

FIG. 1A

P2086 Non-lipidated Variant Nucleic Acid Sequences

>A04 Variant Nucleic Acid Sequence (SEQ ID NO: 1)
 TGCAGCAGCGGAGCGGCGGTGTGCGCGCGACATCGGCACGGGGCTTGCCGATGCACATAACTGCGCCGCTCGACC
 ATAAAGACAAAGGTTTGAAATCCCTGACATTGGAAGACTCCATTCCCAAAACGGAACACTGACCCCTGTGCGCACAAAGGTGC
 GGAAAAAACTTTCAAAGCCGGGACAAAGACAAACAGCCTCAACACGGGCAAACTGAAGAACGACAAAAATCAGCCGCTTCGAC
 TTCGTGCAAAAAATCGAAGTGGACGGACAAACCATCACACTGGCAAGCGGCGAATTTCAAATATACAAACAGGACCACTCCG
 CCGTCGTTGCCCTACAGATTGAAAAAATCAACAACCCCGACAAAAATCGACAGCCTGATAAAACCAACGCTCCTTCTGTGTCAG
 CGGTTTGGGCGGAGAACATACCGCCTTCAACCAACTGCCCGGCGACAAAGCCGAGTATCACGGCAAAAGCATTCAGCTCCGAC
 GATGCCGGGAAAACTGACCTATACCATAGATTTTGGCGCAAAACAGGGACACGGCAAAATCGAAACACCTGAAAAACACCCG
 AGCAAAATGTCGAGCTTGCCCGCCGCAACTCAAAGCAGATGAAAAATCACACGCGTCATTTTGGCGACACGCGCTACGG
 CAGCGAAGAAAAAGGCACTTACCACTCGCCCTTTTCGGCGACCGGCCCAAGAAATCGCCGGCTCGGCAACCCGTGAAGATA
 GGGGAAAAGGTTCACGAAATCGGCATCGCCGGCAACAGTAG

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>A05 Variant Nucleic Acid Sequence (SEQ ID NO: 2)
 TGCAGCAGCGGAAGCGGAGCGGCGGTGTGCGCGCGACATCGGCACAGGGCTTGCCGATGCACATAACTGCGCCGCG
 TCGACCATAAAGACAAAGGTTTGAAATCCCTGACATTGGAAGACTCCATTTCCTCAAAACGGAACACTGACCCCTGTGCGCACA
 AGGTGCGGAAAAAATTTCAAAGTGGCGACAAAGACAAACAGTCTCAATACAGGCAAAATGAAGAACGACAAAAATCAGCCGC
 TTCGACTTTGTGCAAAAAATCGAAGTGGACGGACAAACCATCACGCTGGCAAGCGCGAATTTCAAATATACAAACAGGACC
 ACTCCGCGGTGCTGCGCTACAGATTGAAAAAATCAACAACCCCGACAAAAATCGACAGCCTGATAAAACCAACGCTCTCCT
 TGTACGCGGTTTGGCGGAGAACATACCGCCTTCAACCAACTGCCAGCGGCAAAAGCCGAGTATCACGGCAAAAGCATTCAGC
 TCCGACGATGCCCGGGAAAACTGACCTATACCATAGATTTTGGCGCAAAACAGGGACACGGCAAAATCGAAACACCTGAAAA
 CACCCGAGCAGATGTCGAGCTTGCCCTCCGCGAACTCAAAGCAGATGAAAAATCACACGCGTCATTTTGGCGACACGCG
 CTACGGCAGCGAAGAAAGGCACTTACCACTCGCTCTTTTCGGCGACCGAGCCCAAGAAATCGCCGGCTCGGCAACCCGTG
 AAGATAAGGGAAAAAGGTTCACGAAATCGGCATCGCCGGCAACAGTAG

FIG. 1B

>A12 Variant Nucleic Acid Sequence (SEQ ID NO: 3)
 TGCAGACGGAGGCGGGTGTGCGCGCGACATCGGCGGGGCTTGCCGATGCACCTAACCGCACCGCTCGACCATAAAG
 ACAAAAAGTTTGCAGTCTTTGACGCTGGATCAGTCCGTGAGGAAAAACGAGAAACTGAAAGCTGGCGGCACAAGGTGCGGAAAA
 AACTTATGGAAACGGCGACAGCCTCAATACGGGCAAAATTGAAGAACGACAAGGTAGCCGCTTCGACTTTATCCGTCAAATC
 GAAGTGGACGGACAACCATCACGCTGGCAAGCGGGAATTTCAAATATACAAACAGAACCACTCCGCCGTCGTTGCCCTAC
 AGATTGAAAAAATCAACAACCCCGACAAAATCGACAGCCTGATAAACCAACGCTCCTTGTCTCAGCGGTTTGGCGGGAGA
 ACATACCGCCTTCAACCAACTGCCGTGACGGCAAAAGCCGAGTATCACGGCAAAAGCATTCAGCTCCGACGACCCGAACGGCAGG
 CTGCACCTACTCCATTGATTTTACCAAAAAACAGGGTTACGGCAGAAATCGAACACCTGAAAAACGCCGAGCAGAAATGTCGAGC
 TTGCCCTCCGCCGAACCTCAAAGCAGATGAAAAATCACACGCCGTCAATTTGGCGGACACGCGCTACGGCGGCGAAGAAAAAGG
 CACTTACCACCTCGCCCTTTTTCGGCGACCGCGCCCAAGAAATCGCCGGCTCGGCAACCCGTGAAGATAAGGAAAAAGGTTTCAC
 GAAATCGGCATCGCCGGCAACAGTAG

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>A12-2 Variant Nucleic Acid Sequence (SEQ ID NO: 4)
 TGCAGCAGCGAGGGGGGTGTGCGCGCGACATTTGGTGGGGGCTTGCCGATGCACCTAACCGCACCGCTCGACCATAAAG
 ACAAAAAGTTTGCAGTCTTTGACGCTGGATCAGTCCGTGAGGAAAAACGAGAAACTGAAAGCTGGCGGCACAAGGTGCGGAAAA
 AACTTATGGAAACGGCGACAGCCTCAATACGGGCAAAATTGAAGAACGACAAGGTAGCCGCTTCGACTTTATCCGTCAAATC
 GAAGTGGACGGACAACCATCACGCTGGCAAGCGGGAATTTCAAATATACAAACAGAACCACTCCGCCGTCGTTGCCCTAC
 AGATTGAAAAAATCAACAACCCCGACAAAATCGACAGCCTGATAAACCAACGCTCCTTGTCTCAGCGGTTTGGCGGGAGA
 ACATACCGCCTTCAACCAACTGCCGTGACGGCAAAAGCCGAGTATCACGGCAAAAGCATTCAGCTCCGACGACCCGAACGGCAGG
 CTGCACCTACTCCATTGATTTTACCAAAAAACAGGGTTACGGCAGAAATCGAACACCTGAAAAACGCCGAGCAGAAATGTCGAGC
 TTGCCCTCCGCCGAACCTCAAAGCAGATGAAAAATCACACGCCGTCAATTTGGCGGACACGCGCTACGGCGGCGAAGAAAAAGG
 CACTTACCACCTCGCCCTTTTTCGGCGACCGCGCCCAAGAAATCGCCGGCTCGGCAACCCGTGAAGATAAGGAAAAAGGTTTCAC
 GAAATCGGCATCGCCGGCAACAGTAG

