

SEQUENCE LISTING

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 Pro Arg Gly Cys Glu Gly Pro Cys Lys Val Gln Ser Phe Glu Ser Arg
 65 70 75 80
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 115 120 125
 aag aat cac act aat agc gtg atg ttc ttc ctc gtt agg gat cgt agg 432
 Lys Asn His Thr Asn Ser Val Met Phe Phe Leu Val Arg Asp Arg Arg
 130 135 140
 cct gtt gat aag ccc cag gat ttc ggt gag gtg ttt aac atg ttt gat 480
 Pro Val Asp Lys Pro Gln Asp Phe Gly Glu Val Phe Asn Met Phe Asp
 145 150 155 160
 aat gaa cct agt aca gct act gtg aag aac atg cat cgt gat cgc tat 528
 Asn Glu Pro Ser Thr Ala Thr Val Lys Asn Met His Arg Asp Arg Tyr
 165 170 175
 caa gtc ctc agg aag tgg agt gcc act gtc act ggt ggt cag tat gcg 576
 Gln Val Leu Arg Lys Trp Ser Ala Thr Val Thr Gly Gly Gln Tyr Ala

180	185	190	
agc aag gaa cag gct tta gtt	agg cgt ttc ttt aga gtt	aat aat tat	624
Ser Lys Glu Gln Ala Leu Val	Arg Arg Phe Phe Arg Val	Asn Asn Tyr	
195	200	205	
gtt gtc tat aat cag caa gag	gct ggc aag tat gaa aac cat act gag		672
Val Val Tyr Asn Gln Gln Glu	Ala Gly Lys Tyr Glu Asn His Thr Glu		
210	215	220	
aat gca ttg atg ctg tat atg	gcg tgt act cac gcc tct aat cct gta		720
Asn Ala Leu Met Leu Tyr Met	Ala Cys Thr His Ala Ser Asn Pro Val		
225	230	235	240
tac gct acg ctg aaa att aga atc tat ttt	tat gat tcg gtc agc aat		768
Tyr Ala Thr Leu Lys Ile Arg Ile Tyr Phe	Tyr Asp Ser Val Ser Asn		
245	250	255	
taa			771
<210> 39 <211> 256 <212> PRT <213> Jatropha curcas mosaic disease virus <400> 39			
Met Ser Lys Arg Pro Ala Asp Ile Ile Ile Ser Thr Pro Ala Ser Lys			
1	5	10	15
Val Arg Arg Arg Leu Asn Phe Asp Ser Pro Phe Ser Asn Arg Val Ala			
20	25	30	
Val Pro Thr Val Arg Val Thr Lys Arg Gln Ala Trp Ile Asn Arg Pro			
35	40	45	
Met Asn Arg Lys Pro Arg Trp Tyr Arg Met Phe Lys Ser Pro Asp Val			
50	55	60	
Pro Arg Gly Cys Glu Gly Pro Cys Lys Val Gln Ser Phe Glu Ser Arg			
65	70	75	80
His Asp Val Leu His Ile Gly Lys Val Met Cys Ile Ser Asp Val Thr			
85	90	95	
Arg Gly Ile Gly Leu Thr His Arg Val Gly Lys Arg Phe Cys Val Lys			
100	105	110	
Ser Val Tyr Ile Leu Gly Lys Val Trp Met Asp Glu Asn Ile Lys Thr			
115	120	125	
Lys Asn His Thr Asn Ser Val Met Phe Phe Leu Val Arg Asp Arg Arg			
130	135	140	
Pro Val Asp Lys Pro Gln Asp Phe Gly Glu Val Phe Asn Met Phe Asp			
145	150	155	160

Asn Glu Pro Ser Thr Ala Thr Val Lys Asn Met His Arg Asp Arg Tyr
165 170 175

Gln Val Leu Arg Lys Trp Ser Ala Thr Val Thr Gly Gly Gln Tyr Ala
180 185 190

Ser Lys Glu Gln Ala Leu Val Arg Arg Phe Phe Arg Val Asn Asn Tyr
195 200 205

Val Val Tyr Asn Gln Gln Glu Ala Gly Lys Tyr Glu Asn His Thr Glu
210 215 220

Asn Ala Leu Met Leu Tyr Met Ala Cys Thr His Ala Ser Asn Pro Val
225 230 235 240

Tyr Ala Thr Leu Lys Ile Arg Ile Tyr Phe Tyr Asp Ser Val Ser Asn
245 250 255

<210> 40

<211> 1044

<212> DNA

<213> Jatropha curcas mosaic disease virus

<220>

<221> CDS

<222> (1)..(1044)

