

Hpse Cas9-KO Strategy

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Project Overview

Project Name

Hpse

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Hpse* gene has 2 transcripts. According to the structure of *Hpse* gene, exon2 of *Hpse-201* (ENSMUST00000045617.14) transcript is recommended as the knockout region. The region contains 146bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Hpse* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Mice homozygous for a null allele exhibit precocious mammary gland development, increased angiogenesis and increased neovascularization.
- The *Hpse* gene is located on the Chr5. 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)

Hpse heparanase [Mus musculus (house mouse)]

Gene ID: 15442, updated on 25-Mar-2019

Summary



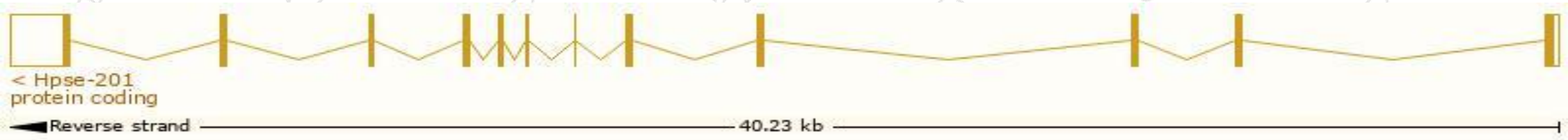
Official Symbol	Hpse provided by MGI
Official Full Name	heparanase provided by MGI
Primary source	MGI:MGI:1343124
See related	Ensembl:ENSMUSG000000035273
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	HSE1, Hpa, Hpr1
Summary	This gene encodes an endoglucuronidase enzyme that plays an important role in tumor invasion and metastasis. The encoded preproprotein undergoes proteolytic processing to generate an active heterodimeric enzyme that cleaves the heparan sulfate proteoglycans associated with the cell surface and extracellular matrix. Mice lacking the encoded protein do not show any prominent pathological alterations under normal conditions but fail to develop albuminuria and renal damage in response to drug-induced diabetes. [provided by RefSeq, Aug 2016]
Expression	Broad expression in spleen adult (RPKM 5.5), colon adult (RPKM 5.1) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