FIG. 1C

>A22 Variant Nucleic Acid Sequence (SEQ ID NO: 5)
 TGCAGACGGAGCGCGGTGTCCGCCGACATCGCGCGGGCTTGCCGATGCACATAACCGCACCGCTCGACCATAAAG
 ACAAAAAGTTTGACGTCTTGACGCTGGATCAGTCCGTGAGGAAAAACGAGAAACTGAAAGCTGGCGGCACAAGGTGCGGAAAA
 AACTTATGGAACGGCGACAGCCTCAATACGGGCAAAATTGAAGAACGACAAGGTAGCCGCTTCGACTTTATCCGTCAAATC
 GAAGTGACGGCAGCTCATTAACCTTGAGAGCGGAGAGTTCCAAATATACAAACAGGACCACTCCGCCGTCGTTGCCCTAC
 AGATTGAAAAAATCAACAACCCCGACAAAATCGACAGCCTGATAAAACCAACGCTCCTTGTCTCAGCGGTTTGGGTGGAGA
 ACATACCGCCTTCAACCAACTGCCCAGCGGCAAAAGCCGAGTATCACGGCAAAAGCATTCAGCTCCGACGATGCTGGCGGAAAA
 CTGACCTATACCATAGATTTCCGCCGCAACAGGGACACGGCAAAATCGAACACTTGAAAAACACCCGAGCAAAATGTCGAGC
 TTGCCCTCCGCCGAACCTCAAAGCAGATGAAAAATCACACGCCGTCAATTTGGCGGACACGCGCTACGGCGGGAAGAAAAAGG
 CACTTACCACCTCGCCCTTTTCGGCGACCGGCCCAAGAAATCGCCGGCTCGGCAACCCGTGAAGATAAGGGAAGAGTTTCAC
 GAAATCGGCATCGCCGGCAACAGTAG

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>B02 Variant Nucleic Acid Sequence (SEQ ID NO: 6)
 TGCAGCAGCGGAGCGGGAAGCGGAGCGCGGTGTCCGCCGACATCGCGCGGGCTTGCCGATGCACATAACCGCAC
 CGCTCGACCATAAAGACAAAGGTTTGAAATCCCTGACATTGGAAGACTCCATTTCCCAAAACGGAACACTGACCCCTGTCCGC
 ACAAGTGCGGAAAGAACTTTCAAAGCCGGGACAAAGACAAACAGTCTCAACACAGGCAAACTGAAGAACGACAAAAATCAGC
 CGCTTCGACTTTATCCGTCAAATCGAAGTGACGGGAGCTCATTAACCTTGAGAGCGGAGAGTTCCAAGGTACAAACAAA
 GCCATTCCGCCCTTAACCGCCCTTCAGACCGAGCAAGTACAAGACTCGGAGCATTCGGGAAAGATGGTTGCGAAACGCCAGTT
 CAGAAATCGGCGACATAGTGGGCGAACAATACATCTTTTGACAAGCTTCCCAAAAGACGTCAATGCGGACATATCGCGGACGGCG
 TTCGGTTCAGACGATGCCGGCGGAAAACTGACCTACACCATAGATTTCCGCCGCAAGCAGGACACGGCAAAATCGAACATT
 TGAAATCGCCTGAACCTCAATGTTGACCTGCGCCCGCGATATCAAGCCGGATGAAAAACACCATGCGCTCATCAGCGGTTTC
 CGTCCCTTTACAACCAAGCCGAGAAAGGCAGTTACTCTCTAGGCATCTTTTGGCGGGCAAGCCAGGAAAGTTGCCGGCAGCGCG
 GAAGTGGAACCGCAACGGCATACGCCATATCGGTCTTTGCCGCCAAGCAATAA

FIG. 1D

>B03 Variant Nucleic Acid Sequence (SEQ ID NO: 7)
 TGCAGCAGCGAGGCGGGTGTCCGCCGACATCGCGCGGGCTTGCCGATGCACCTAACCGCACCGCTCGACCATAAAG
 ACAAAAAGTTTGACGTCTTTGACGCTGGATCAGTCCGTGAGGAAAAACGAGAAACTGAAAGCTGGCGGCACAAGGTGCGGAAAA
 AACTTATGGAAACGGCGACAGCCTTAATACGGGCAAAATTGAAGAACGACAAGGTGAGCCGTTTCGACTTTATCCGTCAAATC
 GAAGTGGACGGCAGCTCATTTACCTTGGAGAGCGGAGAGTTCCAAGTGTAACAACAAAGCCATTCCGCCTTAAACCGCCCTTC
 AGCCGAGCAAGAACAGATCCAGAGCATTCGGGAAAGATGGTTGCGAAACGCCGTTCAAATACTGGCGACATAGCGGGCGA
 ACATACATCTTTTGACAAAGCTTCCCAAAGACGTCAATGGCGACATATCGCGGGACGGCGTTTCGGTTCAGACGATGCCGGCGGA
 AAAGTACCTATACATATAGATTTTGTGCTGCCAAACAGGGACACGGCAAAATCGAACATTTGAAATCGCCGAACTCAATGTCTG
 AGCTTGCCACCGCCTATATCAAGCCGGATGAAAAACACCATGCGGTCAATCAGCGGTTCCGTCCTTTACAAATCAAGACGAGAA
 AGGCAGTTACTCCCTCGGTATCTTTGGCGGGCAAGCCAGGAAAGTTGCCGGCAGCGGAAAGTGGAAACCCGCAACGGGCATA
 CACCATATCGGTCTTGCCGCCAAGCAATAA

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>B09 Variant Nucleic Acid Sequence (SEQ ID NO: 8)
 TGCAGCAGCGAGGCGGGTGTCCGCCGACATCGGTGCGGGCTTGCCGATGCACCTAACCGCACCGCTCGACCATAAAG
 ACAAGGTTTGACGTCTTTAACGCTGGATCAGTCCGTGAGGAAAAACGAGAAACTGAAAGCTGGCGGCACAAGGTGCGGAAAA
 AACTTATGGAAACGGCGACAGCCTTAATACGGGCAAAATTGAAGAACGACAAGGTGAGCCGTTTCGACTTTATCCGTCAAATC
 GAAGTGGACGGGAAGCTCATTTACCTTGGAGAGCGGAGAGTTCCAAGTGTAACAACAAAGCCATTCCGCCTTAAACCGCCCTTC
 AGACCGAGCAAGTACAAGACTCGGAGGATTCGGGAAAGATGGTTGCGAAACGCCAGTTCAGAATCGCGACATAGCGGGCGA
 ACATACATCTTTTGACAAAGCTTCCCAAAGCGGCAGTGCGACATATCGCGGGACGGCGTTTCGGTTCAGACGATGCTGGCGGA
 AAAGTACCTATACATATAGATTTGCGCGCCAAAGCAGGGACACGGCAAAATCGAACATTTGAAATCGCCGAACTCAATGTCTG
 AGCTTGCCACCGCCTATATCAAGCCGGATGAAAAACGCCATGCGGTATCAGCGGTTCCGTCCTTTACAAACCAAGACGAGAA
 AGGCAGTTACTCCCTCGGTATCTTTGGCGGGCAAGCCAGGAAAGTTGCCGGCAGCGGAAAGTGGAAACCCGCAACGGGCATA
 CACCATATCGGTCTTGCCGCCAAGCAGTAA

FIG. 1E

>B22 Variant Nucleic Acid Sequence (SEQ ID NO: 9)
 TGCAGCAGCGGAGCGGGTGTGTCGCCGCCGACATCGCGCGGTGCTTGCCGATGCACCTAACCGCACCGCTCGACCATAAAG
 ACAAAAAGTTTGCCAGTCTTTGACGCTGGATCAGTCCGTGAGGAAAAACGAGAAACTGAAAGCTGGCGGCACAAAGTGCAGGAAAA
 AACTTATGGAAACGGCGACAGCCTCAATACGGGCAAAATTGAAGAACGACAAGGTGAGCCGCTTCGACTTTTATCCGTCAAATC
 GAAGTGGACGGGCAGCTCATTTACCTTGAGAGCGGAGAGTTCCAAGTGTAACAACAAAGCCATTCCGCCTTAAACCGCCCTTC
 AGACCGAGCAAAGTACAAGATTCCGGAGCATTCAGGGAAGATGGTTGCGAAACGCCAGTTCAGAATCGGCGATATAGCGGGTGA
 ACATACATCTTTTGACAAAGCTTCCCGAAGCGCGGACGGCGACATATCGCGGGACGGCATTCGGTTCAGACGATGCCAGTGGA
 AAAGTACCTACACCATAGATTTCGCCGCCAAGCAGGACACGGCAAAATCGAAACATTTGAAATCGCCAGAACTCAATGTTG
 ACCTGGCCGCTCCGATATCAAGCCGGATAAAAAACGCCATGCCGTCAATCAGCGGTTCCGTCCTTTACAAACCAAGCCGAGAA
 AGGCAGTTACTCTCTAGGCATCTTTGGCGGGCAAGCCAGGAAAGTTGCCGGCAGCGCAGAAAGTGGAACCCGCAACGGGCATA
 CGCCATATCGGTCTTGCCGCCAAGCAGTAA

