Hivep1 Cas9-KO Strategy

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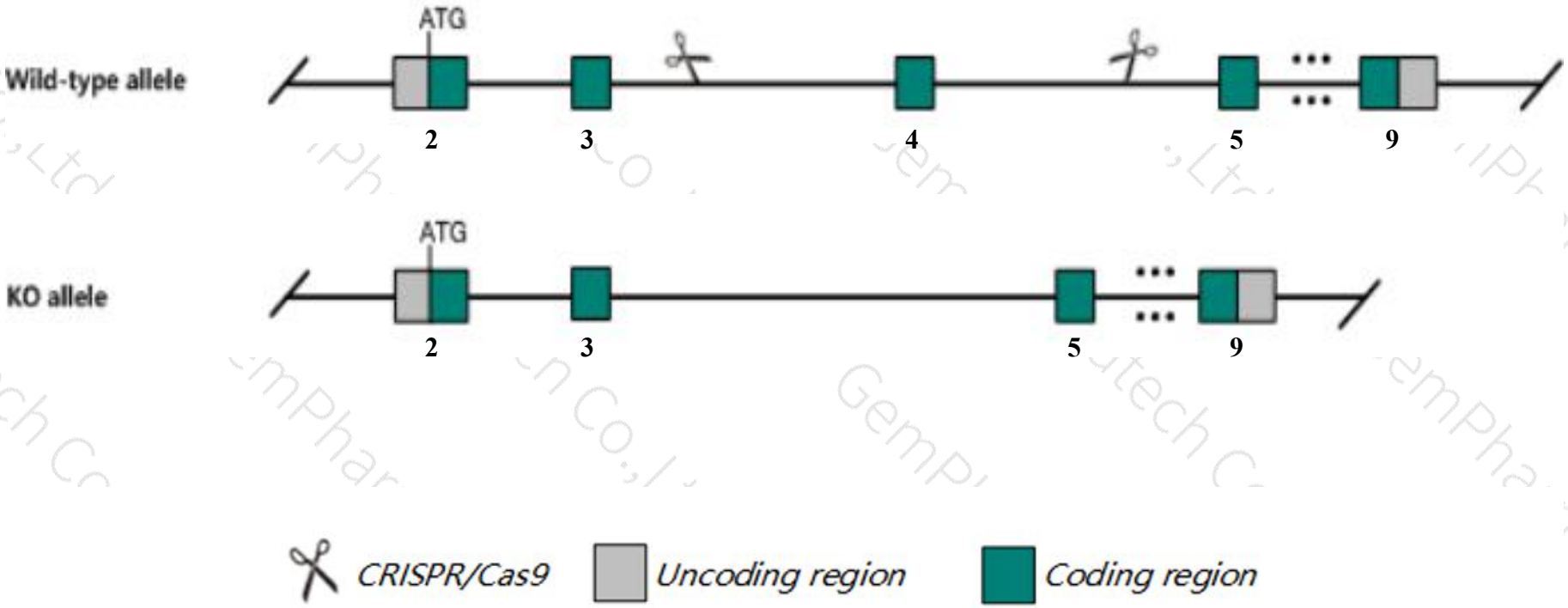
Project Overview

Project Name	***Hivep1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Hivep1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Hivep1* gene has 5 transcripts. According to the structure of *Hivep1* gene, exon4 of *Hivep1-201*(ENSMUST00000060148.5) transcript is recommended as the knockout region.The region contains 5939bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Hivep1* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ The *Hivep1* gene is located on the Chr13. 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）

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Hivep1 human immunodeficiency virus type I enhancer binding protein 1 [Mus musculus (house mouse)]

Gene ID: 110521, updated on 13-Mar-2020

Summary

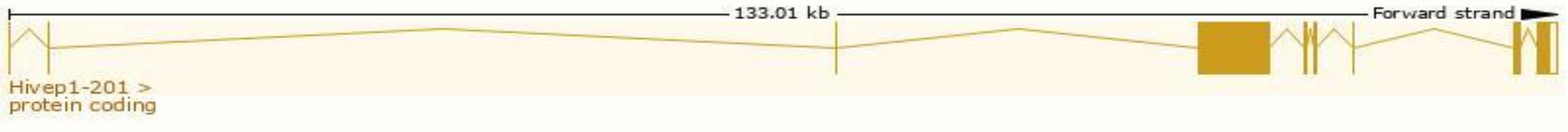
Official Symbol	Hivep1 provided by MGI
Official Full Name	human immunodeficiency virus type I enhancer binding protein 1 provided byMGI
Primary source	MGI:MGI:96100
See related	Ensembl:ENSMUSG00000021366
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cryabp1
Expression	Ubiquitous expression in lung adult (RPKM 7.2), colon adult (RPKM 7.1) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

