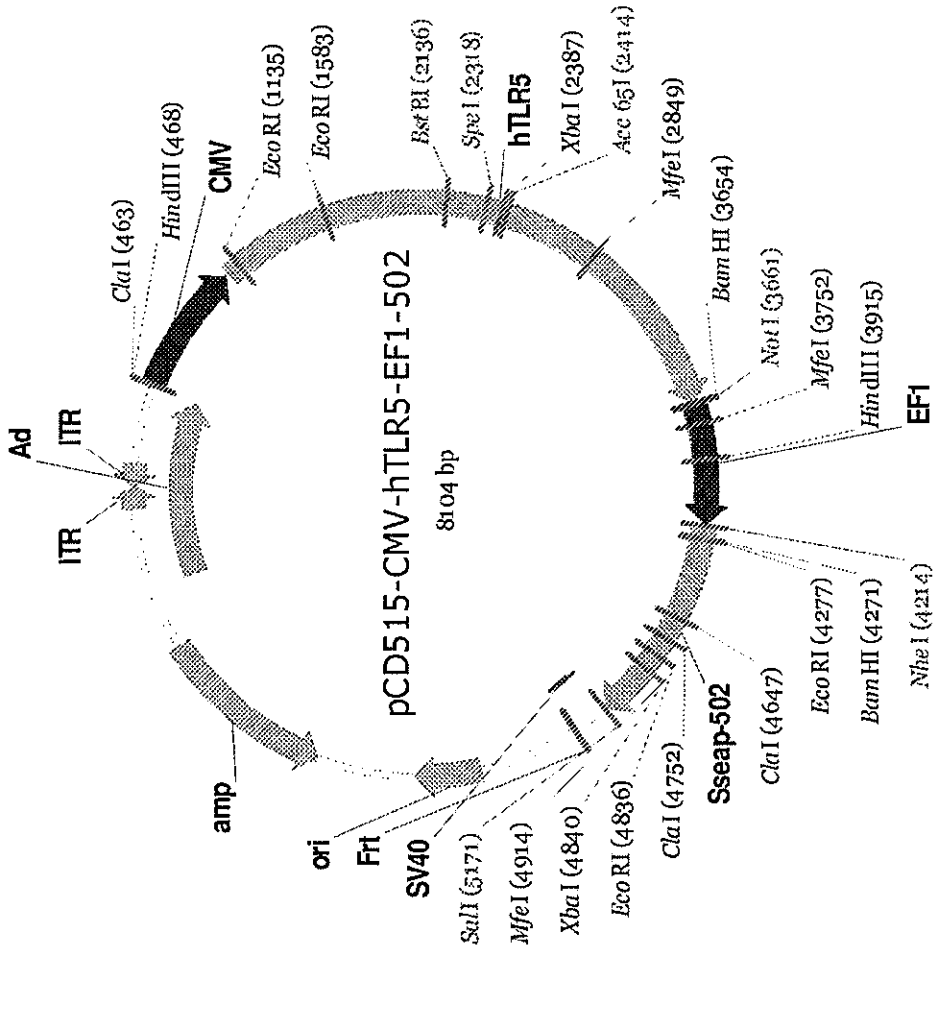
FIGURE 1A

Mobilan = AD(TLR5+CBLB502S)



EF1 – promoter EF1 (elongation factor 1α).
502 - flagellin (fliC) gene

FIGURE 1B

AD(TLR5)

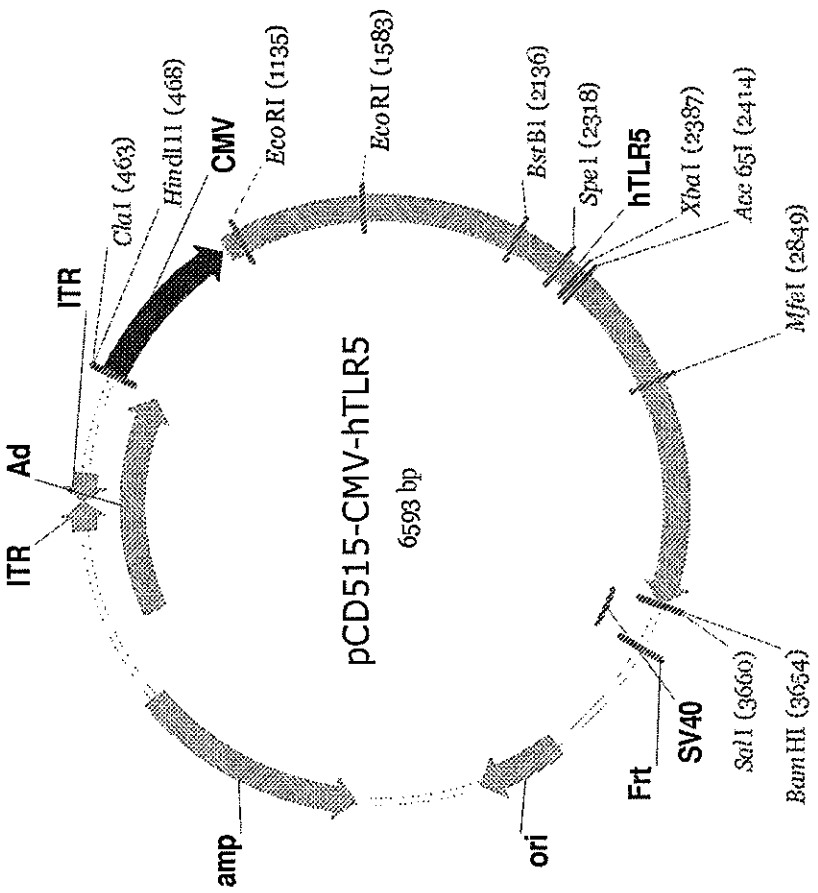
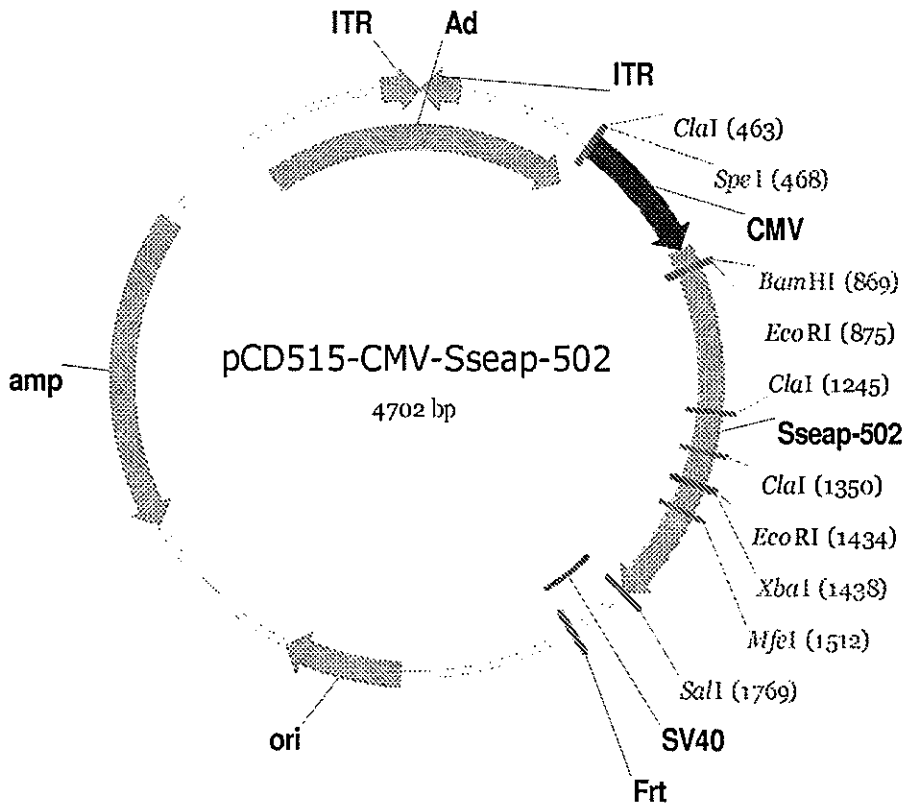


FIGURE 1C

AD(CBLB502S)



Sseap - Atgctgctgctgctgctgctgggcctgaggctacagctctccctgggc – leading sequence SEAP
502 - flagellin (fliC) gene

