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Glu Asn Glu Asn Cys Ile Arg Ser Leu Leu Ala Ala Leu Pro Leu Leu
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Leu Pro Ser Thr Arg Asn Ile Asp Leu Arg Val Pro Pro Arg Lys Asp
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<210> 5
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<212> DNA
<213> Beet necrotic yellow vein virus

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 <212> DNA
 <213> BMYV & BNYVV

<220>
 <221> misc_feature
 <223> P0 P15 sense

<400> 9
 caaaagaaac cagcgaggat ctagcagtct atgcaatttc agcttaaaac aaacagtttc 60
 acttgttcgt tgaaccgacc gctaacagct acagagcgag ttttaaacac cgcgtatttt 120
 cttacgaatc atttaccgct cgtaactttt gagaatgaaa actgtattcg ttctcttctc 180


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gctgctctgc ctttgctgct cagtaagcag ctcgaccccg ggagctttat ttacgctccc 240
gggaaacgcc agtcttttacg actggccagg ttctacaatt actgcggagc cgtgttaccc 300
agcactcgca acattgactt acgagtgtccc cccagaaaag acgttaaaag atttttacctt 360
gcccgaatt caggcagaga tctgggggag aggctacaac gccgcagaga aatttttctct 420
cgcggtgaag cagagtttaa aaagtccctt tcagtattgt gtgctgaaag cgagagaaag 480
ctacgggaga gtcctaaaat cgatattaga atggaccata ttattatggt cttacgcat 540
atgggcactc tcttgaccg tctggtactt gttgaagaac tataccatag aaatacttat 600
gctgagctcg ctttttgctg tcaccacctt tttggtgaag ctcgtggtat ggatttttga 660
tggtgcttgt ggtaaagta gatttatcta atattgtatt gtacatagtt gccggttgtg 720
ttgttgtcag tatgttgtac tcaccgtttt tcagcaacga tgttaaagcg tccagctatg 780
cgggagcaat ttttaagggg agcggctgta tcatggccgc gaattcgttt gctcaatttg 840
ggagtgtcga tattccaaag catgtagccg agtccatcac taaggttgcc accaaagagc 900
acgatgttga cataatggta aaaaggggtg aagtgaccgt tcgtgttgtg actctcaccg 960
aaactatttt tataatatta tctagattgt ttggtttggc ggtgtttttg ttcatgatat 1020
gtttaatgtc tatagtttgg ttttggtatc atagataa 1058

```

```

<210> 10
<211> 1572
<212> DNA
<213> BMV & BNYV

```

```

<220>
<221> misc_feature
<222> (1)..(1572)
<223> P0 P15 antisense

```

```

<400> 10
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tgttgtcagt atgtgttact caccgttttt cagcaacgat gttaaagcgt ccagctatgc 120
gggagcaatt ttttaagggg gcggtgtgat catggccgcg aattcgtttg ctcaatttgg 180
gagttgcgat attccaaagc atgtagccga gtccatcact aaggttgcca ccaaagagca 240
cgatgttgac ataatggtaa aaaggggtga agtgaccgtt cgtgttgtga ctctcaccga 300
aactattttt ataataattat ctagattgtt tggtttggcg gtgtttttgt tcatgatatg 360
tttaatgtct atagtttggg tttggtatca tagataacct aggaaattta aattaaatcc 420
tggttttata tgtactactg ttgtagctga aatttaggtc ttcttgctga atttatttct 480
gtttcgtttt cactgttatt caggggatcc taggttatct atgataccaa aaccaaacta 540
tagacattaa acatatcatg aacaaaaaca ccgccaaacc aaacaatcta gataatatta 600
taaaaatagt ttcggtgaga gtcacaacac gaacggtcac ttcaccctt tttaccatta 660
tgtcaacatc gtgctctttg gtggcaacct tagtgatgga ctcggctaca tgctttggaa 720
tatcgcaact cccaaattga gcaaacgaat tcgcggccat gatacagccg ctccccttaa 780

```

