

Figure 1

1-

atgtgtgagacacctcttctcaattttactcagatraccgagcataattcccgtcgttccgcaaaact
atcagccaaaacctgttggaatttctgaattccctgcaatccctggagaacgacctgaaagtggaaaa
gctggaggagaaagcgaccaaaactggaggagaaggttcgctgcctgatcaaacctgttagacacc
cagccgctgtccctgctggagctgatcgacgatgtgcagcgctgggtotgacctacaaatttg
aaaagacatcattaaagccctggaaaacatcgtaactgctggacgaaaacaaaaagaacaaatc
tgacctgcacgcaaacctctgtctcttccgtctgtgctgcgtcagcacgggttctgagggttctcag
gatgtttttgagcgtttcaaggataaagaagggtgggttccagcgggtgaactgaaagggtgacgtcc
aaggccctgctgagcctgtatgaagcgtcttacctgggtttcgagggtgagaacctgctggagga
ggcgcgtaccttttccatcaccacacctgaagaacaaacctgaaagaaggcattaataccagggtt
gcagaacaagtgagccacgacctggaaactgccatatcaccagcgtctgcacctctggaggcac
gttgggtccctggataaatacgaaccgaaagaacccgcatcaccagctgctgctggagctggcgaa
gctggatttttaacatgggtacagacacctgcaccagaaagagctgcaagatctgtcccgctgggtgg
accgagatgggacctggctagcaaaactggattttgtacgcgacccgctgatggaggttctatctt
gggcaactgggtatggcgccagaccccgagtttgggtgaatgtcgcasaagctgttactaaaatgtt
tggtctggtgacgacacatcgatgacgtgtatgacgtttatggcaactctggacgaactgcaactg
ttcaccgatgctgtagagcgtggtggcgttaacgctattaacacccctggccgactatatgaaac
tgtgtttccctggcaactgtacacacccgttaacgacacgctcctattctattctgaaagagaaggg
tcataacaacctgtcctatctgacgaaaagctggcgtgaactgtgcaaaagcctttctgcaagag
gcgaatgggtccaaacaacaaaattatcccggtttctccaagtaacctggaaaacgccagcgttt
cctcctccgggtgtagcgtgctggcgccgtcttacttttccgtatgccagcagcaggaagacat
ctccgacccagcgtgctgcttccctgacccgaactccatggctctgggtgggttctagctgcttate
ttccgcctgtgcaacgatctggccacctctgcccgggagctggaaogtggcgagactaaccaatt
ctatcattagctacatgcacgaaaacgatgggtaccagcgagggaacagggcccgcaagaactgcg
taaaactgatcgacgccgaatggaaaagatgaatcgtgaacgcgttagcgactccacctgctg
cctaaagcgttcatggasatcgcagttaacatggcacgtgttcccaactgcaoctaccaglate
gggatgggtctgggtcgccagactacgcgactgaaaaccgcatcaactgctgctgattgaccc
tttcccgatbaaccagctgatgtatgtc

taactgcag

(SEQ ID NO:1)

Figure 2

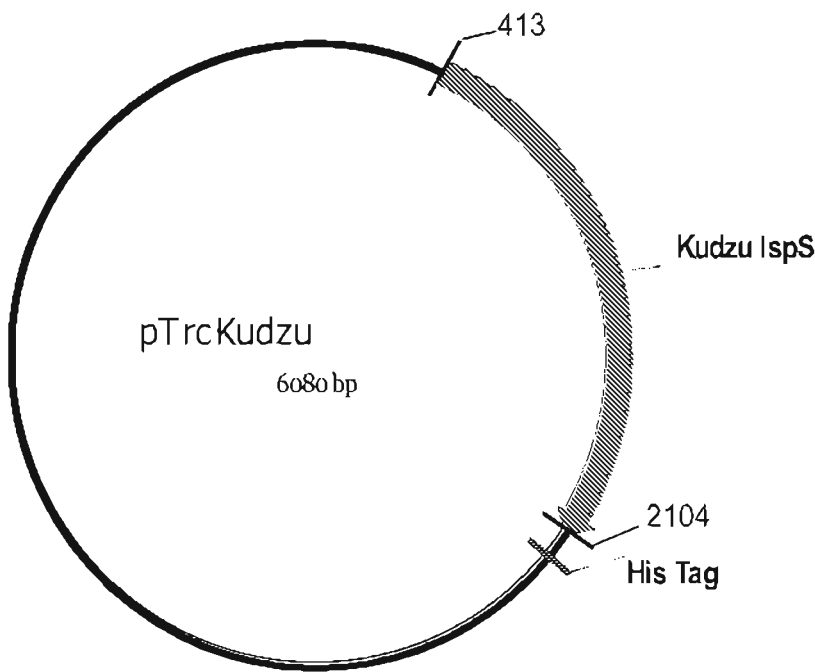


Figure 3A

1-

gtttgacagcttatcatcgactgcacgggtgcaccaatgcttctggcgctcaggcagccatcggaa
gctgtggtatggctgtgcaggctcgtaaatcactgcataatcgtgtcgctcaaggcgcaactccc
gttctggataatgttttttggcgccgacatcataacgggtctggcaaatattctgaaatgagctg
ctgacaattaatcatccggctcgtataatgtgtggaattgtgagcggataacaatttcacacag
gaaacagcgccgctgagaaaaagcgaagcggcactgctctttaacaatttatcagacaattctgt
gtgggcactcgcacgggaattatcgattaaactttattttaaaaattaaagaggtatatatlaa
gtatcgattaaataaggagggaataaaaccATGtctgctcgaccccttctcaatttactcagattacc
gagcataattcccgctcgttccgcnaactatcagccaaacccgtgggaatttogaattccctgcaat
ccctggagaaacgacccgtgaaagtggzaaagetggaggagaaagcgacccaaactggaggaagaagt
tcgctgcatgatcaaacctgtagacacccagcgcctgtccctgctggagctgatcgacgatgtg
cagcgccctgggtctgacctacaaaatttgaaaaagacatcattaaagccctggaaaaacatcgtac
cgtcggacgaaaaacaaaagaaacaaatctgacctgcacgcaaccgctctgtcttccgctcgtct
gctgcagcaacgggtttcgagggttctcaggaatgtttttgagcgtttcaaggataaagaagggtggt
ttcagcggtgaaactgaaagggtgacgtccaaggccctgctgagccctgtatgaagcgtcttacctgg
gtttcgagggtgagaaacctgctggaggaggcgcgtaccttttccatcaccacccctgaagaaacaa
ccctgaagaaaggcattataaccaagggttgacagaacaagtggagccacgcccctggaaactgccatat
caccagcgtctgcacccgtctggaggcaccgttgggtccctggataaatacgaaccgaaagaaacccg
atcaaccagctcgtcgtggagctggcgaagctggattttaacctggtaacagacccctgcaccagaa
agagctgcaagatctgtcccgctgggtggacccgagatggggccctggctagcaaaactggattttgta
cgcgacccgctgatggaaagtattttctggggcactgggttatggcgccagaccccgagtttgggtg
aatgtcgcaaaagctgttactaaatgttttgggtctggtgacgatcatcgatgacgtgtatgacgt
ttatggcactctggacgaactgcaactgttcaacgatgctgttagagcgtgggaacgtttaaéct
attaacacccctgccggactatatgaaactgtgttccctggcactgtacaacacccgttaacgaca
cgtccctattctattctgaaagagaagggcataaacaacctgtccctctctgacgaagagctggcg
tgaactgtgcaaaagccctttctgcaagaggcgaaatgggtccaaacaaacaaattatcccggtttc
tccaaagtacctggaaaaacgccagcgtttccctccctccgggtgtagecgtgctggcgccgctcttact
tttccgtatgcacgcagcaggaagacatctccgacacgcgcgtggttccctgacccgacttcaa
tgggtctggtgogttctagctgogttatcttccgctgtgcaacgatctggccacctctgcggcg
gagctggaaacgtggcgagactaccaattctatcattagctacatgcacgaaaaagatggtaacca
gcgaggaacagggcccgcgagaaactgcgtaaactgatcgacgcgcaatggaaaaagatgaatcg
tgaacgcgttagcgactccaccctgctgocaaagcgttcatggaaatcgacagttaacatggca
cgtgttttcccaactgcacctaccagtatggcgatgggtctgggtcgccacgactacgcgactgaaa
acccgacataaaactgctgctgattgaccccttcccgatlaacccagctgatgtatgtcTAActgca
gctggtaaccatatgggaattcgaagctttctagaacaaaaactcattctcagaagaggatctgaa
tagcgccgtcgaccatcattcatcatcattgagtttaaacgggtctccagcttggctgtttt
ggggatgagagaagattttcagccctgatcacagattaaatcagaacgcagaagcggctctgataaa
acagaatttgcctggcggcagtagcgcggtgggtcccaactgaccccatgcggaactcagaagtq
aaacgcgttagcgccgatggtagtgtgggtctccccatgcgagagttagggaaactgccagycat
caataaaaaacgaaggtcagtcgaagactggggcccttccgttttatctgttgttctgctgga
acgctctccctgagtaggacaaatccgcgggagcggatttgaaacttgcgaagcaacggcccg

Figure 3B

aggggtggcggggcaggacgcgcgcgcataaactgccaggcatcaaatgaagcagaaggccatcctg
acggatggcctttttgogtktctacaaactctttttgtttatltttctaaatacattcaaatat
gtatccgotcatgagacaataaccctgataaatgcctcaataatattgaaaaaggaagagtatg
agtattcaacatttccgtgtgcgccttatcccttttttggggcatittgocctcctgtttttg
ctcaccacagaaaocgtggtgnaagtaaaagatgctgaagatcagttgggtgcacaggtgggtta
catogaactggatctcaacagcggtaagatccttgagagttttcgcccccgaagaacgttttcca
atgatgagcacttttaagttctgtatgtggcgcggtatfatcccggtgttgacgcggggcaag
ggaaotcgggtgcgcgcatacactatctcagaatgacttggttgagtaactcaccagtcacaga
aaagcatcttacggatggcatgacagtaagagaattatgcagtgctgccataaccatgagtgat
aacactgcggccaaactkactctgacaacgatcggaggaccgaaggagctaacogcttttttgc
acaacatgggggatcatgtaaactgccttgatcgttggaacccggagctgaatgaagccatacc
aaacgaaggcgtgacaccacgatgocctglagcaatggcaacaacgttgcccaactattaact
ggcgaactacttactctaggttcccggaacaacttaataagactggatggaggcggataaagttg
caggaccacttctgcgcctgcgccttcgggtggctgtttatgtctgataaatctggagccgg
tgagcgtgggtctgcgggtatcattgcagcactggggccagatggtaagccctcccgatctgta
gttatctacacgacggggagtcaaggcaactctggtgaacgaaatagacagatccgtgagatag
gtgcctcactgattaagcattggtaactgtcagaccaagtttactcatatatactttagattga
tttaaaacttcaatttttaaaaggatctaggtgaagatcccttttgatuaatctcatgacc
aaaactcccttaacgttgagttttcgttccactgagcgtcagaccccgtagaaaagatcaaggat
cttcttgagatcccttttttctgcgcgttaactctgctgcttgcacacaaaaaacgacccgtacc
agcgggtggtttgtttgcgggatcaagagctaccaactctttttccgaaggtaactggttccagc
agagcgcagataccaaataactgtccctctcagtgtagccgtagtttaggcaccacttcaagaact
ctgtagcaccgcctacatacctcgtctctgctaatcctgttaccagtggtgtgctgcagtgggga
taagtcgtgtcttacccgggttggaactcaagacgatagttaccggataaggcgcagcgggtcgggc
tgaaacgggggggttcgtgcacacagcccgacttggaagcgaacgacctacacggaaactgagatacc
taacgcgtgagctatgagaaagcgccacgttcccgaaagggaagaggcggacaggtatccgggt
aagcggcagggctcggaacaggagagcgcacgagggagcttccagggggaaacgcctgggtatctt
tatagtcctgtcgggtttcgccactctgacttgagcgtcgatttttgtgagctcgtcagggg
ggcggagcctatggaaaaaacgcgcagcaacgcggcctttttacgggttccctggccttttgcctggcc
tttctgctcacatgttctttctcgttcttccctgattctgtggataacogtattaccgccttt
gagtgagctgataccgctcgcgcgcagccgaacgacccgagcgcagcagtcagtgagcaggaag
cggaagagocctgatgcgggtattttctccttacgcctcgttgcggtatttccacacgcctatg
gtgcactctcagtaacaactctgctctgagtcgcgcctagtttaagccagtatcactccgctatcgc
taogtgactgggtcatggctgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgc
ttgtctgctcccgccatccgcttacagacaaagctgtgacccgtctccgggagctgcatgtgtcag
aggtttttcccgctcatcccgaaacgcgcgagggcagcagatcaattccgcgcgcgaaggcgaagc
ggcatgcatttaagttgacaccatcgaaatgggtgcaaaaccttttcgggtatggcatgtagcgc
ccggagagagatcaattcaggggtgggtgaatgtgaaacacgttaacgttatagatgtcgcagag
atgcgggtgtctcttatcagaccgtttcccgcggtgggtgaaccaggccagccacgtttctgcgaa
aacgcgggaaaaagtggaagcggcgatggcggagctgaattacattcccaacgcgcgtggcaca
caactggcgggcaaacagtcgttgcctgattggcggttgccacctccagtcctggcctgcacgcgc
cgtgcgaattgtgcggcgattaaatctcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgcgc
gatggtagaagcgaagcgcgtcgaagcctgtaaagcggcggtgcacaactctctcgcgcgcgcgc
gtcagtgggctgatcattaactatccgctggatgaccaggatgccattgctgtggaagctgcct

Figure 3C

Gcactaatgttcogggcgttattttcttgatgtctctgaccagacacccatcaacagttattttt
ctcccatgaagaagggtacggcgactggggcgtggagcatctggtcgcattgggtcaccagcaaatc
ggcgtgttagcggggcccatttaagttctgtctcggcgogtctgcgtctggctggctggcataaat
atctcactcgcaatcaaatccagccgatagcgggaacgggaaggcgactggagtgccatgtccgg
ttttcaacaaaccatgcaaatgctgaatgagggcatcgttcccactgcgatgctggttgccac
gatcagatggcgctggcgccaatggcgccattaccgagtcggggctggcgcttggtgcggata
tctcggtagtgggatacgcacgataccgaagacagctcatgttatatccgcgcgtcaaccaccat
caaacaggattttcgcctgctggggcaaacccagcgtggaccgcttgctgcactctctcagggc
caggcgggtgaaggggcaatcagctgttgcccgtctcactggtgaaaagaaaaaccaacctggcgc
ccaatacgcacaacgcctctcccgcgcgttgggcgattcattaatgcagctggcagcagcaggt
ttcccgactggaaagcgggcagtgagcgcaacgcaattaatgtgagttagcgcgaattgatctg
(SEQ ID NO:2)