<400> 40

atg tca cct cct aag cgc ttt caa ata aac gct aaa aac tat ttc ctc 48
Met Ser Pro Pro Lys Arg Phe Gln Ile Asn Ala Lys Asn Tyr Phe Leu
1 5 10 15

act tat cct agg tgc tct cta act aaa gaa gag gca ctt tcc caa att 96
Thr Tyr Pro Arg Cys Ser Leu Thr Lys Glu Glu Ala Leu Ser Gln Ile
20 25 30

aga gcg ctt caa aca cct aca aac gct aaa ttc atc aag atc tgc aga 144
Arg Ala Leu Gln Thr Pro Thr Asn Ala Lys Phe Ile Lys Ile Cys Arg
35 40 45

gag ctc cac gag aat ggg gag cct cat ctg cac gtg ctc atc caa ttc 192
Glu Leu His Glu Asn Gly Glu Pro His Leu His Val Leu Ile Gln Phe
50 55 60

gaa ggc aaa tac aaa tgc cag aat aag cga ttc ttc gac ctg gta tcc 240
Glu Gly Lys Tyr Lys Cys Gln Asn Lys Arg Phe Phe Asp Leu Val Ser
65 70 75 80

cca acc aga tca gca cat ttc cat ccg aac att cag gga gct aaa tcc 288
Pro Thr Arg Ser Ala His Phe His Pro Asn Ile Gln Gly Ala Lys Ser
85 90 95

agc tcc gac gtc aag tcc tac atc gac aag gac ggc gat acc ttg gaa 336
Ser Ser Asp Val Lys Ser Tyr Ile Asp Lys Asp Gly Asp Thr Leu Glu
100 105 110

tgg gga aca ttc cag atc gat gga aga tct gcc aga ggg ggt caa caa 384
Trp Gly Thr Phe Gln Ile Asp Gly Arg Ser Ala Arg Gly Gly Gln Gln
115 120 125

tct gca aac gac gct tac gcc gca gca ctt aac agc ggc agt aaa tca 432

Ser	Ala	Asn	Asp	Ala	Tyr	Ala	Ala	Ala	Leu	Asn	Ser	Gly	Ser	Lys	Ser		
130						135				140							
gag	gct	ctt	acg	atc	ctt	agg	gag	tta	gca	cct	aga	gat	tat	ctc	aaa	480	
Glu	Ala	Leu	Thr	Ile	Leu	Arg	Glu	Leu	Ala	Pro	Arg	Asp	Tyr	Leu	Lys		
145					150					155					160		
gac	ttc	cat	cac	ata	agc	tca	aac	ctg	gat	cgg	att	ttt	aca	aca	cca	528	
Asp	Phe	His	His	Ile	Ser	Ser	Asn	Leu	Asp	Arg	Ile	Phe	Thr	Thr	Pro		
				165					170					175			
caa	cct	ccg	tat	cag	aac	cct	ttc	tcc	ctc	tct	tca	ttt	gac	cga	ggt	576	
Gln	Pro	Pro	Tyr	Gln	Asn	Pro	Phe	Ser	Leu	Ser	Ser	Phe	Asp	Arg	Val		
			180					185					190				
cca	gaa	gaa	ctc	gac	ggg	tgg	ttt	cat	gaa	aac	gtg	atg	gat	gcc	gct	624	
Pro	Glu	Glu	Leu	Asp	Gly	Trp	Phe	His	Glu	Asn	Val	Met	Asp	Ala	Ala		
		195					200					205					
gcg	cgg	cct	ttg	aga	ccg	aag	tca	atc	gta	atc	gag	ggc	gat	agt	cgg	672	
Ala	Arg	Pro	Leu	Arg	Pro	Lys	Ser	Ile	Val	Ile	Glu	Gly	Asp	Ser	Arg		
	210					215					220						
aca	ggt	aag	act	atg	tgg	gct	cgt	gca	ttg	ggt	cca	cat	aat	tac	cta	720	
Thr	Gly	Lys	Thr	Met	Trp	Ala	Arg	Ala	Leu	Gly	Pro	His	Asn	Tyr	Leu		
	225				230					235					240		
tgt	gga	cat	cta	gac	tta	aat	ccc	aag	gtc	tac	aac	aat	gat	gca	tgg	768	
Cys	Gly	His	Leu	Asp	Leu	Asn	Pro	Lys	Val	Tyr	Asn	Asn	Asp	Ala	Trp		
				245					250					255			
tac	aac	gtc	att	gat	gac	gta	gat	ccc	cat	tac	cta	aag	cac	tta	aag	816	
Tyr	Asn	Val	Ile	Asp	Asp	Val	Asp	Pro	His	Tyr	Leu	Lys	His	Leu	Lys		
			260					265					270				
gaa	ttt	atg	ggg	gcc	cag	aag	gac	tgg	caa	tca	aac	acc	aag	tac	ggc	864	
Glu	Phe	Met	Gly	Ala	Gln	Lys	Asp	Trp	Gln	Ser	Asn	Thr	Lys	Tyr	Gly		
		275					280					285					
aag	cca	ggt	caa	att	aaa	gga	ggt	att	ccc	act	atc	ttc	ctc	tgc	aat	912	
Lys	Pro	Val	Gln	Ile	Lys	Gly	Gly	Ile	Pro	Thr	Ile	Phe	Leu	Cys	Asn		
	290					295					300						
cca	ggg	ccc	aat	tcc	agc	tat	aaa	gag	ttc	cta	gat	gag	gaa	aag	aat	960	
Pro	Gly	Pro	Asn	Ser	Ser	Tyr	Lys	Glu	Phe	Leu	Asp	Glu	Glu	Lys	Asn		
					310					315					320		
agc	gca	tta	aaa	gct	tgg	gca	ctc	aaa	aat	gca	acc	ttc	atc	tcc	ctc	1008	
Ser	Ala	Leu	Lys	Ala	Trp	Ala	Leu	Lys	Asn	Ala	Thr	Phe	Ile	Ser	Leu		
				325					330					335			
aca	gaa	cca	cta	tac	tca	ggt	gcc	aat	caa	ggt	taa					1044	
Thr	Glu	Pro	Leu	Tyr	Ser	Gly	Ala	Asn	Gln	Gly							
			340					345									