```

aaattgctcc cgcatagctg gacgctttaa catcgttgct gaaaaacggt gagtacaaca      840
tactgacaac aacacaaccg gcaactatgt acaatacaat attagataaa tctactttaa      900
ccacaagcac catcaaaaat ccataccacg agcttcacca aaaaggtggt gaacgcaaaa      960
agcgagctca gcataagtat ttctatggta tagttcttca acaagtacca gacggtgcaa    1020
gagagtgtccc atatcgcgta agaccataat aatatggtcc attctaatat cgatttttagg    1080
actctcccgt agctttctct cgctttcagc acaccatact gaaaggaact ttttaaactc    1140
tgcttcaccg cgagagaaaa tttctctgcg gcgttgtagc ctctcccca gatctctgcc    1200
tgaatttcgg gcaaggtaaa atcttttaac gtcttttctg gggggcactc gtaagtcaat    1260
gttgcgagtg ctgggtaaca cggctccgca gtaattgtag aacctggcca gtcgtaaaga    1320
ctggcgtttc ccgggagcgt aaataaagct cccggggctc agctgcttac tgagcagcaa    1380
aggcagagca gcgagaagag aacgaatata gttttcattc tcaaaagtta cgagcggtaa    1440
atgattcgta agaaaatacg cgggtgttta aactcgctct gtagctgtta gcggtcgggt    1500
caacgaacaa gtgaaactgt ttgttttaag ctgaaattgc atagactgct agatcctcgc    1560
tggtttcttt tg                                           1572

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```

<210> 11
<211> 1351
<212> DNA
<213> Petunia sp.

```

```

<220>
<221> misc_feature
<222> (1)..(1351)
<223> Petunia intron

```

```

<400> 11
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gggtggccga cgaattgtgg gaaggtagaa agaggggagg acttttggtta tactccatta    180
gtaattactg tttccgtttc aatttatgtg acaatatttc ctttttagtc ggttccaaaa    240
gaaaatgtca gcattataaa caatttaatt ttgaaattac aattttgcca ttaataaaat    300
gatttacaac caaaaagta tctatgagcc tgtttggggt ggcttataag cagcttattt    360
taagtggctt ataagtcaaa aagtgacant ttttgagaag ttagaaaatc ctaacttctc    420
aaaaagtagc ttttaagcca cttatgactt ataagtccaa aaatttttaa gttaccaaac    480
atatattaat gggtttataa gcttataagc cacttttaag ctcacccaaa cgggttctat    540
gtctcacttt agactacaaa ttttaaaagt cttcatttat ttcttaatct ccgtggcgag    600
tnaaactata acacataaag tgaaacggag ggaataagat ggagtcataa actaatccaa    660
atctatactc tctccgttaa tttgtttttt agtttgattt ggtacattaa taaaacagat    720
ttttcgaagg ttataaacac agacagatgt ttcccagcga gctagcaaaa ttccaagatt    780
tctgtcgaag attcgtgtgt ttctagctag tacttgatgt tatctttaac cttttagtaa    840
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```

tagcatcaca cgtgagatgt tttttatgat attgactaaa tccaatcttt accattcctt 960
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ttagaaatta gttgtccaaa tgctttgaaa ttagaaatct ttaatccctt attttttttt 1080
aaaatgtttt ttctcactcc aaagaaagag aaactgacat gaaagctcaa aagatcatga 1140
atcttactaa ctttgtggaa ctaaagtac atcagaatgt ttctgacatg tgaaaatgaa 1200
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gtacttttaa gcacctataa acacttactt acacttgcct tggagtttat gttttagtgt 1320
tttcttcaca tcttttttgg tcaatttgca g 1351

```

```

<210> 12
<211> 91
<212> DNA
<213> Beta vulgaris

```

```

<220>
<221> misc_feature
<222> (1)..(91)
<223> Beet intron

```

```

<400> 12
taaatcctgg ttttatatgt actactgttg tagctgaaat ttaggtcttc ttgctgaatt 60
tatttctgtt tcgttttcac tgttattcag g 91

```

```

<210> 13
<211> 2701
<212> DNA
<213> Artificial sequence

```

```

<220>
<223> hairpin P0

```

```

<220>
<221> misc_feature
<222> (1064)..(1064)
<223> n is a, c, g, or t

```

```

<220>
<221> misc_feature
<222> (1277)..(1277)
<223> n is a, c, g, or t

```

```

<400> 13
caaaagaaac cagcgaggat ctagcagtct atgcaatttc agcttaaaac aaacagtttc 60
acttgttcgt tgaaccgacc gctaacagct acagagcgag ttttaaacac cgcgtatttt 120
cttacgaatc atttaccgct cgtaactttt gagaatgaaa actgtattcg ttctcttctc 180
gctgctctgc ctttgctgct cagtaagcag ctcgaccccg ggagctttat ttacgctccc 240
gggaaacgcc agtcttttac actggccagg ttctacaatt actgcggagc cgtgtttacc 300
agcactcgca acattgactt acgagtgcct cccagaaaag acgttaaaag attttacctt 360
gcccgaaatt caggcagaga tctgggggag aggctacaac gccgcagaga aattttctct 420
cgcggtgaag cagagtttaa aaagttcctt tcagtatggt gtgctgaaag cgagagaaag 480