Figure 4

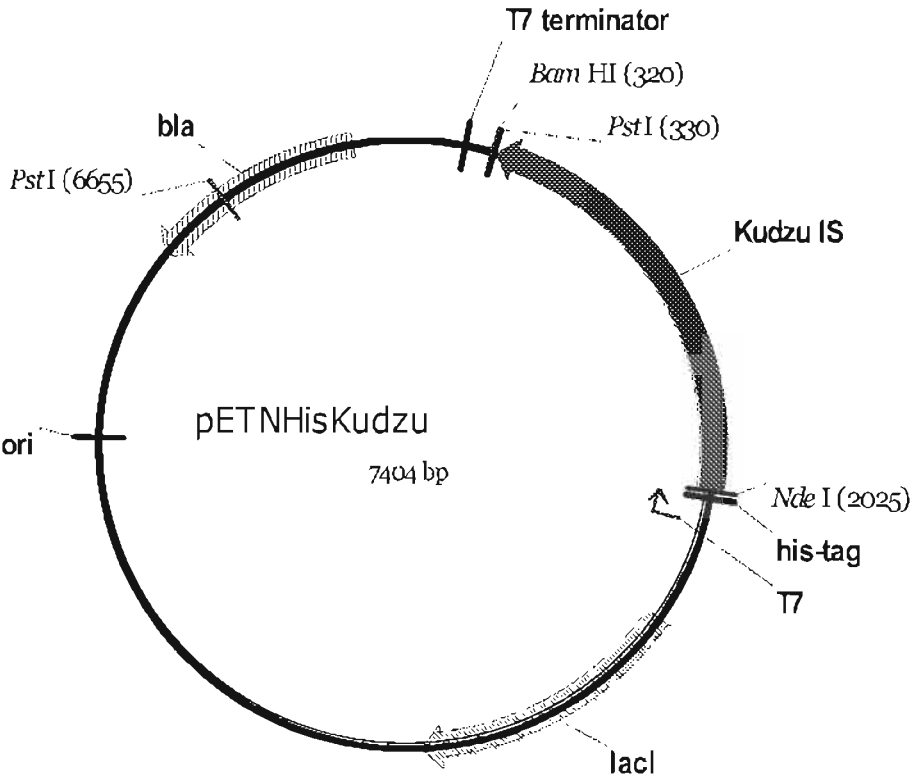


Figure 5A

1-⁻

ttctcatggtttgacagcttatcatcgataagctttaatgcggtagttttatcacagttaaattgc
 taaocgagtcaggcacogtgratgaaatctaacatgagctcatcgctcatcctcgccacogtca
 cctggatgctgttaggcataagctttggttatgcggtaactgcgggctcttgcgggatalccg
 gatagtttctctctttcagcaaaaaecccctcaagacccgttttagaggcccaagggttatg
 ctagttattgctcagcggtggcagcagccaactcagcttcttgcgggtttgttagcagccgg
 atcctgcagtttagacatfacatcagctgggttaatgcggaaagggtcaatcagcagcagtttgat
 gggtttttcagtcgcttagctctgggcgacccagaccatcgccatactggtaggtgcagtgaggaa
 acagctgccatggttaactgcgatttccatgaacgcttttaggcagcaggggtggagtcgctaacgc
 gttcagcattcactcttttccattcggcgctcgatcagtttaccgagttcttgcgggctgttcc
 ctgcctggtaacatcggttttgcctgcatgtagctaatgatagaattggtagtctcgcacogtcc
 agctccgcgcagaggtggccagatcggttgcacaggcggaagataaacgcagctagaacgcacca
 gaccatggagtgctgggtcagggaaacgcagcgctgggtcgagatgcttctctgctgctggcctac
 ggaanagtaagacggcgccagcagcgctacacccggaggaggaaacgctggcggttttcaggttac
 ttggagaaagccgggataattttgttgttggaccatttgcctcttgcagaaaggctttgcaca
 gttcacgcacagcttttgcctcagataggacaggttgttatgacctttctcttcagantagaata
 ggaogtgcctttaaaggtgttgtacagtgccaggaaacacagtttcatatagtcgggcaggggtg
 ttaatagcggttaaagtcocagcgctctacagcatcggtgaacagttgcagtcgctcagagtgcc
 cataaacgctcatcaacgctcatcgatgatcgtcaccagaccaaacttttagtaaacagctttgcg
 acatboaccaaactgcgggtctggcgccatcccaagtgcccagaataaacttccatcaggcggt
 tcgcttacaaaactcaggtttgctagccagggccatctcggtccaccagcgggacagatcttgcac
 gctctctctggtgcaggggtctgtacacagtttaaaatccagcttgcgcagctccagcagcagctg
 gtgatgcgggttcttgcgggtctgtattttacaggaacacagctgctccagacgggtgcagacgc
 tgggtgatattggcagttccaggcgctggctcacttgttctgcacacttgglattaatgccttctt
 tcaggttgttcttcaggtgggtgatggaasaggtaacgcgctctctccagcaggttctcaccctc
 gaaacccaggttaagaogcttcatcagggctcagcagggcttggacgtcacctttcagttcacccg
 ctgaaacccacttcttttctcttgaacagctcaaaaacatcctgagaaacctcgaaacccgtgct
 gaogcagcagacggaaagacagagcggttgcgctgcaggtcagatgtgttcttttggttttgcgc
 cagcagtlacgatgttttccagggctttaaagatgtcttttcaaatttgtaggtcagacccaggt
 cgtgcacatcgtcgatcagctccagcagggacagcggtgggtgtctacacgggtgatcatgc
 agcgaaacttctctctcagttttggctcgttttctctccagcttttccacttccaggtcgttctc
 cagggattgcaggaattcgaaatccacaggtttggctgttagttttgcggaacgcaggggaattta
 tgcctcggttaattctgagtaaatggagaagaggtgcacacatatgacgaccttcgatattggccgc
 tgcctgtgatgatgatgatgatgatgatgatggccatgggtatatctctctttaaagtttaa
 acaaaattattcttagaggggaattgttatccgctcacacttcccttatagtgagtcgtatttaa
 tttcgcgggtatcgagatctcgatctctacgcggacgcactcgtggccggcatcacccggcgcca
 caggtgcgggttgcctggcgcttatatgcggacatcccgatgggggaagatcgggctcggccactt
 cgggctcatgagcgcttgtttcggcggtgggtatgggtggcagggcccggtggccgggggactgttg
 ggccgcatctcttgcagtcacacttcttgcggcggtgggtgggtcaacggcctcaacctactac
 tgggctgcttctaatgcaggagtcgcataaggagagcggtcgagatccgggacacccatogaat
 ggccgcaaaacttttcgggttatggcatgatagcgccgggaagagagtcatttcagggtgggtgaa
 tgtgaaaccagtaacgttatagatgtgcagaggtatgcgggtgtctcttatcagacogtttcc
 cgcgtgggtgaaccaggccagccacgtttctgcgaaacgcgggaaagtggaagcggggatgg
 cggagctgaattacattcccaaccgcgtggccacaacactggcgggcaaacagtcgttgcctgat
 tggcggttgcacactccagctctggccctgcacgcgcgtcgcaaatgtgcggcgatataatct

Figure 5B

cgccgcgatcaactgggtgccagcgtggtggtgctcgatggtagaacgaagcggcgctcgaagcct
gtaaagcggcggtgcacaattcttctcgcgcaacgcgtcagtgggctgatcattaaactatccgct
ggatgaccaggatgccattgctgtggaagctgectgcaactaatgttccggcggttatttcttgat
gtctctgaccagacacccatcaacagttatttcttcccatgaagacgggtacgcgactgggog
tggagcatctggctcgcatgggtcaccagcaaatcgcgctgttagogggcccatttaagttctgt
ctcggecgctctgctgtggtggtggtgcataaatactctcactcgcaatcaaatccagccgata
ggggaacgggaaggcgactggagtgccatgtccggttttcaacaaaccatgcaaatgctgaatg
agggcatcgttcccaactgcgatgctggttgccaacgatcagatggcgctggggcgcaatgcgcgc
cattaccgagtcgggctgcgcgttggtgoggatatctcggtagtgggatacgcagataccgaa
gcagctcatgttatatccgcggttaaccaecatcaaacaggattttcgctgctggggcaaa
ccagcgtgggaacgcttgctgcaactctctcagggccaggcggtgaagggaatcagctgttgcc
cgtctcactggtgaaaagaaaaaccacccctgggcgcctaatagcaaacgcctctcccgcgcg
ttggccgattcattaatgcagctggcagcagagtttcccgactggaaagcggggcagtgagcgc
aacgcaattaatgtaagttagctcactcattaggaacccgggatctcgacccatgccccttgaga
ccttcaacccagtcagctccttccggtggggcgggggcatgactatcgtcgccgacttatgac
tgtcttcttctatcatgcaactcgttaggacaggtgcgggcagcgctctgggtcattttcggcgag
gacgcgtttcgtggagcgcgacgatgatcggtctgtcgcttggggtattcggaatcttgacg
ccctcgctcaagccttcgtcactggtcccgcaacccaaacgtttcgggcgagaagcaggccattat
cgccggcatggcggcgacgcgcgtgggtacgtcttgctggcggttcgcagcgcgaggtcgatg
gccttcccatattgatctctctcgcttccggcggtcatcggsatgcccgcggttcagggccatgc
tgtccaggcaggttagatgacgacccatcaggyacagcttcaaggatcgctcgcgctcttaaccag
cctaaacttcgatcactggacgcgtgatcgtcagggcgatttatgcgcgttcggcgagccatgg
aacgggttggaatggattgtaggcgccgccttatccttgtctgctcccgcggttcgctcgcg
gtgcattggagccgggcaaccccgacotgaaatgggaagccggcgccaccccgctaaccgattcacc
actccaggaattggagccaatcaattcttggcgagaactgtgaatgcgcgaacccacccctggc
agaacatatccatcgcgctccgcacatctccagcagccgcagcgcgccatctcgggcagcggttgg
gtcctgggcacgggtgcgcattgatcgtgctcctgtcgttgaggacccggctagggtggcggggt
tgccctactggttagcagaatgaatcaccgatacgcgagcggaacgtgaagcgactgctgctgca
aaacytctcgacactgagaaacaacatgaatgggtctcggtttccgtgtttogttaaagtctgga
aacggggagtcagcgccctgcaccattatgttccggatctgcacgcagcatgctgctggcta
ccctgtggaacacccatcatctgtattaaaggaagcgtggcattgacccctgagtgattttctct
ggtcccgccgcatecatatccgcaggttggttaacccacaaacgttccagtaacggggcatgttc
atcatcagtaaaccggtatcgtgagcatcctctctcggttccatcggtatcattaccccacatgaac
agaactccccccttaacgggaggtcagtgaccaaacaggaaaaaacccgccttaacatggccc
gctttatcagaagccagacattaacgcttctggagaaactcaacgagctggacggcgatgaaca
ggcagacatctgtgaatcgcttcacgaccaacgctgatgagctttaccgcagctgcctcgcgct
ttcggtgatgacgggtgaaaacctctgacacatgcagctcccgagacgggtcacagcttgtctgt
aagcggtatgcgggagcagacaagcccgctcagggcgcgctcagcggtgttggcggtcttcggg
cgacgcatgaacccagtcacgtagcgatagcgaggtgtatctggcttaactatggggcatcag
agcagattgtactgagagtycaccatataatgcgggtgtgaataaccgcacagatgcgtaaggga
aaataccgcacatcaggcgctcttccgcttcccgctcactgaactcgctgcgctcggtcggttcggc
tgcygcgagcggtatcagctcactcaaaaggcggttaatacgggttatccacagaatcaggggataa
cgacggaaagaaacatgtgagcaaaaggccagcaaaaggccaggaaacgtaaaaaggcccggttg
ctggcgcttttccatagggtccgcggccctgacgagcatcacaaaaatcgacgctcaagtcaga

Figure 5C

ggtggcgaaaacccgacaggactataaagataaccaggcggtttccccctggaagctccctcgltgcg
ctctcctgttccgacccctgcgcgttacccggataacctgtccgcctttctcccttcgggaagcggtg
gcgcctttctcatagctcacgctgttaggtatctcagttcggtgttaggtcggttcgctccaagctgg
gctgtgtgcaagaaaccccggttcagcccgacccgctgcgccttatccggtaactatcggtcttga
gtccaaccccggttaagacaagacttatcgccactggcagcagccactggtaacaggatttagcaga
gcgaggtatgttaggcggtgtctacagagtctctgaagtgtgtggcctaactacggctacactagaa
ggacagttattcggtatctgcgcctctgctgaagccagttaccttcggaaaaagagttggtagctc
ttgatccggcaaaacaaaaccccgctggtagcggtgtgtttttttgtttgcaagcagcagatttgcg
cgcaaaaaaaaggatctcaagaagatctttgatctttctacggggtctgaagctcagtgga
acgaaaaactcacgttaagggtattttgggtcatgagattatcaaaaaggatcttcacctagatctt
tttaaattnaaaatgaagttttaaatcaatctaaagtataatgtagtaaacttgggtctgacagt
taccaatgtttaatcagtgaggcacctatatcagcgatctgtctatcttcggtctcatcagattg
cctgactcccgctcggtgtagataactacgatacgggagggttaccatctggccccagtgctgc
aatgataccgcgagacccacgctcacccgctccagatttatcagcaataaacagccagccgga
agggccgagcgccagaagtggctcctgcaactttatccgcctccatccagttctattaatgtttgoc
gggaagctagagtaagtagttcgcacgttaattagtttgcgcaacgttgtttgcaattgtctgcagg
catcggtgtgtacgctcgctcgtttgggtatggcttcaattcagctccgggtcccaacgatcaagg
cgagttacatgatccccatgttgttgcataaaagcggttagctccttcgggtctccggtacggtg
tcagaagtaagttggccgcagtggttatcactcatgtgttatggcagcactgcataattctcttac
tgtcatgcaatccgtaagatgcttttctgtgactggtgagtaactcaaccaagtcattctgagaa
tagtgtatgcccgcagccaggttgctcttgcgcggcgtaaacacgggataataccgcgcacata
gcagaacctttaaagtgtctcatcatctggaanaacgttcttcggggcgaaaactctcaaggatctt
acgcgtgttgagatccagttcgatgttaacccactcgtgcaccccaactgatcttcagcatctttt
actttcaccagcggtttctgggtgagcaaaaacaggaaggcaaaatgcgcgcaaaaagggaataa
ggcgacacggaaaatgttgataactcatctctctcttttcaatattattgaagcatttatca
gggttatctgtctcatgagcggatacatacttgaaatgtatttagaaaaataacaaataggggtt
ccgcgcacatcttcccgaaaagtgcacactgacgtctaaagaaacatttatcatgacattaa
cctataaaaataggcggtatcacgaggeccttctgtcttcaagaa