<210> 41
 <211> 347
 <212> PRT
 <213> Jatropha curcas mosaic disease virus

<400> 41

Met Ser Pro Pro Lys Arg Phe Gln Ile Asn Ala Lys Asn Tyr Phe Leu
1 5 10 15

Thr Tyr Pro Arg Cys Ser Leu Thr Lys Glu Glu Ala Leu Ser Gln Ile

20 25 30
 Arg Ala Leu Gln Thr Pro Thr Asn Ala Lys Phe Ile Lys Ile Cys Arg
 35 40 45
 Glu Leu His Glu Asn Gly Glu Pro His Leu His Val Leu Ile Gln Phe
 50 55 60
 Glu Gly Lys Tyr Lys Cys Gln Asn Lys Arg Phe Phe Asp Leu Val Ser
 65 70 75 80
 Pro Thr Arg Ser Ala His Phe His Pro Asn Ile Gln Gly Ala Lys Ser
 85 90 95
 Ser Ser Asp Val Lys Ser Tyr Ile Asp Lys Asp Gly Asp Thr Leu Glu
 100 105 110
 Trp Gly Thr Phe Gln Ile Asp Gly Arg Ser Ala Arg Gly Gly Gln Gln
 115 120 125
 Ser Ala Asn Asp Ala Tyr Ala Ala Ala Leu Asn Ser Gly Ser Lys Ser
 130 135 140
 Glu Ala Leu Thr Ile Leu Arg Glu Leu Ala Pro Arg Asp Tyr Leu Lys
 145 150 155 160
 Asp Phe His His Ile Ser Ser Asn Leu Asp Arg Ile Phe Thr Thr Pro
 165 170 175
 Gln Pro Pro Tyr Gln Asn Pro Phe Ser Leu Ser Ser Phe Asp Arg Val
 180 185 190
 Pro Glu Glu Leu Asp Gly Trp Phe His Glu Asn Val Met Asp Ala Ala
 195 200 205
 Ala Arg Pro Leu Arg Pro Lys Ser Ile Val Ile Glu Gly Asp Ser Arg
 210 215 220
 Thr Gly Lys Thr Met Trp Ala Arg Ala Leu Gly Pro His Asn Tyr Leu
 225 230 235 240
 Cys Gly His Leu Asp Leu Asn Pro Lys Val Tyr Asn Asn Asp Ala Trp
 245 250 255
 Tyr Asn Val Ile Asp Asp Val Asp Pro His Tyr Leu Lys His Leu Lys
 260 265 270
 Glu Phe Met Gly Ala Gln Lys Asp Trp Gln Ser Asn Thr Lys Tyr Gly
 275 280 285
 Lys Pro Val Gln Ile Lys Gly Gly Ile Pro Thr Ile Phe Leu Cys Asn
 Page 15

290 295 300

Pro Gly Pro Asn Ser Ser Tyr Lys Glu Phe Leu Asp Glu Glu Lys Asn
305 310 315 320

Ser Ala Leu Lys Ala Trp Ala Leu Lys Asn Ala Thr Phe Ile Ser Leu
 325 330 335

Thr Glu Pro Leu Tyr Ser Gly Ala Asn Gln Gly
 340 345

<210> 42
<211> 408
<212> DNA
<213> Jatropha curcas mosaic disease virus

<220>
<221> CDS
<222> (1)..(408)