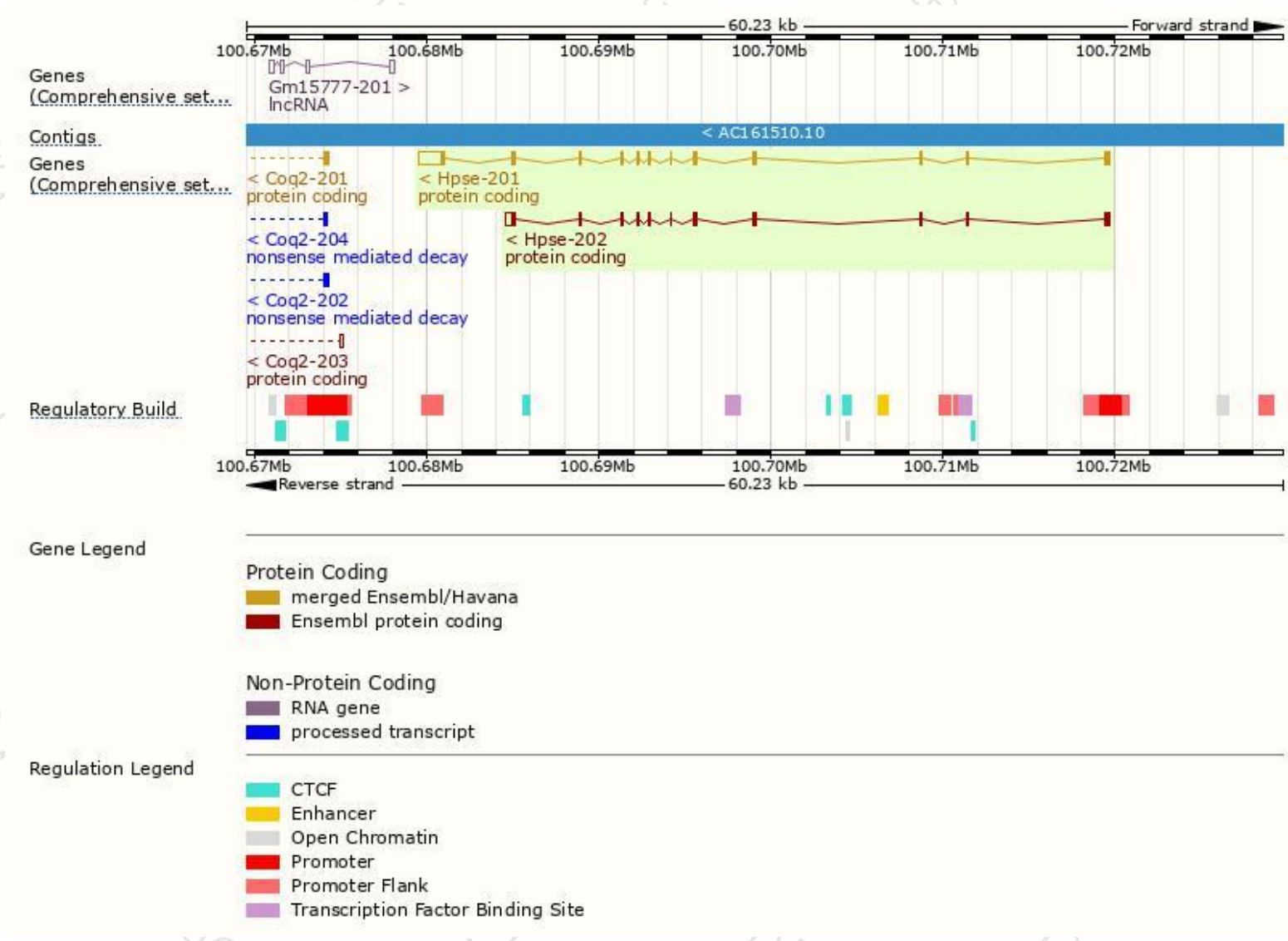
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Hpse-201	ENSMUST00000045617.14	3117	535aa	Protein coding	CCDS19466	Q6YGZ1	TSL:1 GENCODE basic APPRIS P2
Hpse-202	ENSMUST00000112908.1	1958	483aa	Protein coding	-	D3Z3C3	TSL:1 GENCODE basic APPRIS ALT2