SEQ ID NO:3

Figure 6

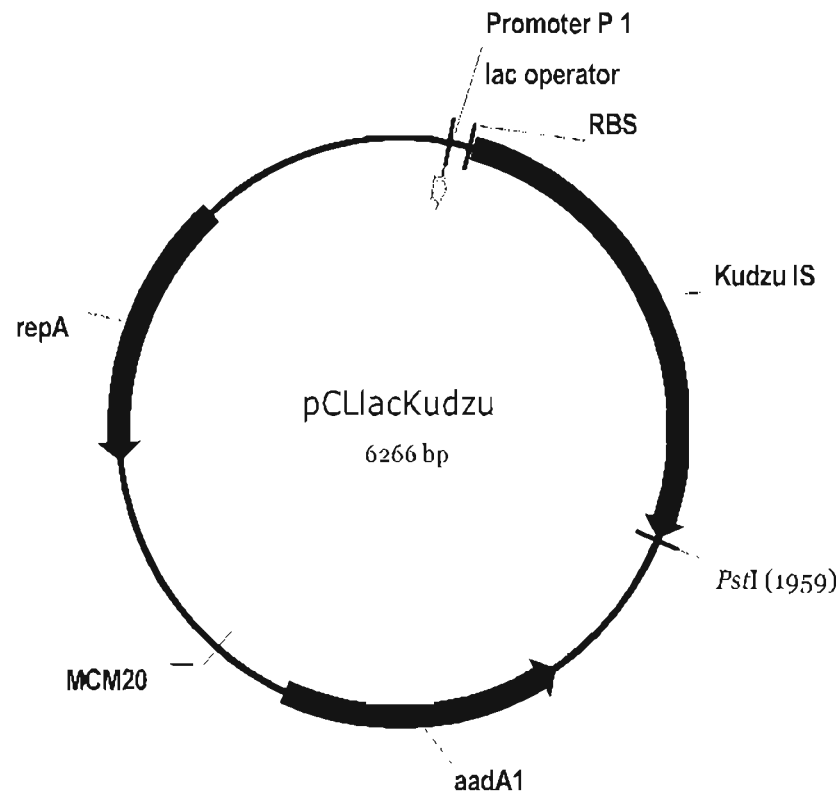


Figure 7A

1-

ccggtcttactgtcggaatttcggttggccgattcattaatgcagctggcagcagcaggttcc
cgactggaaagcgggcagtgagcgcaacgcattatgtgagtttagctcactcattaggeacco
caggctttacactttatgcttcgggttcgtatgttgggtggaattgtgagcggataacaatttc
acacaggaacagctatgacctgattacggccaagcttgtatcgatttaataaggaggaataaaa
ccatgtgtgcgacctcttctcaattttactcagattaccgagcataattcccgctcgttcgcgaaa
ctatcagccaaaacctgttggaaatttcgaatttcctgcaatccctggagaacgacctgaaagtggaa
aagctggaggagaaagcgacccaaactggagggaagaagtctcgctgcctgataaccgtgtagaca
cccagccgctgtccctgctggagctgacgcagatgtgcagcgcctgggtctgaactacaaatt
cgaaaaagacatcatttaagccctggaaacatcgtactgctggacgaaaaacaagaacaaa
tctgacctgcacgcaacccgctctgtcttccgtctgctgcgtcagcaccggtttcgaggttctc
aggatgtttttgagcgtttcaaggataaagaaggtgggtttcagcgggtgaactgaaaggtgacgt
ccaaggccctgctgagcctgtatgaagcgtcttacctggttttcgaggggtgagaacctgctggag
gagggcgttaccttttccatcacccacctgaagaaacacctgaagaaggcatttaataccaagg
ttgcagaacaagtgcagccacgcctggaaactgcacatataccacagcgtctgcacctctggaggc
acgtttgggttccctggataaatacgaaccgaagaacccgcatacccagctgctgctggagctggcg
aagctggatttttaacatggtacagacctgcaccagaagagctgcaagatctgtcccgcctggt
ggacogagatgggcctggctagcaaaactggattttgtacgcgacccgctgatggaggttatttt
ctgggcaactgggtatggcgccagacccgcagtttgggtgaatgtcgcaagctgttactaaaatg
tttgggtctggtgacgatcatcgatgacgtgtatgacgtttatggcactctggacgaactgcaac
tgttcaacgatgctgtagagcgctgggacgttaacgctatttaacacctgcgggactatatgaa
actgtgttccctggcactgtacaacaccttaacgacacgctcctattctattctgaaagagaaa
ggtcatacaaacctgtcctatctgacgaaaaagctggcgtgaactgtgcaaacctttctgcaag
aggcgaaatggttccaaacaaacaaattatcccggctttctccaaagtaacctggaaaaacgccagcgt
ttcctcctccggtgtagcgtgctggcgccgctcttactttccgctatgccagcagcaggaagac
atctccgacacagcgtgcttccctgaacgacbtccatggtctggtgcttctagctgcttta
tcttccgctctgtgcaacgatctggccacctctgcggcgaggtggaacgtggcgagactaccaaa
ttctatcattagctacatgcaacgaacgatggtaccagcgaggaacaggcccgcggaagaactg
cgtaaactgatcgacgcggaatggaaaaagatgaaactgtgaacgcgttagcgactccacctgc
tgcctaaagcgttcatggaaatgcagtttaacatggcagctgtttccactgcaactaccagta
tggcgatggtctgggttcgcccagactacgcgactgaaaaacgcacataaactgctgctgattgac
cctttcccgattaaacagctgatgtatgtctaacctgcaggtcgactctagagggatcccgggtz
ccgagctcgaattcactggccgtctgttttacaacgttgtgactgggaaaaacctggcggttaacc
aacttaategccttgcagcacatcccccttttcgcccagctggcgtaatagcgaagsgggccgcac
cgatcgcccttcccaacagttgcgcagcctgaatggcgaaatggcgccctgatgcygtattttctc
cttacgcactctgtgcggtattttcaacccgatatggtgcactctcagtaacaatctgctctgatg
ccgcatagtttaagccagcccgacacccgcgaacacccgctgacgagcttagtaaaagccctgc
tagattttaatggggatgttgcgattacttcgccaactatbgcataacaagaasagccagcc
rtcatgatatactcccaatttgtgtagggttatttatgcacgcttaaaantaaataaagcag
acttgacctgatagtttggctgtgagcaatttatgtgcttagtgcactaaacgcttgagtttaagc
cgcgccgcgaagcggcgtcggttgaacgaatttgttagacattattttgcgactaccttggtga
tctcgcttttcacgtagtggacaaattcttccaaactgatctgcgcgcgagggccaagcagatcttc
ttcttgtccaagataagccctgtctagcttcaagtatgacgggctgatactgggcgggcaggcgc
tccattgcaccagtcggcagcgacatccttcgggcgcgattttgcgggttactgcgctgtacccaaa
tggggggacaacgttaagcactacattttcgctcatogccagccagtcgggcggcgagttccatag

Figure 7B

cgttaagggtttcatttagcgccotcaaatagatccctgttoaggaacoggatcaaagagttccctcc
 gccgctggaaocctaccagggcaacgctatgtttotcttgccttttgcagcaagatagccagatcaa
 tgcgatcggtggtggtcgaagatacctgcaagaatgtcattgogotgccattctccaaattg
 cagttcgogcttagctggataaacgccacgggaatgatgtcgtcgtgcacaacaatggtgacttct
 acagcgogggagaatctcgtctctctocaggggaagocgaagtttccaaaaggctcgttgatcaaag
 ctgcgcgcgttgtttccatcaagocctacgggtcacogtaaccagcaaatcaatatcactgtgtgg
 ctccagggccgcatccactggggagccgtacaaatgtacggccagcaacgtcgggttcgagatgg
 cgtcogatgacgccaaactacctctgagagttgagtcgatacttcggcgatcacgcgttccctca
 tgatgtttlaactttgttttagggcgactgccctgctgcgttaacatcgttgctgctccataaat
 caaacatcgacccacggcgtaacgcgcttgctgcttggtatgcccgaggcaatagactgtacccca
 aaaaaacagtcatacaagccatgaaaaacggccactgcgcgcttaccacgcgtgcgttcgggtca
 aggttctggaccagttgcgtgagcgcatagctacttgcattacagcttaagaaacgaacagggc
 ttatgtccactgggttcgtgccttcacccgttccacgggtgtgcgtcacccggcaaccttgggc
 agcagcgaaagtcaggccatttctgtccctggctggcgaaacgagcgcaaggtttcgggtccacgc
 atcgctcaggcatgtggcgcccttgctgttctctacggcaaggtgtcgtgcacgggatctgcctg
 gcttcaggagatcggaagacctcggccgtcgcggcgcttgcgggtggtgctgaccccgagtgaa
 gttggttcgcatccctcgggttctcgtgaagcgagcagctcgtttgttcgcccagctctctgtatgaa
 cgggcacgcggatcagtgagggtttgcacctgcgggtcaaggatctggatttcgatcacggcac
 gatcatcgtgcgggaggggcaagggtccaaaggatcgggcttgatgttacccgagagcttggca
 cccagcctgcgcgagcaggggaatttaattccacgggttttgcctgcgcgcaaacgggctgtct
 ggtgttgcctagtttgttatcagaatcgacatccggcttcagccggtttgcgcggtgaaagcgc
 tatttcttcagaaattgcacatgatttttccacagggaggcgtcactggtcccggtgtgtgcg
 gcagctttgatccgataagcagcagcagctgtttcaggtgtctatgtgtgactgttgagctgt
 aacaagttgtctcaggtgttcaatttcaggtctagttgttttgccttaccggtttcactgtt
 ctactaggtgttacatgctgttcatctgttaccattgtcgatcgttcatggtgaacagctttga
 atgcacaaaaaactcgtaaaagctctgatgtatctatctttttacacgggtttcactctgtgca
 tatggacagttttccctttgatattgaacgggtgaacagttgttctacttttgccttgccttagtctt
 gatgcttcactgatagatacaagagccataagaacctcagatcccttcgtaatttagccagtatg
 tctctagttgtgttgcgttgccttttgcgtgagccatgagaacgaaccttgagatcatacttac
 tttgcacgtcactcaaaaattttgcctcaaaaactggtgagctgaatttttgcagtttaaagcacc
 gtgtagttgttttcttagtccgttatgtaggttaggaatctgatgtaatggttgcgttgccttgc
 tcaaccattcatttttatctggttgccttcaagttcgggttacgagatccatttgcctatctagtt
 caacttggaaaaatcaacgtatcagtcggggcgccctcgttatcaaccaccaatttcattattgct
 gtaagtgtttaaatctttacttattggtttcaaaaacccattgggttaagccttttaaaactcatgg
 tagttattttcaagcatttaacatgaacttaaatcatcaaggctaatctctatatattgccttgc
 gagttttcttttgcgttagttcttttaataaccactcataaatccctcatagagttattgttttc
 aaagacttaacatgttccagatttatattttatgaatttttttaactggaaaagataaggcaat
 atctcttcacttaaaaactaatctaatttttgcgttgagaaacttgcacatagtttgcctactgga
 aaatctcaagccctttaaccsaaggattccctgatttccacagttctcgtcatcagctctctggt
 tgccttagctaatcaaccataagcattttccctactgatgttcatcatctgagcgtattggtta
 taagrgaacgataccgctccgttcttctcttgcaggggtttcaactcgtgggggtgagtagtgcca
 cacagcataaaaattagcttgggttccatgctcgggttaagtcataagcagtaaatcgtagttcatt
 tgccttgaaaacaaactaatccagacatacatctcaattgggtctaggtgattttaatcactatac
 caattgagatgggctagtcattgataaattactagtccttttcccttgcagttgtgggtatctgta

Figure 7C

Aattctgtctagacotttctgtggaaaacttgtaaattctgtctagaccctctgtaaatccgctag
acotttctgtgtgttttttttctgtttatattccagtgggtataatttatagaataaagaaagaataa
aaaaagataaaaagaatagatcccagocctgtgtataaactcactacttttagtcagttccgcagt
attacaaaaggatgtcgcaaacgctgttttctcctctacaaaacagacottaaaaccctaaagg
cttaagttagcaccctcgcaagctcgggcaaatcgctgaataatcccttttctctccgaccatcag
gcacctgagtcgctgtcttttctgtgacattcagttcogctgcgctcaccggtctctggcagtgat
gggggtaaatgggaactacaggcgcccttttatggatttcctgcaaggaaactaccataatacaag
aaaagcccgtcacgggcttctcagggcggttttatgggggtctgtctatgtgtgtctatctgact
tttctgtgttcagcagttcctgcctctgattttccagctctgaccacttcggattatccgtga
caggtcattcagaactggctaattgacccagtaaggcagcggtatcatcaacaggctta