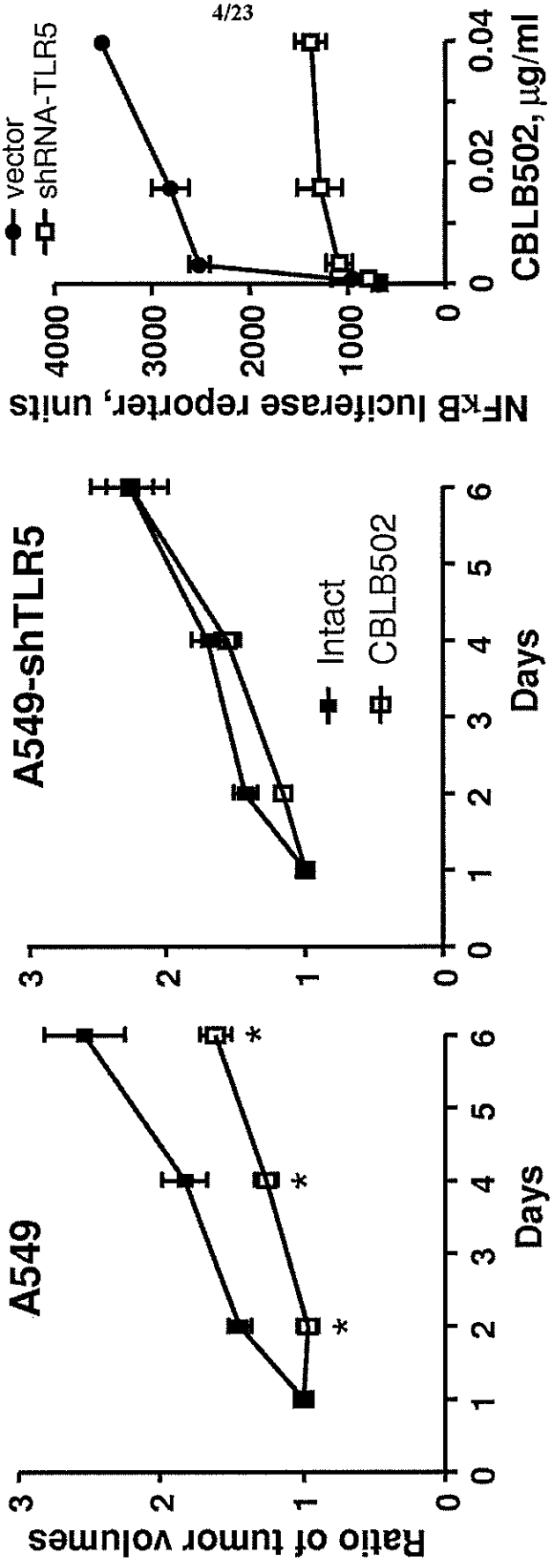
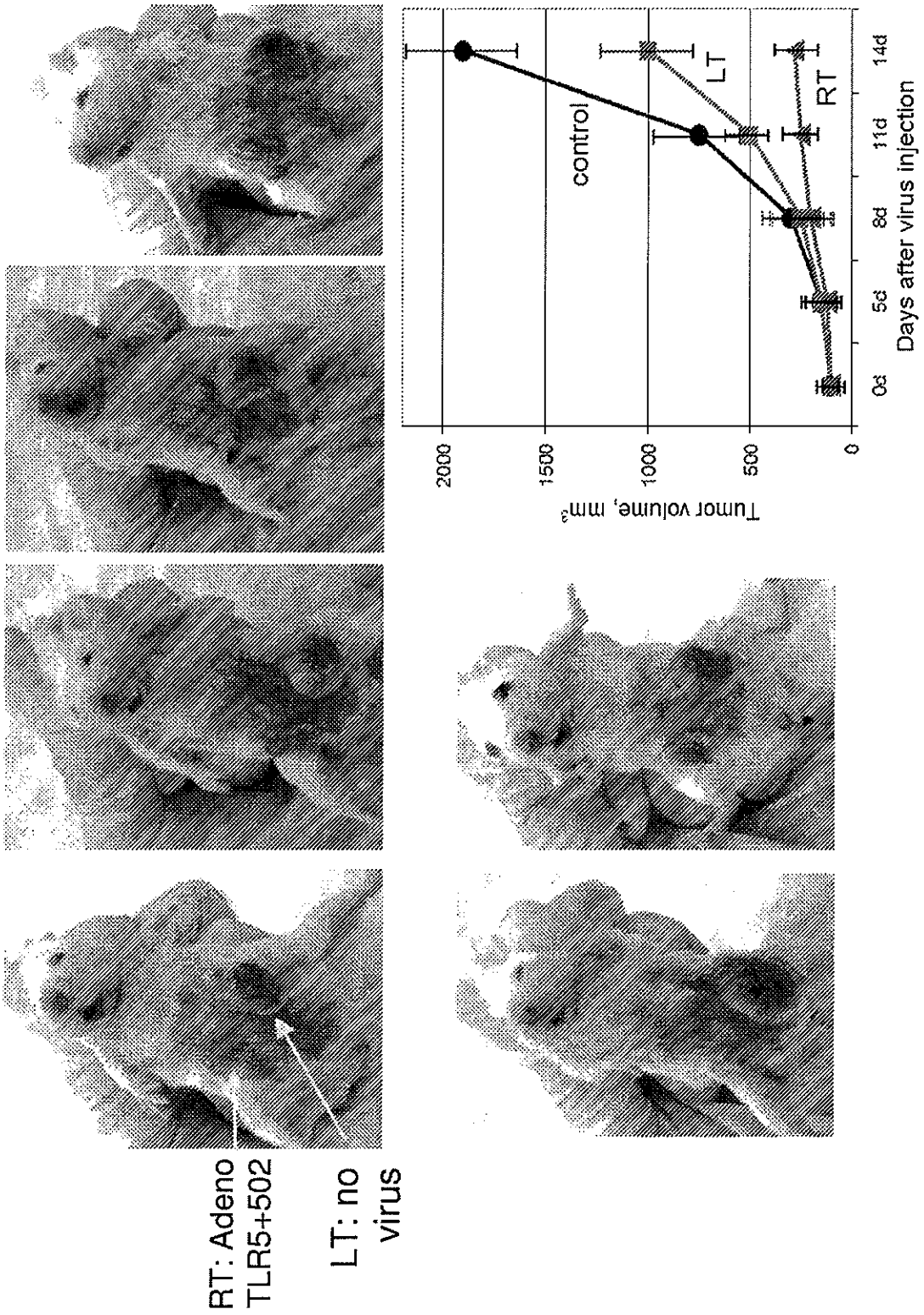

NFκB luciferase reporter, units
4000
3000
2000
1000
0
vector
shRNA-TLR5
0
0.02
0.04
CBLB502, μg/ml
A549-shTLR5
Intact
CBLB502
Days
Ratio of tumor volumes
A549
*
*
*
Days

FIGURE 2

FIGURE 3


RT: Adeno TLR5+502
LT: no virus
Tumor volume, mm3
2000
1500
1000
500
0
control
LT
RT
0d
5d
8d
11d
14d
Days after virus injection

