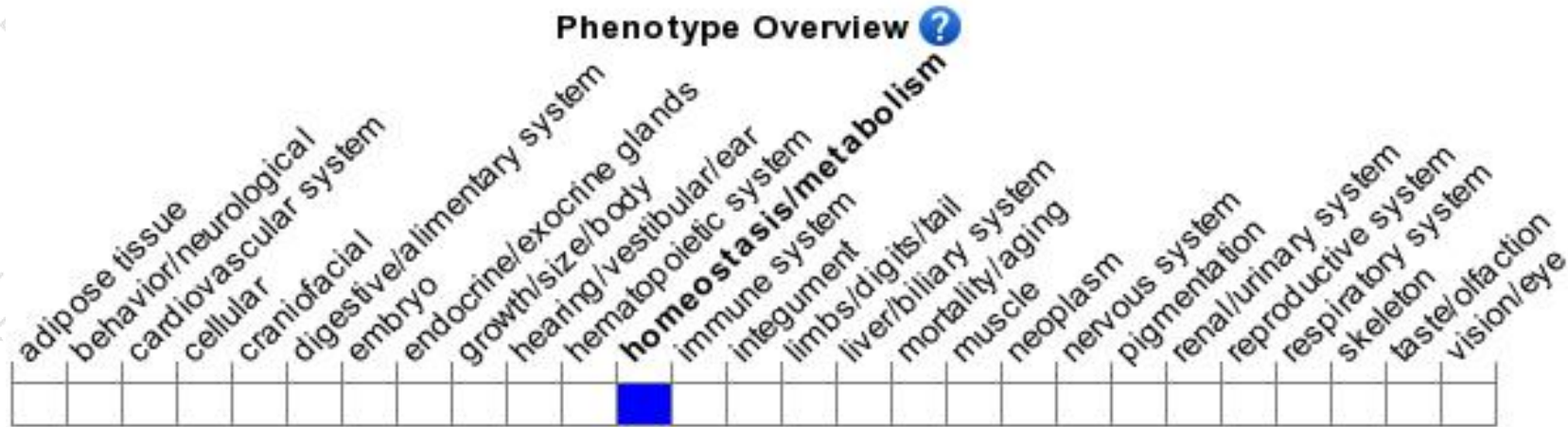
Genomic location distribution



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, Homozygous mutation of this gene results in elevated plasma arginine concentrations.

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

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