SEQ ID NO:4

Figure 8A

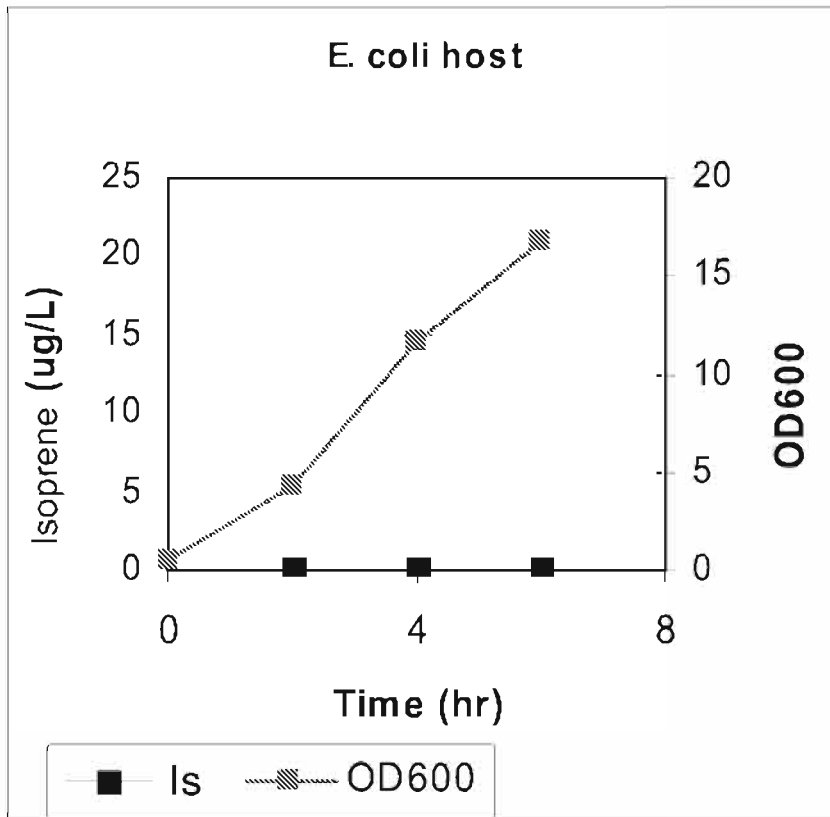


Figure 8B

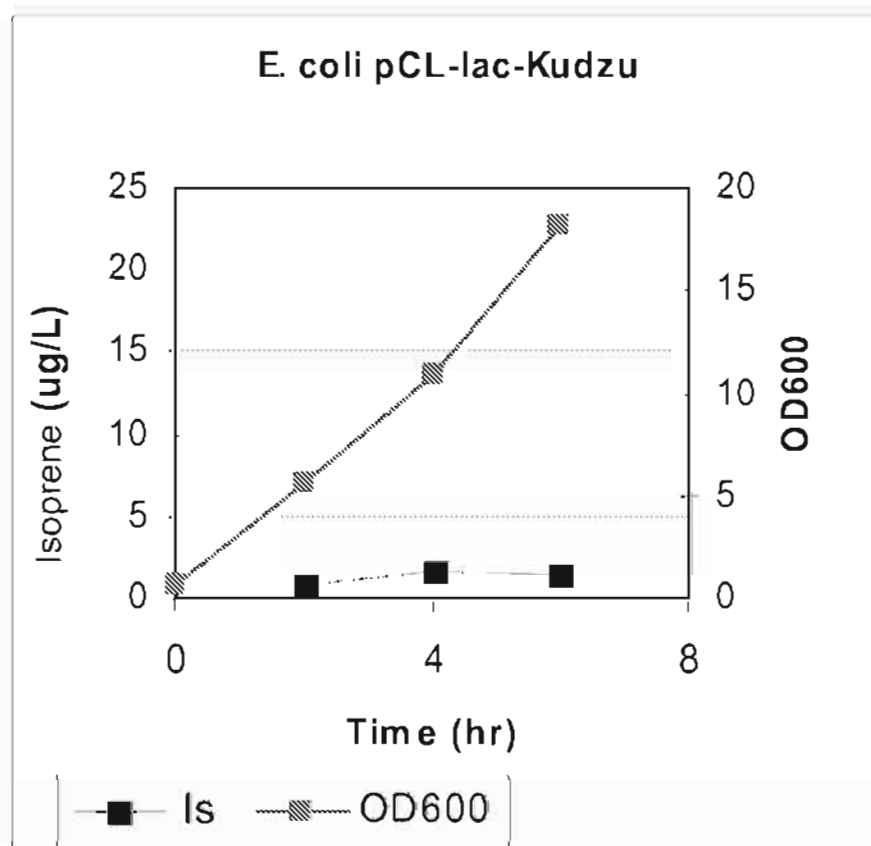


Figure 8C

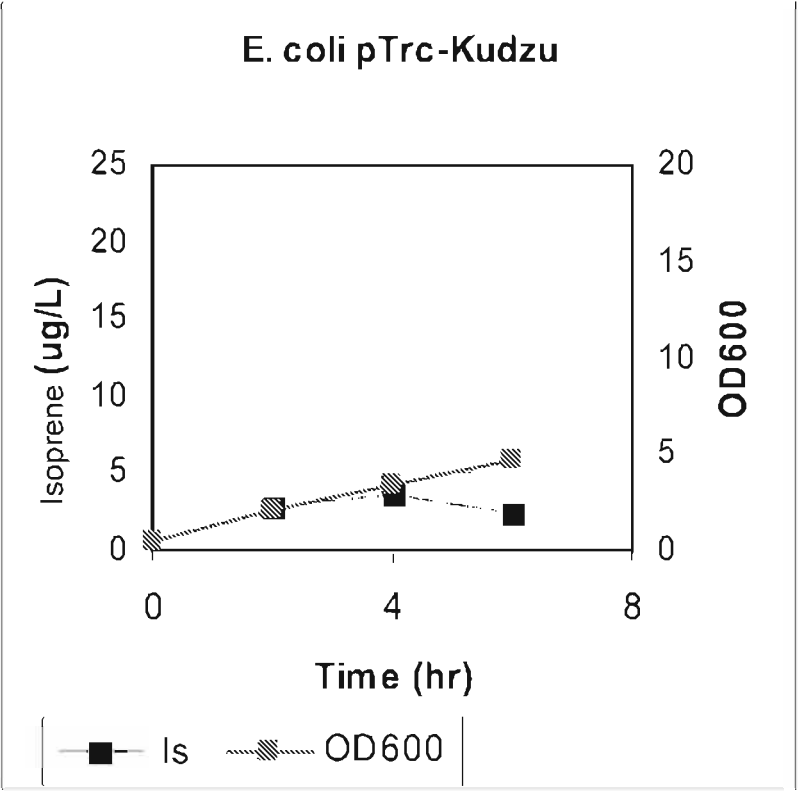


Figure 8D

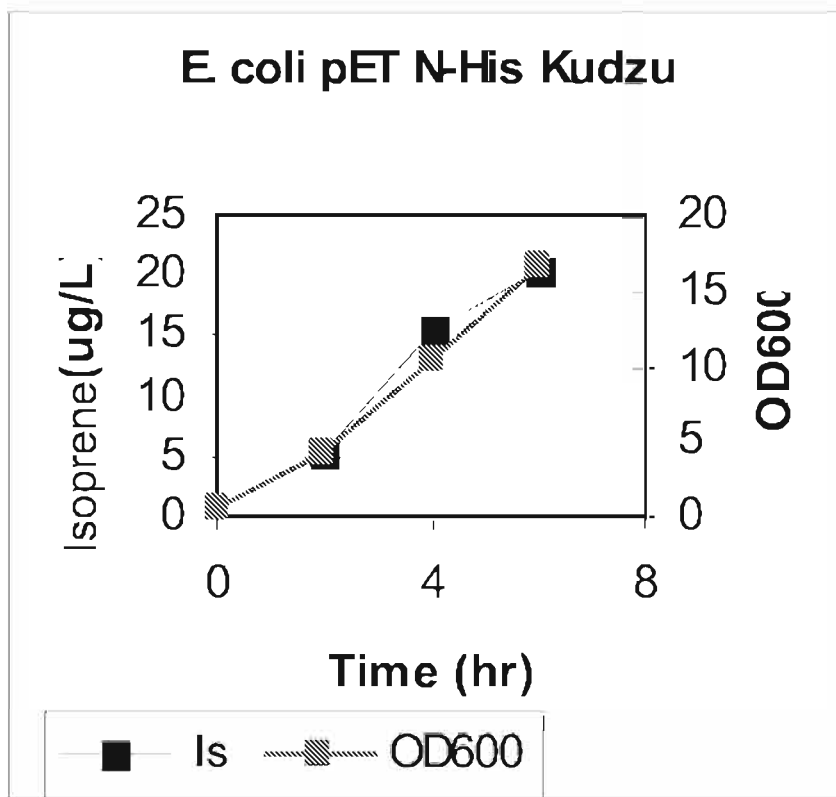


Figure 9A

A.

