

Vldlr Cas9-KO Strategy

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Project Overview

Project Name

Vldlr

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Vldlr* gene has 8 transcripts. According to the structure of *Vldlr* gene, exon2-exon11 of *Vldlr*-207 (ENSMUST00000167487.7) transcript is recommended as the knockout region. The region contains 1621bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Vldlr* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Homozygous null mutants exhibit modest reductions in body weight and adiposity. In behavioral tests, mutants display deficits in contextual fear conditioning and long term potentiation.
- The *Vldlr* gene is located on the Chr19. 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)

Vldlr very low density lipoprotein receptor [Mus musculus (house mouse)]

Gene ID: 22359, updated on 19-Feb-2019

Summary



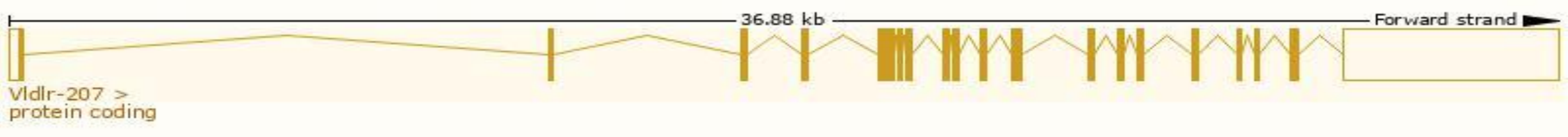
Official Symbol	Vldlr provided by MGI
Official Full Name	very low density lipoprotein receptor provided by MGI
Primary source	MGI:MGI:98935
See related	Ensembl:ENSMUSG00000024924
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA408956, AI451093, AW047288
Expression	Broad expression in heart adult (RPKM 21.6), subcutaneous fat pad adult (RPKM 8.9) and 17 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

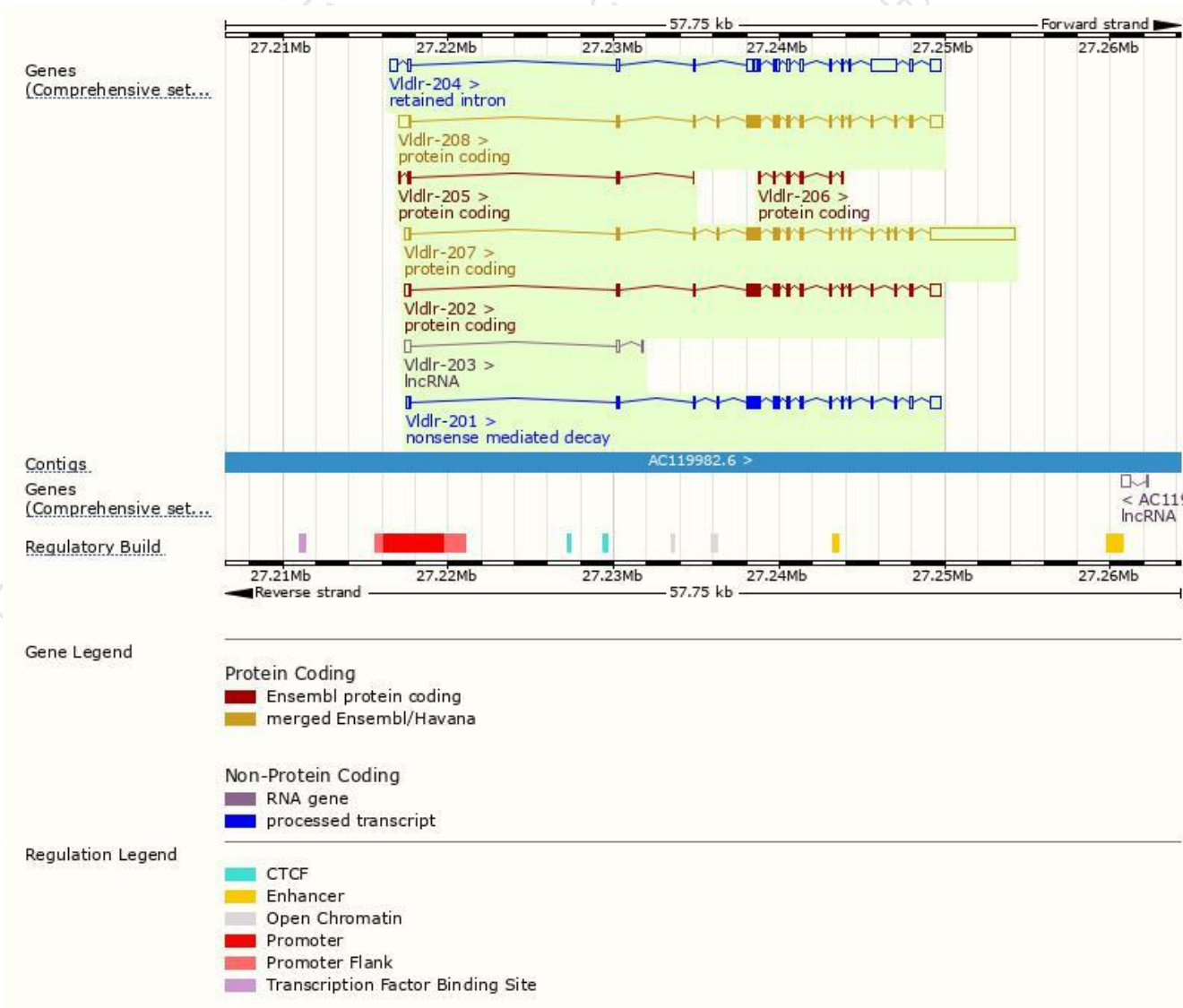
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Vldlr-207	ENSMUST00000167487.7	7971	873aa	Protein coding	CCDS29721	P98156	TSL:1 GENCODE basic APPRIS P3
Vldlr-208	ENSMUST00000172302.7	3855	845aa	Protein coding	CCDS50411	Q91YY0	TSL:1 GENCODE basic APPRIS ALT1
Vldlr-202	ENSMUST00000047645.12	3260	804aa	Protein coding	CCDS84429	F8WGI9	TSL:5 GENCODE basic
Vldlr-206	ENSMUST00000165761.1	774	258aa	Protein coding	-	F6RKS4	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3
Vldlr-205	ENSMUST00000164746.7	454	89aa	Protein coding	-	E9Q643	CDS 3' incomplete TSL:5
Vldlr-201	ENSMUST00000025866.13	3253	498aa	Nonsense mediated decay	-	F8WIN7	TSL:5
Vldlr-204	ENSMUST00000164509.7	4895	No protein	Retained intron	-	-	TSL:2
Vldlr-203	ENSMUST00000163729.1	511	No protein	lncRNA	-	-	TSL:3