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>B24 Variant Nucleic Acid Sequence (SEQ ID NO: 10)
 TGCAGCAGCGGAGGGGTGGTGTGTCGCCGCCGACATCGGTGCGGGGCTTGCCGATGCACCTAACCGCACCGCTCGACCATAAAG
 ACAAGGTTTGCCAGTCTTTGACGCTGGATCAGTCCGTGAGGAAAAACGAGAAACTGAAAGCTGGCGGCACAAAGTGCAGGAAAA
 AACTTATGGAAACGGTGACAGCCTCAATACGGGCAAAATTGAAGAACGACAAGGTGAGCCGTTTCGACTTTTATCCGCCAAATC
 GAAGTGGACGGGCAGCTCATTTACCTTGAGAGTGGAGAGTTCCAAGTATACAAACAAAGCCATTCCGCCTTAAACCGCCCTTC
 AGACCGAGCAAATACAAGATTCCGGAGCATTCGGGAAGATGGTTGCGAAACGCCAGTTCAGAATCGGCGACATAGCGGGCGA
 ACATACATCTTTTGACAAAGCTTCCCGAAGCGCGGACGGCGACATATCGCGGGACGGCGTTCCGGTTCAGACGATGCCGGCGGA
 AAAGTACCTACACCATAGATTTCGCCGCCAAGCAGGGAACGGCAAAATCGAAACATTTGAAATCGCCAGAACTCAATGTCG
 ACCTGGCCGCGCGATATCAAGCCGGATGAAAACGCCATGCCGTCAATCAGCGGTTCCGTCCTTTACAAACCAAGCCGAGAA
 AGGCAGTTACTCCCTCGGTATCTTTGGCGGAAAAAGCCAGGAAAGTTGCCGGCAGCGCGGAAAGTGAAAAACCGTAAACGGGCATA
 CGCCATATCGGCCTTGCCGCCAAGCAATAA

FIG. 1F

>B44 Variant Nucleic Acid Sequence (SEQ ID NO: 11)
TGCAGCAGCGGAGCGGGAAGCGGAGCGGGGTGTGCGCGCCGACATCGGCGGGGGCTTGCCGATGCACATAACCGCAC
CGCTCGACCATAAAGACAAAGGTTTGAAATCCCTGACATTGGAAGACTCCATTTCCTCAAAACGGAACACTGACCCGTGTCGGC
ACAAGGTGCGGAAAGAACTTTCAAAGCCGGCGACAAAGACAACAGTCTCAACACAGGCAAACTGAAGAACGACAAAAATCAGC
CGCTTCGACTTTATCCGTCAAATCGAAGTGGACGGGAGCTCATTAACCTTGGAGAGCGGAGAGTTCCAAAGTGTACAAACAAA
GCCATTCCGCCCTTAACCGCCCTTCAGACCGAGCAAGTACAAGACTCGGAGCATTCGGGAAAGATGGTTGCCGAAACGCCAGTT
CAGAAATCGGCGACATAGTGGGCGAACAATACATCTTTTGGCAAGCTTCCCAAAGACGTCAATGGCGACATATCGCGGGACGGCG
TTCGGTTCAGACGATGCCGGCGGAAACTGACCTACACATAGATTTCGCCGCCAAGCAGGACACGGCAAAATCGAACATT
TGAAATCGCCAGAACTCAATGTTGACCTGGCCGCCGATATCAAGCCGGATGAAAAACACCATGCCGTCAATCAGCGGTTTC
CGTCCCTTTACAACCAAGCCGAGAAAGGCAGTTACTCTCTAGGCATCTTTGGCGGGCAAGCCCAAGGAAAGTTGCCGGCAGCGCG
GAAGTGGAACCGCAACGGCATACGCCATATCGGTCCTTGCCGCCAAGCAATAA

FIG. 2A

P2086 Non-lipidated Variant Amino Acid Sequences

>A04 Variant Amino Acid Sequence (SEQ ID NO: 12)
CSSGGGGGVAADIGTGLADALTAPLDHKDKGLKSLTLEDSIPQNGTILTLAQGAECTFKAGDKDNLNTGKLKNDKISRFD
FVQKIEVDGQTITLASGEFQIYKQDHSVAVVALQIEKINNPDKIDSLINQRSFLVSGLGEHTAFNQLPGDKAEYHGKAFSSD
DAGGKLTYTIDFAAKQGHGKIEHLKTPEQNVELAAAEKKADEKSHAVILGDTRYGSEEKGTYHLALFGDRAQEIAGSATVKI
GEKVHEIGIAGKQ

>A05 Variant Amino Acid Sequence (SEQ ID NO: 13)
CSSGSGSGGGVAADIGTGLADALTAPLDHKDKGLKSLTLEDSISQNGTILTLAQGAECTFKVGDKDNSLNTGKLKNDKISR
FDFVQKIEVDGQTITLASGEFQIYKQDHSVAVVALQIEKINNPDKIDSLINQRSFLVSGLGEHTAFNQLPSGKAEYHGKAFS
SDDAGGKLTYTIDFAAKQGHGKIEHLKTPEQNVELASAEKKADEKSHAVILGDTRYGSEEKGTYHLALFGDRAQEIAGSATV
KIREKVHEIGIAGKQ

>A12 Variant Amino Acid Sequence (SEQ ID NO: 14)
CSSGGGGVAAADIGAGLADALTAPLDHKDKSLQSLTLDQSVRKNEKCLKAAQGAECTYGNNGDSLNTGKLKNDKVSFRDFIRQI
EVDGQTITLASGEFQIYKQNHSAVVALQIEKINNPDKIDSLINQRSFLVSGLGEHTAFNQLPDGKAEYHGKAFSSDDPNGR
LHYSIDFTKKQGYRIEHLKTPEQNVELASAEKKADEKSHAVILGDTRYGGEKGTYHLALFGDRAQEIAGSATVKIREKVH
EIGIAGKQ

>A22 Variant Amino Acid Sequence (SEQ ID NO: 15)
CSSGGGGVAAADIGAGLADALTAPLDHKDKSLQSLTLDQSVRKNEKCLKAAQGAECTYGNNGDSLNTGKLKNDKVSFRDFIRQI
EVDGQLITLESGEFQIYKQDHSVAVVALQIEKINNPDKIDSLINQRSFLVSGLGEHTAFNQLPSGKAEYHGKAFSSDDAGGK
LTYTIDFAAKQGHGKIEHLKTPEQNVELASAEKKADEKSHAVILGDTRYGGEKGTYHLALFGDRAQEIAGSATVKIREKVH
EIGIAGKQ

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FIG. 2B

>B02 Variant Amino Acid Sequence (SEQ ID NO: 16)
 CSSGGGGGVAADIGAGLADALTAPLDHKDKGLKSLTLEDSISQNGTLTLSAQGAERTFKAGDKDNLNTGKLKNDKIS
 RFDFIQIEVDGQLITLESGEFQVYKQSHSALTALQTEQVQDSEHSGKMVAKRQFRIGDIVGEHTSFDKLPKDVMATYRGTA
 FGSDDAGGKLTYYTIDFAAKQGHGKIEHLKSPELNVDLAAADIKPDEKHHAVISGSVLYNQAEKGSYSLSGIFGGQAQAEVAGSA
 EVETANGIRHIGLAAKQ

>B03 Variant Amino Acid Sequence (SEQ ID NO: 17)
 CSSGGGGVAAADIGAGLADALTAPLDHKDKSLQSLTLDQSVRKNEKLKLAQAQGAEKTYGNGDSLNTGKLKNDKVSRRFDFIRQI
 EVDGQLITLESGEFQVYKQSHSALTALQTEQEQQDPEHSGKMVAKRRFKIGDIAGEHTSFDKLPKDVMATYRGTAFGSDDAGG
 KLTYYTIDFAAKQGHGKIEHLKSPELNVELATAYIKPDEKHHAVISGSVLYNQDEKGSYSLSGIFGGQAQAEVAGSAEVEETANGI
 HHIGLAAKQ

