

# ***Ldlr-p.D622N* Mouse Model Strategy**

## **-CRISPR/Cas9 technology**

|                 |                     |
|-----------------|---------------------|
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| <b>Date</b>     | <b>2021-9-9</b>     |

# Project Overview

**Project Name**

Ldlr-p.D622N

**Project Type**

Cas9-KI(PM)

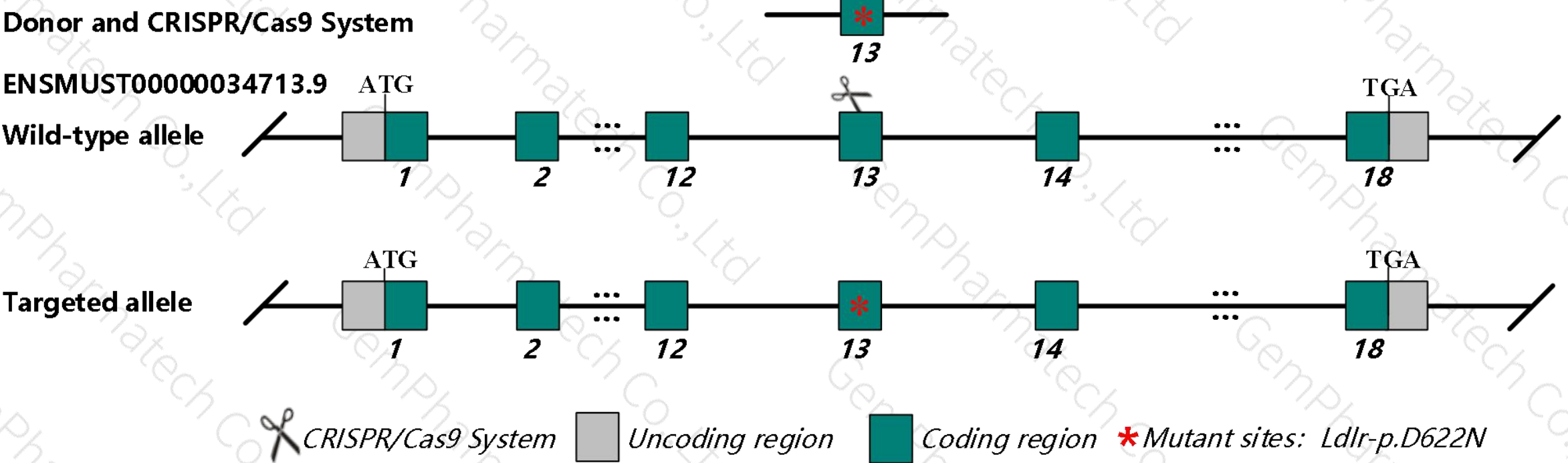
**Background**

C57BL/6JGpt

**Project Cycle**

5-8 months

This model uses CRISPR/Cas9 technology to edit the *Ldlr* gene and the schematic diagram is as follow:



# Technical Description

- According to the data of Ensembl, mouse *Ldlr* gene has 7 transcripts.
- The mouse model will introduce *p.D622N* point mutation in exon13 of *Ldlr*-201 (ENSMUST00000034713.9), the 622<sup>th</sup> amino acid of *Ldlr* is mutated from D(Asp) to N(Asn).
- *Ldlr*-201 has 18 exons, the translation start codon ATG is located in exon1, and the translation stop codon TGA is located in exon18, which encodes 862 amino acids.
- In this project, *Ldlr* gene will be modified by CRISPR/Cas9 technology. The brief process is as follows: the donor vector and gRNA were constructed in vitro, Cas9, donor and gRNA were microinjected into the fertilized eggs of C57BL/6JGpt mice, and obtained positive F0 generation mice. The F0 positive mice were mated with C57BL/6JGpt mice, the pups will be genotyped by PCR, followed by sequence analysis.

- According to the data of MGI, homozygous targeted mutants exhibit 2X higher total plasma cholesterol and 7-9X higher IDL and LDL levels on a normal diet compared to controls. On a high cholesterol diet, mutant effects dramatically increase and mice develop xanthomatosis and atherosclerosis.
- In addition to the target mutation of p.D622N, it may be necessary to introduce 1~2 amino acid synonymous mutations on exon13.
- Mouse *Ldlr* gene is located on Chr9. Please take the loci in consideration when breeding this mutation mice with other gene modified strains, if the other gene is also on Chr9, it may be extremely hard to get double gene positive homozygotes.
- The scheme is designed according to the genetic information in the existing database. Due to the complex process of gene transcription and translation, it cannot be predicted completely at the present technology level.

# Sequence homology Analysis

Human *LDLR* gene has 5 protein coding transcripts.

| Human LDLR Transcripts          | Amino Acids |
|---------------------------------|-------------|
| NM_000527.5 → NP_000518.1       | 860aa       |
| NM_001195798.2 → NP_001182727.1 | 858aa       |
| NM_001195799.2 → NP_001182728.1 | 819aa       |
| NM_001195800.2 → NP_001182729.1 | 692aa       |
| NM_001195803.2 → NP_001182732.1 | 682aa       |

Mouse *Ldlr* gene has 3 protein coding transcript.

| Mouse Ldlr Transcripts          | Amino Acids |
|---------------------------------|-------------|
| NM_001252658.1 → NP_001239587.1 | 810aa       |
| NM_001252659.1 → NP_001239588.1 | 861aa       |
| NM_010700.3 → NP_034830.2       | 862aa       |

|                 |       |                                                    |                  |                     |                |           |         |             |        |         |        |        |          |        |         |        |           |         |         |        |       |      |        |       |        |        |        |         |       |      |      |         |      |      |         |     |     |     |      |        |      |    |      |      |      |      |        |     |      |      |        |     |    |      |     |     |     |      |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |
|-----------------|-------|----------------------------------------------------|------------------|---------------------|----------------|-----------|---------|-------------|--------|---------|--------|--------|----------|--------|---------|--------|-----------|---------|---------|--------|-------|------|--------|-------|--------|--------|--------|---------|-------|------|------|---------|------|------|---------|-----|-----|-----|------|--------|------|----|------|------|------|------|--------|-----|------|------|--------|-----|----|------|-----|-----|-----|------|-----|-----|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|---|---|---|---|---|---|---|---|---|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|---|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|
| Mouse NP_034830 | (1)   | MSTADLMRRWVIALLLAAAGVAAEDSCSRNEFQCRDGKCIASKWWCDGSP | ECPPDGSDES       | PETCMSVT            | CQSNQFSCGGRVSR | CI        | PD      | SWRCDGQVDC  | ENDSDE | QGCP    | PKTCSQ | DD     | FRCQ     | DGKC   | ISPQ    | FVCD   | DRDCLD    | GSDEAHC | QATT    | CGPA   | AH    | FR   | CNSS   | IC    | IP     | SLWACD | GDVDCV | DGSDEWP | QNCQ  | GRD  | TA   | SGVSSPC | SSLE | EFHC | GS      | SEC | IHR | SW  | CDGE | 220    |      |    |      |      |      |      |        |     |      |      |        |     |    |      |     |     |     |      |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |
| Human NP_000518 | (1)   | MGPWGKLRWTVALLLAAAGTAVGDRCE                        | RNEFQCDGKCI      | SYKWWCDGSAECQDGSDES | QETCLSVTKSGD   | FSCGGRVNR | CI      | PFWRCDGQVDC | DNGSDE | QGCP    | PKTCSQ | DD     | EFRC     | HDGKC  | IS      | RQFVCD | SDRDCLD   | GSDEA   | SC      | PVLC   | GPAS  | FQ   | CNSS   | TC    | IP     | QLWACD | NDPDC  | DGSDEWP | QRCRG | LVVF | QD   | SSPC    | SA   | FE   | HC      | IS  | HS  | W   | CDGG | 440    |      |    |      |      |      |      |        |     |      |      |        |     |    |      |     |     |     |      |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |
| Consensus       | (1)   | M                                                  | RW               | IALLLAAAG           | A              | D         | C       | RNEFQC      | DGKCIA | KWWCDGS | EC     | DGSDES | ETCLSVTC | S      | FSCGGRV | RCIP   | WRCDGQVDC | DN      | SDEQGCP | PKTCSQ | DD    | FRCQ | DGKCIS | QFVCD | DRDCLD | GSDEA  | C      | TCGPA   | F     | CNSS | CIP  | LWACD   | D    | DC   | DGSDEWP | Q   | C   | G   | G    | SSPCSA | EFHC | S  | ECIH | SW   | CDG  | 440  |        |     |      |      |        |     |    |      |     |     |     |      |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |
| Mouse NP_034830 | (221) | ADCKDKSDEEHCAVATCRPDEFQCADG                        | SCIHGS           | RQCDREH             | DCKDMS         | DELGCNV   | VTQC    | DGPNK       | FKCHSG | ECISL   | DKVCD  | SARD   | CQDWS    | DEPIKE | CKTNE   | CLDN   | NGGCSH    | I       | CDL     | KIG    | SECL  | CP   | SG     | FRL   | VDL    | HRC    | ED     | IDE     | QEPD  | TC   | SQ   | LCV     | NLEG | SYK  | CE      | QA  | GF  | HMD | PH   | TRV    | CKAV | GS | I    | GYLL | FTNR | HEVR | KMTLDR | SEY | TS   | LL   | PNL    | K   | NV | VALD | TEV | TNN | 440 |      |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |
| Human NP_000518 | (220) | PCKDKSDEENCAVATCRPDEFQCS                           | DGNC             | CIHGS               | RQCDREY        | DCKDMS    | DEVGCNV | VTLC        | EGPNK  | FKCHSG  | ECITL  | DKVCN  | MARD     | CRDWS  | DEPIKE  | CKTNE  | CLDN      | NGGCSH  | V       | CNDL   | KIG   | ECL  | CP     | DG    | FQL    | V      | AQR    | RCD     | ED    | IDE  | QEPD | TC      | SQ   | LCV  | NLEG    | YK  | C   | EE  | GF   | QD     | PH   | T  | KAC  | AV   | GS   | I    | AYL    | FF  | FTNR | HEVR | KMTLDR | SEY | TS | LL   | PNL | R   | NV  | VALD | TEV | ASN | 440 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |
| Consensus       | (221) | DCKDKSDEE                                          | CAVATCRPDEFQCADG | CIHGS               | RQCDREH        | DCKDMS    | DELGCNV | VT          | CDGPNK | FKCHSG  | ECISL  | DKVC   | ARDC     | DWS    | DEPIKE  | C      | TNE       | CLDN    | NGGCSH  | C      | DLKIG | ECL  | CP     | GF    | LV     | RC     | ED     | IDE     | QEPD  | TC   | SQ   | LCV     | NLEG | YK   | C       | GF  | LD  | PH  | T    | KAC    | AV   | GS | I    | AYL  | FTNR | HEVR | KMTLDR | SEY | TS   | LL   | PNL    | K   | NV | VALD | TEV | N   | 441 |      |     |     |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |
| Mouse NP_034830 | (441) | RIYWS                                              | DL               | SQ                  | KKI            | YS        | AL      | MD          | Q      | AP      | NLS    | YDTI   | I        | SEDL   | HAP     | DGLAVD | WI        | HR      | NI      | Y      | W     | T    | D      | S     | V      | P      | G      | S       | V     | S    | V    | A       | D    | T    | K       | G   | V   | K   | R    | T      | L    | F  | Q    | E    | A    | G    | S      | R   | P    | A    | I      | V   | V  | D    | P   | V   | H   | G    | F   | M   | Y   | W | T | D | W | G | T | P | A | K | I | K | G | L | N | G | V | D | I | H | S | L | V | T | E | N | I | Q | W | P | N | G | I | T | L | D | L | S | G | R | L | Y | W | V | D | S | K | L | H | S | I | S | S | I | D | V | N | G | N | R | K | T | I | E | D | E | N | R | L | A | H | P | F | S | L | A | I | Y | E | D | K | V | Y | W | T | D | I | N | E | A | I   | F | S | A | N | R | L | T | G | S | D   | V | N | L | A | E | N | L | L | S | P | E | D | I | V | L | F | H | K | V | T | 863 |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |
| Human NP_000518 | (440) | RIYWS                                              | DL               | SQ                  | R              | M         | I       | C           | S      | T       | Q      | L      | D        | R      | A       | H      | G         | V       | S       | S      | Y     | D    | T      | I     | S      | R      | D      | I       | Q     | A    | P    | D       | L    | A    | V       | D   | W   | I   | H    | S      | N    | I  | Y    | W    | T    | D    | S      | V   | L    | G    | T      | V   | S  | A    | D   | T   | K   | G    | V   | K   | R   | T | L | F | R | E | N | G | S | K | P | R | A | I | V | V | D | P | V | H | G | F | M | Y | W | T | D | W | G | T | P | A | K | I | K | G | L | N | G | V | D | I | Y | S | L | V | T | E | N | I | Q | W | P | N | G | I | T | L | D | L | S | G | R | L | Y | W | V | D | S | K | L | H | S | I | S | S | I | D | V | N | G | N | R | K | T | I | E | D | E | K | R   | L | A | H | P | F | S | L | A | V | E   | D | K | V | Y | W | T | D | I | N | E | A | I | F | S | A | N | R | L | T | G | S   | D | V   | N | L | A | E | N | L | L | S | P | E | D | I | V | L | F | H | N | L | T | 863 |
| Consensus       | (441) | RIYWS                                              | DL               | SQ                  | R              | M         | I       | C           | S      | T       | Q      | L      | D        | R      | A       | H      | G         | V       | S       | S      | Y     | D    | T      | I     | S      | R      | D      | I       | Q     | A    | P    | D       | L    | A    | V       | D   | W   | I   | H    | S      | N    | I  | Y    | W    | T    | D    | S      | V   | L    | G    | T      | V   | S  | A    | D   | T   | K   | G    | V   | K   | R   | T | L | F | R | E | N | G | S | K | P | R | A | I | V | V | D | P | V | H | G | F | M | Y | W | T | D | W | G | T | P | A | K | I | K | G | L | N | G | V | D | I | Y | S | L | V | T | E | N | I | Q | W | P | N | G | I | T | L | D | L | S | G | R | L | Y | W | V | D | S | K | L | H | S | I | S | S | I | D | V | N | G | N | R | K | T | I | E | D | E | K | R   | L | A | H | P | F | S | L | A | V | E   | D | K | V | Y | W | T | D | I | N | E | A | I | F | S | A | N | R | L | T | G | S   | D | V   | N | L | A | E | N | L | L | S | P | E | D | I | V | L | F | H | N | L | T | 863 |
| Mouse NP_034830 | (660) | QPRGV                                              | NW               | CE                  | T              | T         | L       | S           | AL     | P       | NGG    | C      | Q        | Y      | L       | C      | L         | P       | A       | P      | Q     | I    | N      | P     | H      | S      | P      | K       | F     | T    | C    | A       | C    | P    | D       | G   | M   | L   | L    | A      | K    | D  | M    | R    | S    | C    | L      | E   | T    | E    | V      | D   | T  | V    | L   | T   | Q   | G    | T   | S   | A   | V | R | P | V | T | A | S | A | T | R | P | K | H | S | E | D | L | S | A | P | T | R | P | Q | V | D | T | P | G | L | S | T | V | A | S | V | T | S | H | Q | V | G | D | M | A | G | R | N | E | Q | P | H | G | M | R | F | L | S | I | F | F | P | I | A | L | V | A | L | L | V | G | A | V | L | L | R | N | W | R | L | K | N | I | N | S | I | N | F | D | N   | P | V | Y | Q | T | T | E | D | E | L   | H | I | C | R | S | Q | D | G | Y | T | P | S | R | Q | M | S | L | E | D | D | V   | A | 863 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |
| Human NP_000518 | (660) | QPRGV                                              | NW               | CE                  | T              | T         | L       | S           | AL     | P       | NGG    | C      | Q        | Y      | L       | C      | L         | P       | A       | P      | Q     | I    | N      | P     | H      | S      | P      | K       | F     | T    | C    | A       | C    | P    | D       | G   | M   | L   | L    | A      | K    | D  | M    | R    | S    | C    | L      | E   | T    | E    | V      | D   | T  | V    | L   | T   | Q   | G    | T   | S   | V   | R | L | K | S | T | A | V | R | P | T | H | T | R | P | V | D | T | S | R | L | G | A | T | P | G | L | S | T | V | E | I | V | T | M | S | H | Q | A | L | G | V | L | L | R | N | W | R | L | K | N | I | N | S | I | N | F | D | N | P | V | Y | Q | T | T | E | D | E | V | H | I | C | H | N | Q | D | G | Y | S | P | R | Q | M | S | L | E | D | D | V | A | 863 |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |
| Consensus       | (661) | QPRGV                                              | NW               | CE                  | T              | T         | L       | S           | AL     | P       | NGG    | C      | Q        | Y      | L       | C      | L         | P       | A       | P      | Q     | I    | N      | P     | H      | S      | P      | K       | F     | T    | C    | A       | C    | P    | D       | G   | M   | L   | L    | A      | K    | D  | M    | R    | S    | C    | L      | E   | T    | E    | V      | D   | T  | V    | L   | T   | Q   | G    | T   | S   | V   | R | V | S | A | R | H | S | P | T | R | P | Q | V | D | T | P | G | L | S | T | V | V | T | M | S | H | Q | D | M | A | G | R | N | E | Q | P | H | G | M | R | F | L | S | I | P | I | L | L | L | G | L | L | W | K | N | W | R | L | K | N | I | N | S | I | N | F | D | N | P | V | Y | Q | T | T | E | D | E | L | H | I | C | H | N | Q | D | G | Y | S | P | R   | Q | M | S | L | E | D | D | V | A | 863 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |   |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |

Based on the data of NCBI, there are 5 transcripts of human *LDLR* gene, which encode amino acids of different lengths, and the mouse *Ldlr* gene has 3 transcripts. The homology of human NP\_000518.1 and mouse NP\_034830.2 is about 78.0%.

# Mutation Site

## Before mutation

D K V Y W T D V I N E A I F S A N R L T G

AACACGCTCG GTCCTCTTCC GTACATACCA CCTGTGTAGG ACAAAGTGTA TTGGACAGAT GTCATAAACG AAGCCATTTT CAGTGCCAAT CGACTCACGG  
TTGTGCGAGC CAGGAGAAGG CATGTATGGT GGACACATCC TGTTTCACAT AACCTGTCTA CAGTATTTGC TTCGGTAAAA GTCACGGTTA GCTGAGTGCC  
?G S D V N L V A E N L L S P E D I V L F H K V T Q P R

G TTCAGATGT GAATTTGGTG GCTGAAAACC TCTTGTCCCC GGAGGACATT GTCCTGTTCC ACAAGGTCAC ACAGCCTAGA GGTAAGCTCG GCCCTGTCCC  
CAAGTCTACA CTAAACCAC CGACTTTTGG AGAACAGGGG CCTCCTGTAA CAGGACAAGG TGTTCCAGTG TGTCGGATCT CCATTTCGAGC CGGGACAGGG

## After mutation

D K V Y W T N V I N E A I F S A N R L T G

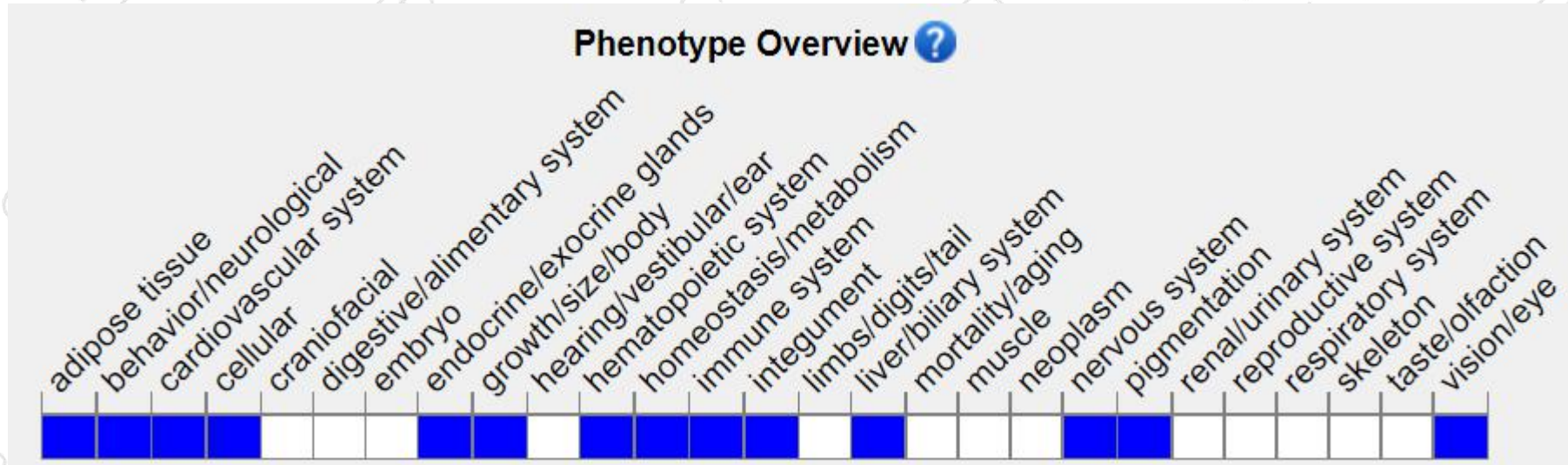
AACACGCTCG GTCCTCTTCC GTACATACCA CCTGTGTAGG ACAAAGTGTA TTGGACAAAT GTCATAAACG AAGCCATTTT CAGTGCCAAT CGACTCACGG  
TTGTGCGAGC CAGGAGAAGG CATGTATGGT GGACACATCC TGTTTCACAT AACCTGTTTA CAGTATTTGC TTCGGTAAAA GTCACGGTTA GCTGAGTGCC  
?G S D V N L V A E N L L S P E D I V L F H K V T Q P R

G TTCAGATGT GAATTTGGTG GCTGAAAACC TCTTGTCCCC GGAGGACATT GTCCTGTTCC ACAAGGTCAC ACAGCCTAGA GGTAAGCTCG GCCCTGTCCC  
CAAGTCTACA CTAAACCAC CGACTTTTGG AGAACAGGGG CCTCCTGTAA CAGGACAAGG TGTTCCAGTG TGTCGGATCT CCATTTCGAGC CGGGACAGGG

The yellow region is exon13 of *Ldlr-201*, and the red region represents the p.D622N mutation site.

# Mouse phenotype description(MGI)

<http://www.informatics.jax.org/marker/MGI:96765>



Homozygous targeted mutants exhibit 2X higher total plasma cholesterol and 7-9X higher IDL and LDL levels on a normal diet compared to controls. On a high cholesterol diet, mutant effects dramatically increase and mice develop xanthomatosis and atherosclerosis.

# Gene name and location (NCBI)

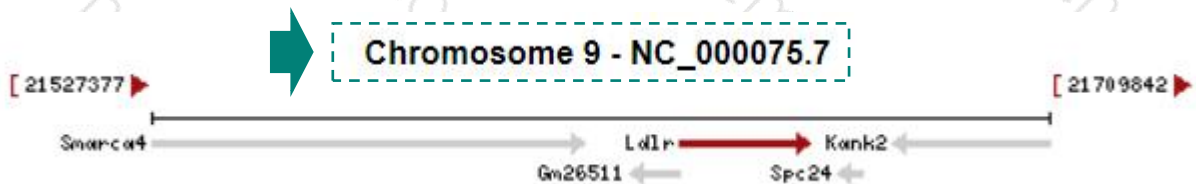
**Ldlr** low density lipoprotein receptor [ *Mus musculus* (house mouse) ]

Gene ID: 16835, updated on 6-Sep-2021

 Download Datasets

## Summary

|                    |                                                                                                                                                                           |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Official Symbol    | Ldlr provided by <a href="#">MGI</a>                                                                                                                                      |
| Official Full Name | low density lipoprotein receptor provided by <a href="#">MGI</a>                                                                                                          |
| Primary source     | <a href="#">MGI:MGI:96765</a>                                                                                                                                             |
| See related        | <a href="#">Ensembl:ENSMUSG00000032193</a>                                                                                                                                |
| Gene type          | protein coding                                                                                                                                                            |
| RefSeq status      | VALIDATED                                                                                                                                                                 |
| Organism           | <a href="#">Mus musculus</a>                                                                                                                                              |
| Lineage            | Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus |
| Also known as      | Hlb301                                                                                                                                                                    |
| Expression         | Ubiquitous expression in colon adult (RPKM 56.3), adrenal adult (RPKM 52.3) and 27 other tissues <a href="#">See more</a>                                                 |
| Orthologs          | <a href="#">human</a> <a href="#">all</a>                                                                                                                                 |

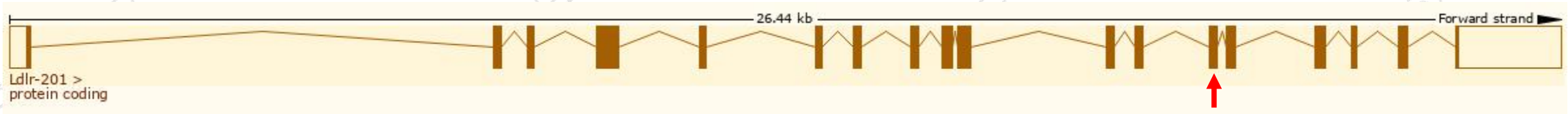


# Transcript information (Ensembl)

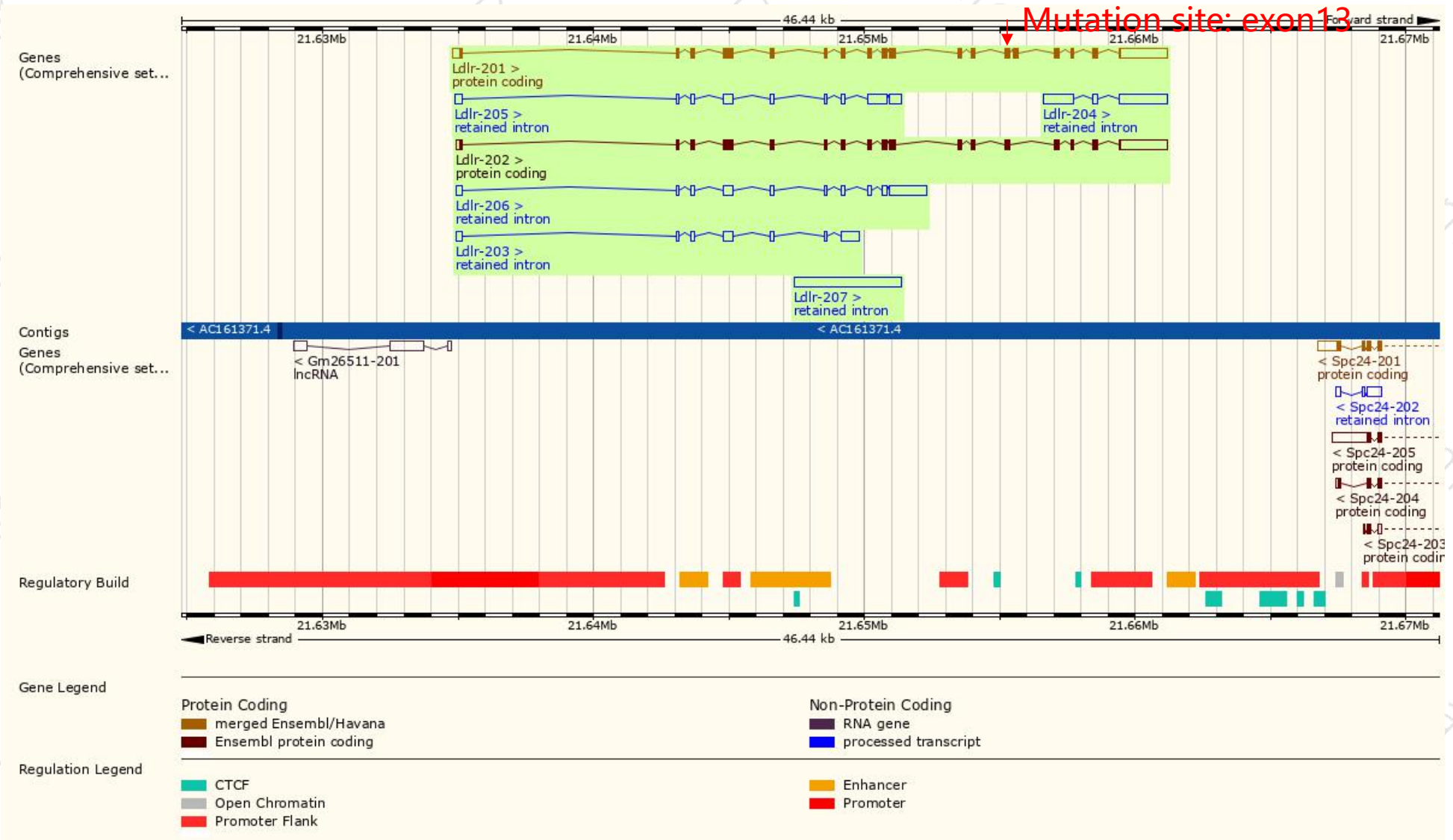
The gene has 7 transcripts, and all transcripts are shown below:

| Name     | Transcript ID                        | bp   | Protein               | Biotype         | CCDS                      | UniProt Match              | Flags                         |
|----------|--------------------------------------|------|-----------------------|-----------------|---------------------------|----------------------------|-------------------------------|
| Ldlr-202 | <a href="#">ENSMUST00000213114.2</a> | 4318 | <a href="#">810aa</a> | Protein coding  | -                         | <a href="#">A0A1L1SRE8</a> | GENCODE basic TSL:1           |
| Ldlr-201 | <a href="#">ENSMUST00000034713.9</a> | 4627 | <a href="#">862aa</a> | Protein coding  | <a href="#">CCDS22910</a> | <a href="#">P35951</a>     | GENCODE basic APPRIS P1 TSL:1 |
| Ldlr-207 | <a href="#">ENSMUST00000217613.2</a> | 3980 | No protein            | Retained intron | -                         | -                          | TSL:NA                        |
| Ldlr-204 | <a href="#">ENSMUST00000214549.2</a> | 3049 | No protein            | Retained intron | -                         | -                          | TSL:1                         |
| Ldlr-206 | <a href="#">ENSMUST00000217111.2</a> | 2854 | No protein            | Retained intron | -                         | -                          | TSL:1                         |
| Ldlr-205 | <a href="#">ENSMUST00000215917.2</a> | 2383 | No protein            | Retained intron | -                         | -                          | TSL:1                         |
| Ldlr-203 | <a href="#">ENSMUST00000214359.2</a> | 1739 | No protein            | Retained intron | -                         | -                          | TSL:1                         |

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

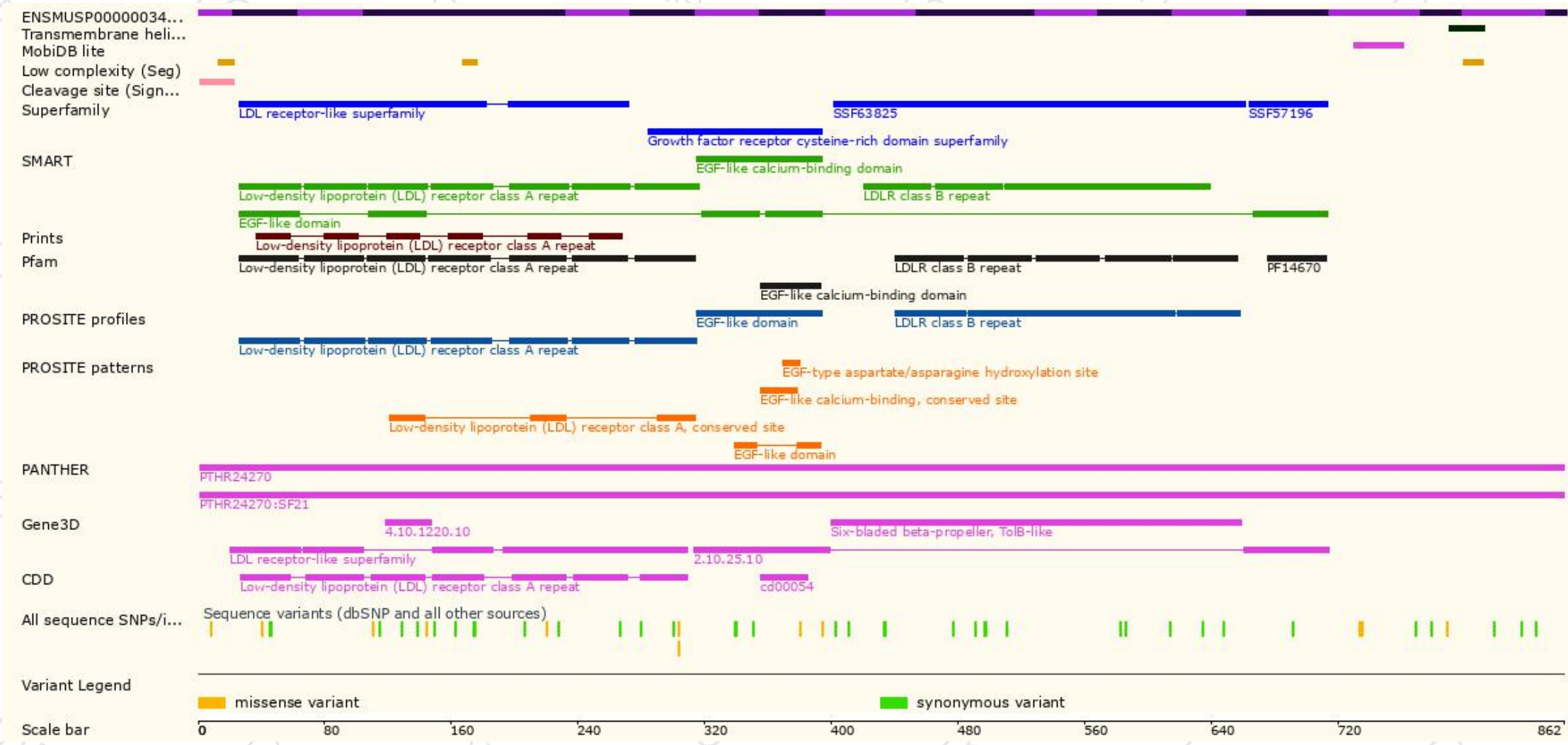


# Genomic location distribution



# Protein domain

## Protein domains for ENSMUSP00000034713.8



If you have any questions, please feel free to contact us.

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