<400> 42
atg caa cct tca tct ccc tca cag aac cac tat act cag gtg cca atc 48
Met Gln Pro Ser Ser Pro Ser Gln Asn His Tyr Thr Gln Val Pro Ile
1 5 10 15

aag gtt aaa cac aga gct gct aag cgt aaa gcc att cgg cgt aag agg 96
Lys Val Lys His Arg Ala Ala Lys Arg Lys Ala Ile Arg Arg Lys Arg
 20 25 30

gtt gat tta gaa tgt ggc tgc tca tac tac gta cac atc aac tgc cac 144
Val Asp Leu Glu Cys Gly Cys Ser Tyr Tyr Val His Ile Asn Cys His
 35 40 45

aac cat gga ttc acg cac agg gga act cat cac tgc agc tca ggc gat 192
Asn His Gly Phe Thr His Arg Gly Thr His His Cys Ser Ser Gly Asp
 50 55 60

gag tgg cgt ctt tat ctg gga ggt aac aaa tcc cct cta ttt caa gat 240
Glu Trp Arg Leu Tyr Leu Gly Gly Asn Lys Ser Pro Leu Phe Gln Asp
65 70 75 80

cat tca gca cga caa cag acc gtt cgg aac gac gat gga cat aat aac 288
His Ser Ala Arg Gln Gln Thr Val Arg Asn Asp Asp Gly His Asn Asn
 85 90 95

cat cca gat acg gtt caa cca caa cct gag gaa agc gtt ggg act aca 336
His Pro Asp Thr Val Gln Pro Gln Pro Glu Glu Ser Val Gly Thr Thr
 100 105 110

tca atg ctg gat gga ttt caa ggt ctg gac gat ctt aca gcc tca gac 384
Ser Met Leu Asp Gly Phe Gln Gly Leu Asp Asp Leu Thr Ala Ser Asp
 115 120 125

ctg gcg ttt ctt gag ggt att taa 408
Leu Ala Phe Leu Glu Gly Ile
 130 135

<210> 43
<211> 135
<212> PRT
<213> Jatropha curcas mosaic disease virus

<400> 43

Met Gln Pro Ser Ser Pro Ser Gln Asn His Tyr Thr Gln Val Pro Ile
1 5 10 15

Lys Val Lys His Arg Ala Ala Lys Arg Lys Ala Ile Arg Arg Lys Arg
20 25 30

Val Asp Leu Glu Cys Gly Cys Ser Tyr Tyr Val His Ile Asn Cys His
35 40 45

Asn His Gly Phe Thr His Arg Gly Thr His His Cys Ser Ser Gly Asp
50 55 60

Glu Trp Arg Leu Tyr Leu Gly Gly Asn Lys Ser Pro Leu Phe Gln Asp
65 70 75 80

His Ser Ala Arg Gln Gln Thr Val Arg Asn Asp Asp Gly His Asn Asn
85 90 95

His Pro Asp Thr Val Gln Pro Gln Pro Glu Glu Ser Val Gly Thr Thr
100 105 110

Ser Met Leu Asp Gly Phe Gln Gly Leu Asp Asp Leu Thr Ala Ser Asp
115 120 125

Leu Ala Phe Leu Glu Gly Ile
130 135

<210> 44

<211> 405

<212> DNA

<213> Jatropha curcas mosaic disease virus

<220>

<221> CDS

<222> (1)..(405)

<400> 44

atg gat tca cgc aca ggg gaa ctc atc act gca gct cag gcg atg agt 48
Met Asp Ser Arg Thr Gly Glu Leu Ile Thr Ala Ala Gln Ala Met Ser
1 5 10 15

ggc gtc ttt atc tgg gag gta aca aat ccc ctc tat ttc aag atc att 96
Gly Val Phe Ile Trp Glu Val Thr Asn Pro Leu Tyr Phe Lys Ile Ile
20 25 30

cag cac gac aac aga ccg ttc gga acg acg atg gac ata ata acc atc 144
Gln His Asp Asn Arg Pro Phe Gly Thr Thr Met Asp Ile Ile Thr Ile
35 40 45

cag ata cgg ttc aac cac aac ctg agg aaa gcg ttg gga cta cat caa 192
Gln Ile Arg Phe Asn His Asn Leu Arg Lys Ala Leu Gly Leu His Gln
50 55 60

tgc tgg atg gat ttc aag gtc tgg acg atc tta cag cct cag acc tgg 240
Cys Trp Met Asp Phe Lys Val Trp Thr Ile Leu Gln Pro Gln Thr Trp
65 70 75 80