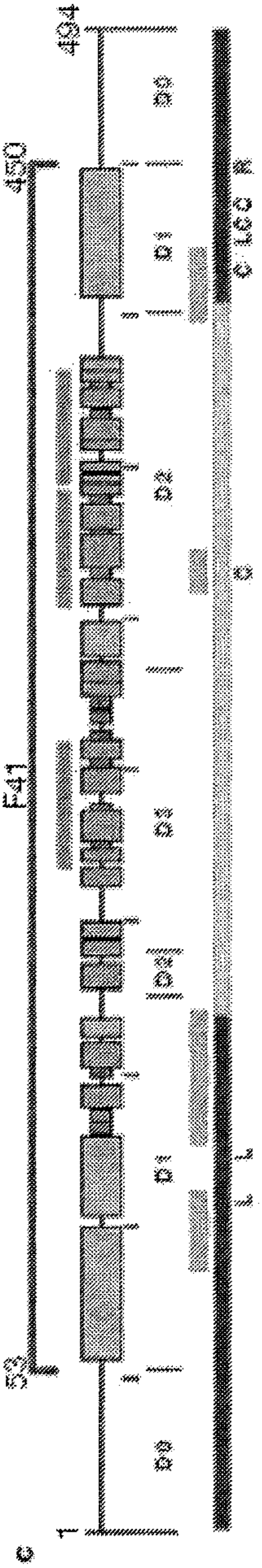


FIGURE 4

FIGURE 5

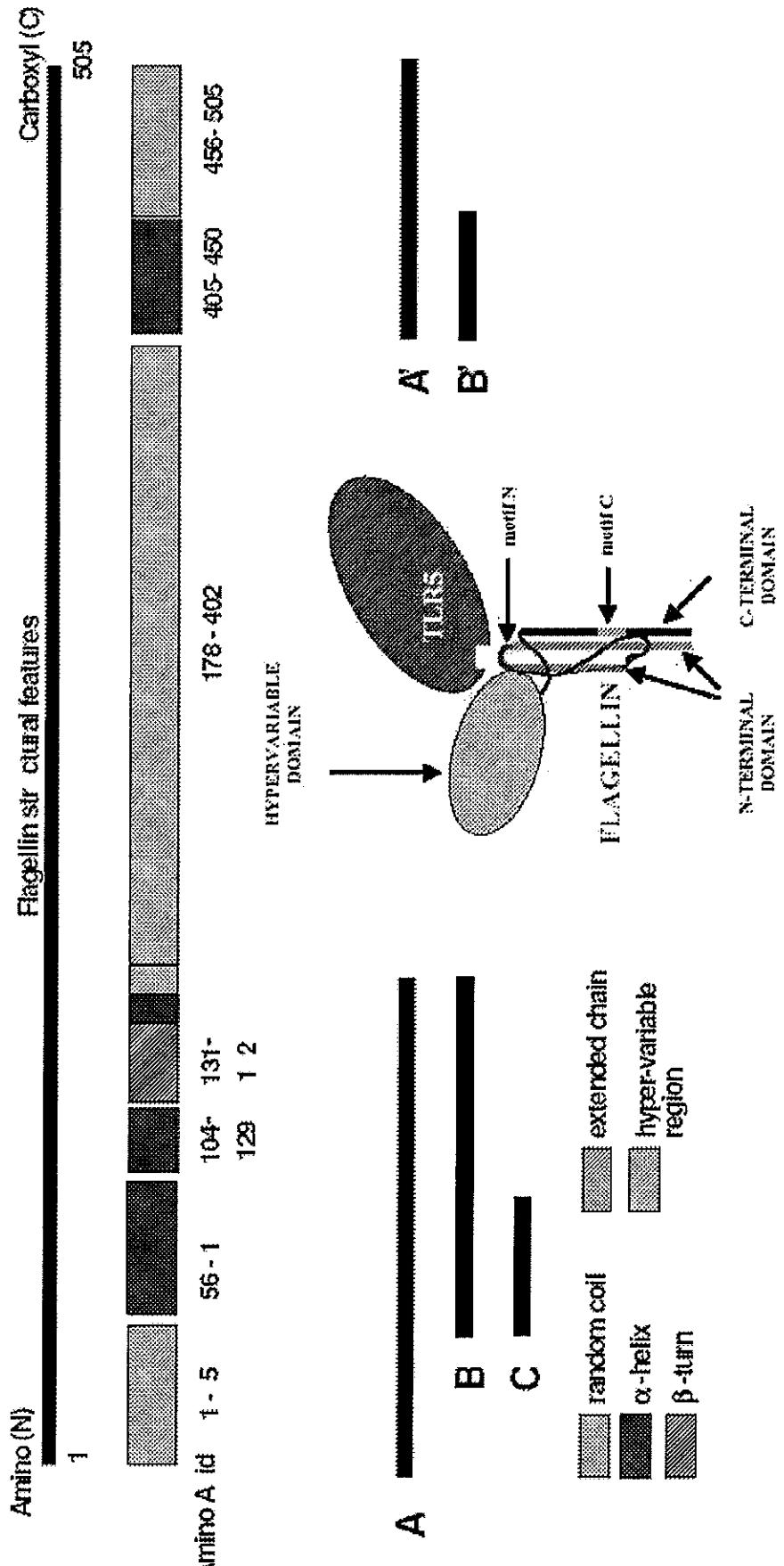
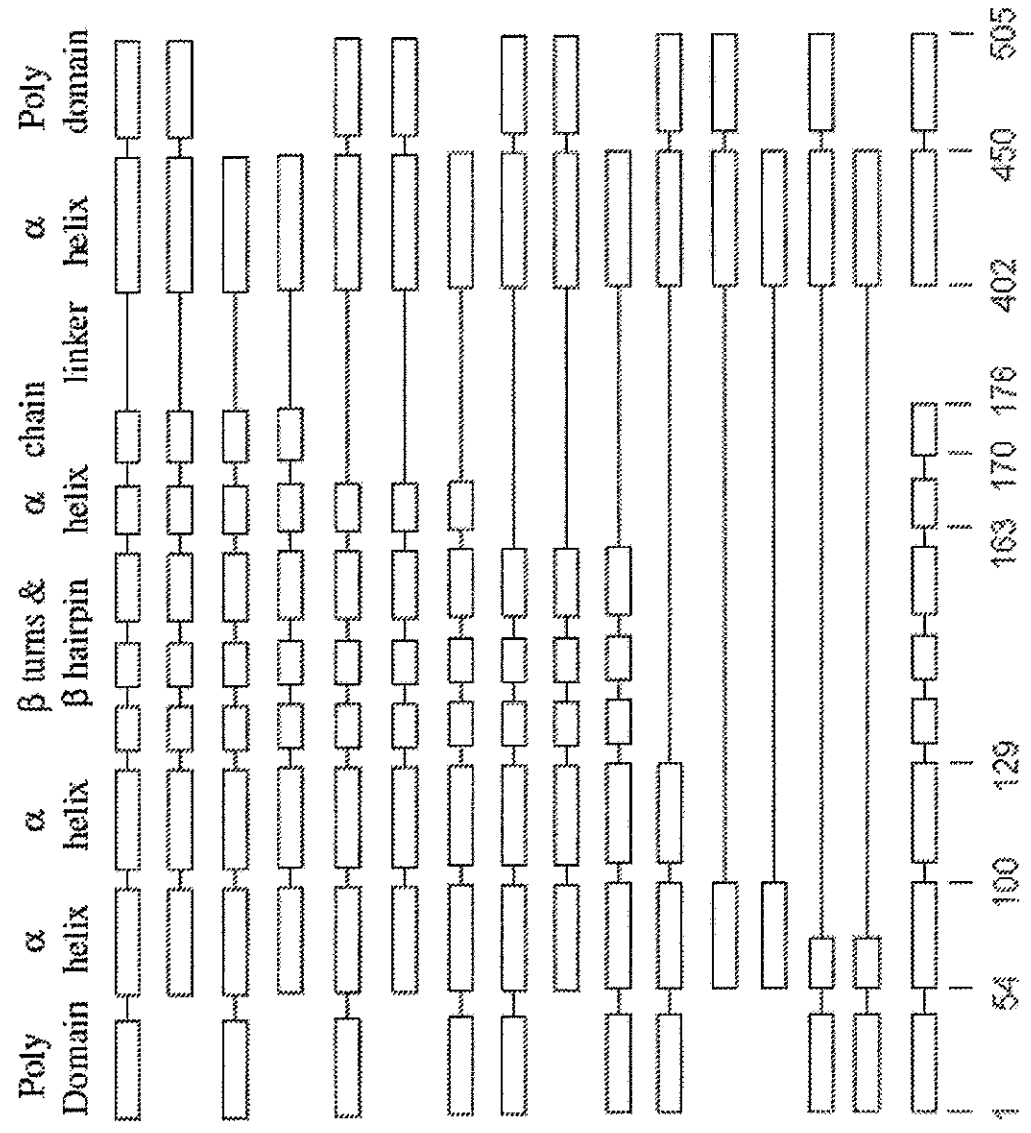

Amino (N)
Flagellin structural features
Carboxyl (C)
1
505
Amino A id 1 - 5
56 - 1
104- 129
131- 1 2
178 - 402
405- 450
456- 505
HYPERVARIABLE DOMAIN
motifN
motifC
FLAGELLIN
N-TERMINAL DOMAIN
C-TERMINAL DOMAIN
A
B
C
A'
B'
random coil
α-helix
β-turn
extended chain
hyper-variable region

FIGURE 6



1-176 + 402-505	AA'
54-176 + 402-505	BA'
1-176 + 402-450	AB'
54-176 + 402-450	BB'
1-170 + 402-505	AA'n1-170
54-170 + 402-505	AA'n54-170
1-170 + 402-450	AB'n1-170
1-163 + 402-505	AB'n1-170
54-163 + 402-505	AA'n1-163
1-163 + 402-450	AA'n54-163
1-129 + 402-505	AB'n1-163
54-100 + 402-505	AA'n1-129
54-100 + 402-450	CA'
1-70 + 402-505	CB'
1-70 + 402-450	AA'n1-70
1-176 &402-505	AB'n1-70
	A+A'

FIGURE 7

AA'

Nucleotide sequence (990 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATG*GCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACTAACGGGACTAACTCTGATTCC
GATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTGGAAGAAATCGATCGCGTTTCT
AATCAGACTCAATTTAACGGTGTTAAAGTCCTCTCTCAGGACAACCAGATGAAAATCCAG
GTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTGCAAAAAATTGATGTGAAAAGC
CTTGGCCTTGATGGGTTCAATGTTAAT**TCCCCGGGAATTTCCGGTGGTGGTGGTGGAATT**
CTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCT
AACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTG
GGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAACCTTGGCAATACGGTAACCAAT
CTGAACTCCGCGCGTAGCCGTATCGAAGATGCTGACTATGCAACGGAAGTTTCTAATATG
TCTAAAGCGCAGATTCTGCAGCAGGCTGGTACTTCCGTTCTGGCGCAGGCTAACCAGGTT
CCGCAAAACGTCCTCTCTTTACTGCGTTAG

Protein sequence (329 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEI
DRVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKIDVKSLGLDGFNV
N**SPGISGGGGGILDSMG**TLINEDAAAAKKSTANPLASIDSALSKVDAVRSSL
GAIQNRFDSAITNLGNTVTNLNSARSRIEDADYATEVSNMSKAQILQQAGTS
VLAQANQVPQNVLSLLR

AB'

Nucleotide sequence (825 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATG*GCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACTAACGGGACTAACTCTGATTCC
GATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTGGAAGAAATCGATCGCGTTTCT
AATCAGACTCAATTTAACGGTGTTAAAGTCCTCTCTCAGGACAACCAGATGAAAATCCAG
GTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTGCAAAAAATTGATGTGAAAAGC
CTTGGCCTTGATGGGTTCAATGTTAAT**TCCCCGGGAATTTCCGGTGGTGGTGGTGGAATT**
CTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCT
AACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTG
GGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAACCTTTAG

Protein sequence (274 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEI
DRVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKIDVKSLGLDGFNV
N**SPGISGGGGGILDSMG**TLINEDAAAAKKSTANPLASIDSALSKVDAVRSSL
GAIQNRFDSAITNL

FIGURE 7, CONTINUED

BA'

Nucleotide sequence (831 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCG*TTCACTTCTAATATCAAAGGC
CTGACTCAGGCTTCCCGTAACGCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGT
GCGCTGAATGAAATCAACAACAACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT
AACGGGACTAACTCTGATTCCGATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTG
GAAGAAATCGATCGCGTTTCTAATCAGACTCAATTTAACGGTGTTAAAGTCCTCTCTCAG
GACAACCAGATGAAAATCCAGGTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTG
CAAAAAATTGATGTGAAAAGCCTTGGCCTTGATGGGTTCAATGTTAAT**TCCCCGGGAATT**
TCCGGTGGTGGTGGTGGAATTCTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCC
GCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTG
GACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAAC
CTTGGCAATACGGTAACCAATCTGAACTCCGCGCGTAGCCGTATCGAAGATGCTGACTAT
GCAACGGAAGTTTCTAATATGTCTAAAGCGCAGATTCTGCAGCAGGCTGGTACTTCCGTT
CTGGCGCAGGCTAACCAGGTTCCGCAAAACGTCCTCTCTTTACTGCGTTAG

Protein sequence (276 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDP*FTSNIKGLTQASRNANDGI
SIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEID
RVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKIDVKSLGLDGFNVN
SPGISGGGGGILDSMGTLINEDAAAAKKSTANPLASIDSALSKVDAVRSSLG
AIQNRFDSAITNLGNTVTNLNSARSRIEDADYATEVSNMSKAQILQQAGTSV
LAQANQVPQNVLSLLR

