Htra1 Cas9-KO Strategy

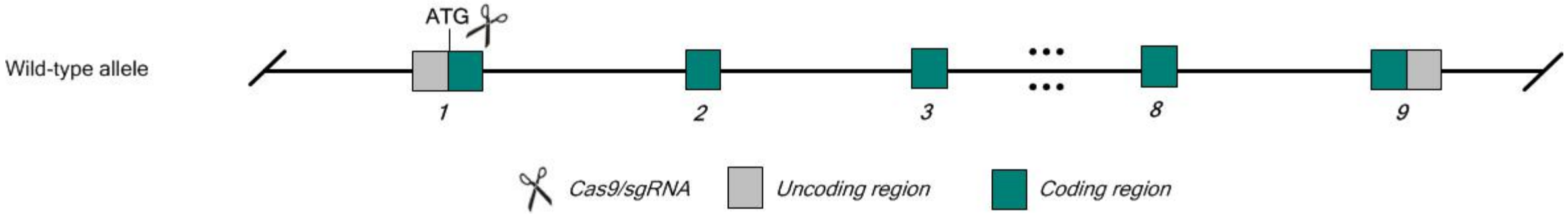
Designer: Qiong Zhou

Project Overview

Project Name	***Htra1***
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Htra1* gene. The schematic diagram is as follows:



Technical routes

- The *Htra1* gene has 5 transcripts. According to the structure of *Htra1* gene, partial exon1 of *Htra1-201* (ENSMUST00000006367.7) transcript is recommended as the knockout region. The region contains key coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Htra1* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit normal retinal morphology. Mice homozygous for a different allele exhibit increased bone volume and increased trabecular bone thickness without body weight gain.

- The *Htra1* gene is located on the Chr7. 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）

集萃药康 GemPharmatech

Htra1 HtrA serine peptidase 1 [Mus musculus (house mouse)]

Gene ID: 56213, updated on 24-Feb-2019

Summary

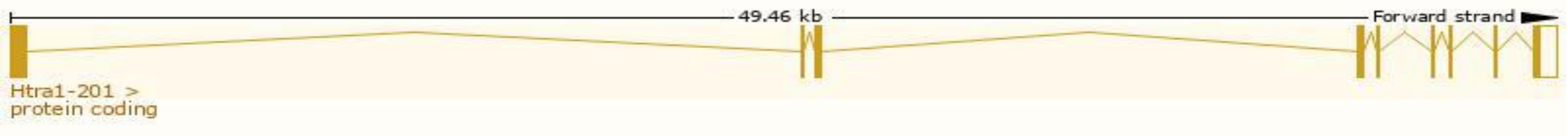
Official Symbol	Htra1 provided by MGI
Official Full Name	HtrA serine peptidase 1 provided byMGI
Primary source	MGI:MGI:1929076
See related	Ensembl:ENSMUSG00000006205
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI429470, HTRA, L56, Prss11, RSPP11
Expression	Biased expression in ovary adult (RPKM 297.0), mammary gland adult (RPKM 75.1) and 14 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

