

A

atpC => >> Intergenic >>*atpA* =>

CODON 5678 111 1 12 22223 3333 3 3 4 444 4 445555556666 66 58911 1111 12 2 2 22
047 8 91 45670 1567 8 9 0 235 6 78346789134 57 01 5678 90 1 2 34

POSITION 23313131323313331323333131313133313133133333333333 3231123231133313122313
SPN R6 TACTAACGCGTATATACTTAATGCTTTGGTTTGTATTATGATTATCTATCAATACTGGACGAGAGAAGTTTTCATTTCCAGTAGTTCCAT
SPN 6303
SPN 49619
1162 .C.....C
1174 CCTC.CTCT..GAG.TTG..T.TACG....C....G...C.....T.CG.A.AT.AT...ΔΔAGCCAA...CTGTA.T.AC..T.
SMI CCTC.CTCT...GCTTG.TT.CAC.A.ACAC.ACC.G.T.CT..T..C...AGAGTATAATTGA.Δ...CAAAΔΔCT.TAC.AG.TTT.
SOR .CTCTCTCA.AGCTTCC.TCCACCACA.ACAACAGGA.GGTCTCGC.G.C.A.....CCCAA...CTGTAC.....C

CODON 22 22 3 33 33 4444445 5 55566 66 67 7 7 7777 78 8 88888 8 999 999 9 9000 0 0 00 0 11
67 89 0 13 59 0357893 6 78901 56 80 1 2 3456 70 1 34568 90 23 457 8 9012 4 5 67 9 02

POSITION 11231231312332333223313132333121131123123123332332313133323133313331323133232312331232333
SPN R6 TATGGGAGTATCTGCCCAAAGCTGCACCTTATGCTATCGGCTACGATACATCCTTCTCTGATCCCTCAAAGCAGTCAGACTCTGGGTGC
SPN 6303G.....
SPN 49619A...G.....
1162T.....
1174 CTC.TTTCG.CAC.TTA..TA.AC..T.A.A...C.C.A...A...A.TA.T.T.C.CTT..TGGT.A..ACAG...A.CTTCA.T
SMI ..CA.C.C..G..CTA.GC.ATATATT..G.ATACΔΔΔ.CAATGAG..TTATTTC..ATCC..ATA...GTGAAGTCAGTGTATCTTCCAA
SORGG.C.T.T.....T..C.....AAAA.....CG.G...CTAT.ACGA..CTGGC.A..TCA...A.CTTCA.T

CODON 11 1 11 1 1111 1 11 11 11 11 1111 1 1 11 11 1 11 1 1 1111 11 11111 11 11 1111111 11 1
11 1 11 2 2222 2 22 22 33 33 3333 4 4 44 44 4 45 5 5 5555 66 666 6 66 67 7777788 88 8
35 6 79 0 1234 5 67 89 01 23 4689 1 2 35 67 8 90 2 3 4788 01 234 5 67 81 2378902 45 6

POSITION 31312321312333123133131133133131331313131231232332313233131331333131333333313131313
SPN R6 TTACAGATAACATTCTTGGCTTGTATAAAACGTATTAAAGTATCTTAGGTTTGGCTAGACTGATTACTCTATTGTATCGAAGCAGTTACT
SPN 6303T.T.....
SPN 49619T.....
1162T.....
1174 ACTTCATCTGTG.CTG.AT...AGGC.TGGGACGA.C.TACCGG..GAC..CAAGC..CACT.GCGT..CT.CT...TAA.A.CT.C
SMI A.GTCAT.GGTG..ACAATC.AA.CCG..GAA..AC.GTA.TG.A.GACAAGTAGC.AC..A.G.CTC.CTACTAGATT.GAGGAA..GC
SOR ACC...T.GG.GA.GGAATCC.A.C..T.GGACGA...TA.CG.CA.CCA.GCAGCTC...AG..C..T..ACTCGG.AT.AGGT.C.AC

CODON 1 111111 111 122 22 2 22222222 22222 22 22222222 222
8 889999 999 900 00 0 00111111 11222 22 22233333 333
7 890123 478 912 34 5 78012456 78023 45 67890235 678

POSITION 12333333132313331331312333333331333331331331313331313331323123
SPN R6 CTTTCCATATAAGACAGTTTGGCTTATCTCCACATTTCTGAATGTTGGTATAGGAA
SPN 6303
SPN 49619
1162
1174 T.A.ATG...T.ACA.AAC.A.T...CGCTTGAGCCA.A.TC.ACCAA.GA..T.G
SMI ..A.TTGCTC.TATT.AA.CAATC...T.TTGA.AAATGATTAACCAA.GA.AΔΔΔ
SOR AC.ATT..CA...TTT..C.....AC.....CGCAG.TT.AC.A.AGAGA..G

B

AtpC

SPN R6 MNLTFGLGLCIACMGVSVGEGLLMNGLFKSVARQPDLSEFRSLMFLGVAFIEGTFVTLVFSFIIK 66
1162F.....
1174F...L.....L..M.....L.....IIA.....
SMIF..L.....L.....L.....II..L..I.....
SORF...L.....LA..M.....A.....IIPQL...IM..I.....L.....V..

AtpA

SPN R6,1162 MEESINPIISIGPVIFNLMTLMLAMTLIVGVIFVFIYWASRNMTLKPQKQNVLEYVYDFVIGFTEPNIGSRYMKDYSLFFL
1174T.N...T.D..LT.L...S.FL..A.....L...N.....L.H.I.....YL
SMIT.N...T...IVVL...T.AL..G....T....R.T.....LF...V...KS.L.-PMI.....YF
SORT.N...T.D.....I...V.G.....F.....KS...C...L

SPN R6,1162 CLFLFMVIANNLGLMTKLQIDETNWWSSPTANLQYDLTSLFVLILLTHIESVRRRGFKKSIKSFMSPVFVPMNILEEFT
1174A.....A...T.G..L.T.....SF..V...CI..MA...GI...I.QYL.G.VT.A.MT...L...V.
SMIA...I...ARI..T.GV.L.T.....SF..V...TI..M..V.GI...I.KYL.A.VT.G.MT...L...V.
SORL.....A...T.G..L.T.....QF..A...GI..M...GI...I.KYL.AYIT.G.MT.....

SPN R6,1162 NFLSLALRIFGNIFAGEVMTSLLLLSHQAIIYWPVAFGANLAWTAFSVFISCIQAYVFTLLTSVYLGKINIEEE 238
1174F...I...T.V.....V.....S.M.....D... 237
SMI .L.....V.....A.M.V.....F...I...T.I.....V.....S.M.....D... 236
SORV.....A..IT.....L.....M.S.M.....DG.. 238