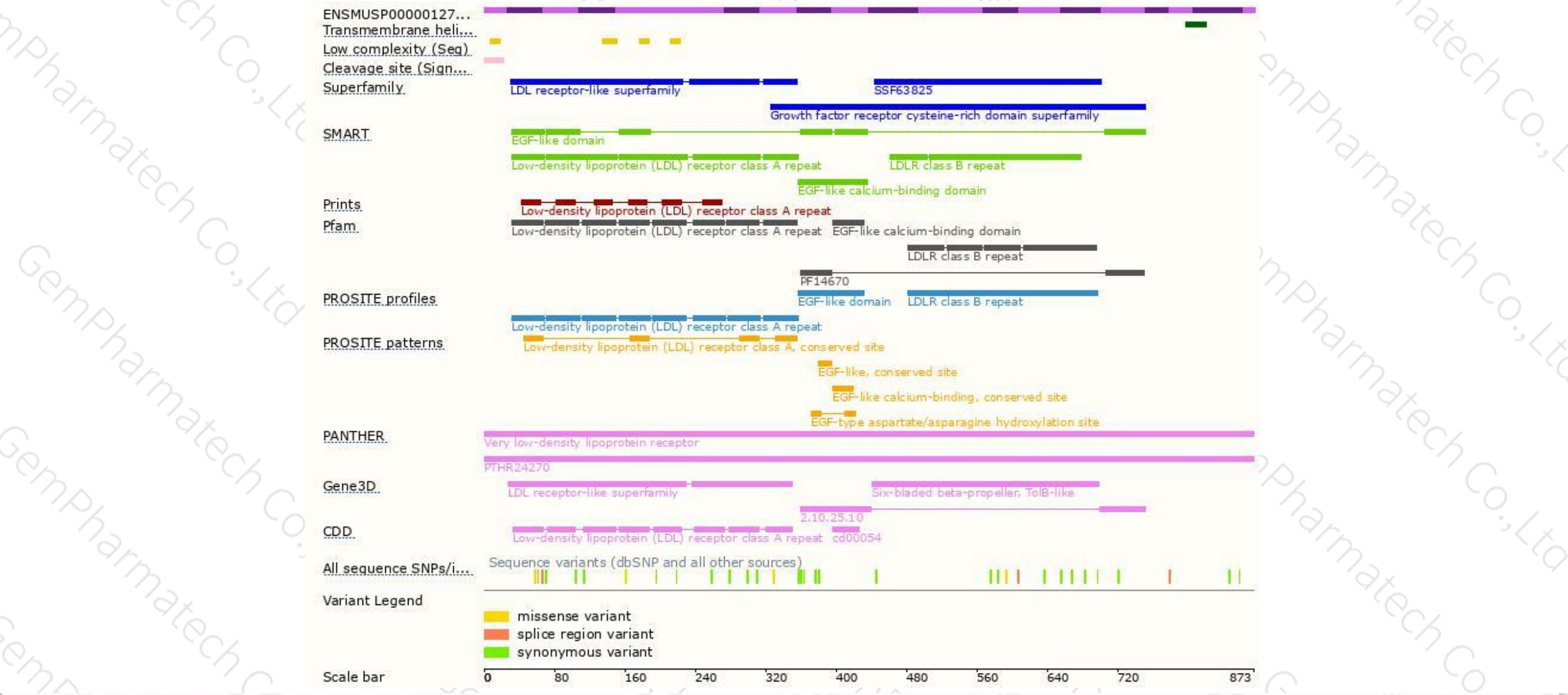
The strategy is based on the design of *Vldlr-207* transcript,The transcription is shown below