BB'

Nucleotide sequence (666 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCG*TTCACTTCTAATATCAAAGGC
CTGACTCAGGCTTCCCGTAACGCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGT
GCGCTGAATGAAATCAACAACAACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT
AACGGGACTAACTCTGATTCCGATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTG
GAAGAAATCGATCGCGTTTCTAATCAGACTCAATTTAACGGTGTTAAAGTCCTCTCTCAG
GACAACCAGATGAAAATCCAGGTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTG
CAAAAAATTGATGTGAAAAGCCTTGGCCTTGATGGGTTCAATGTTAAT**TCCCCGGGAATT**
TCCGGTGGTGGTGGTGGAATTCTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCC
GCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTG
GACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAAC
CTTTAG

Protein sequence (221 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDP*FTSNIKGLTQASRNANDGI
SIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEID
RVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKIDVKSLGLDGFNVN
SPGISGGGGGILDSMGTLINEDAAAAKKSTANPLASIDSALSKVDAVRSSLG
AIQNRFDSAITNL

CA'

Nucleotide sequence (603 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCG*TTCACTTCTAATATCAAAGGC
CTGACTCAGGCTTCCCGTAACGCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGT
GCGCTGAATGAAATCAACAACAACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT
TCCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATGGGTACATTAATCAAT
GAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATTGATTCTGCA
TTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGTTTTGATTCA

FIGURE 7, CONTINUED

GCCATTACCAACCTTGGCAATACGGTAACCAATCTGAACTCCGCGCGTAGCCGTATCGAA
GATGCTGACTATGCAACGGAAGTTTCTAATATGTCTAAAGCGCAGATTCTGCAGCAGGCT
GGTACTTCCGTTCTGGCGCAGGCTAACCAGGTTCCGCAAAACGTCCTCTCTTTACTGCGT
TAG

Protein sequence (200 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDP*FTSNIKGLTQASRNANDGI
SIAQTTEGALNEINNNLQRVRELSVQAT**SPGISGGGGGILDSMG**TLINEDAA
AAKKSTANPLASIDSALSKVDAVRSSLGAIQNRFDSAITNLGNTVTNLNSAR
SRIEDADYATEVSNMSKAQILQQAGTSVLAQANQVPQNVLSLLR

CB'

Nucleotide sequence (438 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCG*TTCACTTCTAATATCAAAGGC
CTGACTCAGGCTTCCCGTAACGCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGT
GCGCTGAATGAAATCAACAACAACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT
TCCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATGGGTACATTAATCAAT
GAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATTGATTCTGCA
TTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGTTTTGATTCA
GCCATTACCAACCTTTAG

Protein sequence (145 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDP*FTSNIKGLTQASRNANDGI
SIAQTTEGALNEINNNLQRVRELSVQAT**SPGISGGGGGILDSMG**TLINEDAA
AAKKSTANPLASIDSALSKVDAVRSSLGAIQNRFDSAITNL

A

Nucleotide sequence (639 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATG*GCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGTCTGACTCAGGCTTCCCGTAAC
GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACTAACGGGACTAACTCTGATTCC
GATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTGGAAGAAATCGATCGCGTTTCT
AATCAGACTCAATTTAACGGTGTTAAAGTCCTGTCTCAGGACAACCAGATGAAAATCCAG
GTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTGCAAAAAATTGATGTGAAAAGC
CTTGGCCTTGATGGGTTCAATGTTAAT**TCCCCGGGA**TGA

Protein sequence (212 AA), last three amino acids are derived from primer and pRSETb polylinker:

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEI
DRVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKIDVKSLGLDGFNV
N**SPG**

B

Nucleotide sequence (480 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCG*TTCACTTCTAATATCAAAGGT
CTGACTCAGGCTTCCCGTAACGCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGT
GCGCTGAATGAAATCAACAACAACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT

FIGURE 7, CONTINUED

AACGGGACTAACTCTGATTCCGATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTG
GAAGAAATCGATCGCGTTTCTAATCAGACTCAATTTAACGGTGTTAAAGTCCTGTCTCAG
GACAACCAGATGAAAATCCAGGTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTG
CAAAAAATTGATGTGAAAAGCCTTGGCCTTGATGGGTTCAATGTTAAT**TCCCCGGGA**TGA

Protein sequence (159 AA), last three amino acids are derived from primer and pRSETb polylinker:

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDP*FTSNIKGLTQASRNANDGI
SIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEID
RVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKIDVKSLGLDGFNVN
SPG

C

Nucleotide sequence (252 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCG*TTCACTTCTAATATCAAAGGT
CTGACTCAGGCTTCCCGTAACGCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGT
GCGCTGAATGAAATCAACAACAACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT
TCCCCGGGATGA

Protein sequence (83 AA), last three amino acids are derived from primer and pRSETb polylinker:

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDP*FTSNIKGLTQASRNANDGI
SIAQTTEGALNEINNNLQRVRELSVQAT**SPG**

GST-A'

Nucleotide sequence (1038 bp), GST highlighted:

ATGTCCCCTATACTAGGTTATTGGAAAATTAAGGGCCTTGTGCAACCCACTCGACTTCTT
TTGGAATATCTTGAAGAAAAATATGAAGAGCATTTGTATGAGCGCGATGAAGGTGATAAA
TGGCGAAACAAAAAGTTTGAATTGGGTTTGGAGTTTCCCAATCTTCCTTATTATATTGAT
GGTGATGTTAAATTAACACAGTCTATGGCCATCATACGTTATATAGCTGACAAGCACAAC
ATGTTGGGTGGTTGTCCAAAAGAGCGTGCAGAGATTTCAATGCTTGAAGGAGCCGTTTTG
GATATTAGATACGGTGTTTCGAGAATTGCATATAGTAAAGACTTTGAAACTCTCAAAGTT
GATTTTCTTAGCAAGCTACCTGAAATGCTGAAAATGTTCGAAGATCGTTTATGTCATAAA
ACATATTTAAATGGTGATCATGTAACCCATCCTGACTTCATGTTGTATGACGCTCTTGAT
GTTGTTTTATACATGGACCCAATGTGCCTGGATGCGTTCCCAAAATTAGTTTGTTTTAAA
AAACGTATTGAAGCTATCCCACAAATTGATAAGTACTTGAAATCCAGCAAGTATATAGCA
TGGCCTTTGCAGGGCTGGCAAGCCACGTTTGGTGGTGGCGACCATCCTCCAAAATCGGAT
CTGGTTCCGCGTGGA**TCCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATG**
GGTACATTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCT
TCAATTGATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAA
AACCGTTTTGATTCAGCCATTACCAACCTTGGCAATACGGTAACCAATCTGAACTCCGCG
CGTAGCCGTATCGAAGATGCTGACTATGCAACGGAAGTTTCTAATATGTCTAAAGCGCAG
ATTCTGCAGCAGGCTGGTACTTCCGTTCTGGCGCAGGCTAACCAGGTTCCGCAAAACGTC
CTCTCTTTACTGCGTTAG

Protein sequence (345 AA):

MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEF
PNLPYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRY
GVSRIAYSKDFETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLY
DALDVVLYMDPMCLDAFPKLVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQA
TFGGGDHPPKSDLVPRG**SPGISGGGGGILDSMG**TLINEDAAAAKKSTANPLA
SIDSALSKVDAVRSSLGAIQNRFDSAITNLGNTVTNLNSARSRIEDADYATE
VSNMSKAQILQQAGTSVLAQANQVPQNVLSLLR

FIGURE 7, CONTINUED

GST-B'

Nucleotide sequence (873 bp), GST highlighted:

ATGTCCCCTATACTAGGTTATTGGAAAATTAAGGGCCTTGTGCAAGCCACTCGACTTCTT
TTGGAATATCTTGAAGAAAAATATGAAGAGCATTTGTATGAGCGCGATGAAGGTGATAAA
TGGCGAAACAAAAAGTTTGAATTGGGTTTGGAGTTTCCCAATCTTCCTTATTATATTGAT
GGTGATGTTAAATTAACACAGTCTATGGCCATCATACGTTATATAGCTGACAAGCACAAC
ATGTTGGGTGGTTGTCCAAAAGAGCGTGCAGAGATTTCGATGCTTGAAGGAGCGGTTTTG
GATATTAGATACGGTGTTTCGAGAATTGCATATAGTAAAGACTTTGAAACTCTCAAAGTT
GATTTTCTTAGCAAGCTACCTGAAATGCTGAAAATGTTCGAAGATCGTTTATGTCATAAA
ACATATTTAAATGGTGATCATGTAACCCATCCTGACTTCATGTTGTATGACGCTCTTGAT
GTTGTTTTATACATGGACCCAATGTGCCTGGATGCGTTCCCAAAATTAGTTTGTTTTAAA
AAACGTATTGAAGCTATCCCACAAATTGATAAGTACTTGAAATCCAGCAAGTATATAGCA
TGGCCTTTGCAGGGCTGGCAAGCCACGTTTGGTGCTGGCGACCATCCTCCAAAATCGGAT
CTGGTTCCGCGTGGA**TCCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATG**
GGTACATTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCT
TCAATTGATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAA
AACCGTTTTGATTCAGCCATTACCAACCTTTAG

Protein sequence (290 AA):