cgt ttc ttg agg gta ttt aag acc caa gta tta aaa tac ctc gat aga 288
 Arg Phe Leu Arg Val Phe Lys Thr Gln Val Leu Lys Tyr Leu Asp Arg
 85 90 95

tta ggg att ata agt att aat aca gtt gta aga gcc gta gag cat gta 336
 Leu Gly Ile Ile Ser Ile Asn Thr Val Val Arg Ala Val Glu His Val
 100 105 110

ttg tac aat gta ctc gat ggg act gag agt gtt gag cag tct aat tta 384
 Leu Tyr Asn Val Leu Asp Gly Thr Glu Ser Val Glu Gln Ser Asn Leu
 115 120 125

ata aaa ttt aat gtt tat taa 405
 Ile Lys Phe Asn Val Tyr
 130

<210> 45
 <211> 134
 <212> PRT
 <213> Jatropha curcas mosaic disease virus

<400> 45

Met Asp Ser Arg Thr Gly Glu Leu Ile Thr Ala Ala Gln Ala Met Ser
 1 5 10 15

Gly Val Phe Ile Trp Glu Val Thr Asn Pro Leu Tyr Phe Lys Ile Ile
 20 25 30

Gln His Asp Asn Arg Pro Phe Gly Thr Thr Met Asp Ile Ile Thr Ile
 35 40 45

Gln Ile Arg Phe Asn His Asn Leu Arg Lys Ala Leu Gly Leu His Gln
 50 55 60

Cys Trp Met Asp Phe Lys Val Trp Thr Ile Leu Gln Pro Gln Thr Trp
 65 70 75 80

Arg Phe Leu Arg Val Phe Lys Thr Gln Val Leu Lys Tyr Leu Asp Arg
 85 90 95

Leu Gly Ile Ile Ser Ile Asn Thr Val Val Arg Ala Val Glu His Val
 100 105 110

Leu Tyr Asn Val Leu Asp Gly Thr Glu Ser Val Glu Gln Ser Asn Leu
 115 120 125

Ile Lys Phe Asn Val Tyr
 130

<210> 46
 <211> 303
 <212> DNA
 <213> Jatropha curcas mosaic disease virus

<220>

<221> CDS

<222> (1)..(303)

<400> 46

atg ggg agc ctc atc tgc acg tgc tca tcc aat tcg aag gca aat aca 48
 Met Gly Ser Leu Ile Cys Thr Cys Ser Ser Asn Ser Lys Ala Asn Thr
 1 5 10 15

aat gcc aga ata agc gat tct tcg acc tgg tat ccc caa cca gat cag 96
 Asn Ala Arg Ile Ser Asp Ser Ser Thr Trp Tyr Pro Gln Pro Asp Gln
 20 25 30

cac att tcc atc cga aca ttc agg gag cta aat cca gct ccg acg tca 144
 His Ile Ser Ile Arg Thr Phe Arg Glu Leu Asn Pro Ala Pro Thr Ser
 35 40 45

agt cct aca tcg aca agg acg gcg ata cct tgg aat ggg gaa cat tcc 192
 Ser Pro Thr Ser Thr Arg Thr Ala Ile Pro Trp Asn Gly Glu His Ser
 50 55 60

aga tcg atg gaa gat ctg cca gag ggg gtc aac aat ctg caa acg acg 240
 Arg Ser Met Glu Asp Leu Pro Glu Gly Val Asn Asn Leu Gln Thr Thr
 65 70 75 80

ctt acg ccg cag cac tta aca gcg gca gta aat cag agg ctc tta cga 288
 Leu Thr Pro Gln His Leu Thr Ala Ala Val Asn Gln Arg Leu Leu Arg
 85 90 95

tcc tta ggg agt tag 303
 Ser Leu Gly Ser
 100

<210> 47

<211> 100

<212> PRT

<213> Jatropa curcas mosaic disease virus

<400> 47

Met Gly Ser Leu Ile Cys Thr Cys Ser Ser Asn Ser Lys Ala Asn Thr
 1 5 10 15

Asn Ala Arg Ile Ser Asp Ser Ser Thr Trp Tyr Pro Gln Pro Asp Gln
 20 25 30

His Ile Ser Ile Arg Thr Phe Arg Glu Leu Asn Pro Ala Pro Thr Ser
 35 40 45

Ser Pro Thr Ser Thr Arg Thr Ala Ile Pro Trp Asn Gly Glu His Ser
 50 55 60

Arg Ser Met Glu Asp Leu Pro Glu Gly Val Asn Asn Leu Gln Thr Thr
 65 70 75 80

Leu Thr Pro Gln His Leu Thr Ala Ala Val Asn Gln Arg Leu Leu Arg
 85 90 95

Ser Leu Gly Ser
 100

<210> 48
 <211> 486
 <212> DNA
 <213> Jatropha curcas mosaic disease virus

<220>
 <221> CDS
 <222> (1)..(486)

