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<110> Temasek Life Sciences Laboratory Ltd.

<120> Functional Analysis of Jatropha Curcas Genes

<130> FP4893

<150> US 61/143,484

<151> 2009-01-09

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<170> PatentIn version 3.3

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gccc 17164

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 <211> 2915
 <212> DNA
 <213> Artificial

<220>
 <223> sequence of synthetic sTRV2

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 cctcggattc cattgcccag ctatctgtca cttcatcgaa aggacagtag aaaaggaaga 180
 tggcttctac aaatgccatc attgcgataa aggaaaggct atcgttcaag atgcctctac 240
 cgacagtggc cccaaagatg gacccccacc cagcaggaac atcgtggaaa aagaagacgt 300
 tccaaccacg tcttcaaagc aagtggattg atgtgatggc caacatgggtg gagcagcaca 360
 ctctcgtcta ctccaagaat atcaaagata cagtctcaga agaccagagg gctattgaga 420
 cttttcaaca aagggttaata tcgggaaacc tctcggatt ccattgcca gctatctgtc 480
 acttcatcga aaggacagta gaaaaggaag atggcttcta caaatgcat cattgcgata 540
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 ccacgaggaa catcgtggaa aaagaagacg ttccaaccac gtcttcaaag caagtggatt 660
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 aatttgagc attagacttg ttgaactaca gggtactgaa tcacttgcgc taatcaacat 1320
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 cactgacgag tccctaaagg acgaaacggg ttaac 2915

<210> 3
 <211> 25
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 3
 ccttgtgtgg atccagtttt caagg



13

<210> 4
 <211> 30
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 4
 ccctccaaaa cacggtacgt cagatctatt

30

<210> 5
 <211> 28
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 5
 tctagaccat ggattccagc cacgttgc

28

<210> 6
 <211> 28
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 6
 ccaactcatg ttctaacgac tccctagg

28

<210> 7
 <211> 613
 <212> DNA
 <213> Jatropha curcas

<400> 7
 tcagcaatct tgtactcaac cacaacagga agttctgaag acaagctgat tgtaactata 60
 ttgacaatg gcgtcgctt ggtgaaggag ttcattgtacc ttaatgcaaa tgtcaacgac 120
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 ctgagaacaa catttgcagc cccaatatcg cctcttgtgg agaatttgac tccttccttt 240
 gaaacagaga tcacaacagt atcaccaatg cttgcaagat ctctacaaat ttgggcaaac 300
 tcagctgatg gcactctgat aatggcatga tattctgcct ctgggattcc aagggtgttca 360
 ctgtcaatgt ccatcagttt catctcaaaa tctgaaatct tatcttgtgt gggactttca 420
 aacatgaaag tgacagagtc gctgccgtcg tcagccttga tggatgatgat atcatcattt 480

cggagcact ttaacatctt agccatgtta tcaagattca taccatgga aaggttacgg 540
 tcacagcgat agtgctcaaa gccctccgt ctaaggagaa gagacaccaa agcaacgtgg 600
 ctggaatcca tgg 613

<210> 8
 <211> 28
 <212> DNA
 <213> Artificial

<220>
 <223> degenerate PCR primer

<220>
 <221> misc_feature
 <222> (23)..(23)
 <223> n is a, c, g or t

<400> 8
 cccggggcma tgtcaaaggc dknaaktt 28

<210> 9
 <211> 29
 <212> DNA
 <213> Artificial

<220>
 <223> degenerate PCR primer

<400> 9
 tawttmcavg tmtataccaa actcctagg 29

<210> 10
 <211> 38
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 10
 aattctctag aggccagaga aagtaagttt gcaattgg 38

<210> 11
 <211> 40
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 11
 aaaggactac tttatagacg actagtctcc taggttaagt 40