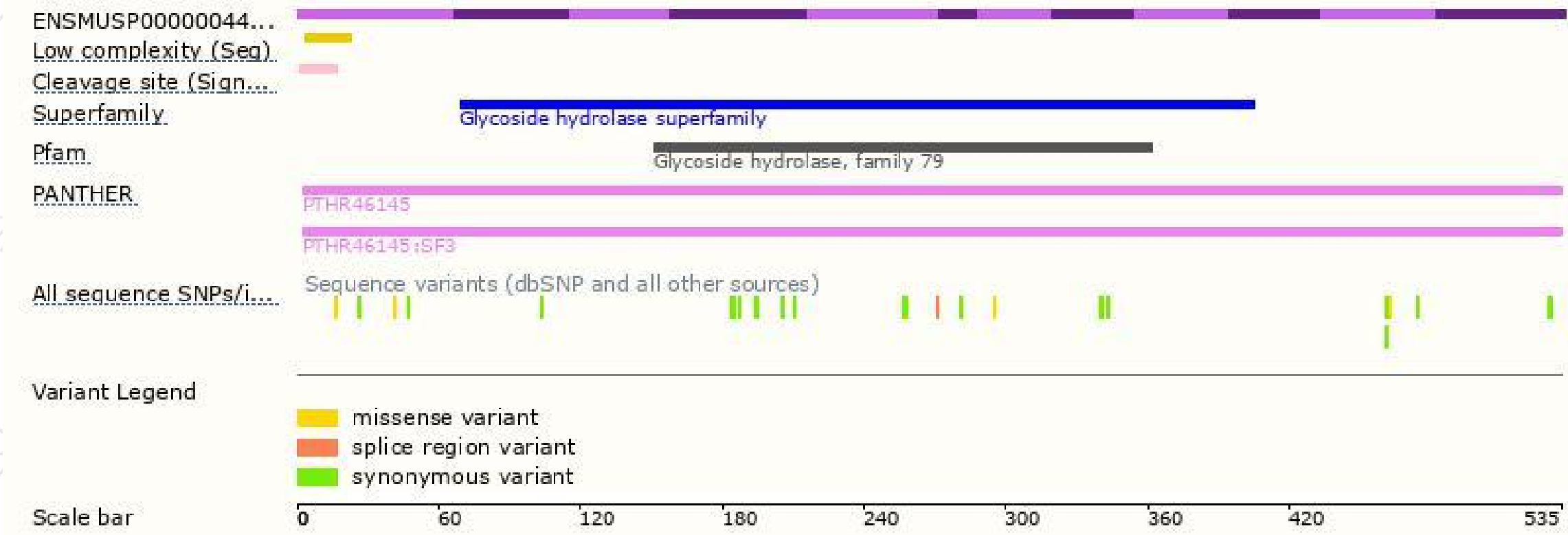
The strategy is based on the design of *Hpse-201* transcript,The transcription is shown below



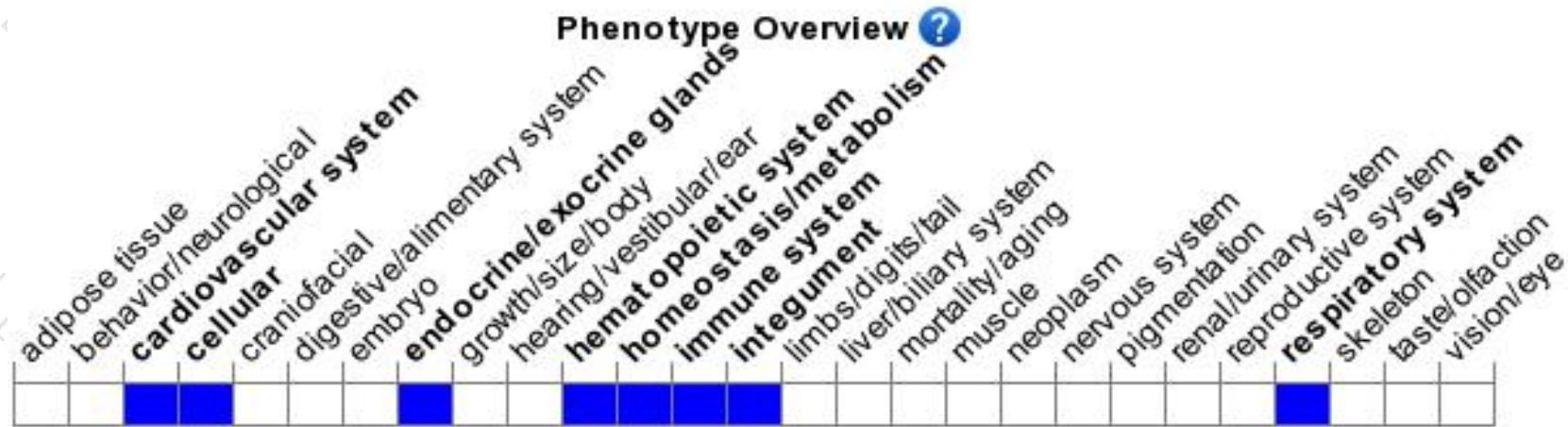
Genomic location distribution



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 null allele exhibit precocious mammary gland development, increased angiogenesis and increased neovascularization.

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

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