

***Bdh1* Cas9-KO Strategy**

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Project Overview

Project Name

Bdh1

Project type

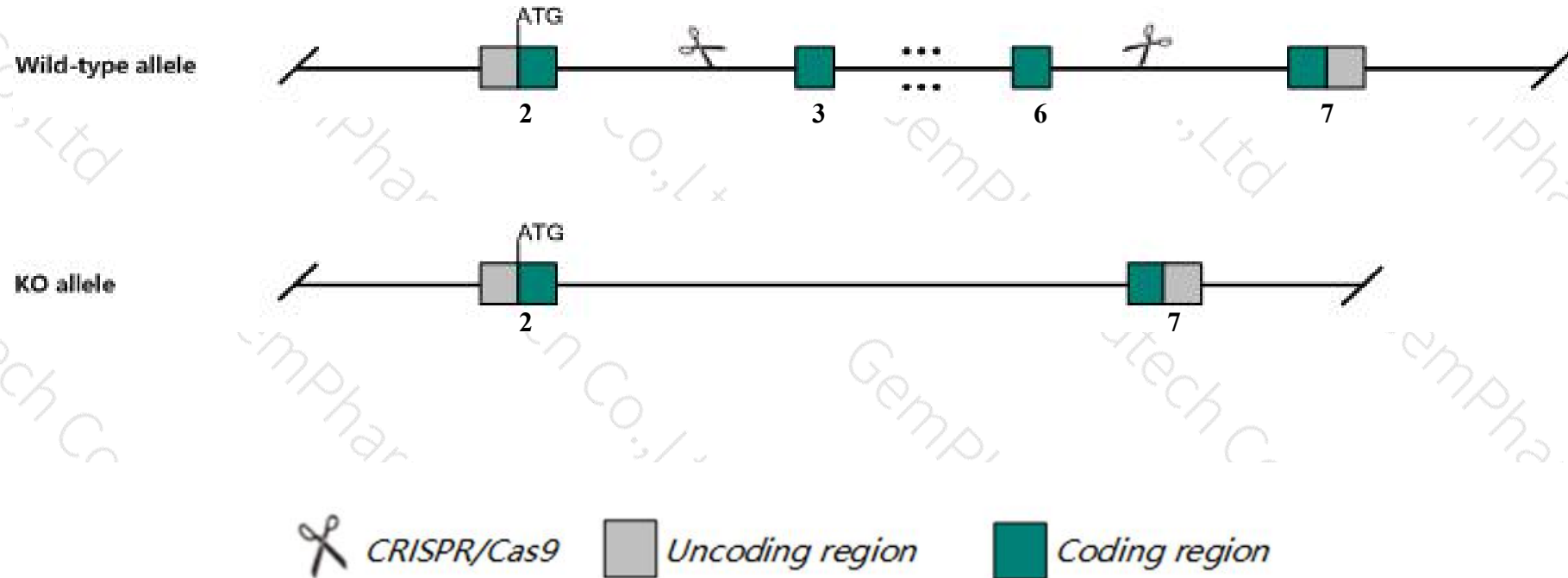
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Bdh1* gene. The schematic diagram is as follows:



- The *Bdh1* gene has 7 transcripts. According to the structure of *Bdh1* gene, exon3-exon6 of *Bdh1-203* (ENSMUST00000115227.9) transcript is recommended as the knockout region. The region contains 479bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Bdh1* gene. The brief process is as follows: CRISPR/Cas9 system v

- The *Bdh1* gene is located on the Chr16. 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.
- Transcript *Bdh1*-204&205 may not be affected.
- 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)

Bdh1 3-hydroxybutyrate dehydrogenase, type 1 [Mus musculus (house mouse)]

Gene ID: 71911, updated on 31-Jan-2019

Summary



Official Symbol	Bdh1 provided by MGI
Official Full Name	3-hydroxybutyrate dehydrogenase, type 1 provided by MGI
Primary source	MGI:MGI:1919161
See related	Ensembl:ENSMUSG00000046598
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	2310032J20Rik, AI327223, Bdh
Expression	Broad expression in liver adult (RPKM 77.8), liver E18 (RPKM 72.6) and 21 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