<210> 12
 <211> 786
 <212> DNA
 <213> *Jatropha curcas*

<400> 12
 ggccagagaa agttaagttt gcaattggac ttcttccagc aatgcttggg ggacaagcat 60
 atgttgaggc tcaagatggg ttgaccgttc aagaatggat gagaaagcag ggggttcctg 120
 atcgagtgaac taaagagggt tttatcgoca tgtcaaaggc acttaacttt attaacccag 180
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 gtcaaaaaat ggctttctta gatggaaacc ccccgagag actctgtatg ccaattgttg 300
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 ccttctgag tgtttatgct gacatgtcgg tgacgtgtaa ggaatattat agtccaaatc 660
 agtcgatgct ggagttagtt ttgcgctg cagaagaatg gatctcacgt agtgactcag 720
 aaatcatcaa tgctacaatg aaggaacttg caaaactctt tctgatgaa atatctgctg 780
 atcaga 786

<210> 13
 <211> 31
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 13
 tctagagaag arggrgagct ccggccccag c 31

<210> 14
 <211> 29
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 14
 ccaaacgaac agtaactctt taacctagg 29

16

<210> 15
 <211> 44
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 15
 aatccatcta gaagagaggg caatttctat ttccacccgg cacg 44

<210> 16
 <211> 34
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 16
 catgatttaa cttctcttac ttatctagat ataa 34

<210> 17
 <211> 696
 <212> DNA
 <213> Jatropha curcas

<400> 17
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 gaagaggggg agctccggcc acagctgctt gatagatttg gaatgcatgc acaagttgga 120
 actgtaaggg atgcagagct tagagtgaag attgtggaag aaagagctcg gtttgacaaa 180
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 gcctctgtaa tttgttgac tcataattga atctatttgc tgtttttgtc gcttttggtt 600
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 ggatcttgta ctaaattgaa gagaatgaat agatcc 696

<210> 18
 <211> 32
 <212> DNA
 <213> Artificial

<220>

<223> PCR primer

<400> 18

gcgtctagag gaaagatgag gatattacag gg

32

<210> 19

<211> 25

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 19

cggtttacga agagaatcta gaaat

25

<210> 20

<211> 32

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 20

aactttctag accaccattc acacttggtc ag

32

<210> 21

<211> 33

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 21

gtattgtaat gtctgtgagt accctagggtt att

33

<210> 22

<211> 29

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 22

aactttctag acgactcact atagggcga

29

<210> 23

<211> 29

<212> DNA

<213> Artificial



<220>

<223> PCR primer

<400> 23

taccttgaga tgttgaaccc taggttatt

29

<210> 24

<211> 711

<212> DNA

<213> Jatropha curcas

<400> 24

cgactcacta tagggcgaat tgggcccgcac gtcgcatgct cccggccgcc atggtacagg 60

ccattacggc cggggcattg ggattttcgc tgcaacttat gtgctctatc agattgccat 120

ggcaaaaggg ttagcttggc tgatatctat ttatgggata ccattgctta ttgttaatgc 180

ttttcttggtg acaatcacat atttgccgca cactcacctt gcattgccac actatgactc 240

gtccgaatgg gattggctcc ggggagcttt gtcgacagtg gatagagatt atgggggtgtt 300

gaataagggtt ttccataata ttacagacac tcatgtaacc caccatctct tctctacaat 360

gcctcattat catgcaatgg aggccactaa agcaatcaag cctatatattg gcgagtatta 420

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tgtcgagcca gaagagggag gtcccaaccg aggagttctc tggatatgaa ataagtatta 540

agagctataa tatgtggttt ggcttcaga gaagttaatt agaataacta tgcagagagt 600

gtgaatgtag tatagatgtt agtaatggag aagaaaaact atatgcgtag tagctttctt 660

tacgggaaag tgggtgttga gttatgtccg tttatggaac tctacaactt g 711

<210> 25

<211> 29

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 25

aactttctag aaccatcttc agacagtgc

29

<210> 26

<211> 29

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 26

caagtaacac tgatgggacc taggttatt

29

<210> 27
<211> 20
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 27
tggatccaca gtaggctata

20

<210> 28
<211> 30
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 28
gttacacttc atgtaaccga ccatgggtaa