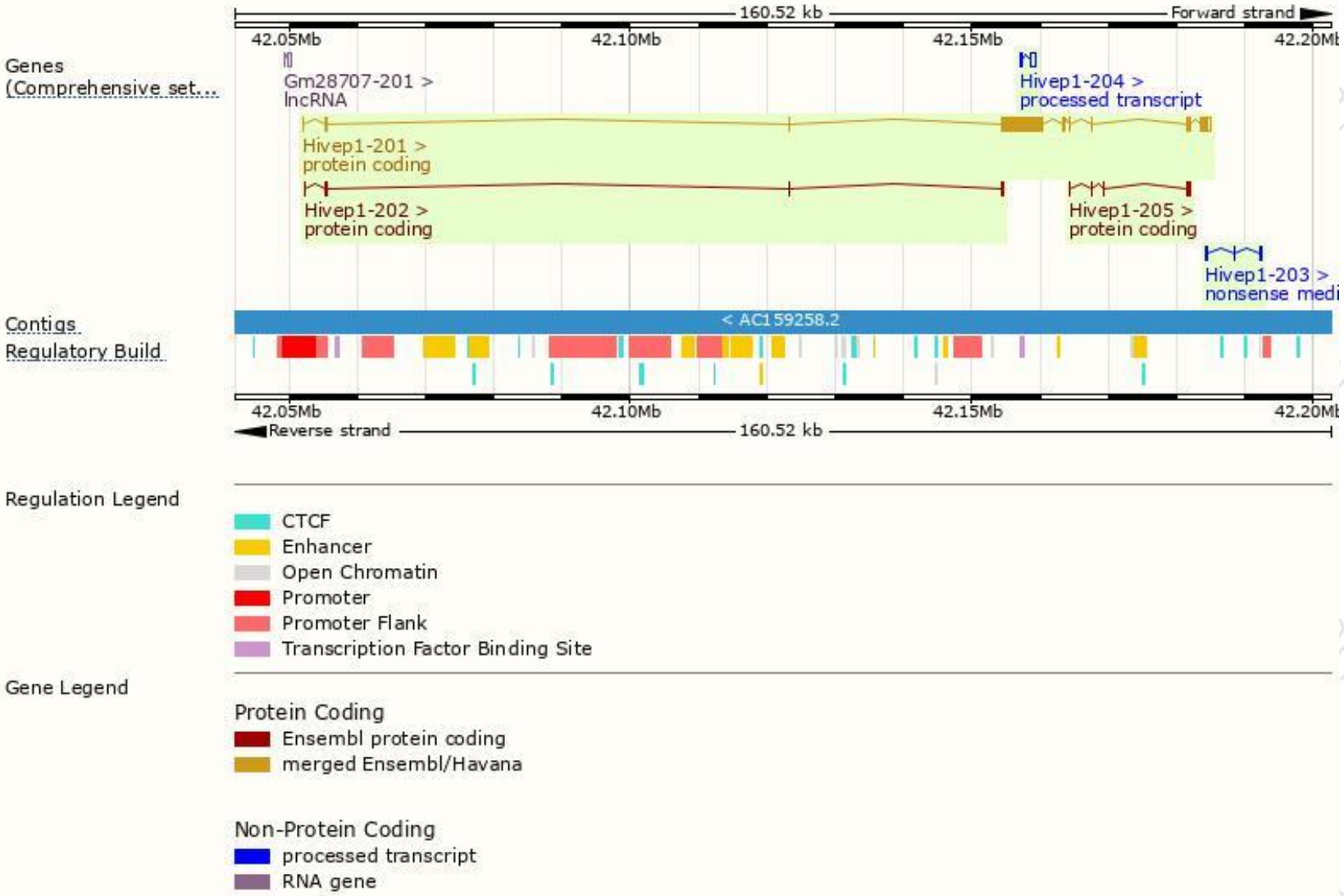
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Hivep1-201	ENSMUST00000060148.5	8753	2688aa	Protein coding	CCDS36643	F8VPM9	TSL:5 GENCODE basic APPRIS P1
Hivep1-205	ENSMUST00000222854.1	721	241aa	Protein coding	-	A0A1Y7VJI7	CDS 5' and 3' incomplete TSL:3
Hivep1-202	ENSMUST00000220525.1	501	115aa	Protein coding	-	A0A1Y7VJI1	CDS 3' incomplete TSL:3
Hivep1-203	ENSMUST00000220801.1	672	83aa	Nonsense mediated decay	-	A0A1Y7VLH2	CDS 5' incomplete TSL:3
Hivep1-204	ENSMUST00000222491.1	722	No protein	Processed transcript	-	-	TSL:3