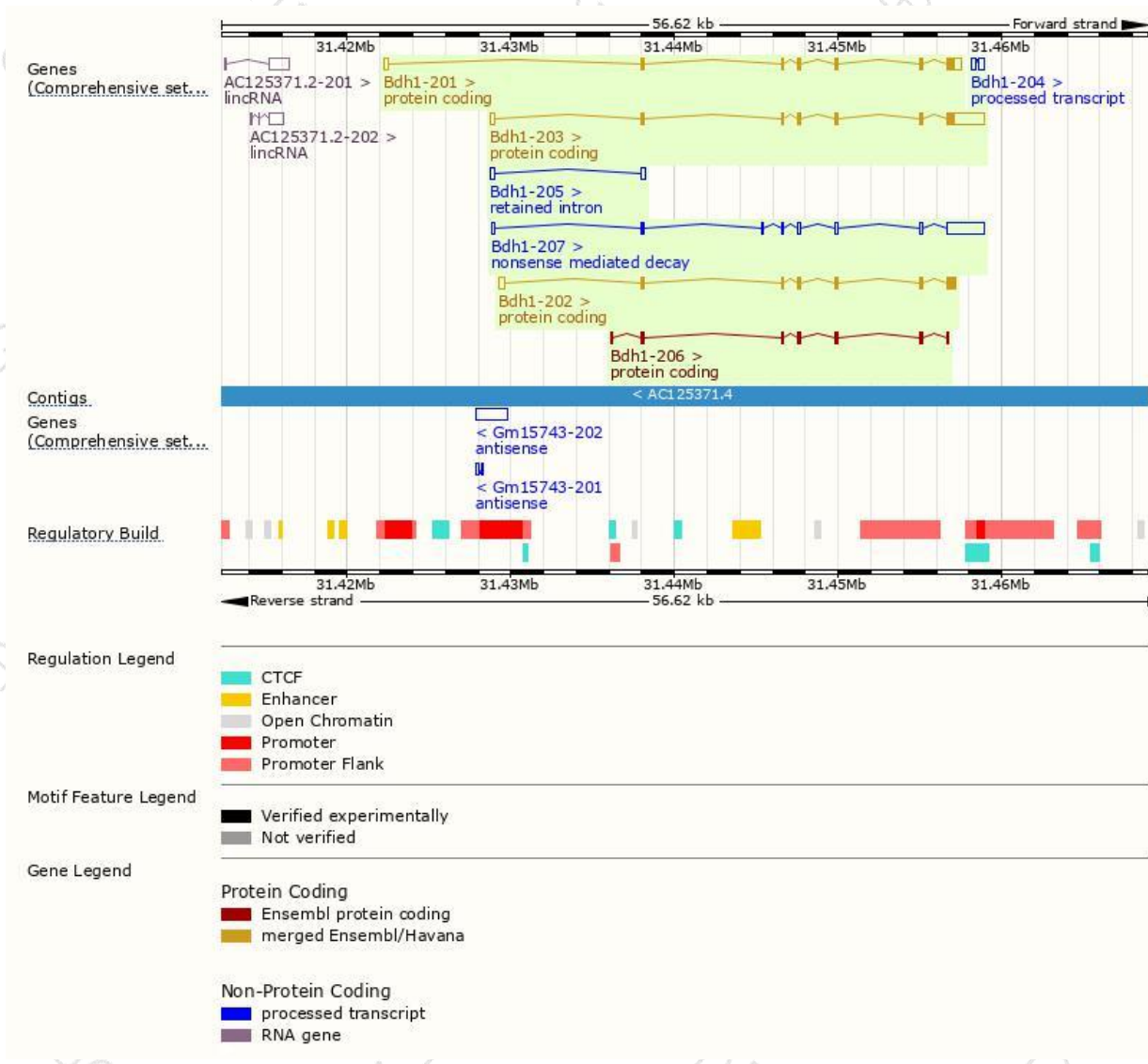
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bdh1-203	ENSMUST00000115227.9	3122	343aa	Protein coding	CCDS28106	Q80XN0	TSL:1 GENCODE basic APPRIS P1
Bdh1-201	ENSMUST00000089759.8	1711	343aa	Protein coding	CCDS28106	Q80XN0	TSL:1 GENCODE basic APPRIS P1
Bdh1-202	ENSMUST00000115226.7	1496	343aa	Protein coding	CCDS28106	Q80XN0	TSL:1 GENCODE basic APPRIS P1
Bdh1-206	ENSMUST00000149039.1	807	265aa	Protein coding	-	D3Z2Y8	CDS 3' incomplete TSL:3
Bdh1-207	ENSMUST00000232433.1	3162	37aa	Nonsense mediated decay	-	A0A338P6R2	
Bdh1-204	ENSMUST00000126825.1	582	No protein	Processed transcript	-	-	TSL:5
Bdh1-205	ENSMUST00000128286.1	438	No protein	Retained intron	-	-	TSL:2