MSPILGYWKIKGLVQPTRLLLEYLEEKYEEHLYERDEGDKWRNKKFELGLEF
PNLPYYIDGDVKLTQSMAIIRYIADKHNMLGGCPKERAEISMLEGAVLDIRY
GVSRIAYSKDFETLKVDFLSKLPEMLKMFEDRLCHKTYLNGDHVTHPDFMLY
DALDVVLYMDPMCLDAFPKLVCFKKRIEAIPQIDKYLKSSKYIAWPLQGWQA
TFGGGDHPPKSDLVPRG**SPGISGGGGGILDSMG**TLINEDAAAAKKSTANPLA
SIDSALSKVDAVRSSLGAIQNRFDSAITNL

AA'n1-170

Nucleotide sequence (972 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATG*GCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACTAACGGGACTAACTCTGATTCC
GATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTGGAAGAAATCGATCGCGTTTCT
AATCAGACTCAATTTAACGGTGTTAAAGTCCTCTCTCAGGACAACCAGATGAAAATCCAG
GTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTGCAAAAAATTGATGTGAAAAGC
CTTGGCCTT**ATCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATGG**GTACA
TTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATT
GATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGT
TTTGATTCAGCCATTACCAACCTTGGCAATACGGTAACCAATCTGAACTCCGCGCGTAGC
CGTATCGAAGATGCTGACTATGCAACGGAAGTTTCTAATATGTCTAAAGCGCAGATTCTG
CAGCAGGCTGGTACTTCCGTTCTGGCGCAGGCTAACCAGGTTCCGCAAAACGTCCTCTCT
TTACTGCGTTAG

Protein sequence (323 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEI
DRVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKIDVKSLGL**IPGIS**
GGGGGILDSMGTLINEDAAAAKKSTANPLASIDSALSKVDAVRSSLGAIQNR
FDSAITNLGNTVTNLNSARSRIEDADYATEVSNMSKAQILQQAGTSVLAQAN
QVPQNVLSLLR

FIGURE 7, CONTINUED

AA'n1-163

Nucleotide sequence (951 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATGG*CACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACTAACGGGACTAACTCTGATTCC
GATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTGGAAGAAATCGATCGCGTTTCT
AATCAGACTCAATTTAACGGTGTTAAAGTCCTCTCTCAGGACAACCAGATGAAAATCCAG
GTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTGCAAAAAATT**ATCCCGGGAATT**
TCCGGTGGTGGTGGTGGAATTCTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCC
GCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTG
GACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAAC
CTTGGCAATACGGTAACCAATCTGAACTCCGCGCGTAGCCGTATCGAAGATGCTGACTAT
GCAACGGAAGTTTCTAATATGTCTAAAGCGCAGATTCTGCAGCAGGCTGGTACTTCCGTT
CTGGCGCAGGCTAACCAGGTTCCGCAAAACGTCCTCTCTTTACTGCGTTAG

Protein sequence (316 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEI
DRVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKI**IPGISGGGGGIL**
DSMGTLINEDAAAAKKSTANPLASIDSALSKVDAVRSSLGAIQNRFDSAITN
LGNTVTNLNSARSRIEDADYATEVSNMSKAQILQQAGTSVLAQANQVPQNVL
SLLR

AA'n54-170

Nucleotide sequence (813 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCG*TTCACTTCTAATATCAAAGGC
CTGACTCAGGCTTCCCGTAACGCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGT
GCGCTGAATGAAATCAACAACAACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT
AACGGGACTAACTCTGATTCCGATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTG
GAAGAAATCGATCGCGTTTCTAATCAGACTCAATTTAACGGTGTTAAAGTCCTCTCTCAG
GACAACCAGATGAAAATCCAGGTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTG
CAAAAAATTGATGTGAAAAGCCTTGGCCTT**ATCCCGGGAATTTCCGGTGGTGGTGGTGGA**
ATTCTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACC
GCTAACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCT
CTGGGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAACCTTGGCAATACGGTAACC
AATCTGAACTCCGCGCGTAGCCGTATCGAAGATGCTGACTATGCAACGGAAGTTTCTAAT
ATGTCTAAAGCGCAGATTCTGCAGCAGGCTGGTACTTCCGTTCTGGCGCAGGCTAACCAG
GTTCCGCAAAACGTCCTCTCTTTACTGCGTTAG

Protein sequence (270 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDP*FTSNIKGLTQASRNANDGI
SIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEID
RVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKIDVKSLGL**IPGISG**
GGGGILDSMGTLINEDAAAAKKSTANPLASIDSALSKVDAVRSSLGAIQNRF
DSAITNLGNTVTNLNSARSRIEDADYATEVSNMSKAQILQQAGTSVLAQANQ
VPQNVLSLLR

AA'n54-163

FIGURE 7, CONTINUED

Nucleotide sequence (792 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCG*TTCACTTCTAATATCAAAGGC
CTGACTCAGGCTTCCCGTAACGCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGT
GCGCTGAATGAAATCAACAACAACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT
AACGGGACTAACTCTGATTCCGATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTG
GAAGAAATCGATCGCGTTTCTAATCAGACTCAATTTAACGGTGTTAAAGTCCTCTCTCAG
GACAACCAGATGAAAATCCAGGTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTG
CAAAAAATT**ATCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATGG**GTACA
TTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATT
GATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGT
TTTGATTCAGCCATTACCAACCTTGGCAATACGGTAACCAATCTGAACTCCGCGCGTAGC
CGTATCGAAGATGCTGACTATGCAACGGAAGTTTCTAATATGTCTAAAGCGCAGATTCTG
CAGCAGGCTGGTACTTCCGTTCTGGCGCAGGCTAACCAGGTTCCGCAAAACGTCCTCTCT
TTACTGCGTTAG

Protein sequence (263 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDP*FTSNIKGLTQASRNANDGI
SIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEID
RVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKI**IPGISGGGGGILD**
SMGTLINEDAAAAKKSTANPLASIDSALSKVDAVRSSLGAIQNRFDSAITNL
GNTVTNLNSARSRIEDADYATEVSNMSKAQILQQAGTSVLAQANQVPQNVLS
LLR

AB'n1-170 (or AA'n1-170c402-450)

Nucleotide sequence (807 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATG*GCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACTAACGGGACTAACTCTGATTCC
GATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTGGAAGAAATCGATCGCGTTTCT
AATCAGACTCAATTTAACGGTGTTAAAGTCCTCTCTCAGGACAACCAGATGAAAATCCAG
GTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTGCAAAAAATTGATGTGAAAAGC
CTTGGCCTT**ATCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATGG**GTACA
TTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATT
GATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGT
TTTGATTCAGCCATTACCAACCTTTAG

Protein sequence (268 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEI
DRVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKIDVKSLGL**IPGIS**
GGGGGILDSMGTLINEDAAAAKKSTANPLASIDSALSKVDAVRSSLGAIQNR
FDSAITNL

AB'n1-163 (or AA'n1-163c402-450)

Nucleotide sequence (786 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATG*GCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC

FIGURE 7, CONTINUED

GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACTAACGGGACTAACTCTGATTCC
GATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTGGAAGAAATCGATCGCGTTTCT
AATCAGACTCAATTTAACGGTGTTAAAGTCCTCTCTCAGGACAACCAGATGAAAATCCAG
GTTGGTGCTAACGATGGTGAAACCATTACCATCGATCTGCAAAAAATT**ATCCCGGGAATT**
TCCGGTGGTGGTGGTGGAATTCTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCC
GCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTG
GACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAAC
CTTTAG

Protein sequence (261 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEI
DRVSNQTQFNGVKVLSQDNQMKIQVGANDGETITIDLQKI**IPGISGGGGGIL**
DSMGTLINEDAAAAKKSTANPLASIDSALSKVDAVRSSLGAIQNRFDSAITN
L

AA'n1-129

Nucleotide sequence (849 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATG*GCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACTAACGGGACTAACTCTGATTCC
GATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTGGAAGAAATCGATCGCGTTTCT
AATCAG**ATCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATGG**GTACATTA
ATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATTGAT
TCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGTTTT
GATTCAGCCATTACCAACCTTGGCAATACGGTAACCAATCTGAACTCCGCGCGTAGCCGT
ATCGAAGATGCTGACTATGCAACGGAAGTTTCTAATATGTCTAAAGCGCAGATTCTGCAG
CAGGCTGGTACTTCCGTTCTGGCGCAGGCTAACCAGGTTCCGCAAAACGTCCTCTCTTTA
CTGCGTTAG

Protein sequence (282 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEI
DRVSNQ**IPGISGGGGGILDSMG**TLINEDAAAAKKSTANPLASIDSALSKVDA
VRSSLGAIQNRFDSAITNLGNTVTNLNSARSRIEDADYATEVSNMSKAQILQ
QAGTSVLAQANQVPQNVLSLLR

AA'n54-129

Nucleotide sequence (690 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCG*TTCACTTCTAATATCAAAGGC
CTGACTCAGGCTTCCCGTAACGCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGT
GCGCTGAATGAAATCAACAACAACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT
AACGGGACTAACTCTGATTCCGATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTG
GAAGAAATCGATCGCGTTTCTAATCAG**ATCCCGGGAATTTCCGGTGGTGGTGGTGGAATT**
CTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCT
AACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTG
GGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAACCTTGGCAATACGGTAACCAAT
CTGAACTCCGCGCGTAGCCGTATCGAAGATGCTGACTATGCAACGGAAGTTTCTAATATG

FIGURE 7, CONTINUED

TCTAAAGCGCAGATTCTGCAGCAGGCTGGTACTTCCGTTCTGGCGCAGGCTAACCAGGTT
CCGCAAAACGTCCTCTCTTTACTGCGTTAG

Protein sequence (229 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDP*FTSNIKGLTQASRNANDGI
SIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEID
RVSNQ**IPGISGGGGGILDSMG**TLINEDAAAAKKSTANPLASIDSALSKVDAV
RSSLGAIQNRFDSAITNLGNTVTNLNSARSRIEDADYATEVSNMSKAQILQQ
AGTSVLAQANQVPQNVLSLLR