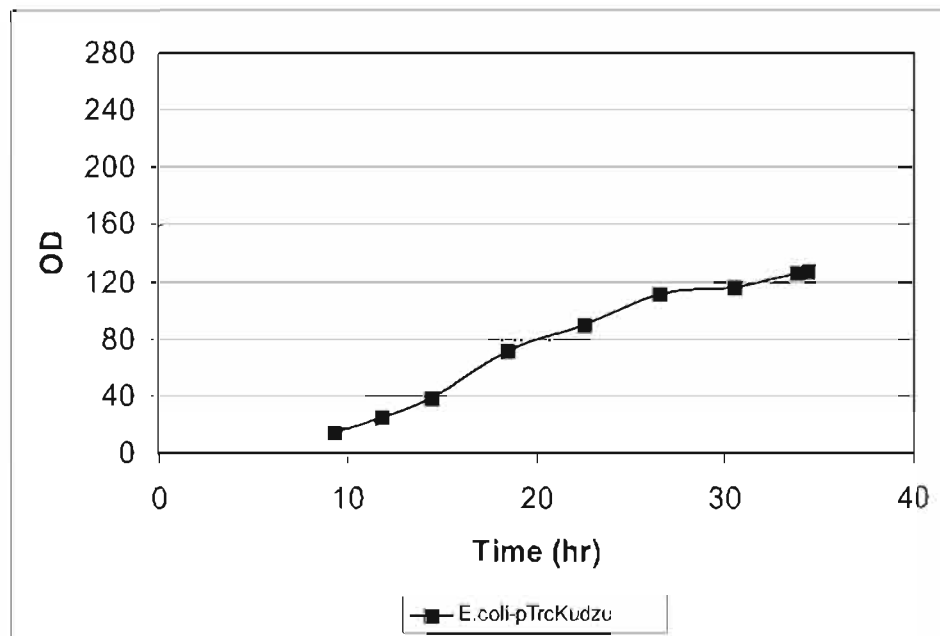


Figure 9B

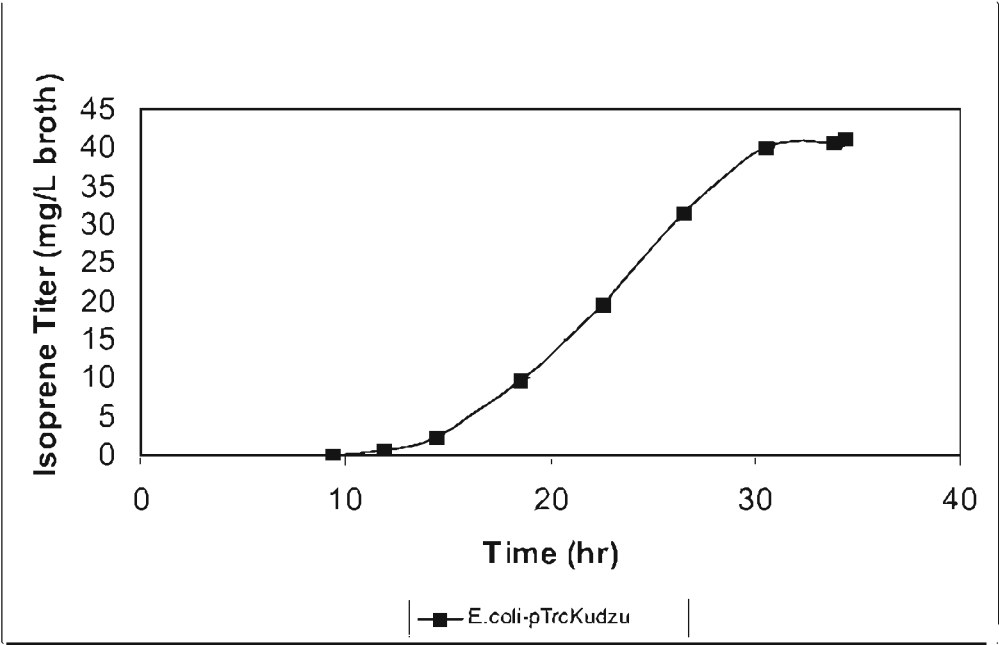


Figure 10A

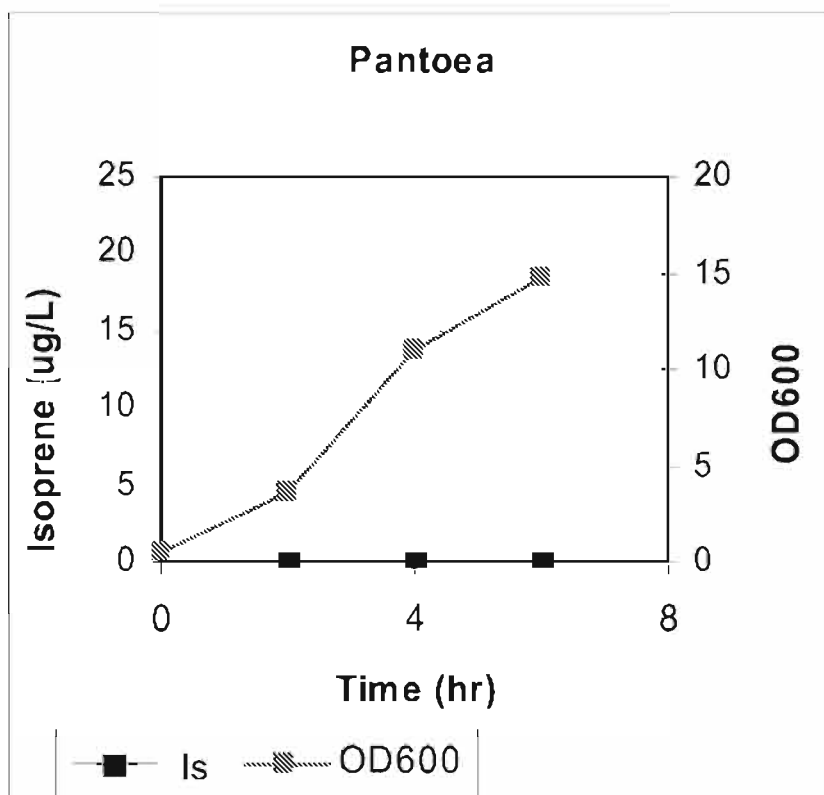


Figure 10B

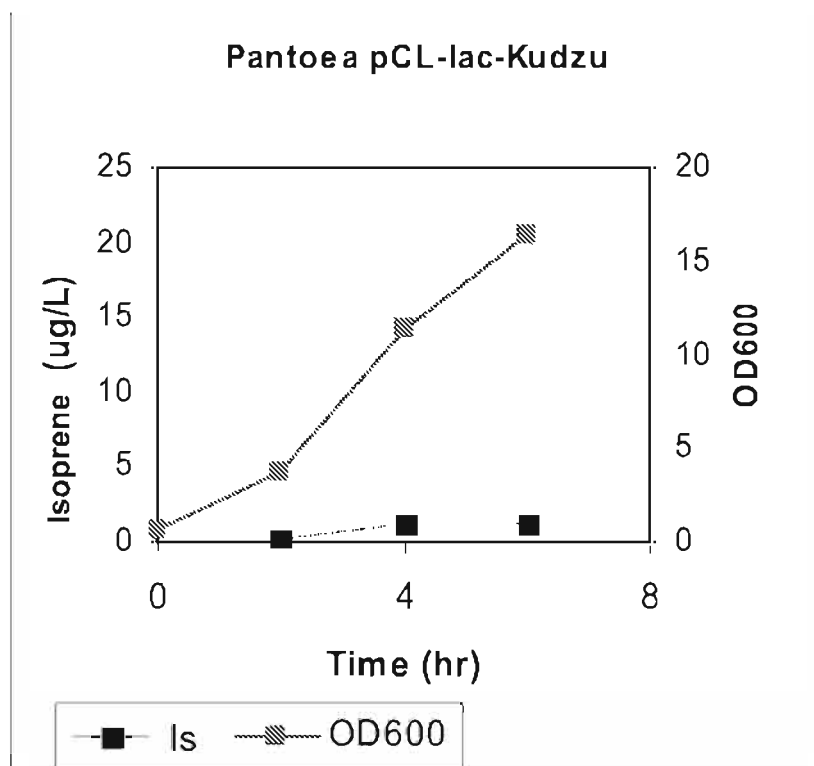


Figure 10C

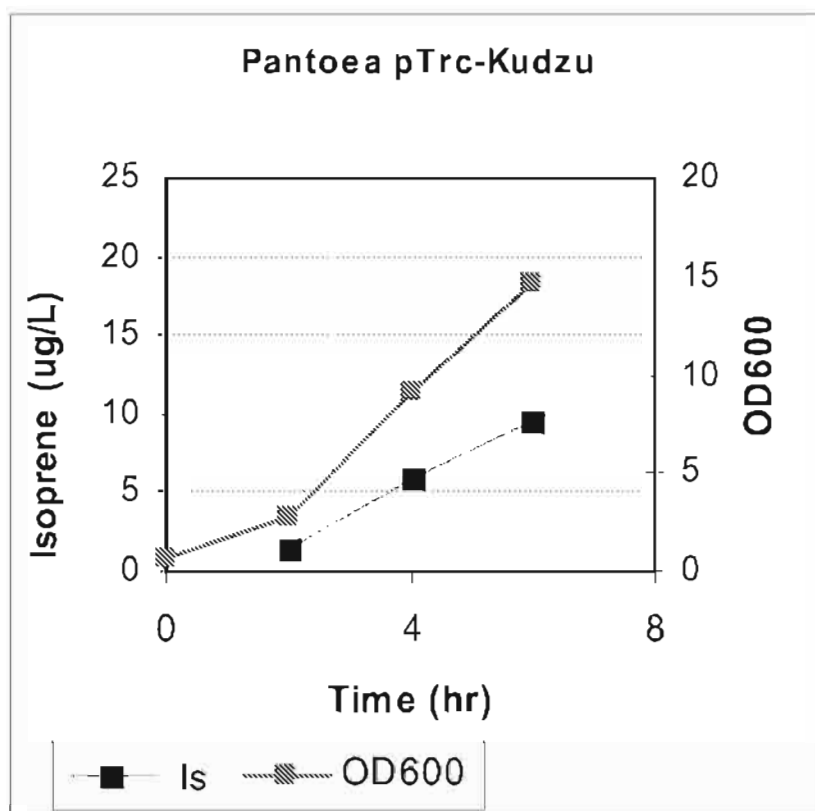


Figure 11

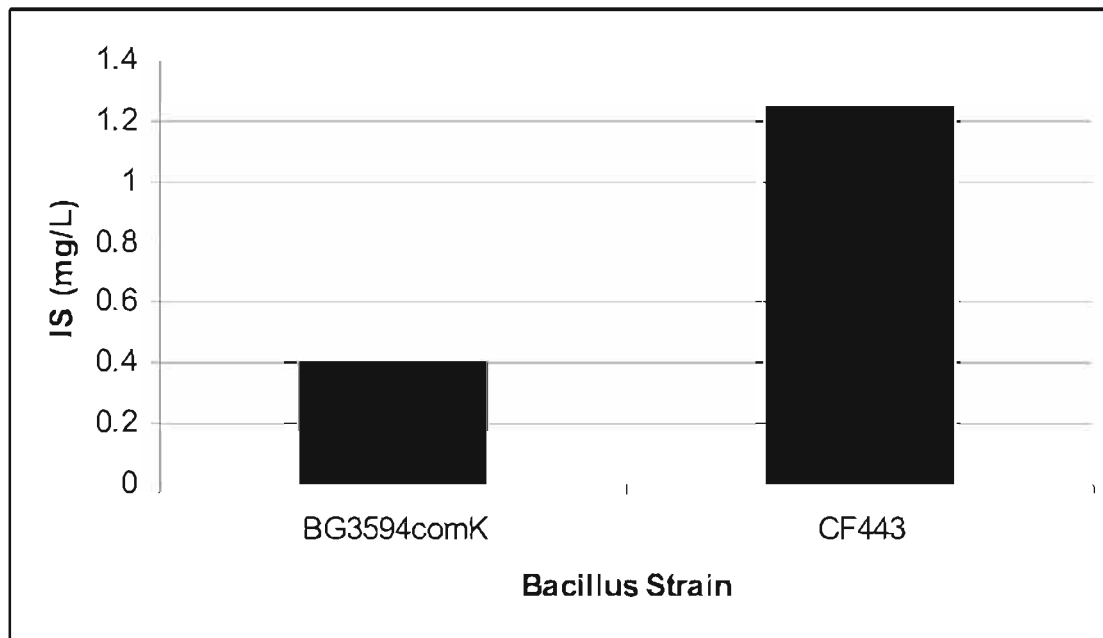


Figure 12A

3-

gaattgctccattttctctctctatcctaaataacagactcgtgattttccaaacgagctttcaa
aaaagcctctgccccttgcaaatcggatgacctgtctataaantcccgatattgggttaaacago
ggcgcaatggcgccgcgcattctgatgtctttgcttgccgaatgttcattcttattttctctccct
ctcaataattttttcattctatccctttttctgtaaagtttatttttcagaatacttttatcatc
atgctttgaaaaatatcagataaatatccatcgttctcacggaagcaccgcaggtcatttga
acgaattttttcgacaggaatttgccgggactcaggagcatttaacctaaaaaagcatgacatt
tcagcataatgaacatttactcattgtctattttctgttctttctgtatgaaaatagttatttgc
agctctctacggaaatagcgagagatgatatacctaataatagagataaantcatctcaaaaaaatg
ggctctactaaaatattattccatctatttcaataaatttcacagatagttcttttaagtaagtct
actctgaatttttttaaaaggagagggttaaaagagtgtgtgcgacctctctctcaatttactcaga
ttacogagcataattcccgctcgttccgcaaaactatcagccaaacctgtggaatttcgaatttct
gcaatccctggagaacgacctgaaagtggaaaagctggaggagaaagcgaccaaactggaggaa
gaagtgcgctgcatgatcaacctgtgacaccccagccgctgtccctgctggagctgatcgacg
atgtgcagcgcctgggtctgacctacaaatttgaaaaagacatcattaaagccctggaaaacat
cgtactgctggagcgaacaaacaaagaacaaatctgacctgacgcacccgctctgtcttctcgt
ctgctgcgtcagcagcgtttctcaggttctctcaggtatgtttttgagcgtttcaggataaagaag
gtgggtttcagcgggtgaactgaaagggtgacgtccaaaggcctgctgagcctgtatgaagcgtctta
cctgggtttcagagggtgagaacctgctggaggaggcgcgctacettttccatcaccacacctgaag
aacaacctgaaagaaggcatttaataccagggttgcaagaacagtgagccacgccttggaactgc
catatcaccagcgtctgcaacgtctggaggcagcttggttccctggataaatacgaacccgaaga
accgcctcaccagctgctgctggagctggcgaagctggatttttaacatggtacagacacctgcac
cagaagagctgcaagatctgtcccgctgggtggacccgagatgggcctggctagcaaaactggatt
ttgtacggcagccgctgatggaaagtttctttctgggcaactgggttatggcgccagacccgcagtt
tggtgaattgtcgcaagcgtgttactaaaatgtttgtctgtgtgacgatcatcgatgacgtgtat
gacgttttatggcactctggacgaactgcaactgttcccgatgctgtagagcgcctgggacgtla
acgtatttaaacacctgocggactatatgaaactgtgttctctggcactgtacaacacctta
cgacacgtctctctctctctgaaagagaaaggtcataacaaacctgtctctctgacgaaaagc
tggcgtgaaactgtgcaaaagcctttctgcaagaggcgaaatgggtccaaacaaacaaatttatccgg
ctttctccaaagtacctggaaaaacgcacagcgtttccctctcccggtgtagcgtgctggcgccgct
ttacttttccgtatgcoagcagcaggaagacatctccgaccagcgcctgcttccctgacccgac
ttccatgggtctgggtgcttctagctgctttatcttccgcctgtgcaacgatctggccacctctg
cggcggaagctggaaacgtggcgagactaccaattctatcattagctacatgcacgaaaacgatgg
taccagcaggaacagggcccgagaaactgctaaactgatcagcgcgcaatggaaaaagatg
aatcgtgaaacgcttagcgactccacctgctgcttaasgcgttcatggaaatcgcaagttaaca
tggcacgtgtttcccaactgcacctaccagtatggcgatgggtctgggtcgccagacacgcgac
tgaaaaacgcacataaactgctgctgattgacctttcccgatttaaccagctgatgtatgtctaa
aaaaaacccgcttggcccccgcggttttttattatttttcttctcccgatgttcaatccgct
ccataatcgacggatgggtccctctgaaaatttttaacgagaaacggcggttgacccggctcag
tcccgtaacggccaaagtccgaaacgtctcaatcgccgcttcccggtttcccggtcagctcaatg
ccgtaacggctcgccggcgttttctctgacccgggagacggcattcgtaatcggtatccctctagag
tcgacctgacggcatgcaagctttgcctcgccgctttccggtgatgacggtgaaaaacctctgaca
catgcagctcccgagagacgggtcacagcttctctgtaagcggatgcgggagcagacaagccgct
cagggcgccgtcagcgggtgtttggcggtgtcggggcgacccatgacccagtcacgttagcgata

Figure 12B

cgggagtgtatactggctttaactatagggcatcagagcagattgtactgagagtgaccatatg
cgggtgtgaaataccgcacagatgcgttaaggagaaaataaccgcacaggcgctcttccgcttct
cgctcaactgaactcgctgcgctcggtcggttcgggtgcggcgagcggtatcagctcaactcaaaggc
ggttaatacgggttatccacagaatcaggggataacgcagggaagaaacatggtgagcaaaaaggccag
caaaaaggccagggaaccgtaaaaaaggccggcggttgcgtggcggtttttccatagggtccgccccctg
acgagcatcacaaaaatcgacgctcaagtcaggggtggcggaaccocgacaggactataaagata
coaggcggtttcccccgtggaagctccctcgctgcgctctctgttccgacccctgcgcttaaccgga
racctgtccgctctttctcccttcgggaagcggtggcgctttctcaatgctcacgctgtaggtatc
tcagttcggtgttaggtcggttcgctccaagctgggtgtgtgacgaacccccgttcagccga
cgctgcgcttatccggtaactatcgtcttgagtcacaacccgggtaagacaegacttatcgcca
ctggcagcagccactggttaacaggatttagcagagcgaggtatgtaggcggtgtctacagagtct
tgaagtgggtggcctaactacgggtacactagaaggacagtatctgggtatctgcgctctgctgaa
gocagttaccttcggaaaaagaggttggtagctcttgatccggcaaaccaaccacccgctggtagc
gggtgggttttttggtttgcgaagcagcagattacgcgcagaaaaaaggatctcagaagatcctt
tgatctttctacgggggtctgacgctcagtggaacgaazactcacggttaagggtatttggctcat
gagattatcaaaaaggatcgaagtcgggttcagaaaaaggaaggatctggatctggagctgtaata
taaaaaacctctctcaactaacggggcaggttagtgacattagaaaaccgaatgtaaaaagtaca
gtcggcattatctcatattataaaaagccagtcattaggcctatctgacaattcttgaatagagt
tcataaaccaatcttgcattgataaccatcaccaacagaatgatgtacctgtanagatagcggtaa
atataattgaattacctttatlaattgaattttctgctgtataatgggtagaaggttaattacta
ttattattgatattttaagttaaaaccagtaaatgaagtcctatggataatagaagagaaaaag
cattttcagggtataggtgttttgggaacaactttaaaagaaccatctatattctctacutcaga
aagggtataaatcataaaaactctttgaagtcattctttacaggaggtccaaataccagagaaatgtt
ttagatcacccatcaaaaattgtataaagtgggtctaaccttatcccaataacctaacctctccgt
cgctattgttaaccaggtctcaaaagctgtattttgagtttatccaccttgcactagaaaaataaa
tgcagggttaaaaattatactctcttctgttttatgtttcgggtataaaaacactaatatcaattct
gtgggtatactaaaagtcgtttgttgggttcaaaataatgatlaaatatctctttctcttccaat
tgtctaaatcaattttatlaaagttcattttgatatgcctctnaatttttatctaaagtgaatt
taggaggttaacttgtctgcttctctcattagaatcaatcttttttaaggtcaatatattactgt
aacataastatatattttaaaatatcccaactttatcccaattttcggttgggtgaactaatgggt
gcttttagttgaagaataaagaccacattaaaaaatgtgggtcttttgtgttttttaagggttt
gagcgtaacgcgaaaaatccttttcttcttcttcttcttcttcttcttcttcttcttcttcttct
tgtccattcaatggctgaactcttgcctctctgttgacatgacacacatcatctcaatatccgaa
tagggcccatccagctctgagcauccaaggagagccataaacaccaatagccttaacatcatcccat
atttatccaatattcggtccttaatttcaatgaacaactcttcaattcttctctctagtcattat
tatgggtccattccacttctctctctcttctcagataatttttagatttgccttctctaaataag
aatatttgggagcgaacggtctttattcagctatttaataactcgtcttcttaagcatcttcaat
ccttttaataaaccaattatagcatctaatcttcaacaaactggcccggttgggtgaactactcttl
aataaaataaatttttcggttcccaattccacatttgaataatagaaaaatccatctccatcggt
cttctgctcatcatctgtatgaatcaaatcgcttcttctgtgtcatcaagggttaattttttat
gtattttctttaaacaacacccataggagatttaaccttllaagggtgaacaccttctccaaatc
agacaaaaggttcaaatcttcttctctcatcatcggtcataaaatccgtatcctttacaggata
tttgcagtttcgctcaattgcgagattgtatctcgatttatatttattttccggtcgaatcatt
gaacttttacatttggatcatagttcaatttcaattgccttttccaaaattgaatccattgttt

Figure 12C

ttgattcaagtagttttctgtttattctaaaaataagtttggttcacacataaccattacatgcctg
tgctgattataagaattatctttattattttattgtcscatccgttgcacgcataaaaaaccaaa
gatttttatttaatttttttatattgcatcattcgggcgaatccttgagccatatctgtcaaaact
cttattttaattcttcgccatcataaacatttttaactgthaatgtgagaaacaaccaacgaact
gttggtttttgtttaataaacttcagcaacaacccctttgtgactgaatgccatgtttcattgctc
tcctccagttgcacattggacaaagcctggatttgcaaaaccaactcgataccaactttcttc
gcctgttttcacgatttttgtttatctctaataatttcagcacaattctttactctttcagccttt
ttaaatcaagaatatgcagaagttcaaaagtaattcaacattagcgattttctttctctccatg
gtctcactttccactttttgtcttgtccactaaaaacccttgattttctctctgaataaatgct
actattaggacacataatattaaaagaaaccccccactcatttagttatttgytttagtcacttat
aactttaacagatgggggtttttctgtgcaacaaattttaagggttttcaataactttaaaacaca
cacataccaacaacttcaacgcacctttcagcaactaaaaataaaaatgaogttattttctatatgt
atcaagataagaaagaacaagttcaaaaaccatcaaaaaaagacaccttttcagggtgctttttt
attttataaaactcattccctgatctcgaacttoggctctttttttacctctcgggttatgagttagt
tcaaatctgctcttttttaggttctaaatcgtgtttttcttggaaattgtgctgttttatccctta
ccttgtctacaaaacccttaaaaaacgtttttaaggcttttaagccgtctgtacgttccttaag

SEQ ID NO:5

Figure 13

ATGTGTGCAACCTCCTCCAGTTTACTCAGATTACCGAGCATAATCTCGACGATCTGCTAACT
ACCAGCCGAAACCTTTGGAACTTTGAGTTTCTCCAGTCTCTCGAAATGACCTGAAGGTGGAAA
GCTCGAGGAGAGGGCGACCAACTCGAGGAGGAGGTGCEATGTATGATCAACAGAGTTGACACC
CAACCCCTGTCTTTGCTGGAGCTGATCCAGGATGTGCAGCGGTGCGTTTGAATTATAAATTG
AGAAGGACATTATCAAGGCACTGGAGAACATTGTGCTCCTCGACGAGAACAAGAAGAACAAGTC
TGATCTTCACGCTACCGCTCTCTCTTCCGACTTCTTCGACAAACACGGCTTCGAGGTGTCCGAG
GACGCTTTCGAGAGATTAAAGGACAAGGAGGGAGGATTAGCGCGGAGCTGAAGGGAGAGCGTTC
AGGGTCTTCTCTCTTGTACGAGGCGTCTTACCTGGGATTTCGAGGGAGAGAACCTCCTGGAGGA
AGCTCGTACATTTTCCATCACTCACCTTAAGAATAACCTTAAGGAGGGGAATTAACACCAAGGTG
GCCGAGCAGGTTTCTCAGCCCTGGAGCTCCCTACCAACCGGCTCCATAGACTGGAGGCTC
GTTGGTTCTTGGACAAATATGAGCCAAAGGAGCGCTCATCATCAGTTGCTGTTGGAGTTGGCCAA
CCTGAGCTTCAATATGGTTTCAGACGCTGCACCAAAAGGAGTTCAGGACCTCTCTCGATGGTGG
ACCGAGATGGGATTTGGCTCGAAGCTGGATTTTGTCCGTGACCGACTTATGGAGGTCTATTTT
GGGCCCTTGGAAATGGCGCTGACCCCCAGTTCCGAGAGTGCAGGAGGCGGTGACGAAGATGTT
CGGTCTTGTGACTATCATCGACGAGGTCTACGATCTCTACGGCACACTCGACGAGTTGCAGCTG
TTCACTGACGCCCTCGAGCGATGGGATGTGAAGGTCATTAACTACTCTCCCTGACTATATGAAGC
TGTGCTTCTGGCTCTGTACAAACACTGTCAACGATACCTCGTACTCTATCTTCAAGGAGAAGGG
ACACAACAATCTCTCTTACTTGAACCAATTCCTGGCGAGAACGTGTGCAAGGCTTTTCTGCAGGAG
GCTAAATGGTCCAATAACAAGATCATCTCGCTTTTCTAAATACCTGGAAATGCCTCGGTGT
CGAGCTCTGGCTCGCCCTTCTGGCCCTTCTACTTCTCGCTCTGCCAGCAGCAGGAGGATAT
TTCCGATCATGCTCTTAGATCGCTGACCGATTTTCACGGCCCTCGTGGCATCTTCTCGCTGATT
TTTCGGTTGTGAATGACCTTGGCAGCTCTGCTGCTGAGCTGGAAACGAGCGGAGACTACAAAT
CCATTATTTCTTACATGCACGAAAACGATGGAAACATCTGAAGAACAGGCTAGAGAGGAACCTGCG
AAAGTTGATCGACGCCGAGTGAAGAAAGATCAACAGAGAGCGGGTGTCCGACTCTACCTGCTT
CCCAAGSCCTTCATGGAGATCGCCGTGAACATGGCTCGAGTTTCCATTGTACTTACCAGTACG
GTGACGGCCCTGGGTCTCCGACTACGCTACAGAGAACCGAATCAAGCTGCTGCTCATCGACCC
CTTCCCTATCAACCAATTGATGTACGTGTAA

SEQ ID NO:6

Figure 14

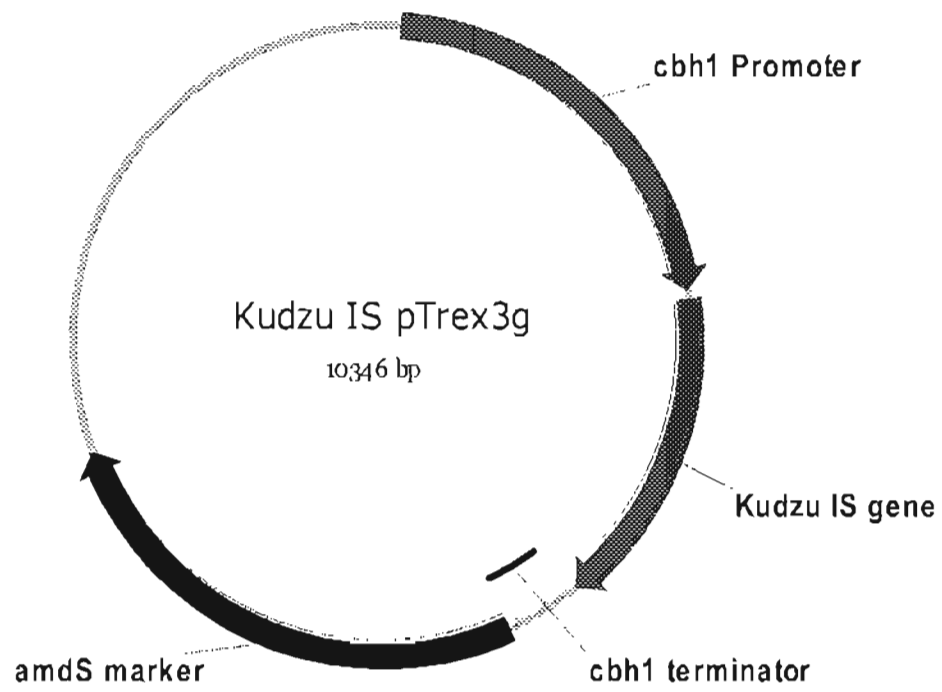


Figure 15A

```

1  TCGACCGGTC AGAAGAACAG CATCGGGGCA AGGGAAGGAA GACCAAGGAC AAGAGAAACB
61  AAAGAGAGCR ATTGAAGACA AAGCAABACA ATTTTCATTC CTTCCTTAT CATTCCTTTT
121 CTTTTCCTTT CTCTCATTC AAGCACTCCA TCGTATCCGT ATTCCTCTTA TTTTTCCTTC
181 TTCTCTATAT CCATTTCTTT CTCTCTAGGT GTCTCTCTCT TCTCTCTCTA ATTTCTCTAC
241 TCGGCTTTC AAGCACTCCA TCGGCTTTC TCGGCTTTC TCGGCTTTC TCGGCTTTC
301 TCGGCTTTC CTCTCTATCT CTCTCTATCT CTCTCTATCT CTCTCTATCT CTCTCTATCT
361 ATTTACATA TCTTAAGTCT TTTTTCAGCT CTCTCTATCT AAGCACTCCA TCGGCTTTC
421 TCGGCTTTC AATATCTCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
481 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
541 TCGGCTTTC TCGGCTTTC TCGGCTTTC TCGGCTTTC TCGGCTTTC TCGGCTTTC
601 TCGGCTTTC TCGGCTTTC TCGGCTTTC TCGGCTTTC TCGGCTTTC TCGGCTTTC
661 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
721 CTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
781 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
841 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
901 CTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
961 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1021 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1081 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1141 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1201 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1261 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1321 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1381 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1441 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1501 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1561 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1621 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1681 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1741 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1801 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1861 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1921 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
1981 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2041 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2101 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2161 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2221 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2281 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2341 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2401 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2461 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2521 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2581 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2641 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2701 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2761 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2821 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2881 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
2941 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
3001 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
3061 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
3121 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
3181 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
3241 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
3301 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
3361 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT
3421 TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT TCTCTATCT

```

Figure 15B

```

3481 TTACATTCGG ATCAAAACT GCGTAGTTAA AGCTAGGGA AGCTAATAT CATGTTAAT
3541 AAATACGCTA TTACATATA GACATTGAAC TCATTATTA CGTTGAATAT GAATTAACCA
3601 TTTCCGCGAA TTTTAACTA ACATCGTCA CCGCTTTAA GATATCTTG TGTATGGGT
3661 GTTGACTTGC TTTATCGAAT AATFACCGA CCGTAATTG GCTTCTCGA TATAGCGTA
3721 GCTAATATC TACGAAAT CTITGCTG AAAAGGCTT CAATTTACG ACACCGAAT
3781 ATTTGCTCTT TTTAATTA GAGTTTTCG ATAAATTCCT GTATTCCTG GTTATCTAA
3841 TTGAAAGAG TAGTTTTCG TCACGATGAG GAGGCTTTT GTAGAAAGAA ATACGAAAG
3901 AACGAAATC AGGCTTCCG TCGTTTTCG CAAGCTCCG TTACCTGAG AGTCCGATTT
3961 TATTTGAGAA CTTATACTT CCAGCTGTC AACCAAGAG GAGAAACAG TATCCGAGT
4021 AGACGCGTA TTGATTCCT TCGATCACAT GTATCATGCA CTGCTTAAC ATCCAGGCTG
4081 GAGCTTACCA CTPTACTCA GAGGTGATT TATCATCGAT GATCATACA CTGCGAGAG
4141 TACTGCTATT GCACTTGGTA TTGCAATCGA GAGGCTATG GGTAACTTT CCGGCTTAA
4201 AAGATTTGCA CATGCTTAT GTGCTTGA CAGGCTCTT TCTAGAGCG TACTGCTAT
4261 GTCGCGCTG CCGTATGCT TATGCTAT TCGATTAAG GGTAAAGG TTGCGGATTT
4321 GTCGCTGAA ATGCTCCCT ACTTACTATA TTCTTTTTC GTAGGAGCTG GATTTACTT
4381 GATGTTACC TGCTTATAT GTATATATG CCGTATCTG GCTGAAAGG CTTTTAAATC
4441 TCTGCTGTT GCTATGCTG CCGTACTAG TCTTCTGGA AGTCTGAG TCCGAGCAC
4501 GAGGCGCTG CCGTATGCT GATTTGAT ATGTCAGCA AAGAAAGCA ATTTGCTATC
4561 CAATTTGCTT AATTTTACA GTTCTTGA AACAATGAA CTTTACTTGC TTTATATTA
4621 CGTTAATTA AGGCTTATC TCGTGAAGG ATATAGTACG TAGGCTTAT AATTTGATTT
4681 ATGCTTACG TATAGATTA GAGACTTCT GGTCTTCAAT GGTCTGCTAC TTACCTACT
4741 CACTTTATTA TACGACTTTA AGTATTAAC CCGGCTTAT GTTAAATTA ATGATGACA
4801 AACGCTCGAT TCCATATGG TACACTACA TTAATTAAT TTAGCTGAT CCGGCTACA
4861 CCGTATGCTT AATATTTTC TACTGCTTT TACTCTTTC AGATTTCTC GAGCTCCCG
4921 CATGCGCTG CCGTATCAA ACACGAGG ACAGCTACT AATTTTCTC TCTTTCTTC
4981 TCTAGGCTG CCGTATTA CCGTACTAA GGTCTGAA AAGAAAGCA GACGCTCTG
5041 TTTCTTTTC TTCTGCTGA AAGGCTTAA AATTTTAT CAGCTTCTT TTTCTGAAA
5101 TTTCTTTTC TAGTTTTC CTCTTCTG GAGCTCTAT GATATTAAG TTAATTAAG
5161 GCTTCTAAT TCTCAAGTT CAGTTCTAT TTCTTCTTC TATTAAGCT TTTTACTT
5221 CTCTTCTAT AAGAAAGAG CATAGCAATC TATTTCTAG GCGCTTCTG CAGTTATCT
5281 TTTGCTAGT ATATGCTAT ATTTATATC GAGAAAGTA GGAAGTAA CAGTCTGAG
5341 TTTGCTAGT CCGTCTCGT GCTGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
5401 ACCTGCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
5461 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
5521 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
5581 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
5641 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
5701 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
5761 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
5821 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
5881 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
5941 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6001 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6061 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6121 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6181 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6241 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6301 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6361 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6421 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6481 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6541 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6601 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6661 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6721 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6781 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6841 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6901 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG
6961 GAGTCTG TCGGCTCTC CCGGAGCTG CCGGAGCTG CCGGAGCTG CAGTCTGAG

```

Figure 15C

```

7021 ATCTGTCGT GATCCATGSC GATGCTGCT TGGGAAAT CATGCTGGA AATGGCCCT
7081 TTCTGGAT CAAAGACTGT GAGCGGCTGG GTGTGGGGA CCGCTATCAG GACATAGCT
7141 TGGATACCG TGAATATGCT GAAGAGCTG GCGGCGAATG GGTGACCGC TTCTCTGTC
7201 TTACGGTAT CCGGCTGCC GATTGCGAGC CCATGCGCTT CTATGCGCTT CTGACGAGT
7261 TCTCTGAT TGAAGAAGT ADCAGTATA CTCTATATA CTATGATTC ATTTAAACT
7321 TCATTTTAA TTAAAGGA TCTAGTGAA GATCCFTTT GATATCTCA TGCCTAAT
7381 CCGTAACGT GATTTTCTT TCCACTGAGC CTCAGACCC GTAGAAAGA TCAAGGATC
7441 TTCTGAGAT CTTTTTTTC TGGCGTAT CTGCTGCTTG CAACAAAAA AACACCGCT
7501 ACCAGCGTG GTTTGTTTC GCGATCAGA GCTACCACT CTMTTCTGA AGSTAACTG
7561 CTTCAGAGA GCGCAGTAC CAATACTGT CCTTCTAGT TAGCGTAGT TAGGCTACTA
7621 CTTCAGAAC TCTGTASCAC CGCTACTTA CCTGCTCTG CTAATCTGT TACGAGTGG
7681 TCTGCGAGT GCGATATAT CCGTCTTAC CCGGTGGAO TCAGACGAT AGTTACGGA
7741 TAAGGCGAG CCGTGGGCT GAAGGCGG TCTGTGACA CAGCCGAGT TCGAGCGAAC
7801 GAGCTACAC GAGCTAGAT ACTAGAGCG TGAATATGA GAAGGCGA CGCTTCCGA
7861 AGGAGAAAG GCGACAGT ATCGGTAG CCGCGGTC GATACAGAG AGCGACGAG
7921 GAGCTTCCA GGGGAAAC CCGGTATCT TATAGTCT GTGGGTTTC GCGACCTCT
7981 ACTTGAGCT CAGTTTTGT GATGCTCTC AGGGGTCG AGCTATGGA AAGAGCTAG
8041 CAGCGGCGC TTTTACGCT TCTGGCTCT TGTGCGCT TTTGCTACA TGTCTTTCC
8101 TCGTTATCC CCGATTCTG TGGATACCG TATTACGCG TTTGAGTGA CTGATACCG
8161 TCGCGCAGC CGACGAGCG AGCGAGCGA G

```

SEQ ID NO:7

Figure 16

```

1 GAATTCAGAA GAAATGSEY GCAACCTGCT CCCAGTTTAC TCAGATTACC GAGCATAAAT
61 CTCGACGATC YGCTAATCTAC CAGCCGAAAC TTGGGAACTT TGAGTTTCTC CAGTCTCTCG
121 AAAATGACCT GAAAGTGGAA BACCTCGAGG AGGAGGCGAC CAACTCGAG GAGGAGGTGC
181 SRTGTATGAT CAACAGAGIT GACACCCAAC CCTGTCTTCT GCTGGAGCTG ATCGAOGATG
241 TGCACCGGTT GGTCTTGACT TATAAATTCC AGAAGGACAT TATCAAGSCA CTGGAGARCA
301 TTGFGCTCTC CGACGAGAAC AAGAAAGACA AGTCTGATCT TCAGGCTACC GCTCTCTCTT
361 TCCGACTTCT TCGACACACG GECTTCGAGG TGTGCGAGGA CGCTTCGAG AGATTTAAGG
421 ACAAGGAGGG AGTATTTAGC GCGGAGCTGA AGGAGAGCT TCAGGCTCTT CTCTCTTGT
481 ACGACGGCTC CTACCTGGA TTDGAGGGA AGAAGCTCTT GAGGAGAGCT CGTACATTTT
541 CCACTACTCA CCTTAAAGAT AACCTTAAGG AGGAAATTA CAOLAAAGTG GCGAGGCGGG
601 TTTCCTACGG CCTGGAGCTC CCTTACACAC AACGCTTCCA TAACTGAGG GCTGCTTGGT
661 TCTTGACAA ATATGAGCCA AAGGAGCTTC ATCATCAGTT GCTGTGGAAG TTGCGCAAGC
721 TGGACTTCAA TATGCTTCAG ACGCTGCACC AAAAGGAGTT GAGGAGCTG TCTGATGCT
781 GAGCGAGAT GGGATTEGDC TCGAAGCTGG ATTTTGTCCG TGAGGAGCTT ATGAGGCTCT
841 ATTTTGGGC CCTTGGATG GEGCTGACC CCCAGTTGGG AGGCTGCGG AAGGCGTGA
901 CGAGATGCTT CGCTCTTCTG ACTATCATCG ACGAGCTCTA CGATGCTTAC GGCACACTCG
961 ACGAGTTCGA GCTGCTTCTT CAGGCGCTCG AGCGATGGGA TGTGAGCGCC ATTAATATCT
1021 TCCCTGACTA TATGAGCTG TACTTCTTGG CTCTGTACAA CACTGTCTAC GATACCTCTT
1081 ACTTATCTCT CAGGAGAGAG GAGACACACA ATCTCTCTTA CTGACGAAA TCTGCGGAG
1141 AACTGTGCAA GCTTTTCTG CAGGAGGCTA ATGCTGCAA TAACAGATC ATTCCTGCTT
1201 TTCTTAATA CCTGGAAAAT GCTTCTGCTT CAGCTCTCTG CGTGGGCTT CTGCGGCTT
1261 CTTACTTCTC GCTTGGGAG CAGGAGGAGG ATATTTCGSA TCTTCTCTT AGATCGCTGA
1321 CGAATTTCA CGGCTCTGTC CGATCTTCTT GCGAATTTT TCGGTTGCTT AATGAGCTTG
1381 CGACCTCTTC TCGTGAAGCT GAGCGAGGCG AGACTACAA TTCCATTAAT TCTTCTATGC
1441 ACGAABAGCA TGAACATCTT GAGAGACAGG CTAGAGAGCA ACTGCGAAG TCGATCGAGG
1501 CGAGTTCGAA GAGATGAGC AGAGAGGCGG TGTCTGACTC TACCTGCTT CCGAGGCTT
1561 TCATGAGAT GCGCTGAGT ATGCTGAGG TTTCCATTTG TACTTACAG TACGCTGAGG
1621 GCTGAGTCTG TCGGAGTAC GCTACAGAGA AAGAAATCAA GCTGCTCTCT ATCGAGGCTT
1681 TCCCTATCAA CCAATGATG TACGCTAAT AGCTAGAGG ATCT

```

SEQ ID NO:8

Figure 17

```

1  GAATTCACACA AAAATGTCCT CTGTTTCCAC TGAGAACGTG TCCTTTACTG AGACTGAGAC
61  TGAAGCACCT AGAAGCCGCA ACTACGAACC CAACTCCTGG GATTATGACT TTCTGCTGTC
121  TTCTGACACC GACGAGTCCA TCGAGGTTTA TAAGGATAAG GCCAAGAAAC TTGAGGCCCA
181  GGTCCAGACGA GAGATTAAAC ACGAGAAGGC CGAGTTCTTG ACCCTTCTTG AGCTGATCGA
241  CAACTTTCAA CGACTTTGGTC TTGGTTACCG TTTCCAAATCC GATATCCGAC GTGCAATTCGA
301  TCGATTTGTC TCCTCCGGAG GTTTCGATGG TGTGACTAAG ACGTCGCTGC ACGCCACAGC
361  TCTTTCTCTC AGACTGTTGC GGCAGCATCC ATTTGAGGTT TCCCAGGAAG CTTTTTCTGG
421  TTTCALGGAT CAGAACGGAA ACTTTTTCGA GAATCTCAAG GAGGACACCA AGGCCATCCT
481  GTGCTTCTAT GAGGCTTCTT TCACTGCTCT TGAAGGCTAC AATATTTCTG ATGAGGCTGC
541  GGTTTTCTCT ATTTCCGACC TGAACGAGTT GTCCGACGAA AAGATCCGAA AGGAACTGCG
601  CCAACAGGTC AACCATGCAC TTCAACTTCC CCTCCATCCA CCTACCCAGC GACTGGAGGC
661  CTCTCTGAGC ATCGAGGCGT ACAGAAAAAA GGAGGATGCT AATCAGGTTT TGCTCGAACT
721  CCGTATCCTC GACTATAACA TGATTCAAGG CGTGTACCAG CCTCACTTGC GAGAGACAAAC
781  CCGGTGCTGC CGACCGGTGC GACTGGCCAC GAACTCCAC TTTGCTAAGG ATCGATTGAT
841  TGACTCCTTC TACTGGGCAG TCGGTGTGGC CTTTGAGCCT CAGTACTCCG AGTGCCGAAA
901  CTCGGTTCCA AAGATCTTTT CTTTTCTCAC TATCATCCAC GACATCTACG ATGTTTACCG
961  CACTCTCGAT GAACTCGAAC TCTTCACCCA CGCTCTCCAG CCATCGGATG TGAATGCCAT
1021  TAATGATCTG CCAGATTATA TGAAGTTGTG TTTCTTGGCC CTCTACAAAC CAATTAATGA
1081  AATTGCCCTAC GACAACTCA AGGACAAAGG AGAGAACATT CTGCCCTACC TTAATAAAGC
1141  CTGGGCCGAC CTGTGTAAAG CCTTTTTCGA GGAAAGCCAG TCGCTCTATA ACAAATCTAC
1201  TCCTACATTT GATGACTACT TCGGCAACCC TTGGAAATCT TCCAGCGGCC CTCTCCAGTT
1261  GATCTTCCCT TACTTTCCAG TGGTCCAGAA CATCAAGAAA GAGCAGATTG AGAACCTCCA
1321  GAAGTATCAC GACATCATCT CCGACCTTC GCACATCTTT CCACTGTGCA ATGACCTTGC
1381  CTCGGCATCC GCTGAGATTG CCGAGCCACA AACAGCCAA TCTCTGTCTG GTTACATCCG
1441  TACAAAGGGC ATCTCCGAGG AGCTGGCTAC CGAGTCTGTG ATGAACCTGA TCGATGAAAC
1501  CTGTAAAGAG ATGAAACAAAG AGAACTCCG CGGTCTCTG TTGCCCAAAC CATTTGTGCA
1561  AACCCCGATC AATCTGGCTC GTCAGTCTCA TTGTACTTAC CATAACGGTG ACCGCCACAC
1621  TTCCGCCGAC GAATTGACCC GTAAGCCTGT GCTTTCGGTG ATTACCGAGC CGATCCTGCC
1681  GTTCGAAAGA TAATAGGATC C