>B09 Variant Amino Acid Sequence (SEQ ID NO: 18)
 CSSGGGGVAAADIGAGLADALTAPLDHKDKGLQSLTLDQSVRKNEKLKLAQAQGAEKTYGNGDSLNTGKLKNDKVSRRFDFIRQI
 EVDGKLITLESGEFQVYKQSHSALTALQTEQVQDSEDSGKMVAKRQFRIGDIAGEHTSFDKLPKGSATYRGTAFGSDDAGG
 KLTYYTIDFAAKQGHGKIEHLKSPELNVELATAYIKPDEKRRHAVISGSVLYNQDEKGSYSLSGIFGGQAQAEVAGSAEVEETANGI
 HHIGLAAKQ

>B22 Variant Amino Acid Sequence (SEQ ID NO: 19)
 CSSGGGGVAAADIGAVLADALTAPLDHKDKSLQSLTLDQSVRKNEKLKLAQAQGAEKTYGNGDSLNTGKLKNDKVSRRFDFIRQI
 EVDGQLITLESGEFQVYKQSHSALTALQTEQVQDSEHSGKMVAKRQFRIGDIAGEHTSFDKLPPEGGRATYRGTAFGSDDASG
 KLTYYTIDFAAKQGHGKIEHLKSPELNVDLAAADIKPDKRRHAVISGSVLYNQAEKGSYSLSGIFGGQAQAEVAGSAEVEETANGI
 RHIGLAAKQ

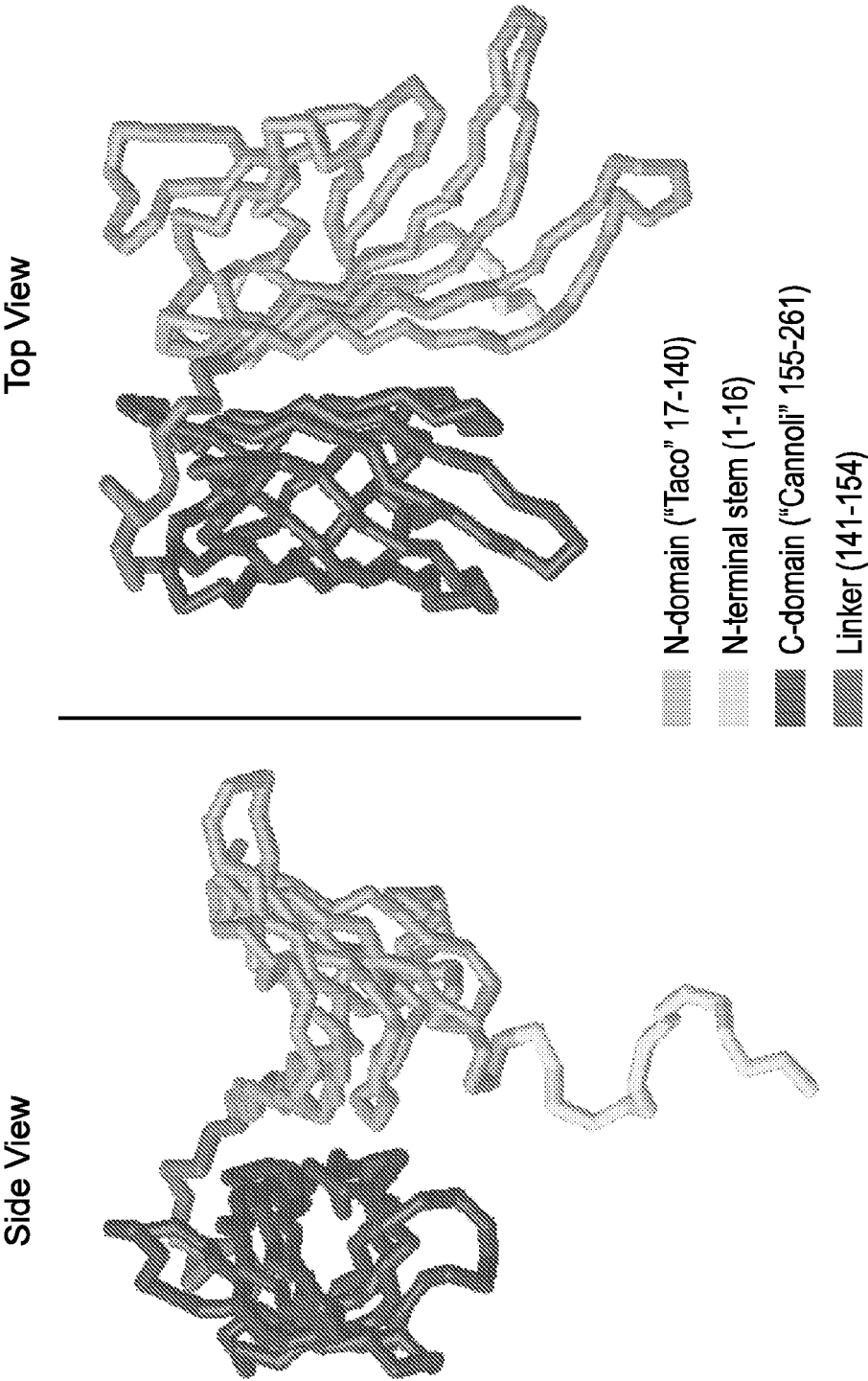
FIG. 2C

>B24 Variant Amino Acid Sequence (SEQ ID NO: 20)
CSSGGGVAADIGAGLADALTAPLDHKDKGLQSLTLDQSVRKNEKLLAAQGAEKTYGNGDSLNTGKLKNDKVSRRFDFIRQI
EVDGQLITLESGEFQVYKQSHSALTAFQTEQIQDSEHSGKMVAKRQFRIGDIAGEHTSFDKLP EGGRATYRGTAFGSDDAGG
KLTYTIDFAAKQGGNGKIEHLKSPELNVDLAAADIKPDGKRHAVISGSVLYNQAEKGSYSLGIFGGKAQEVAGSAEVTVNGI
RHIGLAAKQ

>B44 Variant Amino Acid Sequence (SEQ ID NO: 21)
CSSGGGGGVAADIGAGLADALTAPLDHKDKGLKSLTLEDISIQNGTTLTSAQGAERTFKAGDKDNSLNTGKLKNDKIS
RFD FIRQIEVDGQLITLESGEFQVYKQSHSALTALQTEQVQDSEHSGKMVAKRQFRIGDIVGEHTSFGKLPKDV MATYRGTA
FGSDDAGGKLTYTIDFAAKQGGNGKIEHLKSPELNVDLAAADIKPDEKHHAVISGSVLYNQAEKGSYSLGIFGGQAQEVAGSA
EVTANGIRHIGLAAKQ