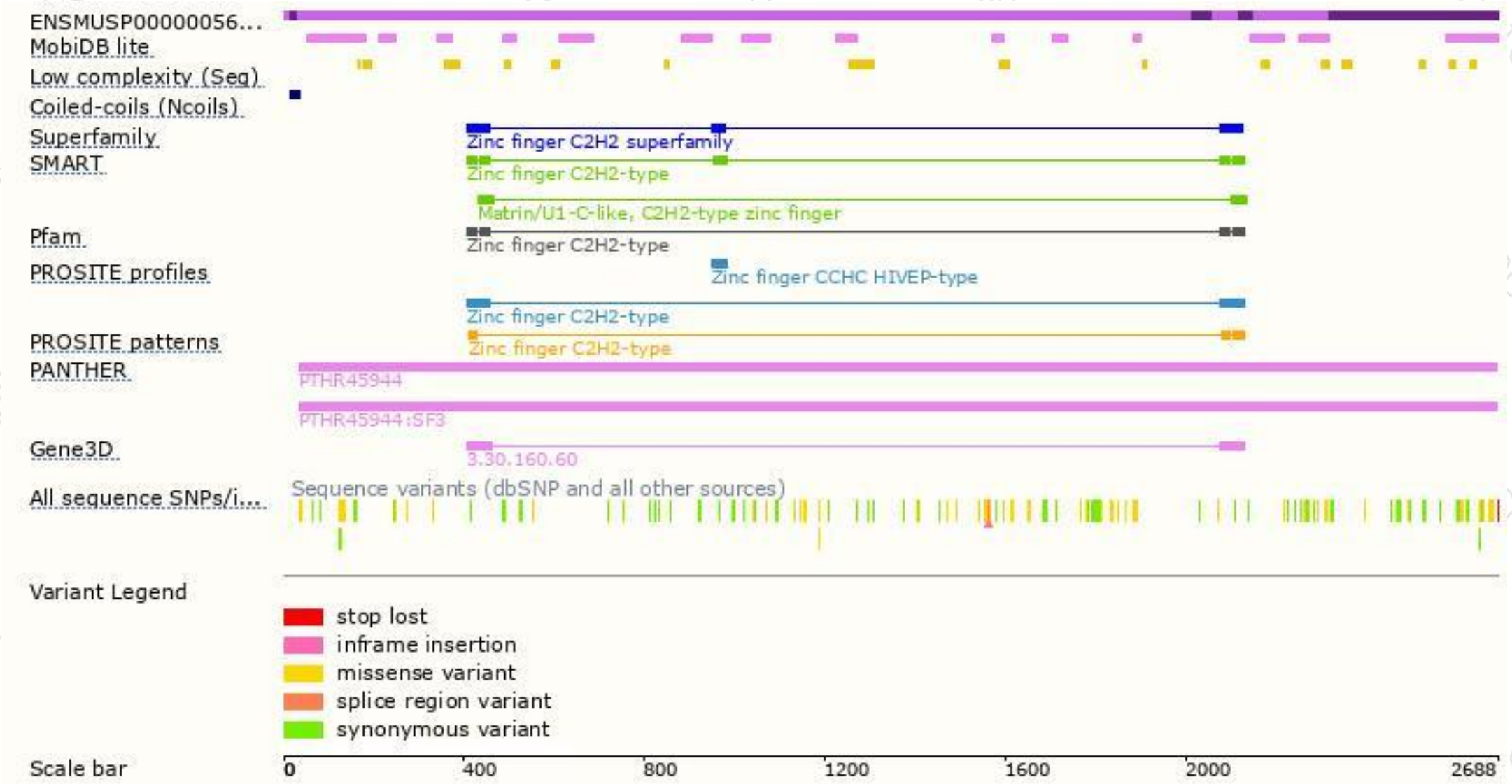
The strategy is based on the design of *Hivep1-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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