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ctacgggaga	gtcctaaaaat	cgatattaga	atggaccata	ttattatggt	cttacgcgat	540
atgggcactc	tcttgaccg	tctggtactt	gttgaagaac	tataccatag	aaatacttat	600
gctgagctcg	ctttttgcgt	tcaccacctt	tttgggtgaag	ctcgtggtat	ggatttttgc	660
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ttaattggct	cttcatttga	ttgaaatttg	acaattattt	cttgtttttt	tttttgtcac	780
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tgttatactc	cattagtaat	tactgtttcc	gtttcaattt	atgtgacaat	atttcctttt	900
tagtcggttc	caaaagaaaa	tgtcagcatt	ataaacaatt	taattttgaa	attacaattt	960
tgccattaat	aaaatgattt	acaaccacaa	aagtatctat	gagcctgttt	gggtgggctt	1020
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ccaaacgggt	tctatgtctc	acttttagact	acaaatttta	aaagtcttca	tttattttctt	1260
aatctccgtg	gcgagtnaaa	ctataacaca	taaagtgaag	cggaggggaat	aagatggagt	1320
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cataagtatt	tctatggtat	agttcttcaa	caagtaccag	acggtgcaag	agagtgccca	2160
tatcgcgtaa	gaccataata	atatggtcca	ttctaataatc	gatttttagga	ctctcccgtta	2220
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cgggagcgta	aataaagctc	ccggggtcga	gctgcttact	gagcagcaaa	ggcagagcag	2520
cgagaagaga	acgaatacag	ttttcattct	caaaagttac	gagcggtaaa	tgatttcgtaa	2580

gaaaatacgc ggtgttttaa actcgctctg tagctgttag cggtcgggttc aacgaacaag 2640
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 g 2701

<210> 14
 <211> 1435
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Hairpin P0 (beet intron)

<220>
 <221> misc_feature
 <222> (1)..(1435)
 <223> Hairpin P0 (beet intron)

<400> 14
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 cttacgaatc atttaccgct cgtaactttt gagaatgaaa actgtattcg ttctcttctc 180
 gctgctctgc ctttgctgct cagtaagcag ctcgaccccg ggagctttat ttacgctccc 240
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 agcactcgca acattgactt acgagtgtcc cccagaaaag acgttaaaag attttacctt 360
 gcccgaattt caggcagaga tctgggggag aggctacaac gccgcagaga aattttctct 420
 cgcggtgaag cagagtttaa aaagttcctt tcagtatggt gtgctgaaag cgagagaaag 480
 ctacgggaga gtcctaaaat cgatattaga atggaccata ttattatggt cttacgcgat 540
 atgggcactc tcttgaccg tctggtactt gttgaagaac tataccatag aaatacttat 600
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 acgcggtgtt taaaactcgc tctgtagctg ttagcggtcg gttcaacgaa caagtgaac 1380
 tgtttgtttt aagctgaaat tgcatagact gctagatcct cgctgggtttc ttttg 1435

<210> 15
 <211> 2229
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Hairpin P15 P0

<400> 15
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 tgttgctcagt atgttggtact caccgttttt cagcaacgat gttaaagcgt ccagctatgc 120
 gggagcaatt ttttaagggga gcggtgtgtat catggccgcg aattcgtttg ctcaatttgg 180
 gagttgcat attccaaagc atgtagccga gtccatcact aagggttgcca ccaaagagca 240
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 aactattttt ataataattat ctgattgtt tggtttggtg gtgtttttgt tcatgatatg 360
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 gcagtctatg caatttcagc ttaaaacaaa cagtttcact tgttcgttga accgaccgtt 480
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 aacttttgag aatgaaaact gtattcggtt tcttctcgtt gctctgcctt tgctgctcag 600
 taagcagctc gaccccgga gctttattta cgctcccggt aaacgccagt ctttacgact 660
 ggccagggtt tacaattact gcgagaccgt gttaccagc actcgcaaca ttgacttacg 720
 agtgcccccc agaaaagacg ttaaaagatt ttaccttgcc cgaaattcag gcagagatct 780
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 aacctggcca gtcgtaaaga ctggcgtttc ccgggagcgt aaataaagct cccggggctg 1620
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 tcaaaagtta cgagcggtaa atgattcgta agaaaatacg cgggtgttta aactcgtctt 1740
 gtagctgtta gcggtcgggt caacgaacaa gtgaaactgt ttgttttaag ctgaaattgc 1800