30

<210> 29
<211> 22
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 29
atctctagat gaatgggctg ag

22

<210> 30
<211> 29
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 30
cgagtcctaa tgcaaacatc tagatttgt

29

<210> 31
<211> 28
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 31
aatatctaga cgccacctct attgaagc

28

<210> 32
 <211> 28
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 32
 cgagtcgccg aacctcatcc taggtata 28

<210> 33
 <211> 821
 <212> DNA
 <213> *Jatropha curcas*

<400> 33
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 agatcgctga aaagcttctt gaggtagacc ccacaggagc agtggtagcg attggagata 720
 tgatgcggaa gaaaatcacg atgccggccc acttgatgta cgatgggcag gaccgcatt 780
 tgtttgatca tttctcggcc gtggctcagc ggcttggagt a 821

<210> 34
 <211> 29
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 34
 tataatctag accacagcct gagtctgaa 29



<210> 35
 <211> 30
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 35
 ctcagttcctt tcgttgtagc ctaggttagt

30

<210> 36
 <211> 847
 <212> DNA
 <213> *Jatropha curcas*

<400> 36
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 gaactttcog atgactatctt ttagtcttta gcaggcgaca tgataacaga agaagcgatt 120
 ccaacatata agacgatact taacacttta gatggaactc gagatgagag tgggtgttct 180
 ttaagtccct gggccatttg gactcgtgca tggactgctg aagagaatcg acatggcgac 240
 cttctcaaca agtatcttta cctctccgga cgagttgaca tgaagatgat tgaaaggact 300
 atccaatatt tgataggttg tggaacggat tctaaatttg aaaaacaacc ccttctccg 360
 gatttatata cacttcgttc caggagagag caacatttgt ctctcatggc aacacggcga 420
 gactgtcaaa ggagaaagga gacacaaagc ttgaacagat atgtggcata attgctgcag 480
 atgagaaaacg gcatgaaact gcttatgtta agattgtaga gaagttatct gaggtcgatc 540
 cagacgctac gatctcggca ttgcccgcaca tgatgaggaa aaagattcaa atgccggccc 600
 gcttgatgca tgatgggtgaa gattataacc tgttcgatca ctacgcagcg gttgctcagc 660
 gtcttggagt gtatactgca aaagactacg cagatatctt ggaatttctg ataggaagat 720
 ggaaagtaga caagttgaaa gatttgtctg gccaaaggacg taaagctcaa gattttatat 780
 gcggattagc tccgaggttt agaaagatag aggaaagagc tcaagaaaga gtcaagaaag 840
 caacatc 847

<210> 37
 <211> 29
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 37
 ttattttctag acttgcaaaa atgtgtcat

29

<210> 38
 <211> 28
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 38
 cacccttata tgaaggacct aggaagat

28

<210> 39
 <211> 854
 <212> DNA
 <213> Jatropha curcas

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 gtaagtgcac gtccctgagca agtagaaaag gtgttgaaga ctcgatacca tgatgccatg 120
 acaagactcc agggcaagga gcttgacctg cttattgtaa ttctccctga caacaatggt 180
 tctctttatg gtgatttgaa ggggatttgt gagacagatc ttggacttgt ttcccagtgc 240
 tgtttaacaa agcatgtcct tagaatgagc aaacaatata tagccaatgt agcgctgaag 300
 ataaatgtga aggttggggg aagaaacact gtacttggtg atgcattatc aaggcgtatt 360
 cctttagtca gtgacoggct tactattatt ttgggtgctg atgttaccba tcctcatcct 420
 ggcgaggact cgagcccatc tattgcagct gttgtggcat ctcaagattg gccagagggt 480
 acaaagtatg ctggtttggg ctgtgctcaa gcccatcgac aagagcttat ccaagatttg 540
 ttcaaagagt ggcaagatcc tgtaagaggg aaagtcactg gtggcatgat caaggaactc 600
 cttatatctt tccgaagagc aactgggcag aaacctcagc gtattatatt ttacagggat 660
 ggtgtcagtg aaggacagtt ctatcaagtt ttgttgatg aacttgatgc tatccggaag 720
 gcttgtgctt ctttagaacc aaattatcag cctcctgtga cgtttgttgt ggttcagaag 780
 cgtcacccac caggttggtt gccataaacc atcatgaccg taatgctgtt gacaggagtg 840
 ggaatatact tcct 854