AB'n1-129

Nucleotide sequence (684 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATGGCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACTAACGGGACTAACTCTGATTCC
GATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTGGAAGAAATCGATCGCGTTTCT
AATCAG**ATCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATGG**GTACATTA
ATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATTGAT
TCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGTTTT
GATTCAGCCATTACCAACCTTTAG

Protein sequence (227 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEI
DRVSNQ**IPGISGGGGGILDSMG**TLINEDAAAAKKSTANPLASIDSALSKVDA
VRSSLGAIQNRFDSAITNL

AB'n54-129

Nucleotide sequence (525 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCG*TTCACTTCTAATATCAAAGGC
CTGACTCAGGCTTCCCGTAACGCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGT
GCGCTGAATGAAATCAACAACAACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT
AACGGGACTAACTCTGATTCCGATCTGAAATCTATCCAGGATGAAATTCAGCAACGTCTG
GAAGAAATCGATCGCGTTTCTAATCAG**ATCCCGGGAATTTCCGGTGGTGGTGGTGGAATT**
CTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCT
AACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTG
GGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAACCTTTAG

Protein sequence (174 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDP*FTSNIKGLTQASRNANDGI
SIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEID
RVSNQ**IPGISGGGGGILDSMG**TLINEDAAAAKKSTANPLASIDSALSKVDAV
RSSLGAIQNRFDSAITNL

AA'n1-100

Nucleotide sequence (762 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATGG*CACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC

FIGURE 7, CONTINUED

GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT**ATCCCGGGAATTTCCGGTGGT**
GGTGGTGGAATTCTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCCGCAGCCAAG
AAAAGTACCGCTAACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTGGACGCAGTT
CGTTCTTCTCTGGGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAACCTTGGCAAT
ACGGTAACCAATCTGAACTCCGCGCGTAGCCGTATCGAAGATGCTGACTATGCAACGGAA
GTTTCTAATATGTCTAAAGCGCAGATTCTGCAGCAGGCTGGTACTTCCGTTCTGGCGCAG
GCTAACCAGGTTCCGCAAAACGTCCTCTCTTTACTGCGTTAG

Protein sequence (253 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQAT**IPGISGGGGGILDSMG**TLINEDA
AAAKKSTANPLASIDSALSKVDAVRSSLGAIQNRFDSAITNLGNTVTNLNSA
RSRIEDADYATEVSNMSKAQILQQAGTSVLAQANQVPQNVLSLLR

AB'n1-100

Nucleotide sequence (597 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATG*GCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGACGGCATTTCTATTGCGCAGACCACTGAAGGTGCGCTGAATGAAATCAACAAC
AACCTGCAGCGTGTGCGTGAGTTGTCTGTTCAGGCCACT**ATCCCGGGAATTTCCGGTGGT**
GGTGGTGGAATTCTAGACTCCATGGGTACATTAATCAATGAAGACGCTGCCGCAGCCAAG
AAAAGTACCGCTAACCCACTGGCTTCAATTGATTCTGCATTGTCAAAAGTGGACGCAGTT
CGTTCTTCTCTGGGGGCAATTCAAAACCGTTTTGATTCAGCCATTACCAACCTTTAG

Protein sequence (198 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNANDG
ISIAQTTEGALNEINNNLQRVRELSVQAT**IPGISGGGGGILDSMG**TLINEDA
AAAKKSTANPLASIDSALSKVDAVRSSLGAIQNRFDSAITNL

AA'n1-70

Nucleotide sequence (672 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATG*GCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGAC**ATCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATGG**GTACA
TTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATT
GATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGT
TTTGATTCAGCCATTACCAACCTTGGCAATACGGTAACCAATCTGAACTCCGCGCGTAGC
CGTATCGAAGATGCTGACTATGCAACGGAAGTTTCTAATATGTCTAAAGCGCAGATTCTG
CAGCAGGCTGGTACTTCCGTTCTGGCGCAGGCTAACCAGGTTCCGCAAAACGTCCTCTCT
TTACTGCGTTAG

Protein sequence (223 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNAND**I**
PGISGGGGGILDSMGTLINEDAAAAKKSTANPLASIDSALSKVDAVRSSLGA

FIGURE 7, CONTINUED

IQNRFDSAITNLGNTVTNLNSARSRIEDADYATEVSNMSKAQILQQAGTSVL
AQANQVPQNVLSLLR

AB'n1-70

Nucleotide sequence (507 bp):

ATGCGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAA
*ATGGGTCGGGATCTGTACGACGATGACGATAAGGATCCGATG*GCACAAGTCATTAATACA
AACAGCCTGTCGCTGTTGACCCAGAATAACCTGAACAAATCTCAGTCCTCACTGAGTTCC
GCTATTGAGCGTCTGTCCTCTGGTCTGCGTATCAACAGCGCGAAAGACGATGCGGCAGGC
CAGGCGATTGCTAACCGCTTCACTTCTAATATCAAAGGCCTGACTCAGGCTTCCCGTAAC
GCTAACGAC**ATCCCGGGAATTTCCGGTGGTGGTGGTGGAATTCTAGACTCCATGG**GTACA
TTAATCAATGAAGACGCTGCCGCAGCCAAGAAAAGTACCGCTAACCCACTGGCTTCAATT
GATTCTGCATTGTCAAAAGTGGACGCAGTTCGTTCTTCTCTGGGGGCAATTCAAAACCGT
TTTGATTCAGCCATTACCAACCTTTAG

Protein sequence (168 AA):

*MRGSHHHHHHGMASMTGGQQMGRDLYDDDDKDPM*AQVINTNSLSLLTQNNLN
KSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNAND**I**
PGISGGGGGILDSMGTLINEDAAAAKKSTANPLASIDSALSKVDAVRSSLGA
IQNRFDSAITNL