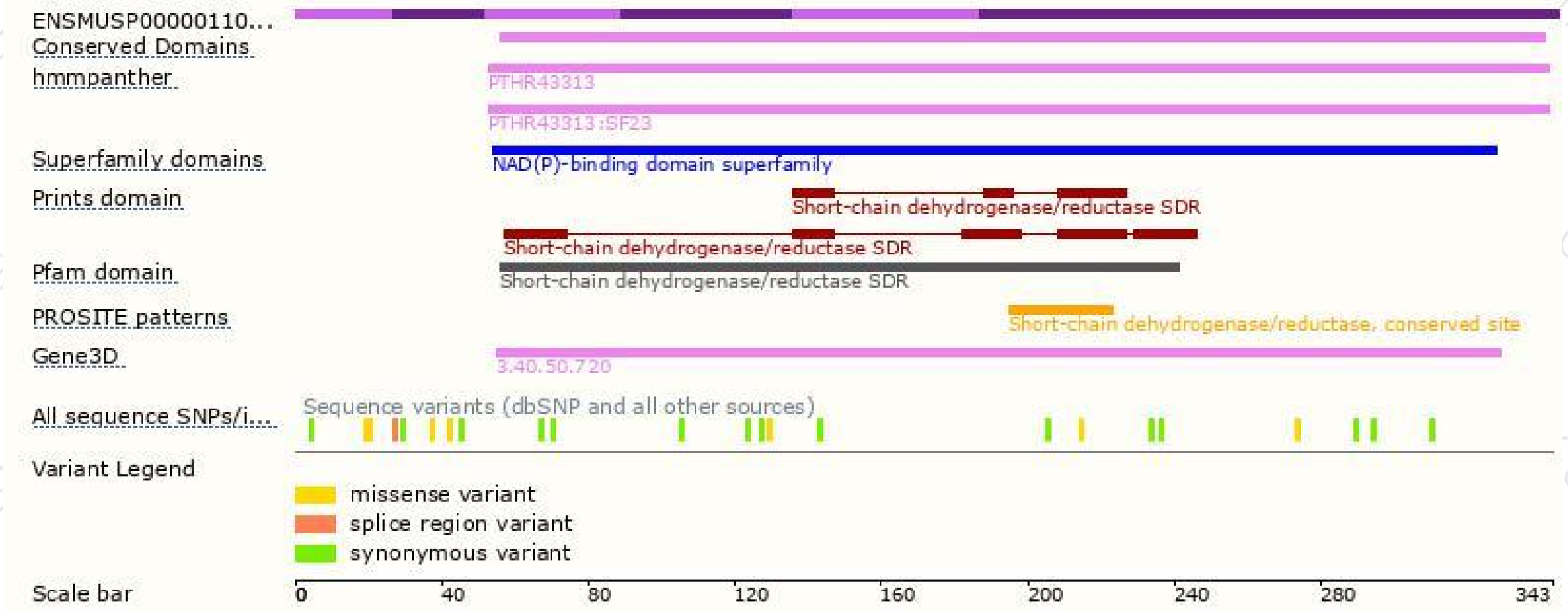
The strategy is based on the design of *Bdh1-203* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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