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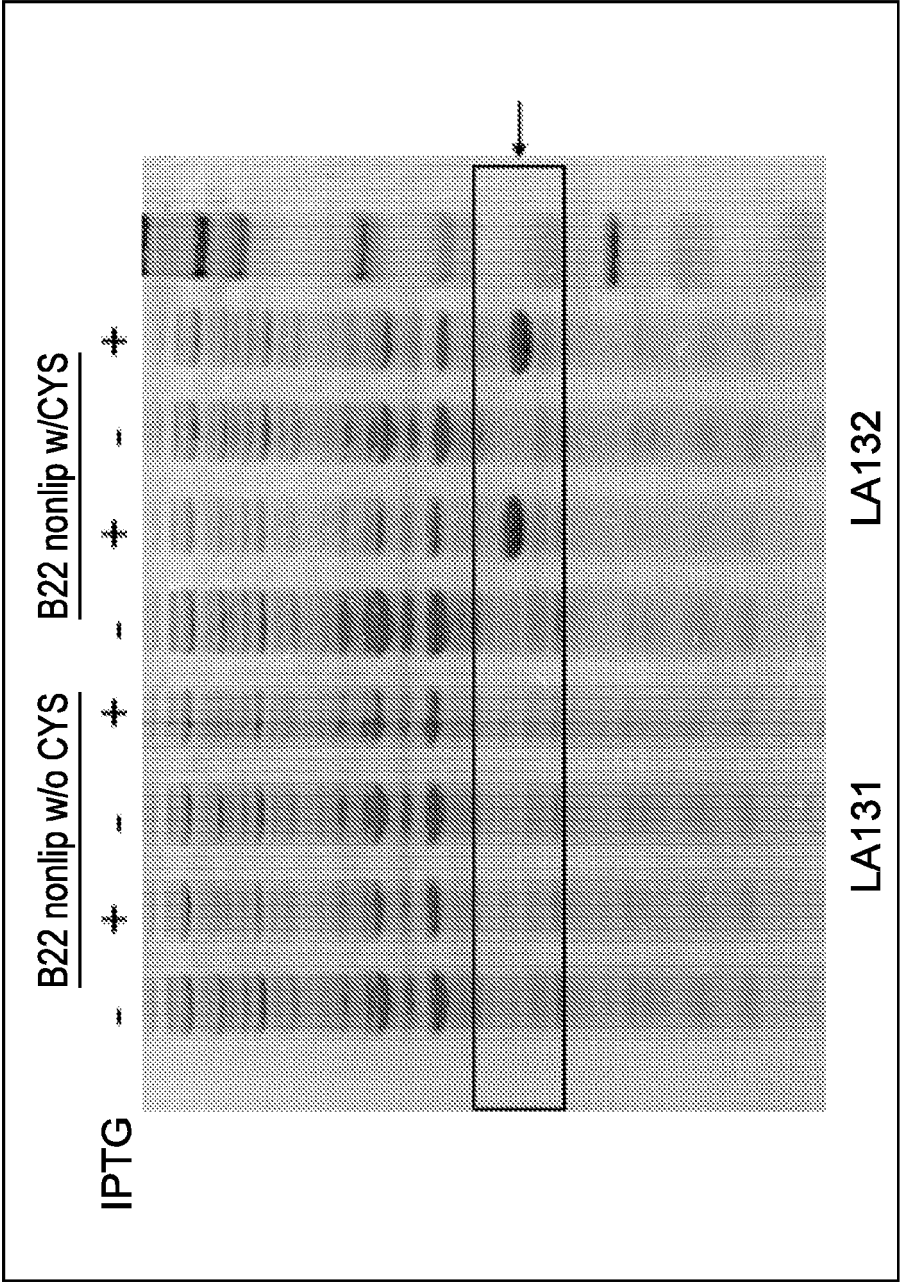
FIG. 3



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FIG. 4

Removal of N-terminal Cys Results in Loss of Expression in *E. coli*



Similar results were obtained for the CYS-minus A22 construct.

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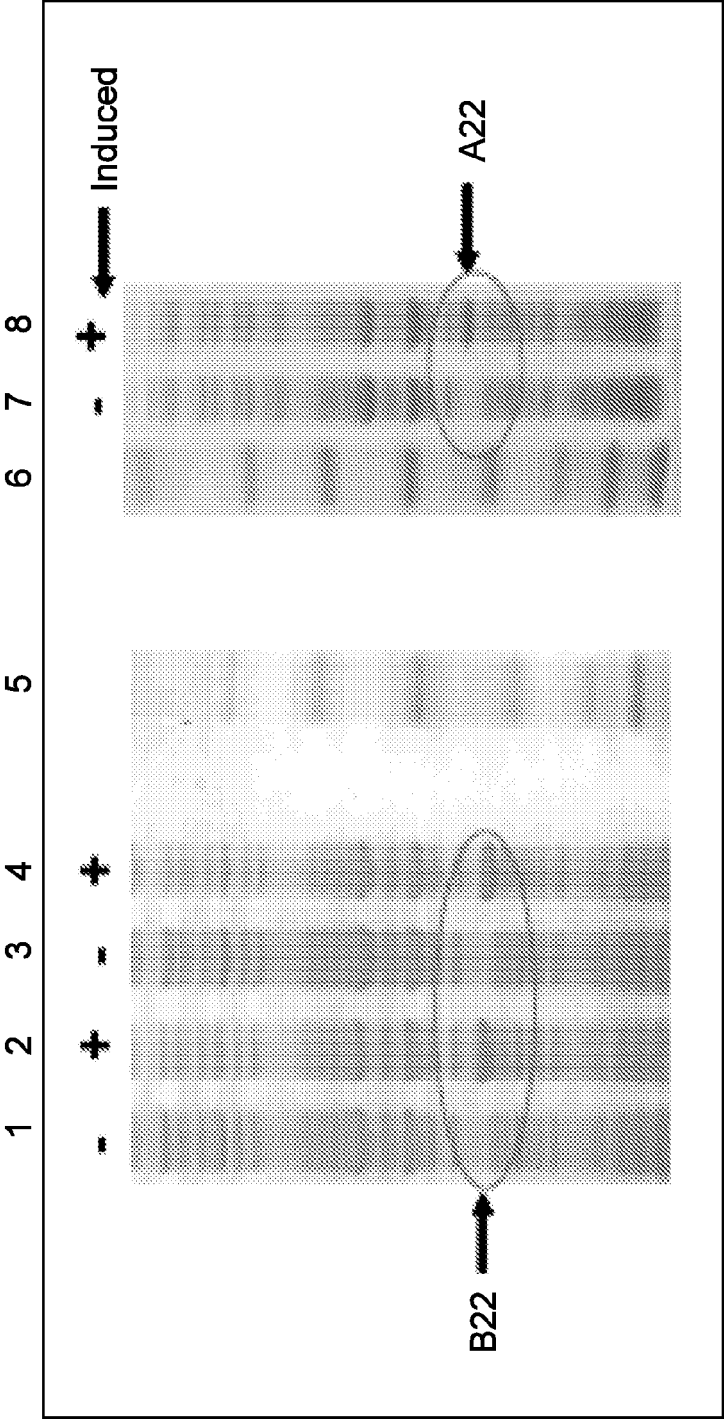
FIG. 5**Effect of Gly/Ser Stalk Length on Non-lipidated ORF2086 Variant Expression**

Protein Variant	Coomassie Expression w/o N-term Cys	Extra Gly/Ser?
B01 CSSGGGSGGGVTADIGTGLADALTAP	Yes	Yes (+5)
B44 CSSGGGSGGGVAAADIGAGLADALTAP	Yes	Yes (+5)
A05 CSSGGGSGGGVAAADIGTGLADALTAP	Yes	Yes (+4)
A22 CSSGGGVAADIGAGLADALTAP	No*	No
B22 CSSGGGVAADIGAVLADALTAP	No*	No
A19 CSSGGGVAADIGAGLADALTAP	No*	No

*Yes if add back N-term Cys

FIG. 7

Codon Optimization Increases Expression of Non-lipidated B22 and A22 Variants



N-terminal B09 Gly codon changes applied to B22 and A22

FIG. 8A

> SEQ ID NO: 43

AGCTCTGGAGGTGGAGGAAGCGGGGGCGGTGGAGTTGCAGCAGACATTTGGAGCAGGATTAGCAGATGCACCTGACGGCACCGT
TGGATCATAAAGACAAAGGCTTGAAATCGCTTACCTTAGAAGATTCTATTTACAAAAATGGCACCCCTTACCTTGTCCGGCGCA
AGCGCTGAACGTACTTTTAAAGCCGGTGACAAAGATAATAGCTTAAATACAGGTAAACTCAAAAATGATAAAAATCTCGCGT
TTTGATTTTCATTCTGTCAAATCGAAGTAGATGGCCAACTTATTACATTTAGAAAAGCGGTGAATTTCCAAAGTATATAACAATCCC
ATTACAGCACTTACAGCATTGCCAAACCGAACAGGTCCAAAGACTCAGAACATTTCCGGCAAAAATGGTAGCTAAACGTCAATTCCG
CATCGGTGACATTGTCGGTGAACATACAAAGCTTCGGAAAAATTACCAAAAAGATGTGATGGCGACCTATCGCGGTACGGCATTT
GGATCAGATGATGCAGGCGGTAAATTAACTTATACAAATTGACTTTGCAGCAAAAACAAGGACATGGCAAAAATTGAACATTTAA
AATCTCCCGAACTTAACGTAGATCTCGCAGCAGCAGATATAAAACCAGATGAAAAACACCCACGAGTCATTTCAGGTTCAGT
TTTATACAATCAGGCAGAAAAAGGTTTCGTACTCTTTAGGTATTTTGGCGGGCAAGCTCAAGAAAGTTGCAGGTAGCGCAGAA
GTAGAAACGGCAAAATGGCATTCGTCACATTTGGTTAGCGCGCAACAATAA

> SEQ ID NO: 44

SSGGGSGGGGVAADIGAGLADALTAPLDHKDKGLKSLTLEDSISQNGTTLTSAQGAERTFKAGDKDNSLNTGKLKNDKISR
FDFIRQIEVDGQLITLESGEFQYKQSHSALTALQTEQVQDSEHSGKMVAKRQFRIGDIVGEHTSFGKLPKDVMTYRGTA
GSDDAGGKLTYYTIDFAAKQGHGKIEHLKSPELNVDLAAADIKPDEKHHAVISGSVLYNQAEKGSYSLGIFGGQAQEVAGSAE
VETANGIRHIGLAAKQ.