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aaaatagttt cggtgagagt cacaacacga acggtcactt caccctttt taccattatg	1980
tcaacatcgt gctctttggg ggcaacctta gtgatggact cggctacatg ctttggaata	2040
tcgcaactcc caaattgagc aaacgaattc gcggccatga tacagccgct ccccttaaaa	2100
attgctcccg catagctgga cgctttaaca tcgttgctga aaaacggtga gtacaacata	2160
ctgacaacaa cacaaccggc aactatgtac aatacaatat tagataaatc tactttaacc	2220
acaagcacc	2229

<210> 16
 <211> 2233
 <212> DNA
 <213> Artificial sequence

<220>
 <223> hairpin P0 P15

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cttacgaatc atttaccgct cgtaactttt gagaatgaaa actgtattcg ttctcttctc	180
gctgctctgc ctttgctgct cagtaagcag ctcgaccccg ggagctttat ttacgctccc	240
gggaaacgcc agtctttacg actggccagg ttctacaatt actgcggagc cgtgttaccc	300
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ataaaaatag tttcgggtgag agtcacaaca cgaacggtca cttcaccctt ttttaccatt	1320

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atgtcaacat cgtgctcttt ggtggcaacc ttagtgatgg actcggctac atgctttgga 1380
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aaaattgctc ccgcatagct ggacgcttta acatcgttgc tgaaaaacgg tgagtacaac 1500
atactgacaa caacacaacc ggcaactatg tacaatacaa tattagataa atctacttta 1560
accacaagca ccatcaaaaa tccataccac gagcttcacc aaaaagggtgg tgaacgcaaa 1620
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agagagtgcc catatcgcggt aagaccataa taatatgggtc cattctaata tcgatttttag 1740
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ctgaatttcg ggcaaggtaa aatcttttaa cgtcttttct gggggggcact cgtaagtcaa 1920
tgttgcgagt gctgggtaac acggctccgc agtaattgta gaacctggcc agtcgtaaag 1980
actggcgttt cccgggagcg taaataaagc tcccggggtc gagctgctta ctgagcagca 2040
aaggcagagc agcgagaaga gaacgaatac agttttcatt ctcaaaagtt acgagcggta 2100
aatgattcgt aagaaaatac gcggtgttta aaactcgctc tgtagctggt agcggtcggt 2160
tcaacgaaca agtgaaactg tttgttttaa gctgaaattg catagactgc tagatcctcg 2220
ctggtttctt ttg 2233

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<210> 17
<211> 720
<212> DNA
<213> Beet mild yellowing virus

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<220>
<221> CDS
<222> (1)..(720)
<223> P0 protein of BMV

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<400> 17
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Met Gln Phe Gln Leu Lys Thr Asn Ser Phe Thr Cys Ser Leu Asn Arg
1 5 10 15

ccg cta aca gct aca gag cga gtt tta aac acc gcg tat ttt ctt acg 96
Pro Leu Thr Ala Thr Glu Arg Val Leu Asn Thr Ala Tyr Phe Leu Thr
20 25 30

aat cat tta ccg ctc gta act ttt gag aat gaa aac tgt att cgt tct 144
Asn His Leu Pro Leu Val Thr Phe Glu Asn Glu Asn Cys Ile Arg Ser
35 40 45

ctt ctc gct gct ctg cct ttg ctg ctc agt aag cag ctc gac ccc ggg 192
Leu Leu Ala Ala Leu Pro Leu Leu Leu Ser Lys Gln Leu Asp Pro Gly
50 55 60

agc ttc att tac act ccc ggg aaa cgc cag tct tta cga ctg gcc agg 240
Ser Phe Ile Tyr Thr Pro Gly Lys Arg Gln Ser Leu Arg Leu Ala Arg
65 70 75 80

ttc tac aat tac tgc gga gcc gtg tta ccc agc act cgc aac att gac 288
Phe Tyr Asn Tyr Cys Gly Ala Val Leu Pro Ser Thr Arg Asn Ile Asp
85 90 95