<400> 48
 atg cat gtt ctt cac agt agc tgt act agg ttc att atc aaa cat gtt 48
 Met His Val Leu His Ser Ser Cys Thr Arg Phe Ile Ile Lys His Val
 1 5 10 15
 aaa cac ctg acc gaa atc ctg ggg ctt atc aac agg cct acg atc cct 96
 Lys His Leu Thr Glu Ile Leu Gly Leu Ile Asn Arg Pro Thr Ile Pro
 20 25 30
 aac gag gaa gaa cat cac gct att agt gtg att ctt ggt ctt gat att 144
 Asn Glu Glu Glu His His Ala Ile Ser Val Ile Leu Gly Leu Asp Ile
 35 40 45
 ttc atc cat cca tac ctt gcc cag gat gta aac gga ctt aac aca aaa 192
 Phe Ile His Pro Tyr Leu Ala Gln Asp Val Asn Gly Leu Asn Thr Lys
 50 55 60
 cct ctt gcc cac gcg atg agt aag ccc aat acc acg agt gac atc aga 240
 Pro Leu Ala His Ala Met Ser Lys Pro Asn Thr Thr Ser Asp Ile Arg
 65 70 75 80
 tat gca cat cac ctt acc tat atg gag cac atc gtg tct aga ttc aaa 288
 Tyr Ala His His Leu Thr Tyr Met Glu His Ile Val Ser Arg Phe Lys
 85 90 95
 cga ctg gac ctt aca tgg gcc ttc aca tcc cct agg aac atc tgg gct 336
 Arg Leu Asp Leu Thr Trp Ala Phe Thr Ser Pro Arg Asn Ile Trp Ala
 100 105 110
 ttt gaa cat cct gta cca cct ggg ctt ccg att cat ggg cct gtt tat 384
 Phe Glu His Pro Val Pro Pro Gly Leu Pro Ile His Gly Pro Val Tyr
 115 120 125
 cca ggc ttg tct ttt tgt gac gcg gac agt ggg gac agc aac acg gtt 432
 Pro Gly Leu Ser Phe Cys Asp Ala Asp Ser Gly Asp Ser Asn Thr Val
 130 135 140
 gct gaa tgg act gtc gaa gtt cag acg gcg acg tac ctt cga ggc ggg 480
 Ala Glu Trp Thr Val Glu Val Gln Thr Ala Thr Tyr Leu Arg Gly Gly
 145 150 155 160
 tgt tga 486
 Cys

<210> 49
 <211> 161
 <212> PRT
 <213> Jatropha curcas mosaic disease virus

<400> 49

Met His Val Leu His Ser Ser Cys Thr Arg Phe Ile Ile Lys His Val
 1 5 10 15

Lys His Leu Thr Glu Ile Leu Gly Leu Ile Asn Arg Pro Thr Ile Pro

20 25 30
 Asn Glu Glu Glu His His Ala Ile Ser Val Ile Leu Gly Leu Asp Ile
 35 40 45
 Phe Ile His Pro Tyr Leu Ala Gln Asp Val Asn Gly Leu Asn Thr Lys
 50 55 60
 Pro Leu Ala His Ala Met Ser Lys Pro Asn Thr Thr Ser Asp Ile Arg
 65 70 75 80
 Tyr Ala His His Leu Thr Tyr Met Glu His Ile Val Ser Arg Phe Lys
 85 90 95
 Arg Leu Asp Leu Thr Trp Ala Phe Thr Ser Pro Arg Asn Ile Trp Ala
 100 105 110
 Phe Glu His Pro Val Pro Pro Gly Leu Pro Ile His Gly Pro Val Tyr
 115 120 125
 Pro Gly Leu Ser Phe Cys Asp Ala Asp Ser Gly Asp Ser Asn Thr Val
 130 135 140
 Ala Glu Trp Thr Val Glu Val Gln Thr Ala Thr Tyr Leu Arg Gly Gly
 145 150 155 160

Cys

<210> 50
 <211> 1297
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> hairpin RNAi construct

<220>
 <221> misc_feature
 <222> (655)..(655)
 <223> n is a, c, g, or t

<220>
 <221> misc_feature
 <222> (661)..(661)
 <223> n is a, c, g, or t

<400> 50
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 aatcctgggg cttatcaaca ggcctacgat ccctaacgag gaagaacatc acgctattag 120
 tgtgattctt ggtcttgata ttttcatcca tccatacctt gcccaggatg taaacggact 180
 taacacaaaa cctcttgccc acgcgatgag taagcccaat accacgagtg acatcagata 240
 tgcacatcac cttacctata tggagcacat cgtgtctaga ttcaaacgac tggaccttac 300