FIG. 8B**> SEQ ID NO: 51**

AGCAGCGGAGCGCGGAAGCGGAGCGCGGGTGTCCGCCCGGACATCGGCGCGGGGCTTGCCGATGCACATAACCGCACCGC
 TCGACCATAAAGACAAAGTTTGAAATCCCTGACATTGGAAGACTCCATTTCCCAAAACGGAACACTGACCTGTGCGCACACA
 AGGTGCGGAAAGAACTTCAAAAGCGCGACAAAGACAACAGTCTCAACACAGGCAAACTGAAGAACGACAAAATCAGCCGC
 TTCGACTTTATCCGTCAAATCGAAGTGGACGGGAGCTCATTAACCTTGAGAGCGGAGAGTTCCAAGTGTACAACAAGCC
 ATTCCGCCCTTAACCGCCCTTCAGACCGAGCAAGTACAAGACTCGGAGCATTCGCGGAAGATGGTTGCCAAAACGCCAGTTTCAG
 AATCGCGACATAGTGGCGAACATACATCTTTTGGCAAGCTTCCCAAAGACGTCAATGCGGACATATCGCGGACGCGCTTC
 GGTTCAGACGATGCCGGCGGAAACTGACCTACACCATAGATTTCGCCGCCAAGCAGGACACGGCAAAATCGAACATTTGA
 AATCGCCAGAACTCAATGTTGACCTGGCCGCCCGGATATCAAGCCGGATGAAAAACACCATGCCGTTCATCAGCGGTTCCGT
 CCTTTACAACCAAGCCGAGAAAGGCAGTTACTCTCTAGGCATCTTTGGCGGGCAAGCCAGGAAAGTTGCCGGCAGCGCGGAA
 GTGGAACCGCAACGGCATACGCCATATCGGTCTTTGCCGCCAAGCAATAA

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> SEQ ID NO: 45

AGCTCTGGAGGTGGAGGAAGCGGGGCGGTGGAGTTGCAGCAGACATTGGAGCAGGATTAGCAGATGCACGTGACGGCACCGT
 TGGATCATAAAGACAAAGGCTTGCAAGTCGCTTACCTTAGATCAGTCTGTGTCAGGAAAAATGAGAAACTTAAAGTTGGCGGCGCA
 AGCGCTGAAAAAACTTATGGAAAACGGTGACAGCTTAAATACAGGTAAACTCAAAAATGATAAAAGTCTCGCGTTTGTATTC
 ATTCGTCAAATCGAAGTAGATGGCAAGCTTATTACATTAGAAAAGCGGTGAATTCCAAGTATATAAACAAATCCCATTCAGCAC
 TTACAGCATTGCAAAACCGAACAGGTCCAAGACTCAGAAGATTCCGGCAAAATGGTAGCTAAACGTCAATTCCGCATCGGTGA
 CATTCGCGGTGAACATACAAGCTTCGACAAAATTACCAAAAGGCGGCGAGTGCACCTATCGCGGTACGGCATTTGGATCAGAT
 GATGCAAGCGGTAAAATTAACTTATACAATTGACTTTGCAGCAAAAACAAGGACATGGCAAAAATTGAACATTTAAAATCTCCCG
 AACTTAACGTAGAGCTCGCAACCGCATATATTAAACCAGATGAAAAACGCCACGCAGTCAATTCAGGTTTCAGTTTATACAA
 TCAGGACGAAAAAGGTTCTGTACTCTTTAGGTATTTTGGCGGGCAAGCTCAAGAAAGTTGCAGGTAGCGCAGAAAGTAGAAACG
 GCAATGGCATTCACCACATTGGGTAGCGCGAAACAATAA

FIG. 8C

>SEQ ID NO: 50

SSGGGSGGGVAAADIGAGLADALTAPLDHKDKGLQSLTLDQSVRKNEKCLKLAAQGAECTYGNGDSLNTGKLKNDKVSREF
FIRQIEVDGKLITLESGEFQYKQSHSALTALQTEQVQDSEDSGKMVAKRQFRIGDIAGEHTSFDKLPKGGSATYRGTAFG
SDDAGGKLTYTIDFAAKQGHGKIEHLKSPELNVELATAYIKPDEKRHAVISGSVLYNQDEKGSYSLGIFGGQAQEVAGSAE
VETANGIHHIGLAAKQ

> SEQ ID NO: 46

AGCTCTGGAGGTGGAGGAGTTGCAGCAGACATTTGAGCAGGATTAGCAGATGCACGTGACGGCACCGTTGGATCATAAAGAC
AAAGGCTTGCAGTCGCTTACCTTAGATCAGTCTGTGAGGAAAAATGAGAAACTTAAGTTGGCGGCGCAAGCGCTGAAAAA
ACTTATGGAAACGGTGACAGCTTAAATACAGGTAAACTCAAAAATGATAAAGTCTCGCGTTTGTGATTTCAATTCGTCAAATC
GAAGTAGATGGCAAGCTTATTACATTAGAAAAGCGGTGAATTTCCAAGTATATAAACAAATCCCATTCAGCACCTTACAGCATTTG
CAAAACCGAACAGGTCCAAAGACTCAGAAAGATTCCGGCAAAAATGGTAGCTAAACGTCAATTCGCGCATCGGTGACATTTGCGGGT
GAACATACAAGCTTCGACAAAATTACCAAAAAGCGGCAGTGGACCTATTCGCGGTACGGCATTTGGATCAGATGATGCAGGC
GGTAAATTAACTTATACAATTGACTTTGCAGCAAAACAAGGACATGGCAAAATTGAACATTTAAATCTCCGAACTTAAC
GTAGAGCTCGCAACCGCATATATTAAACCATGAAAAACGCCACGCAGTCAATTCAGGTTCAAGTTTTATACAAATCAGGAC
GAAAAAGGTTTCGTACTCTTTAGGTAATTTTGGCGGGCAAGCTCAAGAAGTTGCAGGTAGCGCAGAAAGTAGAAAAACGGCAAT
GGCATTCACCACATTTGGTTAGCGGCGAAACAATAA

FIG. 8D**>SEQ ID NO: 47**

AGCAGCGGGGGGGTGGAGTTGCAGCAGACATTTGGAGCAGGATTAGCAGATGCACCTGACGGCACCGTTGGATCATAAAGACA
 AAGGCTTGCAAGTCGCTTACCTTAGATCAGTCTGTGAGGAAAAATGAGAAACTTAAAGTTGGCGGCGCAAGGCGCTGAAAAAAC
 TTATGGAAACGGTGACAGCTTAAATACAGGTAACCTCAAAAATGATAAAGTCTCGCGTTTGGATTTCATTCGTCAAATCGAA
 GTAGATGGCAAGCTTATTACATTTAGAAAGCGGTGAATTCCAAGTATATAAACAAATCCCATTCAGCACCTTACAGCATTCGCAAA
 CCGAACAGGTCCTCAAGACTCAGAAAGATTTCCGGCAAAATGGTAGCTAAACGTCAATTTCCGCATCGGTGACATTCGCGGTGAACA
 TACAAGCTTCGACAAATTACCAAAAGCGGCAGTCGACCTATCGCGGTACGGCATTTGGATCAGATGATGCAGGCGGTAAA
 TTAACCTTATACAAATTGACTTTGCAGCAAAACAAAGGACATGGCAAAATTAACATTTAAAAATCTCCCGAACCTTAACGTAGAGC
 TCGCAACCGCATATATTAAACAGATGAAAAACGCCACGCAGTCA TTTCAGGTTTCAGTTTATACAATCAGGACGAAAAAGG
 TTTCGTACTCTTTAGGTATTTTGGCGGGCAAGCTCAAGAAAGTTGCAGGTAGCGCAGAAAGTAGAAACGGCAAAATGGCATTCAC
 CACATTTGGTTAGCGGCGAAACAATAA

18/24

>SEQ ID NO: 48

AGCAGCGGAGGGGGGGTGTGCGCCGCCGACATCGGTGCGGGGCTTGCCGATGCACATAACCGCACCGCTCGACCCATAAAGACA
 AAGGTTTGCAAGTCTTTAAACACTGGATCAGTCCGTGAGGAAAAACGAGAAACTGAAGCTGGCGGCACAAAGGTGCGGAAAAAAC
 TTATGGAAACGGCGACAGCCTTAATACGGGCAAAATTGAAGAACGACAAGGTGACCGCTTCGACTTTATCCGTCAAATCGAA
 GTGGACGGGAAGCTCATTTACCTTTGGAGAGCGGAGAGTTCCAAGTGTACAAACAAAGCCATTCGCGCTTAAACCGCCCTTCAGA
 CCGAGCAAGTACAAGACTCGGAGGATTTCCGGGAAGATGGTTGCGAAACGCCAGTTTCAGAATCGGCGACATAGCGGGCGAAACA
 TACATCTTTTGACAAAGCTTCCCAAAGCGGCAGTCGACATATCGCGGACGGCGTTTCGGTTCAGACGATGCTGGCGGAAAA
 CTGACCTATACTATAGATTTGCGCCGCCAAGCAGGACACGGCAAAATCGAACATTTGAAATCGCCCGAACTCAATGTCGAGC
 TTGCCACCGCCCTATATCAAGCCGGATGAAAAACGCCATGCCGTTATCAGCGGTTCCGTCCCTTTACAACCAAGACGAGAAAGG
 CAGTTACTCCCTCGGTATCTTTGGCGGGCAAGCCAGGAAAGTTGCCGGCAGCGGGAAGTGGAACCGCAACCGCATACAC
 CATATCGGCTCTTGCCCGCCCAAGCAGTAA

19/24

FIG. 8E**>SEQ ID NO: 49**

SSGGGVAADIGAGLADALTAPLDHKDKGLQSLTLDQSVRKNEKLKLAQAQAEKTYGNGDSLNTGKLKNDKVSFRDFIRQIE
 VDGLITLESGEFQYKQSHSALTALQTEQVQDSEDSGKMVAKRQFRIGDIAGEHTSFDKLPKGGSATYRGTAFGSD
 DAGGKLTYTIDFAAKQGHGKIEHLKSPELNVELATAYIKPDEKRHAVISGSVLYNQDEKGSYSLGIFGGQAQEVAGSAEVEVET
 ANGIHHIGLAAKQ

>SEQ ID NO: 54

AGCAGCGGAAGCGGAAGCGGAGCGGGGGTGTGCGCGCCGACATCGGCACAGGGCTTGCCGATGCACATAACTGCGCCGCTCG
 ACCATAAAGACAAAGGTTTGAAATCCCTGACATTGGAAGACTCCATTTCCTCAAAACGGAACACTGACCCCTGTGCGGCACAAGG
 TGCAGAAAACCTTTCAAAGTCGGCGACAAAAGACAAACAGTCTCAATACAGGCAAAATTGAAGAACGACAAAATCAGCCGCTTC
 GACTTTGTGCAAAAATCGAAGTGGACGGACAAACCATCACGCTGGCAAGCGCGGAAATTCAAATATACAAACAGGACCCACT
 CCGCCGTCGTTGCCCTACAGATTGAAAAAATCAACAACCCCGACAAAATCGACAGCCTGATAAAACCAACGCTCCTTCCTTGT
 CAGCGGTTTGGCGGAGAACATACCGCCTTCAACCAACTGCCAGCGCAAAAGCCGAGTATCACGGCAAAAGCATTCAGCTCC
 GACGATGCCGGGGAAAACTGACCTATACCATAGATTTTGGCGCCAAACAGGGACACGGCAAAATCGAAACACCTGAAAAACAC
 CCGAGCAGAAATGTCGAGCTTGCCCTCCGCCGAACTCAAAGCAGATGAAAAATCACACGCCGTCAATTTGGGCGACACGCGCTA
 CGGCAGCGAAGAAAAGGCACCTTACCACCTCGCTCTTTTCGGCGACCGAGCCCAAGAAATCGCCGGCTCGGCAACCCGTGAAG
 ATAAGGGAAGGTTTCAACGAAATCGGCATCGCCGGCAAAACAGTAG

>SEQ ID NO: 55

SSGSGGGGVAADIGTGLADALTAPLDHKDKGLKSLTLEDSISQNGTLTLSAQGAETFKVGDKDNSLNTGKLKNDKISR
 DQVQKIEVDGQTTITLASGEFFQYKQDHSVAVVALQIEKINNPDKIDSLINQRSFLVSLGGEHTAFNQLPSGKAEYHGKAFSS
 DDAGGKLTYTIDFAAKQGHGKIEHLKTPQNVELASAEKKADEKSHAVILGDTTRYGSEEKGTYHLALFGDRAQEIAGSATVK
 IREKVHEIGIAGKQ.

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FIG. 8F

> SEQ ID NO: 57
 SSGGGSGGGVTADIGTGLADALTAPLDHKDKGLSLTLEDSISQNGTLTLSAQGAECTYNGDLSLNTGKLNKDKVSRFDF
 IRQIEVDGQLITLESGEFQYKQSHSALTALQTEQEQDPEHSEKMWAKRRFRIGDIAGEHTSFDKLPKDVMTYRGTAFGSD
 DAGGKLTYTIDFAAKQGHGKIEHLKSPELNVDLAVAYIKPDEKHHAVISGSVLYNQDEKGSYSLGIFGEKAQEVAGSAEVE
 ANGIHHIGLAAKQ

> GenBank AY330406 (SEQ ID NO: 58)
 CSSGGGGGGVTADIGTGLADALTAPLDHKDKGLSLTLEDSISQNGTLTLSAQGAECTYNGDLSLNTGKLNKDKVSRFD
 FIRQIEVDGQLITLESGEFQYKQSHSALTALQTEQEQDPEHSEKMWAKRRFRIGDIAGEHTSFDKLPKDVMTYRGTAFGS
 DDAGGKLTYTIDFAAKQGHGKIEHLKSPELNVDLAVAYIKPDEKHHAVISGSVLYNQDEKGSYSLGIFGEKAQEVAGSAEVE
 TANGIHHIGLAAKQ

>GenBank FJ184191 (SEQ ID NO: 59)
 CSSGGGGVAADIGAGLADALTAPLDHKDKGLQLLDQSVRKNEKLKLAQAQGAECTYNGDLSLNTGKLNKDKVSRFDFIRQI
 EVDGQLITLESGEFQYKQSHSALTALQTEQVQDSEHSGKMVAKRQFRIGDIAGEHTSFDKLPPEGGRATYRGTAFFSSDDAGG
 KLIYTIIDFAAKQGHGKIEHLKSPELNVDLAAADIKPDEKHHAVISGSVLYNQAEKGSYSLGIFGGKAQEVAGSAEVKTVNGI
 RHIGLAAKQ

> GenBank AY330385 (SEQ ID NO: 60)
 CSSGGGGVAADIGAGLADALTAPLDHKDKSLQLTDQSVRKNEKLKLAQAQGAECTYNGDLSLNTGKLNKDKVSRFDFIRQI
 EVDGQLITLESGEFQYKQSHSALTALQTEQVQDSEHSGKMVAKRQFRIGDIAGEHTSFDKLPPEGGRATYRGTAFFGSDDASG
 KLTYTIDFAAKQGHGKIEHLKSPELNVDLAAADIKPDKKRHAVISGSVLYNQAEKGSYSLGIFGGQAQEVAGSAEVEETANGI
 RHIGLAAKQ

FIG. 8G

> SEQ ID NO: 61

GGCAGCAGCGGAGCGCGGTGTCCGCCGCCGACATCGCGCGCGGTGCTTGCCGATGCACCTAACCCGACCGCTCGACCATAAAG
ACAAAAAGTTTGACGTCTTTGACGCTGGATCAGTCCGTGAGGAAAAACGAGAAACTGAAAGCTGGCGGCACAAGGTGCGGAAAA
AACTTATGGAACGCGCAGCCCTCAATACGGGCAAAATTGAAGAACGACAAGGTGAGCCGCTTCGACTTTATCCGTCAAATC
GAAGTGGACGGGCAGCTCATTTACCTTGAGAGCGGAGAGTTCCAAGTGTAACAACAAAGCCATTCCGCCCTTAACCGCCCTTC
AGACCGAGCAAGTACAAGATTTCGGAGCATTCAGGGAAGATGGTTGCGAAACGCCAGTTCAGAAATCGGCGATATAGCGGGTGA
ACATACATCTTTTGACAAAGCTTCCCGAAGCGCGGCGGACATATCGCGGACGGCATTCGGTTCAGACGATGCCAGTGGA
AAACTGACCTACACCATAGATTTCGCCGCCAAGCAGGACACGGCAAAATCGAAATCGCCAGAACTCAATGTTG
ACCTGGCCGCTCCGATATCAAGCCGGATAAAAAACGCCATGCCGTCAATCAGCGGTTCCGTCCTTTACAACCAAGCCGAGAA
AGGCAGTTACTCTCTAGGCATCTTTGGCGGGCAAGCCAGGAAAGTTGCCGGCAGCGCAGAAAGTGGAACCCGCAACCGGCATA
CGCCATATCGGTCTTGCCGCCAAGCAGTAA

> SEQ ID NO: 62

GSSGGGVAADIGAVLADALTAPLDHKDKSLQSLTDQSVRKNEKLKLAQAQAEKTYNGDSLNTGKLKNDKVSFRDFIRQI
EVDGQLITLESGEFQYKQSHSALTALQTEQVQDSEHSGKMVAKRQFRIGDIAGEHTSFDKLP EGGRATYRGTAFGSDDASG
KLTYTIDFAAKQGHGKIEHLKSPELNVDLAASDIKPKKRHAVISGSVLYNQAEKGSYSLSLIGFGGQAQEVAGSAEVEETANGI
RHIGLAAKQ

FIG. 8H**> SEQ ID NO: 63**

GGCAGCAGCGGAGCGGGGTGTCGCCGCCGACATCGCGCGGGGGCTTGCCGATGCACCTAACCCGACCGCTCGACCATAAAG
 ACAAAAAGTTTGACGTCTTTGACGCTGGATCAGTCCGTGAGGAAAAACGAGAAACTGAAAGCTGGCGGCACAAGGTGCGGAAAA
 AACTTATGGAACGGCGACAGCCTCAATACGGGCAAAATTGAAGAACGACAAGGTGAGCCGCTTCGACTTTATCCGTCAAATC
 GAAGTGGACGGGCAGCTCATTTACCTTGGAGAGCGGAGAGTTCCAAATATACAAACAGGACCACTCCGCCGTCGTTGCCCTAC
 AGATTGAAAAAATCAACAACCCCGACAAAATCGACAGCCTGATAAACCAACGCTCCTTGTCTCAGCGGTTTGGGTGGAGA
 ACATACCGCCTTCAACCAACTGCCCAGCGGCAAAAGCCGAGTATCACGGCAAAAGCATTTCAGCTCCGACGATGCTGGCGGAAAA
 CTGACCTATACCATAGATTTCGCCGCCCAACAGGACACGGCAAAAATCGAACACTTGAAAAACACCCGAGCAAAAATGTCGAGC
 TTGCCTCCGCGCAACTCAAAGCAGATGAAAAATCACACGCCGTCATTTGGGCGACACGCGCTACGGCGCGGAAAGG
 CACTTACCACCTCGCCCTTTTCGGCGACCGCCCAAGAAATCGCCGGCTCGGCAACCGTGAAGATAAGGGAAGGTTTCAC
 GAAATCGGCATCGCCGGCAACAGTAA

> SEQ ID NO: 64

GSSGGGVAADIGAGLADALTAPLDHKDKSLQSLTLDQSVRKNEKLKLAQAQAEKTYNGDSLNTGKLKNDKVSFRDFIRQI
 EVDGQLITLESGEFQIYKQDHSVVVALQIEKINNPDKIDSLINQRSFLVSLGGEHTAFNQLPSGKAEYHGKAFSSDDAGGK
 LTYTIDFAAKQGHGKIEHLKTPEQNVELASAEIKADEKSHAVILGDTRYGGEEKGTYYHLALFGDRAQEIAGSATVKIREKVH
 EIGIAGKQ

FIG. 9A

1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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FIG. 9B

A05	(121)	INNPKIDSLINQRSFLVSGLGGEHTAFNQLPSG-KAEYHGKAFSSDDAGGKLT	121	180
A12	(114)	INNPKIDSLINQRSFLVSGLGGEHTAFNQLPDG-KAEYHGKAFSSDDPNGRLLHYSIDFT		
A22	(114)	INNPKIDSLINQRSFLVSGLGGEHTAFNQLPSG-KAEYHGKAFSSDDAGGKLT		
A62	(114)	VQDSEDSGMVAKRQFRIGDIAGEHTSFDDKLPGGSAIYRGTAFFGSDDAGGKLT		
B09	(114)	VQDSEDSGMVAKRQFRIGDIAGEHTSFDDKLPGGSAIYRGTAFFGSDDAGGKLT		
B24	(114)	IQDSEHSGGMVAKRQFRIGDIAGEHTSFDDKLPEGGRATYRGTAFFGSDDAGGKLT		
Consensus	(121)	INNSDKSGSLINQRSFRISGIAGEHTAFNQLP GGKATYRGTAFFSSDDAGGKLT		
A05	(180)	AKQGHGKIEHLKTPEQNVELASAEELKADEKSHAVILGDTRYGSEEEKGTYHLALFGDRAQE	181	240
A12	(173)	KKQGYGRIEHLKTPEQNVELASAEELKADEKSHAVILGDTRYGGEEEKGTYHLALFGDRAQE		
A22	(173)	AKQGHGKIEHLKTPEQNVELASAEELKADEKSHAVILGDTRYGGEEEKGTYHLALFGDRAQE		
A62	(174)	AKQGHGKIEHLKTPEQNVELASAEELKADEKSHAVILGDTRYGGEEEKGTYHLALFGDRAQE		
B09	(174)	AKQGHGKIEHLKSPELNVELATAATIKPDEKRRHAVISGSVLYNQDEKGSYSLSLGI		
B24	(174)	AKQGNKGIEHLKSPELNVDLAADIKPDCGKRHAVISGSVLYNQAEKGSYSLSLGI		
Consensus	(181)	AKQGHGKIEHLKTPEQNVELASAEELKADEKSHAVILGDTRYGGEEEKGTYHLALFGDRAQE		
A05	(240)	IAGSATVKIREKVHEIGIACKQ	241	262
A12	(233)	IAGSATVKIREKVHEIGIACKQ		
A22	(233)	IAGSATVKIREKVHEIGIACKQ		
A62	(234)	IAGSATVKIREKVHEIGIACKQ		
B09	(234)	MAGSAEVEETANGIHHIGIAAKQ		
B24	(234)	MAGSAEVKTVNGIRHIGIAAKQ		
Consensus	(241)	IAGSATVKIREKVHEIGIACKQ		
		(SEQ ID NO: 13)		
		(SEQ ID NO: 14)		
		(SEQ ID NO: 15)		
		(SEQ ID NO: 70)		
		(SEQ ID NO: 18)		
		(SEQ ID NO: 20)		
		(SEQ ID NO: 78)		