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tta	cga	gtg	ccc	ccc	aga	aaa	gac	ggt	17	aaa	aga	ttt	tac	ctt	gcc	cga	336
Leu	Arg	Val	Pro	Pro	Arg	Lys	Asp	Val	105	Lys	Arg	Phe	Tyr	Leu	Ala	Arg	
			100											110			
aat	tca	ggc	aga	gat	ctg	ggg	gag	agg	cta	caa	cgc	cgc	aga	gaa	att		384
Asn	Ser	Gly	Arg	Asp	Leu	Gly	Glu	Arg	Leu	Gln	Arg	Arg	Arg	Glu	Ile		
		115					120					125					
ttc	tct	cgc	ggt	gaa	gca	gag	ttt	aaa	aag	ttc	ctt	tca	gta	tgg	tgt		432
Phe	Ser	Arg	Gly	Glu	Ala	Glu	Phe	Lys	Lys	Phe	Leu	Ser	Val	Trp	Cys		
	130					135					140						
gct	gaa	agc	gag	aga	aag	cta	cgg	gag	agt	cct	aaa	atc	gat	att	aga		480
Ala	Glu	Ser	Glu	Arg	Lys	Leu	Arg	Glu	Ser	Pro	Lys	Ile	Asp	Ile	Arg		
145					150					155					160		
atg	gac	cat	att	att	atg	gtc	tta	cgc	gat	atg	ggc	act	ctc	ttg	cac		528
Met	Asp	His	Ile	Ile	Met	Val	Leu	Arg	Asp	Met	Gly	Thr	Leu	Leu	His		
				165					170					175			
cgt	ctg	gta	ctt	gtt	gaa	gaa	cta	tac	cat	aga	aat	act	tat	gct	gag		576
Arg	Leu	Val	Leu	Val	Glu	Glu	Leu	Tyr	His	Arg	Asn	Thr	Tyr	Ala	Glu		
			180					185					190				
ctc	gct	ttt	tgc	gtt	cac	cac	ctt	ttt	ggt	gaa	gct	cgt	ggc	atg	gat		624
Leu	Ala	Phe	Cys	Val	His	His	Leu	Phe	Gly	Glu	Ala	Arg	Gly	Met	Asp		
		195					200					205					
ttt	tgg	cgg	ttg	gct	aac	ttc	cct	ggt	aaa	tgg	ttt	att	tgc	tct	cac		672
Phe	Trp	Arg	Leu	Ala	Asn	Phe	Pro	Gly	Lys	Trp	Phe	Ile	Cys	Ser	His		
	210					215					220						
gaa	atg	tat	ttt	gaa	aac	tct	ttc	atc	cag	aaa	gag	cta	cgt	ttg	tga		720
Glu	Met	Tyr	Phe	Glu	Asn	Ser	Phe	Ile	Gln	Lys	Glu	Leu	Arg	Leu			
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<210> 18
 <211> 239
 <212> PRT
 <213> Beet mild yellowing virus

<400> 18

Met	Gln	Phe	Gln	Leu	Lys	Thr	Asn	Ser	Phe	Thr	Cys	Ser	Leu	Asn	Arg	
1				5					10					15		
Pro	Leu	Thr	Ala	Thr	Glu	Arg	Val	Leu	Asn	Thr	Ala	Tyr	Phe	Leu	Thr	
			20					25					30			
Asn	His	Leu	Pro	Leu	Val	Thr	Phe	Glu	Asn	Glu	Asn	Cys	Ile	Arg	Ser	
		35					40					45				
Leu	Leu	Ala	Ala	Leu	Pro	Leu	Leu	Leu	Ser	Lys	Gln	Leu	Asp	Pro	Gly	
	50					55					60					
Ser	Phe	Ile	Tyr	Thr	Pro	Gly	Lys	Arg	Gln	Ser	Leu	Arg	Leu	Ala	Arg	
65					70					75				80		
Phe	Tyr	Asn	Tyr	Cys	Gly	Ala	Val	Leu	Pro	Ser	Thr	Arg	Asn	Ile	Asp	
				85					90					95		
Leu	Arg	Val	Pro	Pro	Arg	Lys	Asp	Val	Lys	Arg	Phe	Tyr	Leu	Ala	Arg	
			100					105					110			

Asn Ser Gly Arg Asp Leu Gly Glu Arg Leu Gln Arg Arg Arg Glu Ile
 115 120 125

Phe Ser Arg Gly Glu Ala Glu Phe Lys Lys Phe Leu Ser Val Trp Cys
 130 135 140

Ala Glu Ser Glu Arg Lys Leu Arg Glu Ser Pro Lys Ile Asp Ile Arg
 145 150 155 160

Met Asp His Ile Ile Met Val Leu Arg Asp Met Gly Thr Leu Leu His
 165 170 175

Arg Leu Val Leu Val Glu Glu Leu Tyr His Arg Asn Thr Tyr Ala Glu
 180 185 190

Leu Ala Phe Cys Val His His Leu Phe Gly Glu Ala Arg Gly Met Asp
 195 200 205

Phe Trp Arg Leu Ala Asn Phe Pro Gly Lys Trp Phe Ile Cys Ser His
 210 215 220

Glu Met Tyr Phe Glu Asn Ser Phe Ile Gln Lys Glu Leu Arg Leu
 225 230 235