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 <212> DNA
 <213> Artificial

<220>
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<400> 40

acatatctcta gattgaggag agatgctgaa gcaaaa

35

<210> 41
 <211> 31
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 41
 aactcctctc tacgacttcg cctaggtagg t

31

<210> 42
 <211> 629
 <212> DNA
 <213> Jatropha curcas

<400> 42
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 aggcagcgtt ggagagctga agaggacgcc ttattacgtg catatgttaa gcaatatggt 120
 ccaagggagt ggaaccttgt atcacagcgc atgaacacac ccctaaacag ggatgccaaa 180
 tcctgcttag aaaggtggaa gaactacctc aagcctggta taaagaaagg atcacttact 240
 gaagaagagc agcgtcttgt tatccgactt caggctaaac acggtaacaa atggaagaaa 300
 attgcagctg aagttccagg aagaactgct aagagacttg gaaagtgggt ggaagtgttc 360
 aaggagaagc agcagagaga gcaaaaggaa aataacaaga caatagaacc aattgacgag 420
 ggcaagtacg ataggattct ggagactttt gcagagaagc tagtgaaaga gcgccctgct 480
 ccagcatttg tcatggccac ttccaatggg ggctttttac atactgatcc ccctactcct 540
 gcaaccaacta tgcttcccc atggctttct acttccaaca gcacttctgc tgtaggcca 600
 ccctctccat ctgtaaccct aagcctctc 629

<210> 43
 <211> 39
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 43
 aataactcta gacaggtata tatacgtgat caaccattt

39

<210> 44
 <211> 32
 <212> DNA
 <213> Artificial

<220>

<223> PCR primer

<400> 44

cctcctccga cgatagttcca tacctaggta tt

32

<210> 45

<211> 678

<212> DNA

<213> Jatropha curcas

<400> 45

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ttctgggtga tgcttttctc aaatttgctg ttggacgacg gctttttctt ttgcatgata 120

cccttgatga aggggagcctt acaaggagac gctctagtgc tgtaaataat ttgaatttgt 180

tgaaactcgc atgtagaaaa aacttgcagg tatatatagc tgaccaacca ttgatccct 240

gtgaattctt tgctttgggc cgtccttgcc ctagaatttg taccaaggaa tcagaaggaa 300

gcattcattc tcaaaatgga aaccatgcgg cagggtcaagc aaaagccagt caagtcagat 360

gcagtaaaaa tcaccattgg ttacataaga aaacaattgc tgatgtagtc gaggctctca 420

ttggagcatt catagtogat agtggcttta aagcggcaac tgcatttctt aagtggctgg 480

gcatacagtg ggacttcgaa gottcaaaag ttattaggtt ctgcctagca agcagtagct 540

tcataccact tgctcctccc atagatatgg ttgcccgtga aaatttggtg gggcatcagt 600

ttcaccatag aggattactt ctacaagctt ttgtgcatcc ttctatggc aagcatggag 660

gaggctgcta tcaggtat 678

<210> 46

<211> 30

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 46

aataaggtac catacctgat agcagcctcc

30

<210> 47

<211> 30

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 47

25

aataagagct cataatcttc gtgagtgatg 30

<210> 48
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<212> DNA
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<400> 48
ctgtgcagat agatcatg 18

<210> 49
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<400> 49
atgacagtag caacatcc 18

<210> 50
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<400> 50
tggtgcatca tacggctc 18

<210> 51
<211> 20
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<400> 51
atgtgaacat tgatatcatg 20

<210> 52
<211> 19
<212> DNA
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<400> 52
ggcaaggagc ttgacctgc 19