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atgggccttc acatccccta ggaacatctg ggcttttgaa catcctgtac cacctgggct 360
tccgattcat gggcctgttt atccaggctt gtctttttgt gacgcggaca gtggggacag 420
caacacgggt gctgaatgga ctgtcgaagt tcagacggcg acgtaccttc gaggcgggtg 480
ttgaaatgat gatattctgt ggtcgtttcg acataattct tcgccctgat gacagagatc 540
aaatccctga ttaaatacga accaagcttg attacgtaag tagatcttaa acacctacac 600
cattttttta atcactacta cccattgcat tgaacaaact tcaagttctt cttancttca 660
nattaagaaa gtacccttcc ttggctttgt tgatgtggta ccattgtcca ttgtcttgtg 720
tgtttgcaga attcggttac gatttaatca gggatttgat ctctgtcatc agggcgaaga 780
attatgtcga agcgaccagc agatatcatc atttaacac ccgcctcgaa ggtacgtcgc 840
cgtctgaact tcgaacgtcc attcagcaac cgtgttgctg tccccactgt ccgcgtcaca 900
aaaagacaag cctggataaa caggcccatg aatcggaagc ccagggtgga caggatgttc 960
aaaagcccag atgttcctag gggatgtgaa ggcccatgta aggtccagtc gtttgaatct 1020
agacacgatg tgctccatat aggttaagggtg atgtgcatat ctgatgtcac tcgtgtgatt 1080
gggcttactc atcgcgtggg caagagggtt tgtgttaagt ccgtttacat cctgggcaag 1140
gtatggatgg atgaaaatat caagaccaag aatcacacta atagcgtgat gttcttcctc 1200
gttagggatc gtaggcctgt tgataagccc caggatttcg gtgaggtggt taacatgttt 1260
gataatgaac ctagtacagc taactgtgaag aacatgc 1297

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<210> 51
<211> 1213
<212> DNA
<213> Artificial Sequence

<220>
<223> hairpin RNAi construct

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<220>
<221> misc_feature
<222> (613)..(613)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (619)..(619)
<223> n is a, c, g, or t

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<400> 51
caaccttcat ctccctcaca gaaccactat actcagggtgc caatcaaggt taaacacaga 60
gctgctaagc gtaaagccat tcggcgtaag aggggttgatt tagaatgtgg ctgctcatac 120
tacgtacaca tcaactgcc aaccatgga ttcacgcaca ggggaactca tcaactgcagc 180
tcaggcgtat agtggcgtct ttatctggga ggtaacaaat cccctctatt tcaagatcat 240
tcagcacgac aacagaccgt tcggaacgac gatggacata ataaccatcc agatacgggt 300
caaccacaac ctgaggaaag cggtgggact acatcaatgc tggatggatt tcaaggtctg 360

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gacgatctta cagcctcaga cctggcgttt cttgagggtta ttaagaccc aagtattaaa      420
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attgtacaat gtactcgatg ggactgagag tgttgagcag taagcttgat tacgtaagta      540
gatcttaaac acctacacca tttttttaat cactactacc cattgcattg aacaaacttc      600
aagttcttct tancctcana ttaagaaagt acccttcctt ggctttgttg atgtggtacc      660
attgtccatt gtcttggtg tttgcagaat tcaactgctca acactctcag tcccatcgag      720
tacattgtac aatacatgct ctacggctct tacaactgta ttaatactta taatccctaa      780
tctatcgagg tattttaata cttgggtctt aaataccctc aagaaacgcc aggtctgagg      840
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caggttggtg ttgaaccgta tctggatggt tattatgtcc atcgctgctt cgaacggtct      960
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actcatcgcc tgagctgcag tgatgagttc ccctgtgctg gaatccatgg ttgtggcagt     1080
tgatgtgtac gtagtatgag cagccacatt ctaaataaac cctcttacgc cgaatggctt     1140
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gagatgaagg ttg                                                    1213

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<210> 52
<211> 1389
<212> DNA
<213> Artificial Sequence

<220>
<223> hairpin RNAi construct

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<220>
<221> misc_feature
<222> (701)..(701)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (707)..(707)
<223> n is a, c, g, or t

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<400> 52
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aagtgcctta ggtaatgggg atctacgtca tcaatgacgt tgtaccatgc atcattgttg     180
tagaccttgg gatttaagtc tagatgtcca cataggtaat tatgtggacc caatgcacga     240
gccacatag tcttacctgt ccgactatcg ccctcgatta cgattgactt cggctctcaa      300
ggccgcgcag cggcatccat cacgttttca tgaaaccacc cgtcgagttc ttctggaact     360
cggtaaaatg aagagagggg gaaaggggtc tgatacggag gttgtggtgt tgtaaaaatc     420
cgatccaggt ttgagcttat gtgatggaag tctttgagat aatctctagg tgctaactcc     480
ctaaggatcg taagagcctc tgatttactg ccgctgttaa gtgctgcggc gtaagcgctg     540

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tttgcagatt gttgaccccc tctggcagat cttccatcga tctggaatgt tccccattcc      600
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ctactaccca ttgcattgaa caaacttcaa gttctttctta ncttcanatt aagaaagtac      720
ccttccttgg ctttgttgat gtggtacat tgtccattgt cttgtgtgtt tgcagaattc      780
cgataccttg gaatggggaa cattccagat cgatggaaga tctgccagag ggggtcaaca      840
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gatccttagg gagttagcac ctagagatta tctcaaagac ttccatcaca taagctcaaa      960
cctggatcgg atttttacaa caccacaacc tccgtatcag aaccctttct ccctctcttc     1020
atttgaccga gttccagaag aactcgacgg gtggtttcat gaaaacgtga tggatgccgc     1080
tgcgcggcct ttgagaccga agtcaatcgt aatcgagggc gatagtcgga caggtaagac     1140
tatgtgggct cgtgcattgg gtccacataa ttacctatgt ggacatctag acttaaattc     1200
caaggtctac aacaatgatg catggtacaa cgtcattgat gacgtagatc cccattacct     1260
aaagcactta aaggaattta tggggggcca gaaggactgg caatcaaaca ccaagtacgg     1320
caagccagtt caaattaaag gaggtattcc cactatcttc ctctgcaatc caggggccaa     1380
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<210> 53
<211> 2389
<212> DNA
<213> Artificial Sequence

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<220>
<223> hairpin RNAi construct

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<220>
<221> misc_feature
<222> (1201)..(1201)
<223> n is a, c, g, or t

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<220>
<221> misc_feature
<222> (1207)..(1207)
<223> n is a, c, g, or t

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<400> 53
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tcctgggcaa ggtatggatg gatgaaaata tcaagaccaa gaatcacact aatagcgtga     180
tgttcttcct cgttagggat cgtaggcctg ttgataagcc ccaggatttc ggtgaggtgt     240
ttaacatgtt cacgcacagg ggaactcatc actgcagctc aggcgatgag tggcgtcttt     300
atctgggagg taacaaatcc cctctatttc aagatcattc agcacgacaa cagaccgttc     360
ggaacgacga tggacataat aaccatccag atacggttca accacaacct gaggaagcg      420
ttgggactac atcaatgctg gatggatttc aaggctctgga cgatcttaca gcctcagacc     480

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tggcgtttct	tgaggggtatt	cgataccttg	gaatggggaa	cattccagat	cgatggaaga	540
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agtaaatacag	aggctcttac	gaccccttagg	gagttagcac	ctagagatta	tctcaaagac	660
ttccatcaca	taagctcaaa	cctggatcgg	attttttacaa	caccacaacc	tccgtatcag	720
aaccctttct	ccctctcttc	atttgaccga	gttccagaag	aactcgacgg	gtgggtttcat	780
gaaaacgtga	tggatgccgc	tgcgcggcct	ttgagaccga	agtcaatcgt	aatcgagggc	840
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caatcaaaca	ccaagtagcg	caagccagtt	caaattaaag	gaggtattcc	cactatcttc	1080
ctctgcaatc	cagggcccaa	ttccagctaa	agcttgatta	cgtaagtaga	tcttaaacac	1140
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ncttcanatt	aagaaagtac	ccttccttgg	ctttgttgat	gtggtaccat	tgtccattgt	1260
cttgtgtgtt	tgcagaattc	tagctggaat	tgggccctgg	attgcagagg	aagatagtg	1320
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gggcccccat	aaattccttt	aagtgcctta	ggtaatgggg	atctacgtca	tcaatgacgt	1440
tgtaccatgc	atcattgttg	tagaccttgg	gatttaagtc	tagatgtcca	cataggtaat	1500
tatgtggacc	caatgcacga	gcccacatag	tcttacctgt	ccgactatcg	ccctcgatta	1560
cgattgactt	cggtctcaaa	ggccgcgcag	cggcatccat	cacgttttca	tgaaccacc	1620
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tctggaatgt	tccccattcc	aaggatcga	ataccctcaa	gaaacgccag	gtctgaggct	1920
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aaatcctggg	gcttatcaac	aggcctacga	tccctaacga	ggaagaacat	cacgctatta	2220
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