FIGURE 8A

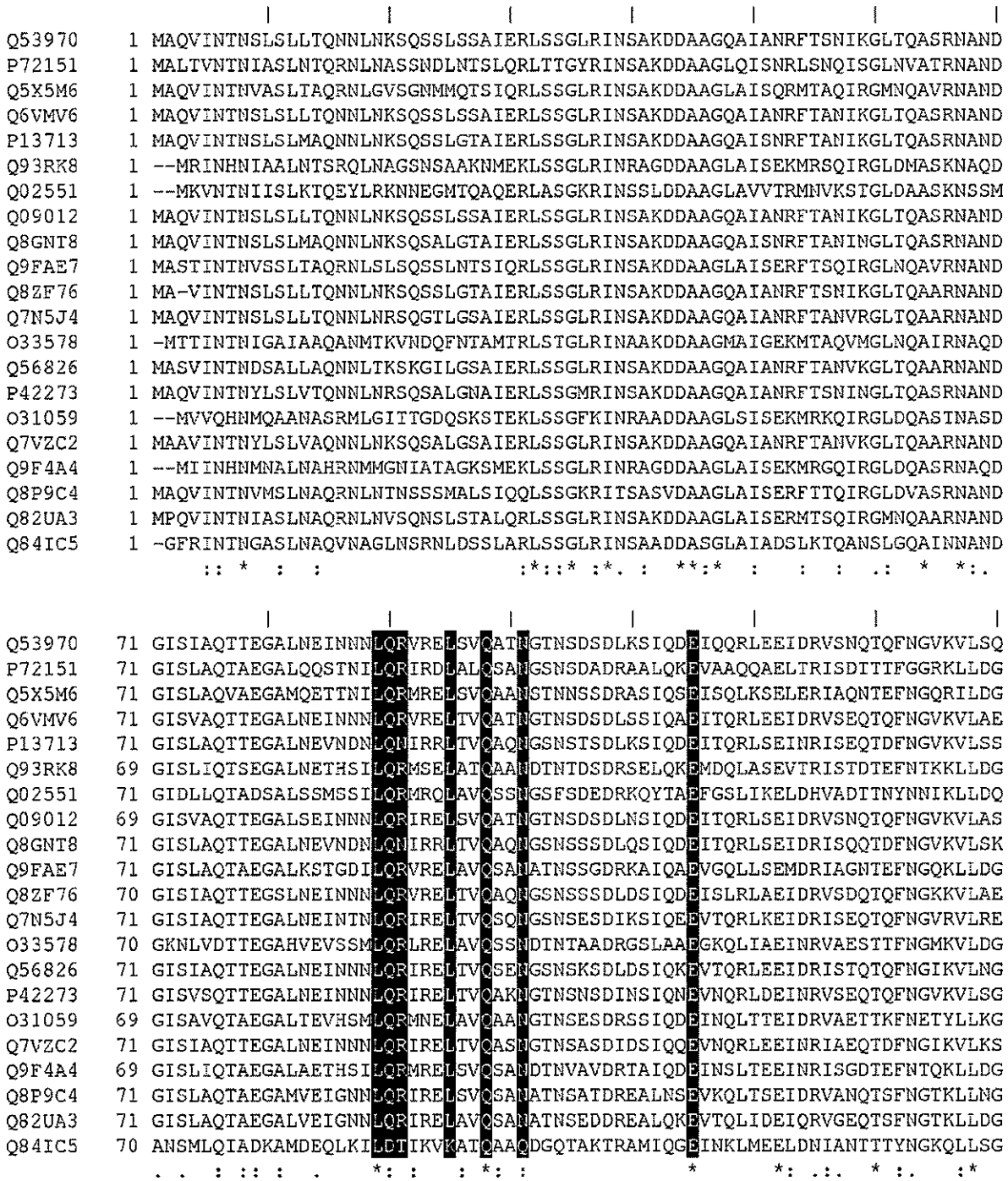

Q53970 MAQVINTNSLSLLTQNNLNKSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQASRNAND
P72151 MALTVNTNIASLNTQRNLNASSNDLNTSLQRLTTGYRINSAKDDAAGLQISNRLSNQISGLNVATRNAND
Q5X5M6 MAQVINTNVASLTAQRNLGVSGNMMQTSIQRLSSGLRINSAKDDAAGLAISQRMTAQIRGMNQAVRNAND
Q6VMV6 MAQVINTNSLSLLTQNNLNKSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTANIKGLTQASRNAND
P13713 MAQVINTNSLSLMAQNNLNKSQSSLGTAIERLSSGLRINSAKDDAAGQAISNRFTANIKGLTQASRNAND
Q93RK8 --MRINHNIAALNTSRQLNAGSNSAAKNMEKLSSGLRINRAGDDAAGLAISEKMRSQIRGLDMASKNAQD
Q02551 --MKVNTNIISLKTQEYLRKNNEGMTQAQERLASGKRINSSLDDAAGLAVVTRMNVKSTGLDAASKNSSM
Q09012 MAQVINTNSLSLLTQNNLNKSQSSLSSAIERLSSGLRINSAKDDAAGQAIANRFTANIKGLTQASRNAND
Q8GNT8 MAQVINTNSLSLMAQNNLNKSQSALGTAIERLSSGLRINSAKDDAAGQAISNRFTANINGLTQASRNAND
Q9FAE7 MASTINTNVSSLTAQRNLSLSQSSLNTSIQRLSSGLRINSAKDDAAGLAISERFTSQIRGLNQAVRNAND
Q8ZF76 MA-VINTNSLSLLTQNNLNKSQSSLGTAIERLSSGLRINSAKDDAAGQAIANRFTSNIKGLTQAARNAND
Q7N5J4 MAQVINTNSLSLLTQNNLNRSQGTLGSAIERLSSGLRINSAKDDAAGQAIANRFTANVRGLTQAARNAND
O33578 -MTTINTNIGAIAAQANMTKVNDQFNTAMTRLSTGLRINAAKDDAAGMAIGEKMTAQVMGLNQAIRNAQD
Q56826 MASVINTNDSALLAQNNLTKSKGILGSAIERLSSGLRINSAKDDAAGQAIANRFTANVKGLTQAARNAND
P42273 MAQVINTNYLSLVTQNNLNRSQSALGNAIERLSSGMRINSAKDDAAGQAIANRFTSNINGLTQASRNAND
O31059 --MVVQHNMQAANASRMLGITTGDQSKSTEKLSSGFKINRAADDAAGLSISEKMRKQIRGLDQASINASD
Q7VZC2 MAAVINTNYLSLVAQNNLNKSQSALGSAIERLSSGLRINSAKDDAAGQAIANRFTANVKGLTQAARNAND
Q9F4A4 --MIINHNMNALNAHRNMMGNIATAGKSMEKLSSGLRINRAGDDAAGLAISEKMRGQIRGLDQASRNAQD
Q8P9C4 MAQVINTNVMSLNAQRNLNTNSSSMALSIQQLSSGKRITSASVDAAGLAISERFTTQIRGLDVASRNAND
Q82UA3 MPQVINTNIASLNAQRNLNVSQNSLSTALQRLSSGLRINSAKDDAAGLAISERMTSQIRGMNQAARNAND
Q84IC5 -GFRINTNGASLNAQVNAGLNSRNLDSSLARLSSGLRINSAADDASGLAIADSLKTQANSLGQAINNAND
Q53970 GISIAQTTEGALNEINNNLQRVRELSVQATNGTNSDSDLKSIQDEIQQRLEEIDRVSNQTQFNGVKVLSQ
P72151 GISLAQTAEGALQQSTNILQRIRDLALQSANGSNSDADRAALQKEVAAQQAELTRISDTTFGGRKLLDG
Q5X5M6 GISLAQVAEGAMQETTNILQRMRELSVQAANSTNNSSDRASIQSEISQLKSELERIAQNTEFNGQRILDG
Q6VMV6 GISVAQTTEGALNEINNNLQRVRELTVQATNGTNSDSDLSSIQAEITQRLEEIDRVSEQTQFNGVKVLAE
P13713 GISLAQTTEGALNEVNDNLQNIRRLTVQAQNGSNSTSDLKSIQDEITQRLSEINRISEQTDFNGVKVLSS
Q93RK8 GISLIQTSEGALNETHSILQRMSELATQAANDTNTDSDRSELQKEMDQLASEVTRISTDTEFNIKKLLDG
Q02551 GIDLLQTADSALSSMSSILQRMRQLAVQSSNGSFSDEDRKQYTAEFGSLIKELDHVADITNYNNIKLLDQ
Q09012 GISVAQTTEGALSEINNNLQRIRELSVQATNGTNSDSDLNSIQDEITQRLSEIDRVSNQTQFNGVKVLAS
Q8GNT8 GISLAQTTEGALNEVNDNLQNIRRLTVQAQNGSNSSSDLQSIQDEITQRLSEIDRISQQTDFNGVKVLSK
Q9FAE7 GISLAQTAEGALKSTGDILQRVRELAVQSANATNSSGDRKAIQAEVGQLLSEMDRIAGNTEFNGQKLLDG
Q8ZF76 GISIAQTTEGSLNEINNNLQRVRELTVQAQNGSNSSSDLDSIQDEISLRLAEIDRVSDQTQFNGKKVLAE
Q7N5J4 GISIAQTTEGALNEINTNLQRIRELTVQSQNGSNSESDIKSIQEEVTQRLKEIDRISEQTQFNGVRVLRE
O33578 GKNLVDTTEGAHVEVSSMLQRLRELAVQSSNDTNTAADRGSLAAEGKQLIAEINRVAESTTFNGMKVLDG
Q56826 GISIAQTTEGALNEINNNLQRIRELTVQSENGSNSKSDLDSIQKEVTQRLEEIDRISTQTQFNGIKVLNG
P42273 GISVSQTTEGALNEINNNLQRIRELTVQAKNGTNSNSDINSIQNEVNQRLDEINRVSEQTQFNGVKVLSG
O31059 GISAVQTAEGALTEVHSMLQRMNELAVQAANGTNSESDRSSIQDEINQLTTEIDRVAETTKFNETYLLKG
Q7VZC2 GISIAQTTEGALNEINNNLQRIRELTVQASNGTNSASDIDSIQQEVNQRLEEINRIAEQTDFNGIKVLKS
Q9F4A4 GISLIQTAEGALAETHSILQRMRELSVQSANDTNVAVDRTAIQDEINSLTEEINRISGDTEFNTQKLLDG
Q8P9C4 GISLAQTAEGAMVEIGNNLQRIRELSVQSANATNSATDREALNSEVKQLTSEIDRVANQTSFNGTKLLNG
Q82UA3 GISLAQTAEGALVEIGNNLQRIRELAVQSANATNSEDDREALQKEVTQLIDEIQRVGEQTSFNGTKLLDG
Q84IC5 ANSMLQIADKAMDEQLKILDTIKVKAIQAAQDGQTAKTRAMIQGEINKLMEELDNIANITTYNGKQLLSG

FIGURE 8A, CONTINUED

```
                          |                         |                         |
Q53970  141 DNQ-MK--IQVGANDG----------------ETITIDLQ----------KID-VKSLG----LDGFN
P72151  141 SFGTTS--FQVGSNAY----------------ETIDISLQNASASAIGSYQVG-SNGAGTVASVAGTA
Q5X5M6  141 SFSGAS--FQVGANSN----------------QTINFSIG----------SIK-ASSIGGIATATGTE
Q6VMV6  141 NNE-MK--IQVGANDG----------------ETITINLA----------KID-AKTLG----LDGFN
P13713  141 DQK-LT--IQVGANDG----------------ETTDIDLK----------KID-AKQLG----MDTF-
Q93RK8  139 TAQNLT--FQIGANEG----------------QTMSLSIN----------KMD-SE---------SLK
Q02551  139 TATGAATQVSIQASDKAN-------------DLINIDLFNAKGLSAGTITLGSGSTVAGYSALSVAD
Q09012  141 DQT-MK--IQVGANDG----------------ETIEIALD----------KID-AKTLG----LDNFS
Q8GNT8  141 DQK-LI--IQVGANDG----------------ETIDIDLK----------NIN-AQSLG----LDKFN
Q9FAE7  141 SFGSAT--FQVGANAN----------------QTITATTGNFRTNNY-GAQLI-ASASG--AATSGAS
Q8ZF76  140 NTT-MS--IQVGANDG----------------ETIDINLQ----------KID-SKSLG----LGSYS
Q7N5J4  141 DSK-MT--IQVGANDN----------------EVIDIDLK----------KID-KEALN----LGKFT
O33578  140 SFTGKQ--LQIGADSG----------------QTMAINVDSAAATDIGAHKISSASTVVADAALTDTT
Q56826  141 DVTEMK--IQVGANDN----------------ETIGIKLG----------KIN-SEKLN----LKEFS
P42273  141 EKSKMT--IQVGTNDN----------------EVIEFNLD----------KID-NDTLG----VASDK
O31059  139 GNGDRT--VRVYAHDAGLVGSLSQNTTKATFQMRKLEIGDSYTIGGTTYKIG-AETVK--EAMTALK
Q7VZC2  141 NATDMTLSIQVGAKDN----------------ETIDIKID----------RNS-NWNLY----DAVGT
Q9F4A4  139 GFKG-E--FQIGANSN----------------QTVKLDIG----------NMS-AA---------SLG
Q8P9C4  141 DFSGAL--FQVGADAG----------------QTIGINS----------IVDAN-VDSLG--KANFAAS
Q82UA3  141 SFASQI--FQVGANEG----------------ETIDFTD-----------------------------
Q84IC5  140 SFSNAQ--FQIGDKAN----------------QTVNATIG----------STN-SAKVGQTRFETGAV
                  . :                       :
```