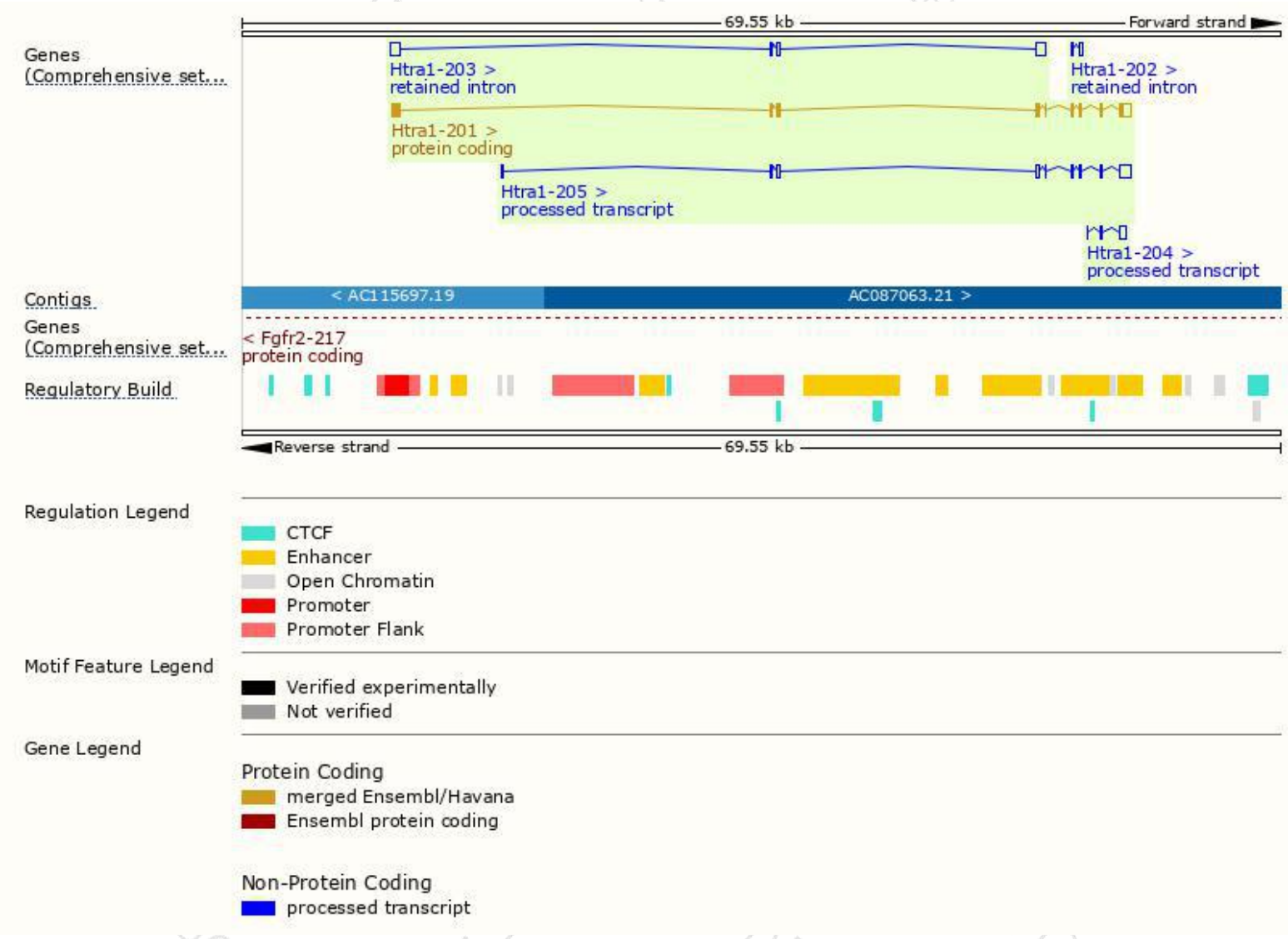
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Htra1-201	ENSMUST00000006367.7	2041	480aa	Protein coding	CCDS21908	Q9R118	TSL:1 GENCODE basic APPRIS P1
Htra1-205	ENSMUST00000153290.7	1606	No protein	Processed transcript	-	-	TSL:1
Htra1-204	ENSMUST00000150905.1	582	No protein	Processed transcript	-	-	TSL:3
Htra1-203	ENSMUST00000150717.7	1572	No protein	Retained intron	-	-	TSL:5
Htra1-202	ENSMUST00000140741.1	309	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Htra1-201* transcript,The transcription is shown below

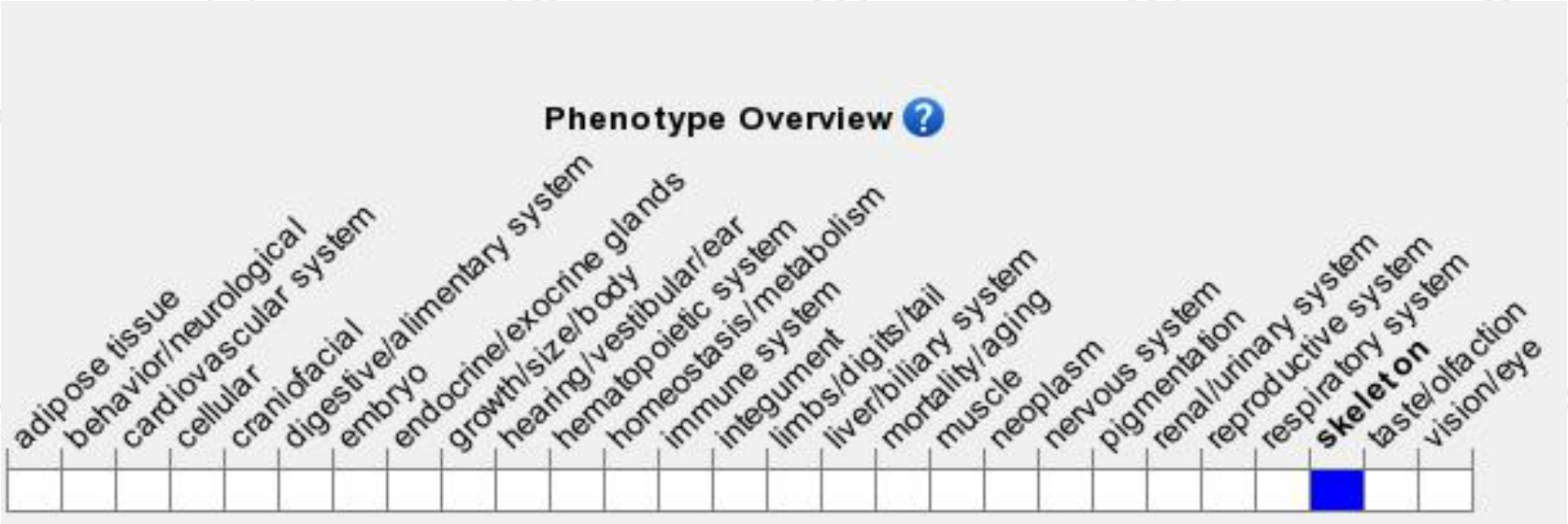


Genomic location distribution



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,Mice homozygous for a knock-out allele exhibit normal retinal morphology. Mice homozygous for a different allele exhibit increased bone volume and increased trabecular bone thickness without body weight gain.

集萃药康
GemPharmatech

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

Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd