

Gene: SDHB - Sequence: NG_012340.1
 Transcript: NM_003000.2 - Protein: NP_002991.2
 Date : February 26, 2015

1st line: Base numbering. Full stops for intronic +/- 5, 10, 15...
 2nd line: Base sequence. lower case Introns, upper case Exons
 3rd line: Amino acid sequence. Printed on FIRST base of codon
 4th line: Amino acid numbering. Numbered on 1st and increments of 10

Exon 1 | Start: 5001 | End: 5223 | Length: 222

```

. . . . .
cgggaggcgagggttgagtgagccaagatcgcgccattgcactccagcccgggaaacag

. . . . .
tgcgagactccatctcaaacaacaacaaaaattccaggaataaagaggttgaaatcg

. . . . .
ggcagggacccgataggatggctccgccccatctaagtcttagccccacccctgaaag

. . . . .
tcgccctgcctctcagactcctcccctttctgagaaggtcacgggggaagccaaatgggc

. . . . .
atgcgccgtactgcgctattgcgcacgctcgctgtgcttgccccgccttcctccgccc

|-149    |-139    |-129    |-119    |-109    |-99
ACCGGGAACCGGAAGCCGCCTCCCACTTGGTTGCTCGTACGCGGCTAGTGGGTCCTCA

|-89    |-79    |-69    |-59    |-49    |-39
GTGGATGTAGGCTGGGCGCCGCGATGTTTCGACGGGACACCGCGGAGAGCGACCTCGGGG

|-29    |-19    |-9     |1      |11     |21
TTAAGGGGTGGGGCTGACGTCAGGAGCCAAGATGGCGGCGGTGGTCGCCCTCTCCTTGAG
                        M A A V V A L S L R
                        |1

|31     |41     |51     |61     |71     .     .     .
GCGCCGGTTGCCGGCCACAACCCTTGGCGGAGCCTGCCTGCAGgtgagtcctggagcctc
R R L P A T T L G G A C L Q
|11     |21
. . . . .
agagagggaagtcaggaaagccacagagactgcctggagctgatggggctgcggagag

```

actgaggaagcatagggaaggcctcagggagatggaggacctcctccccctggtgcagt
gctttggtttggcttcgagcatccctgtcaagttatctttctgcgcctcgagcagcttg
tgagttagggcacgggcaattttttacagctaagggtgcgggggggggggacgttcagaa
aggggacttgaattgctcaaggtcacatggcaagcgaatgact

Exon 2 | Start: 14283 | End: 14410 | Length: 127

.
tctttatattcatcgtgaatgtttaatttaactcttggttcactacaaagtaagttctgtg

.
aagatgaagggtttttgtgtattaagtgtgtgtcactagcccctaataccatgtctgata

.
tattagcatatgataggtgcttaataacttggttgatattgaatgcctgccttttctaaga

.
agattatgtgtcagtaatgtgtgagtttatatccagcgttacatctgttggtgccagcaa

.
atggaattatcttgatatttctaattttttttccttttgtgaactttaaaaaatttcag

| | | | | | | | | | | | |
|-------------|-------------|-----------------|--------|--------|--------|---------|--------|--------|-----|--|-----|
| | 81 | | 91 | | 101 | | 111 | | 121 | | 131 |
| GCCTCCC | GAGGCC | CAGACAG | CTGCAG | CCACAG | CTCCCC | GATCAAG | AAATTT | GCCATC | | | |
| A S R G A Q | T A A A T A | P R I K K F A I | | | | | | | | | |
| | 31 | | | | | | 41 | | | | |

| | | | | | | | | | | | |
|-------------|-------------|-------------|--------|--------|--------|--------|--------|-------|-------|----|-----|
| | 141 | | 151 | | 161 | | 171 | | 181 | | 191 |
| TATCGAT | GGGACCC | CAGACA | AGGCTG | GAGACA | AAACCT | CATATG | CAGACT | TATGA | AGTTG | AC | |
| Y R W D P D | K A G D K P | H M Q T Y E | V D | | | | | | | | |
| | 51 | | | | | | 61 | | | | |

.
CTTAATAAgtgagtatctctgtgaaagccagctattgaaggagagttcttgatttgattt
L N K

.
agggacatgcttttcacatccttgaaggcttaaaaatctgagatcatccgatggctctg

.
tttttaaaacaagaatgagcttgggccgggcacggtggctcacgcctataatcccagcac

.
tttgggaggctcaggcgggcagatcatctgaggttgggagttcaagaccaatgtggccaa

.
catggtgaaactcccctctctactaaaaatacagaaattagctgggtatagtggtcatg

. . .
cctgtaat

Exon 3 | Start: 26026 | End: 26111 | Length: 85

```
. . . . .
gagcttcagaagtaaaaaacaaaaactcggccactgtatggaagttgtgtcataacttgtc
. . . . .
tactactacttttagctttccatttcctagaaatgtgtttgcactgtgatcatcaaaatag
. . . . .
aactgtgcagtacttaaaatgtaagaatctgcaaaaacaaaactacagaacaaattccga
. . . . .
aggtgacctgagaagaccaaatggataagctaatacatccagggtgtctccgattatatta
. . . . .
tgataaagtgtaggagggttgaacgttacataaataccactggatatttttctttgtag

|201      |211      |221      |231      |241      |251
ATGTGGCCCATGGTATTGGATGCTTTAATCAAGATTAAGAATGAAGTTGACTCTACTTT
 C G P M V L D A L I K I K N E V D S T L
      |71                      |81

|261      |271      |281      . . . . .
GACCTTCCGAAGATCATGCAGAGAAGgtgagcatttcattcctgttgggctccagatact
 T F R R S C R E G
      |91

. . . . .
tgtggtcttccaaaggaggcttgggctggccaaagctgatagagacatctggaaaacagct
. . . . .
gcagctctctgctgggtgaacttgctgtgcaacctaattccttttcttgggtaaatgcat
. . . . .
ccaaaattctaaccatgggtgcaagttctggtttctgagtttactttccttcaggagcatt
. . . . .
ctatcctgtggttactgcatctggcgggccctgtgagctgctccacgcttcaaggcctag
. . . . .
ctaggacctgctggctggcaccttcc
```

Exon 4 | Start: 30435 | End: 30571 | Length: 136

```
. . . . .
ccatggtgccagcagcgcccaggcctctggcctcctccagtgccatacttggcatgtggc

. . . . .
ttctaacctcaaggttgccacatgggtcatagagtagtttttggaaactcaagccattagaa

. . . . .
ccacattcgaggcaggaagaaggaaggaaggagaaaaagccaacaggcacctctgtcaga

. . . . .
ggaatgttgcatgtcagtgctgcccctgatggcacagcaaggaggatccagaagaaagta

. . . . .
tttggggcaggactgattccgatatgggtgaggatgtgttaaattgtgtgtctctttcag

      |291      |301      |311      |321      |331      |341
GCATCTGTGGCTCTTGTGCAATGAACATCAATGGAGGCAACACTCTAGCTTGCACCCGAA
      I C G S C A M N I N G G N T L A C T R R
              |101                      |111

      |351      |361      |371      |381      |391      |401
GGATTGACACCAACCTCAATAAGGTCTCAAAAATCTACCCTCTTCCACACATGTATGTGA
      I D T N L N K V S K I Y P L P H M Y V I
              |121                      |131

      |411      |421      . . . . .
TAAAGGATCTTGTTCCGtgagtttctgcatctctctggttttgtttttatttgcattggg
      K D L V P
              |141

. . . . .
gggcagtgctatgtgtgttacgctattagtttttcagggcaggatttgtttgagtattta

. . . . .
aggctcctcttctagtcagatagtaaataagatgggactgtttcctatattatggcaggag

. . . . .
gaggaccacagtgctcactgagagattaggaataatctccagatctgagacagtggtggccag

. . . . .
agtttaattaaagaatttgaatggcagaagataaacgcctagaaaatcctccagcagctc

. . . . .
atttggtgaggtttgtt
```

Exon 5 | Start: 31306 | End: 31422 | Length: 116

```
. . . . .
ctacctccctatatattgaacacctttgctgacgtggtgttttcaagggcagaaaggactg
. . . . .
tgggattggcaggtttccaagtaggtgagggagagggtttcctaaccatgcttaacattg
. . . . .
tgaccatttttccttttgtaatctttgcatatattcatgacaaaggaaaagagtctggct
. . . . .
tctgcctggcatagagtggacgagtagtcagtgccaagaaatggggtaaataaagctga
. . . . .
ggtgatgatggaatctgatccttttcttcttcttcttcttcttcttcttcttcttaaccacag
      |431      |441      |451      |461      |471      |481
GATTTGAGCAACTTCTATGCACAGTACAAATCCATTGAGCCTTATTTGAAGAAGAAGGAT
D L S N F Y A Q Y K S I E P Y L K K K D
                        |151                        |161

      |491      |501      |511      |521      |531
GAATCTCAGGAAGGCAAGCAGCAGTATCTGCAGTCCATAGAAGAGCGTGAGAAACTGgtc
E S Q E G K Q Q Y L Q S I E E R E K L
                        |171

. . . . .
attagtccttatattgtttcaatctgaagaatttattgcaaagatgattgccaggagt
. . . . .
gtggcttggcaggggaacataagctgatgcaagccatttagtgattctggagaggaactg
. . . . .
gcacaagggtggggcactcatcctcttagggccgggtgagtagtgtaaccctgtaatgg
. . . . .
cccagagtggaccaaggagctagagccctgtgccccgcctgcaggggcgggtggttgctg
. . . . .
tgtggctactccatctttttcaaaagaaccagtatgtaaattgcctgggctttaaa
```

Exon 6 | Start: 35097 | End: 35198 | Length: 101

```
. . . . .
ttgtttttgtgttcttgttttctatttcttttttagacaagtgagaggttcttgtttatt

. . . . .
aaagggaagtgcactatacgtggatttaagaaccctgggcagatgtttacatttcactt

. . . . .
gcaagatctttattaatctgctaaatatctgcaaataccccccttgattttgctaagaaa

. . . . .
attcacatgcaagtaggcactttgttcatgcactgaccccaaaggtaacatttaacagc

. . . . .
tgaagacatagcagagtctctcccgtcacaagctcctgcctctcttttctccccatacag

|541      |551      |561      |571      |581      |591
GACGGGCTCTACGAGTGCATTCTCTGTGCCTGCTGTAGCACCAGCTGCCCCAGCTACTGG
D G L Y E C I L C A C C S T S C P S Y W
|181                                |191

|601      |611      |621      |631      |641      . . .
TGGAACGGAGACAAATATCTGGGGCCTGCAGTCTTATGCAGgtgaggtgctccttaatt
W N G D K Y L G P A V L M Q
|201                                |211

. . . . .
gctttaagagaaattgaaactcaagcatccagaagtccaagaggacaatagattgctgta

. . . . .
agccagccattctgaggggcctggtttccttcattgccatccagtccaaacagggttaatt

. . . . .
ggttgcattgtattcacttgctttcggtaaactctggggccttgctctgcaaattgcctttg

. . . . .
tttcagtgcagtgagggtcaccccaaaggggtgcaaaccatgccttgcatgtttaaaa

. . . . .
tgtatttccgtttgcctgggtggtcagaggctccccctctccc
```

Exon 7 | Start: 36441 | End: 36563 | Length: 122

```
. . . . .
ctgggtaggaagctattgagcaatgtgaaataattaggagatgataccagtggtataa
. . . . .
ttaagcaccgggtaccaggtgcagtatggatcaaaggttgcaggaccattaatcaag
. . . . .
tgaagctacaagtgttgggaaccttcccttgaaagatggacaagaattaaagagtatgga
. . . . .
gatgaggcatctaagctgagtgaattcccttctgcactcccagagctttgagttga
. . . . .
gccagggtgccgctctggcctgttgattggcagctcagctaatacatccctggttttccag
      |651      |661      |671      |681      |691      |701
GCCTATCGCTGGATGATTGACTCCAGAGATGACTTCACAGAGGAGCGCCTGGCCAAGCTG
A Y R W M I D S R D D F T E E R L A K L
      |221                        |231

      |711      |721      |731      |741      |751      |761
CAGGACCCATTCTCTCTATACCGCTGCCACACCATCATGAACTGCACAAGGACCTGTCCT
Q D P F S L Y R C H T I M N C T R T C P
      |241                        |251

. . . . .
AAGgtacgtggggctgggtgaccctcagctctgcctcagagctgacacgccagaagtagca
K
. . . . .
tgtgctcacaagaggtgattggcagagagcaaccctagtcatttgagaaggaaagggac
. . . . .
cagcatatgcctgtcctttcagtgtagcctaggggctagtttggtcttagttgcaagg
. . . . .
agtagactgactcgggccacctcaggagcaggctttatgttaggctacacaggacatt
. . . . .
gtgggagttaaggatgcacaggaacccatgagcaggtacctgcgttcaaccttcccagga
.
aac
```


Exon 8 | Start: 40213 | End: 40449 | Length: 236

.
tctttgagcagtcagagagtgacacctctgccctgggcctgtttacctgttagagtgagcc

.
acacaagaaggaattcaacgtggcagagctcttgccagaggagctgaccatcttcaa

.
gttaaaaaaggttagacagaagagagcccttagcccaaccctatggttttgagggacttg

.
atttgcatcaccttgcttggaactgaaccagctgaggaaggagtttcaccaagattg

.
tgggttttccctttcagtttcagttatcatttgattgattcttttctcttttttcaag

 |771 |781 |791 |801 |811 |821
GGTCTGAATCCAGGAAAGCTATTGCAGAGATCAAGAAAATGATGGCAACCTATAAGGAG
G L N P G K A I A E I K K M M A T Y K E
 |261 |271

 |831 |841 |*11 |*21 |*31 |*41
AAGAAAGCTTCAGTTTAACTGTTTCCATGCTAAACATGATTATAACCAGCTCAGAGCTG
K K A S V *
 |281

 |*51 |*61 |*71 |*81 |*91 |*101
AACATAATTTATATCTAATTTGAGTTCCTTTAAAGATCTTGGTTTTCCATGAATACAGCA

 |*111 |*121 |*131 |*141 |*151
TGTATAATAAAAAATTTAAGAAATAAATGTTATTCTACTTTATTAACAAAAAAGaa

.
cctgttcctttacttgccgcaggggaatgtgaagggtgccaggagtccttgtccttgga

.
gatggacagggcttcagagctgagcgggggtgggggtaccctagctggaaggaggtgatg

.
agccgtggaactgacatcagcagggcctgcagcttggtcccagctttgccactcaccagc

.
tagacaaccttggaagaagttccttcacctctttgctgctccattcgcccatctgtaagat

.

gggatccataattgtgcctacttcattcatctggtatgagaatgcctggcattatt

LRG Parser: Version: 1.1, Version Date: 11/02/2015
Reader: Version: 1, Version Date: 11/02/2015
Writer: Version: 1, Version Date: 11/02/2015
Control: Version: 1, Version Date: 11/02/2015