FIGURE 8B

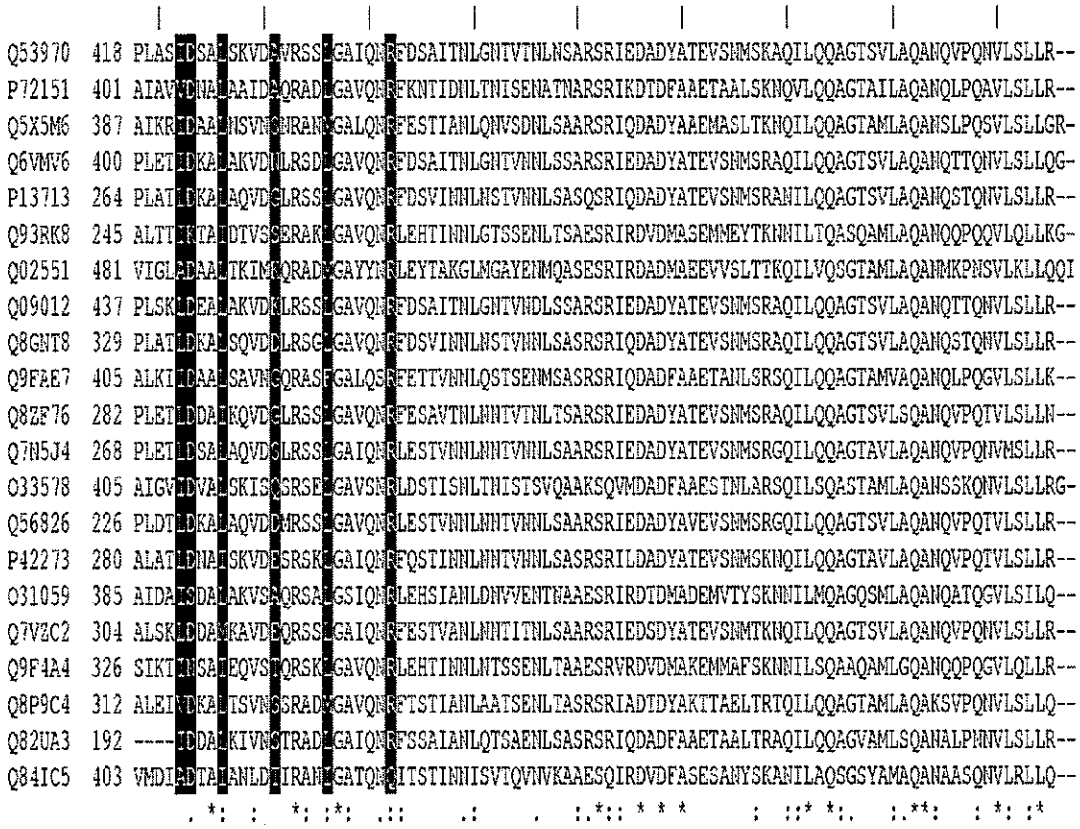

Q53970 418 PLASLDSALSKVDSVRSSLGAIQNRFDSAITNLGNTVTNLNSARSRIEDADYATEVSNMSKAQILQQAGTSVLAQANQVPQNVLSLLR--
P72151 401 AIAVVDNALAAIDAQRADLGAVQNRFKNTIDNLTNISENATNARSRIKDTDFAAETAALSKNQVLQQAGTAILAQANQLPQAVLSLLR--
Q5X5M6 387 AIKRIDAALNSVNSHRANLGALQNRFESTIANLQNVSDNLSAARSRIQDADYAAEMASLTKNQILQQAGTAMLAQANSLPQSVLSLLGR-
Q6VMV6 400 PLETIDKALAKVDTLRSDLGAVQNRFDSAITNLGNTVNNLSSARSRIEDADYATEVSNMSRAQILQQAGTSVLAQANQTTQNVLSLLQG-
P13713 264 PLATIDKALAQVDSLRSSLGAVQNRFDSVINNLNSTVNNLSASQSRIQDADYATEVSNMSRANILQQAGTSVLAQANQSTQNVLSLLR--
Q93RK8 245 ALTTIKTALDTVSSERAKLGAVQNRLEHTINNLGTSSENLTSAESRIRDVDMASEMMEYTKNNILTQASQAMLAQANQQPQQVLQLLKG-
Q02551 481 VIGLADAALTKIMSQRADLGAYYNRLEYTAKGLMGAYENMQASESRIRDADMAEEVVSLTTKQILVQSGTAMLAQANMKPNSVLKLLQQI
Q09012 437 PLSKLDEALAKVDKLRSSLGAVQNRFDSAITNLGNTVHDLSSARSRIEDADYATEVSNMSRAQILQQAGTSVLAQANQTTQNVLSLLR--
Q8GNT8 329 PLATLDKALSQVDSLRSGLGAVQNRFDSVINNLNSTVNNLSASRSRIQDADYATEVSNMSRAQILQQAGTSVLAQANQSTQNVLSLLR--
Q9FAE7 405 ALKILDAALSAVNSQRASLGALQSRFETTVNNLQSTSENMSASRSRIQDADFAAETANLSRSQILQQAGTAMVAQANQLPQGVLSLLK--
Q8ZF76 282 PLETLDDALKQVDSLRSSLGAVQNRFESAVTNLNNTVTNLTSARSRIEDADYATEVSNMSRAQILQQAGTSVLSQANQVPQTVLSLLN--
Q7N5J4 268 PLETLDSALAQVDSLRSSLGAIQNRLESTVNNLNNTVNNLSAARSRIEDADYATEVSNMSRGQILQQAGTAVLAQANQVPQNVMSLLR--
O33578 405 AIGVIDVALSKISSSRSELGAVSNRLDSTISNLTNISTSVQAAKSQVMDADFAAESINLARSQILSQASTAMLAQANSSKQNVLSLLRG-
Q56826 226 PLDTLDKALAQVDSMRSSLGAVQNRLESTVNNLNNTVNNLSAARSRIEDADYAVEVSNMSRGQILQQAGTSVLAQANQVPQTVLSLLR--
P42273 280 ALATLDNAISKVDSSRSKLGAIQNRFQSTINNLNNTVHNLSASRSRILDADYATEVSNMSKNQILQQAGTAVLAQANQVPQTVLSLLR--
O31059 385 AIDAISDALAKVSAQRSALGSIQNRLEHSIANLDNVVENTNAAESRIRDTDMADEMVTYSKNNILMQAGQSMLAQANQATQGVLSILQ--
Q7VZC2 304 ALSKLDDAMKAVDEQRSSLGAIQNRFESTVANLNNTITNLSAARSRIEDSDYATEVSNMTKNQILQQAGTSVLAQANQVPQNVLSLLR--
Q9F4A4 326 SIKTINSALEQVSTQRSKLGAVQNRLEHTINNLNTSSENLTAAESRVRDVDMAKEMMAFSKNNILSQAAQAMLGQANQQPQGVLQLLR--
Q8P9C4 312 ALEINDKALTSVNSSRADLGAVQNRFTSTIANLAATSENLTASRSRIADTDYAKTTAELTRTQILQQAGTAMLAQAKSVPQNVLSLLQ--
Q82UA3 192 ----IDDALKIVNSTRADLGAIQNRFSSAIANLQTSAENLSASRSRIQDADFAAETAALTRAQILQQAGVAMLSQANALPNNVLSLLR--
Q84IC5 403 VMDIADTALANLDTIRAHLGATQNRITSTINNISVTQVNVKAAESQIRDVDFASESANYSKANILAQSGSYAMAQANAASQNVLRLLQ--

FIGURE 9

Homo Sapiens TLR5

```
   1 mgdhldlllg vvlmagpvfg ipscsfdgri afyrfcnltq vpqvlntter lllsfnyirt
  61 vtassfpfle qlqllelgsq ytpltidkea frnlpnlril dlgsskiyfl hpdafqglfh
 121 lfelrlyfcg lsdavlkdgy frnlkaltrl dlsknqirsl ylhpsfgkln slksidfssn
 181 qiflvcehel eplqgktlsf fslaanslys rvsvdwgkcm npfrnmvlei ldvsgngwtv
 241 ditgnfsnai sksqafslil ahhimgagfg fhnikdpdqn tfaglarssv rhldlshgfv
 301 fslnsrvfet lkdlkvlnla ynkinkiade afygldnlqv lnlsynllge lyssnfyglp
 361 kvayidlqkn hiaiiqdqtf kfleklqtld lrdnalttih fipsipdifl sgnklvtlpk
 421 inltanlihl senrlenldi lyfllrvphl qililnqnrf sscsgdqtps enpsleqlfl
 481 genmlqlawe telcwdvfeg lshlqvlyln hnylnslppg vfshltalrg lslnsnrltv
 541 lshndlpanl eildisrnql lapnpdvfvs lsvldithnk ficecelstf inwlnhtnvt
 601 iagppadiyc vypdsfsgvs lfslstegcd eeevlkslkf slfivctvtl tlflmtiltv
 661 tkfrgfcfic yktaqrlvfk dhpqgtepdm ykydaylcfs skdftwvqna llkhldtqys
 721 dqnrfnlcfe erdfvpgenr ianiqdaiwn srkivclvsr hflrdgwcle afsyaqgrcl
 781 sdlnsalimv vvgslsqyql mkhqsirgfv qkqqylrwpe dfqdvgwflh klsqqilkke
 841 kekkkdnnip lqtvatis
```