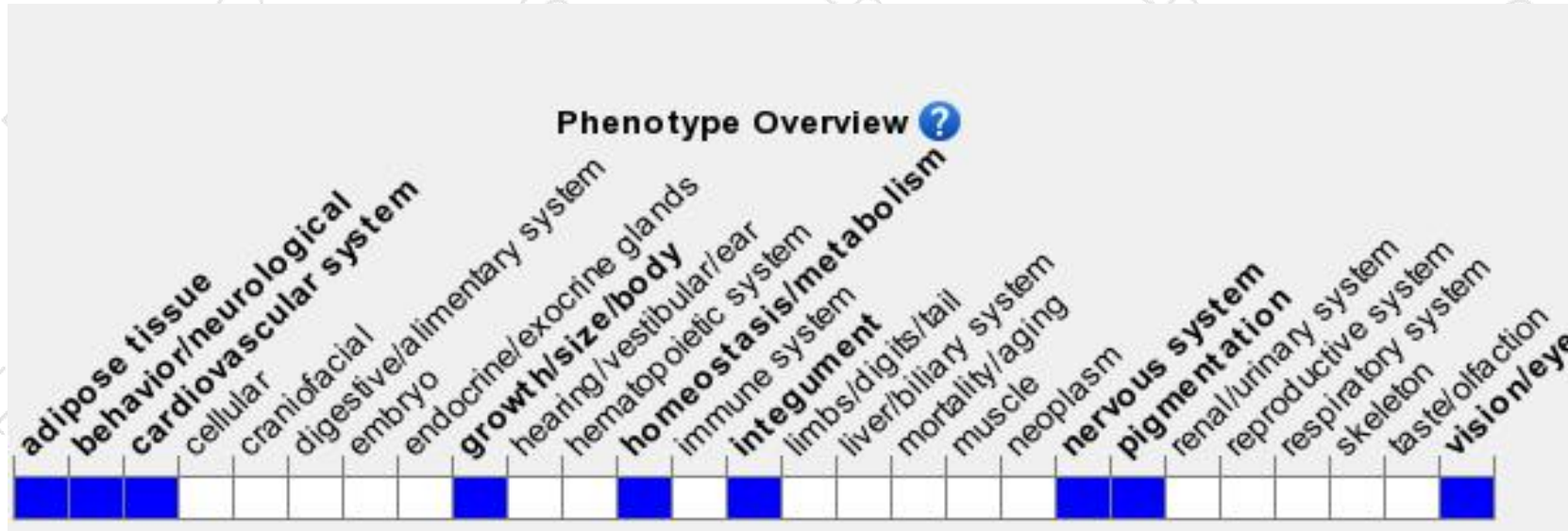
Genomic location distribution



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 null mutants exhibit modest reductions in body weight and adiposity. In behavioral tests, mutants display deficits in contextual fear conditioning and long term potentiation.

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

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