```

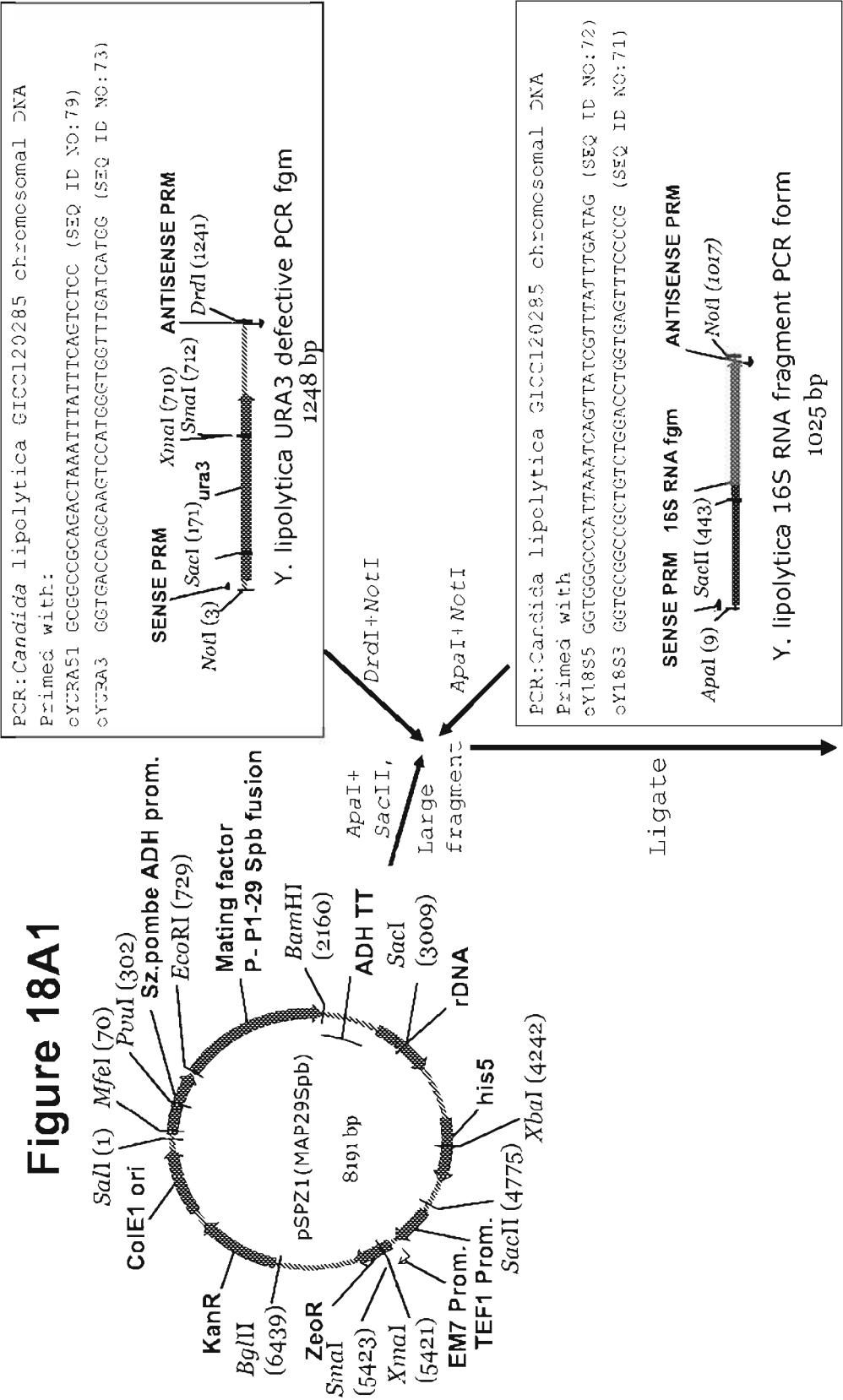
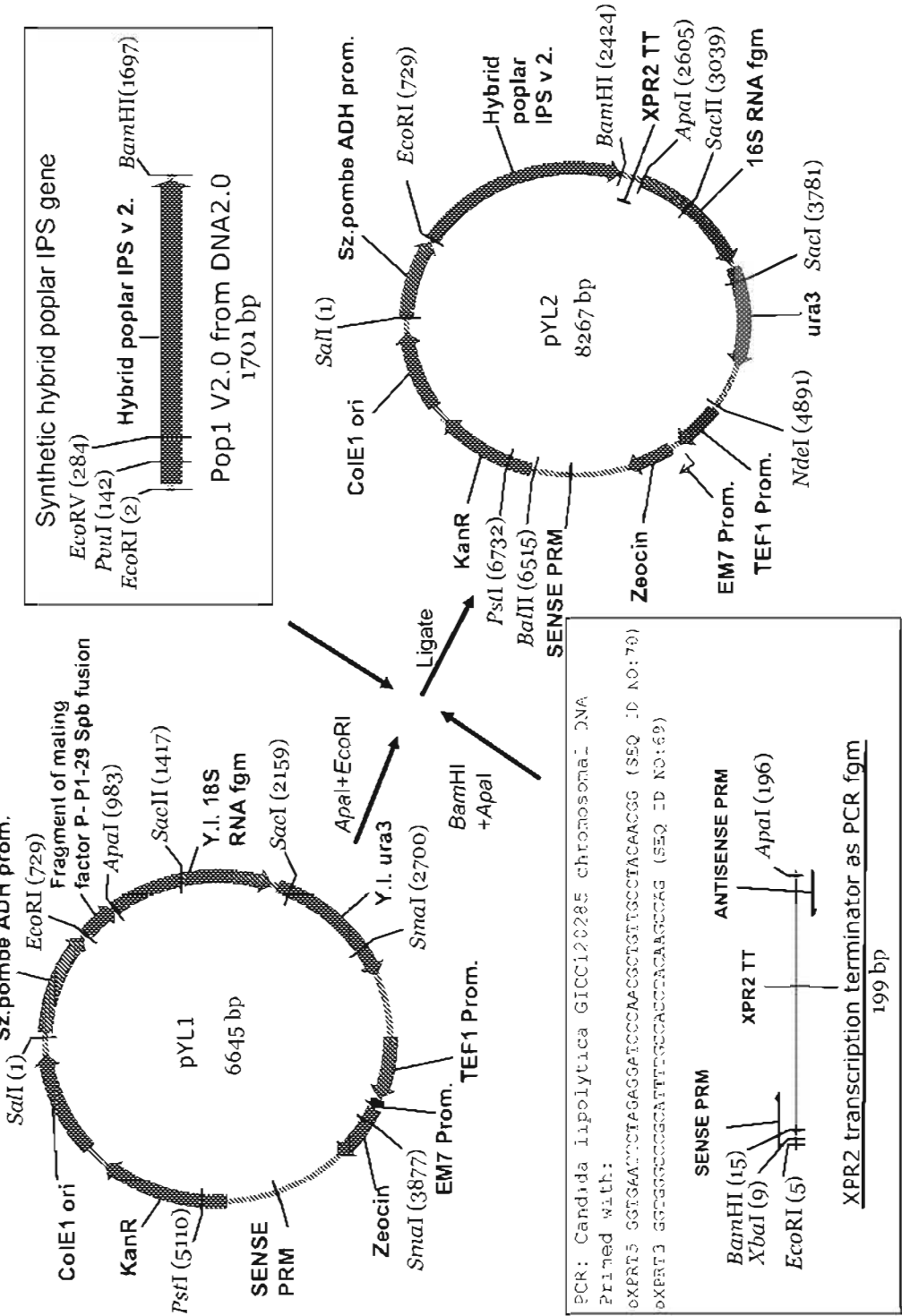