<210> 53
<211> 19
<212> DNA
<213> Jatropha curcas

<400> 53
tcagcgctac attggctag 19

<210> 54
<211> 18
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<213> Jatropha curcas

<400> 54

agagctgaag aggacgcc

18

<210> 55

<211> 20

<212> DNA

<213> Jatropha curcas

<400> 55

caggcttgag gtagttcttc

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<210> 56

<211> 18

<212> DNA

<213> Jatropha curcas

<400> 56

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<210> 57

<211> 18

<212> DNA

<213> Jatropha curcas

<400> 57

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<210> 58

<211> 18

<212> DNA

<213> Jatropha curcas

<400> 58

tgtggatgag gatggcag

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<210> 59

<211> 18

<212> DNA

<213> Jatropha curcas

<400> 59

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18

<210> 60

<211> 18

<212> DNA

<213> Jatropha curcas

<400> 60

cagctgttgc acagcggc

18

27

<210> 61
<211> 18
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<400> 61
ggaggtagcc gacaaacg 18

<210> 62
<211> 18
<212> DNA
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<400> 62
gtggactggg cctggact 18

<210> 63
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<212> DNA
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<400> 63
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<210> 64
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<400> 64
ttcgttccag gagagagc 18

<210> 65
<211> 20
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<213> Jatropha curcas

<400> 65
tcgacctcaa ataacttctc 20

<210> 66
<211> 24
<212> DNA
<213> Jatropha curcas

<400> 66
ggtttgacc agaaacaaat aaat 24

<210> 67
<211> 20
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<400> 67

cacccatgta gtgaccatcc 20

<210> 68
<211> 20
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<213> Jatropha curcas

<400> 68
gggtggtggt tcaatcattc 20

<210> 69
<211> 20
<212> DNA
<213> Jatropha curcas

<400> 69
tctccgctag tctcttgtgc 20

<210> 70
<211> 25
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<400> 70
ccttggtgtgg atccagtttt caagg 25

<210> 71
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<212> DNA
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<400> 71
gcttctccag aaagagcgag ccga 24

<210> 72
<211> 24
<212> DNA
<213> Jatropha curcas

<400> 72
caacagtaga caagcctgaa gagg 24

<210> 73
<211> 25
<212> DNA
<213> Jatropha curcas

<400> 73
gcaatcttgt actcaaccac aacag 25

<210> 74
<211> 23
<212> DNA

<213> Jatropha curcas

<400> 74

ctcctgaaga aatcggttca gtg

23

<210> 75

<211> 22

<212> DNA

<213> Jatropha curcas

<400> 75

tgaccgttca agaatggatg ag

22

<210> 76

<211> 19

<212> DNA

<213> Jatropha curcas

<400> 76

cttctccagc aacgggctc

19

<210> 77

<211> 19

<212> DNA

<213> Jatropha curcas

<400> 77

ggagttccgc ctgaggaag

19

<210> 78

<211> 21

<212> DNA

<213> Jatropha curcas

<400> 78

ggttgaggaa ggaggtggaa g

21

<210> 79

<211> 21

<212> DNA

<213> Jatropha curcas

<400> 79

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21

<210> 80

<211> 22

<212> DNA

<213> Jatropha curcas

<400> 80

agcaatcaag cctatatattgg gc

22

30

<210> 81
<211> 20
<212> DNA
<213> Jatropha curcas

<400> 81
ccagagaact cctcggttgg 20

<210> 82
<211> 32
<212> DNA
<213> Tobacco rattle virus

<400> 82
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<210> 83
<211> 32
<212> DNA
<213> Tobacco rattle virus

<400> 83
atggaagaca agtcattggt caccttgaag aa 32

<210> 84
<211> 25
<212> DNA
<213> Tobacco rattle virus

<400> 84
gatcaatcaa gatcagtcga gaatg 25

<210> 85
<211> 25
<212> DNA
<213> Tobacco rattle virus

<400> 85
gatggacatt gttactcaag gaagc 25