Figure 18A2



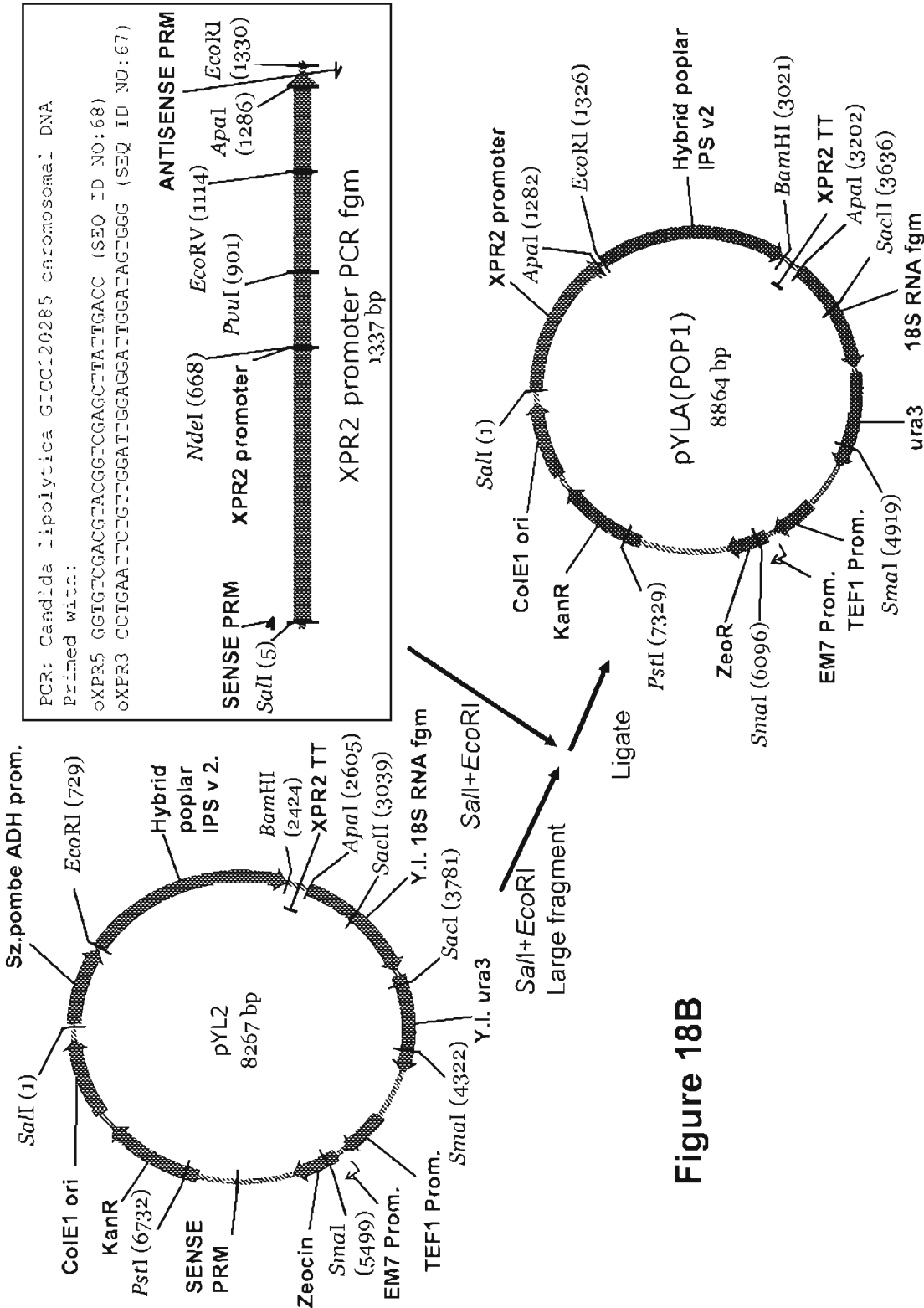


Figure 18B

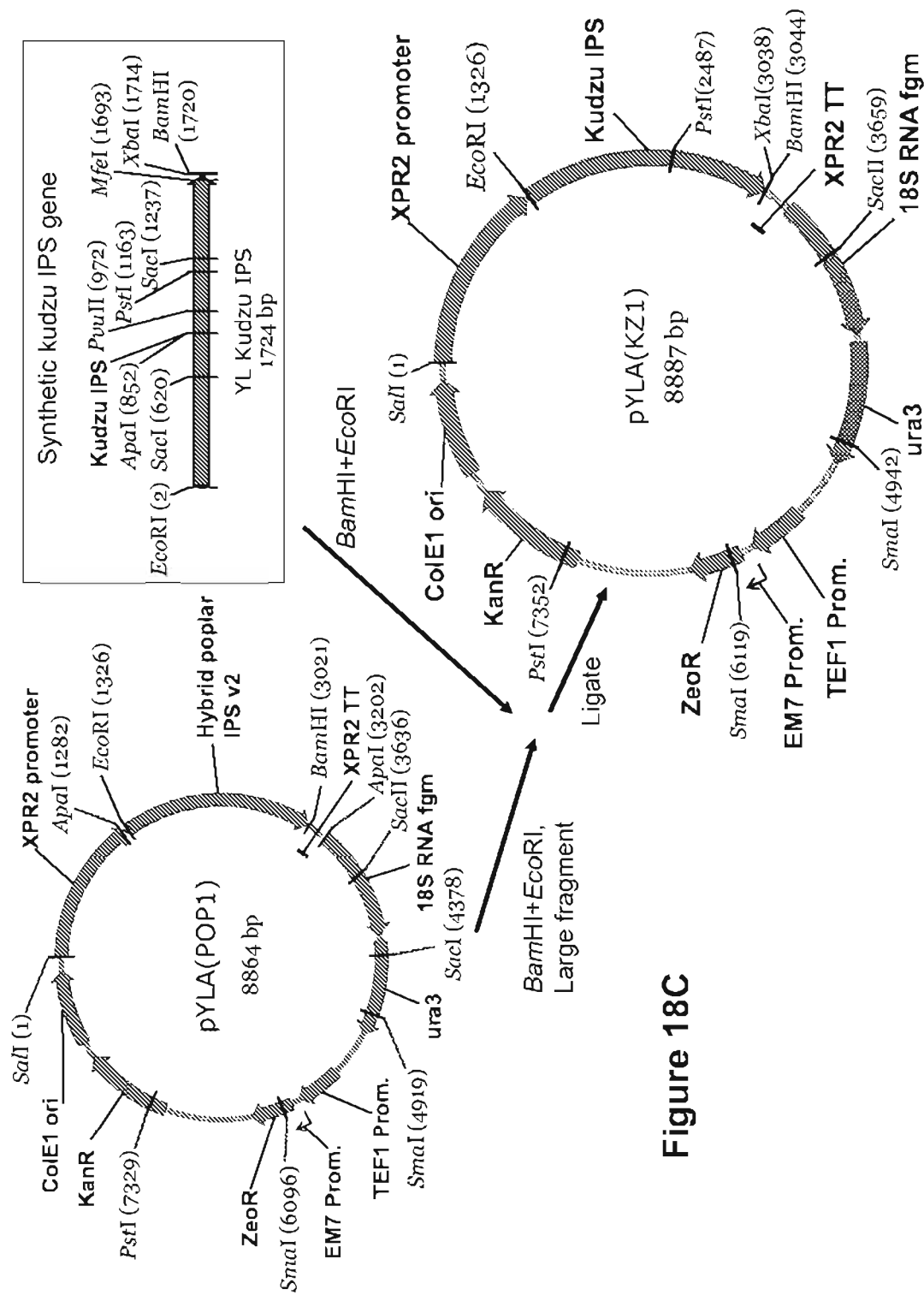


Figure 18C

Figure 18D

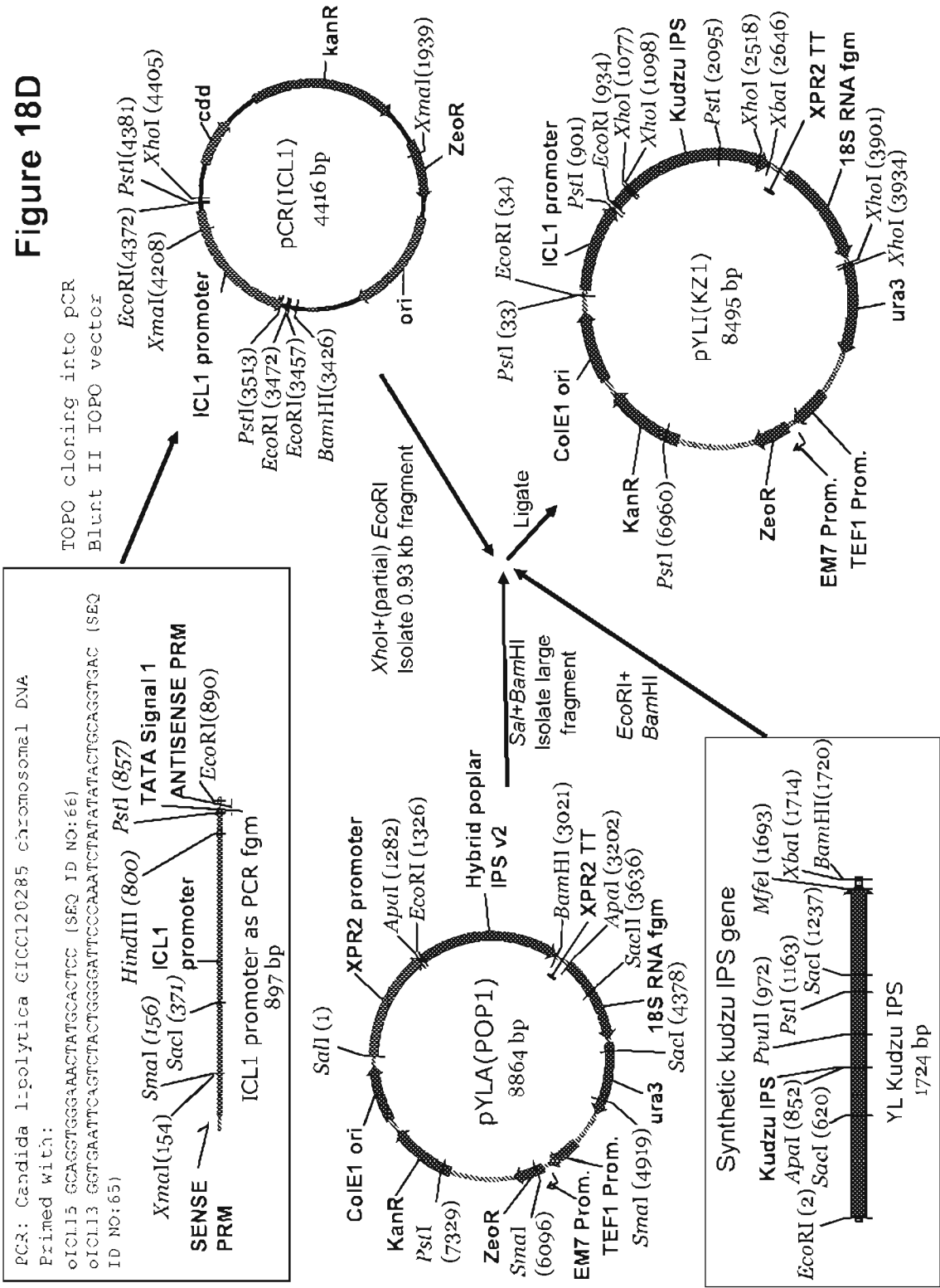
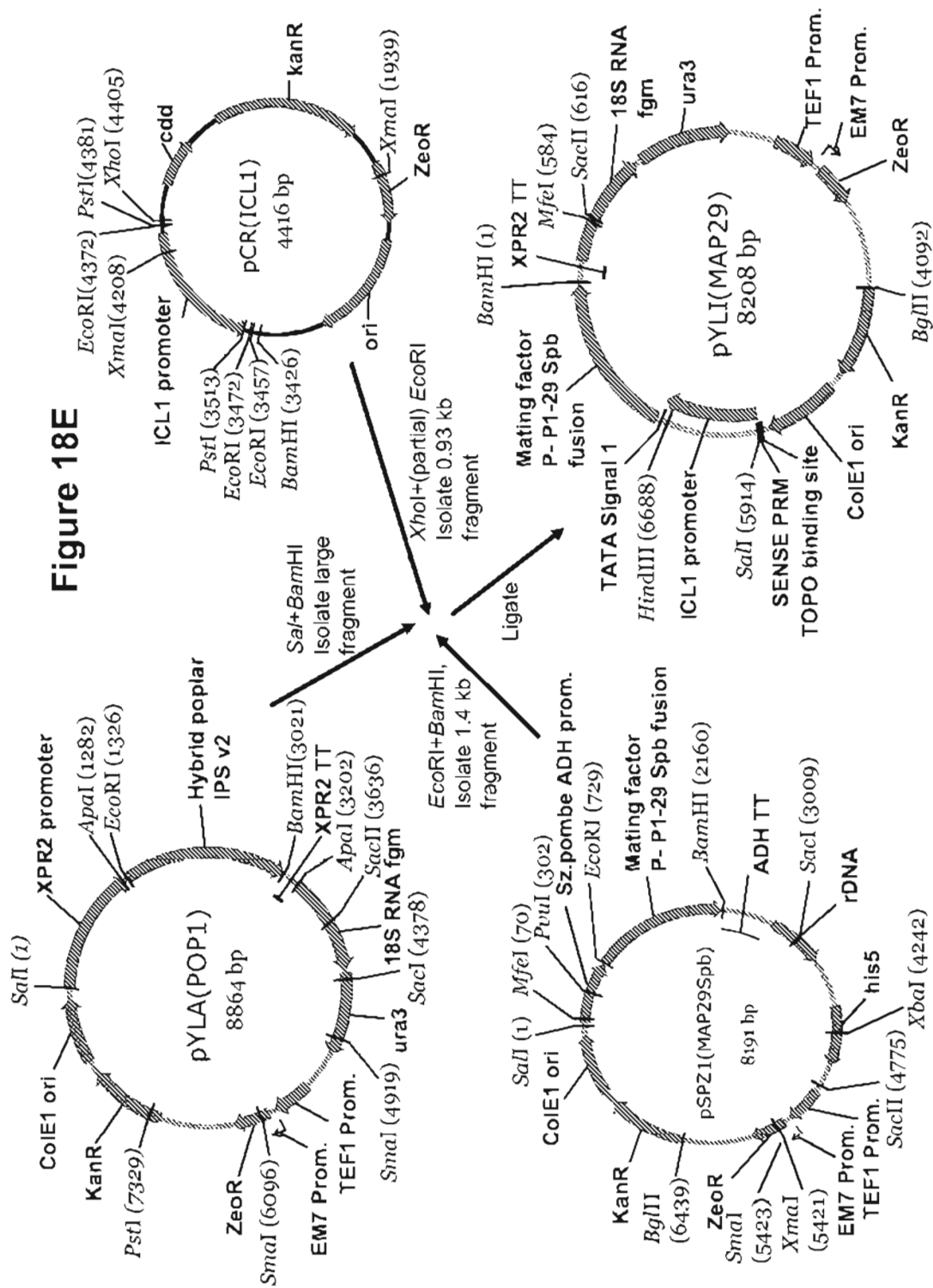


Figure 18E



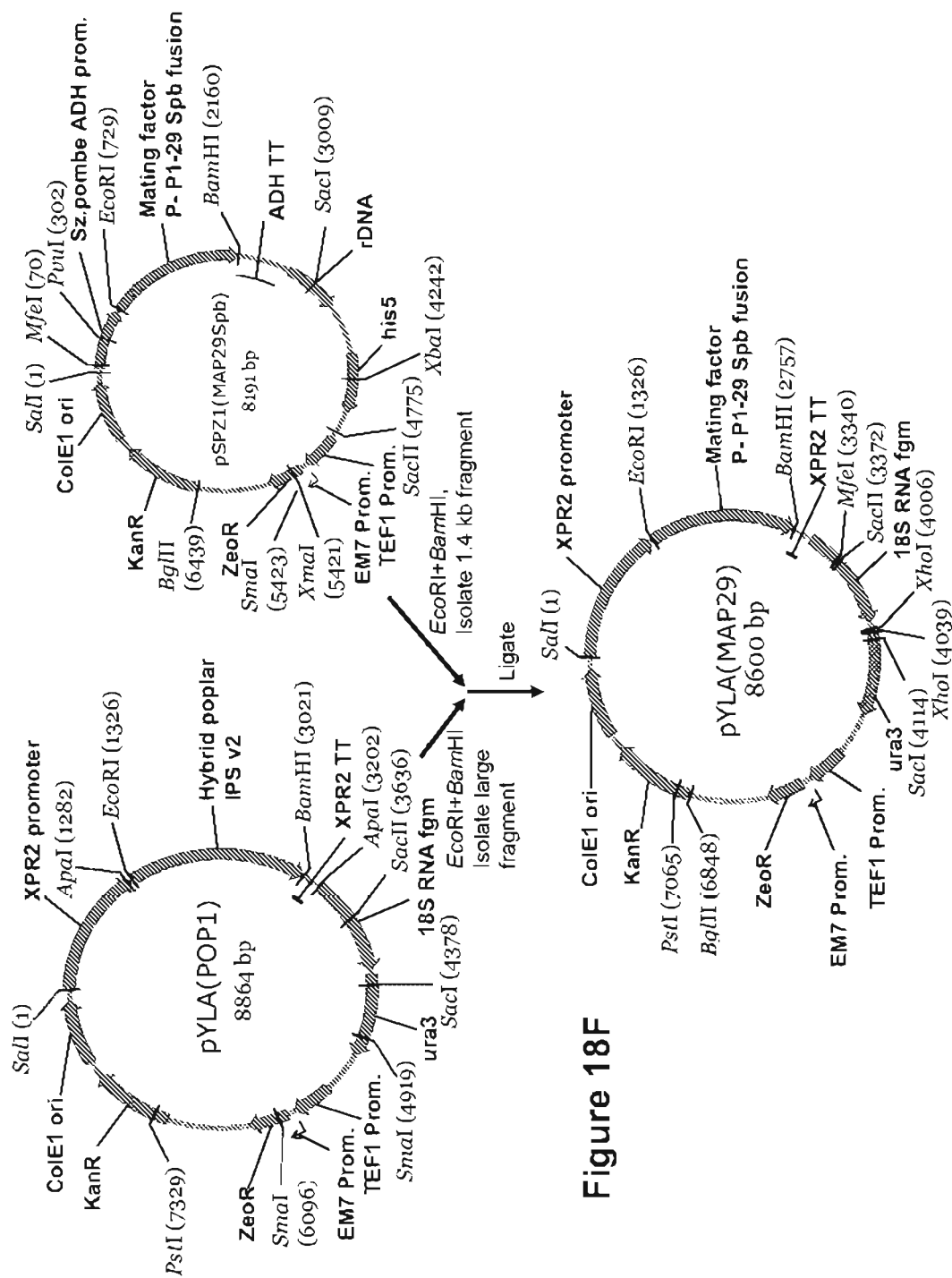


Figure 18F

Figure 19A

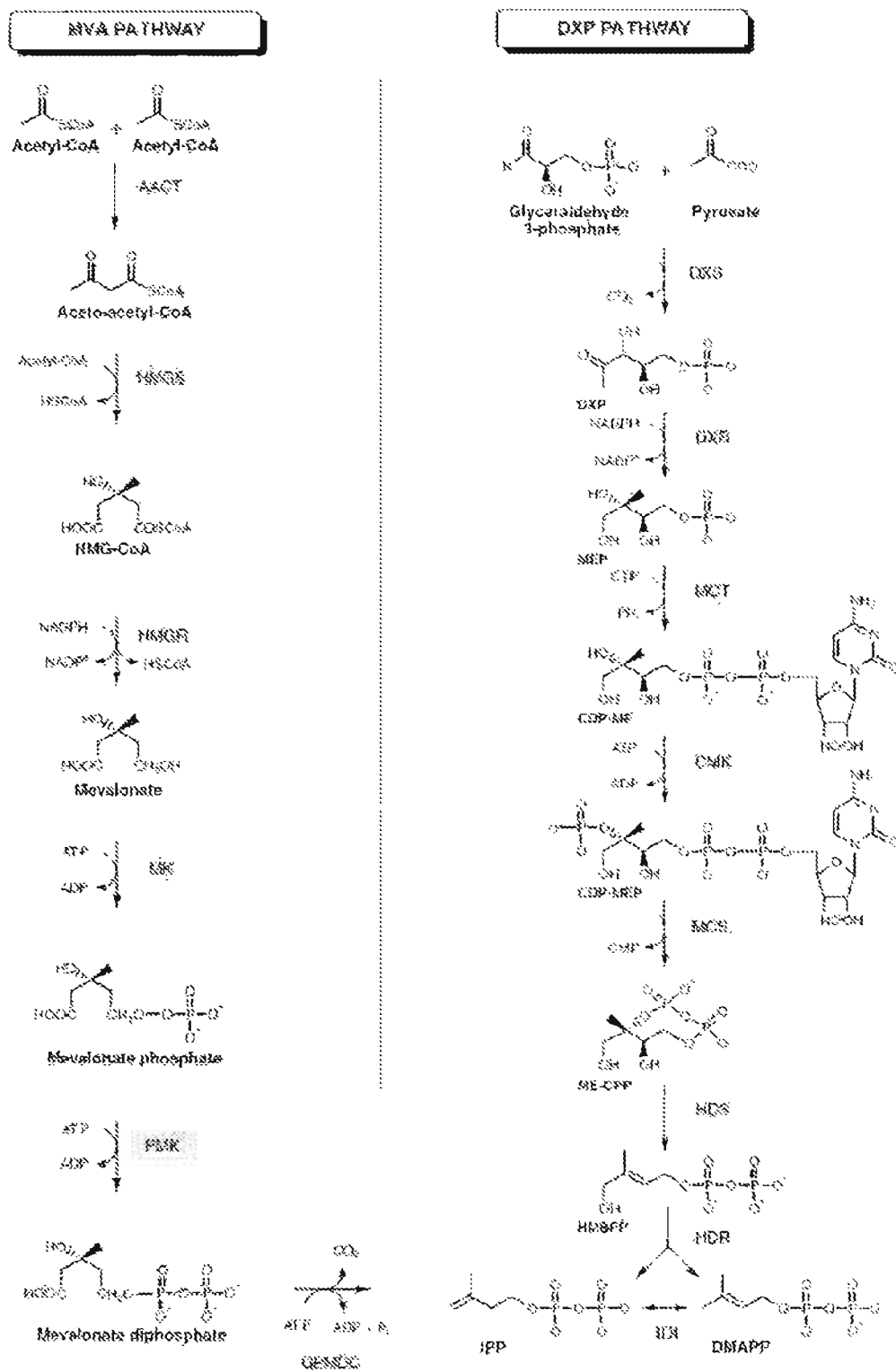


Figure 19B

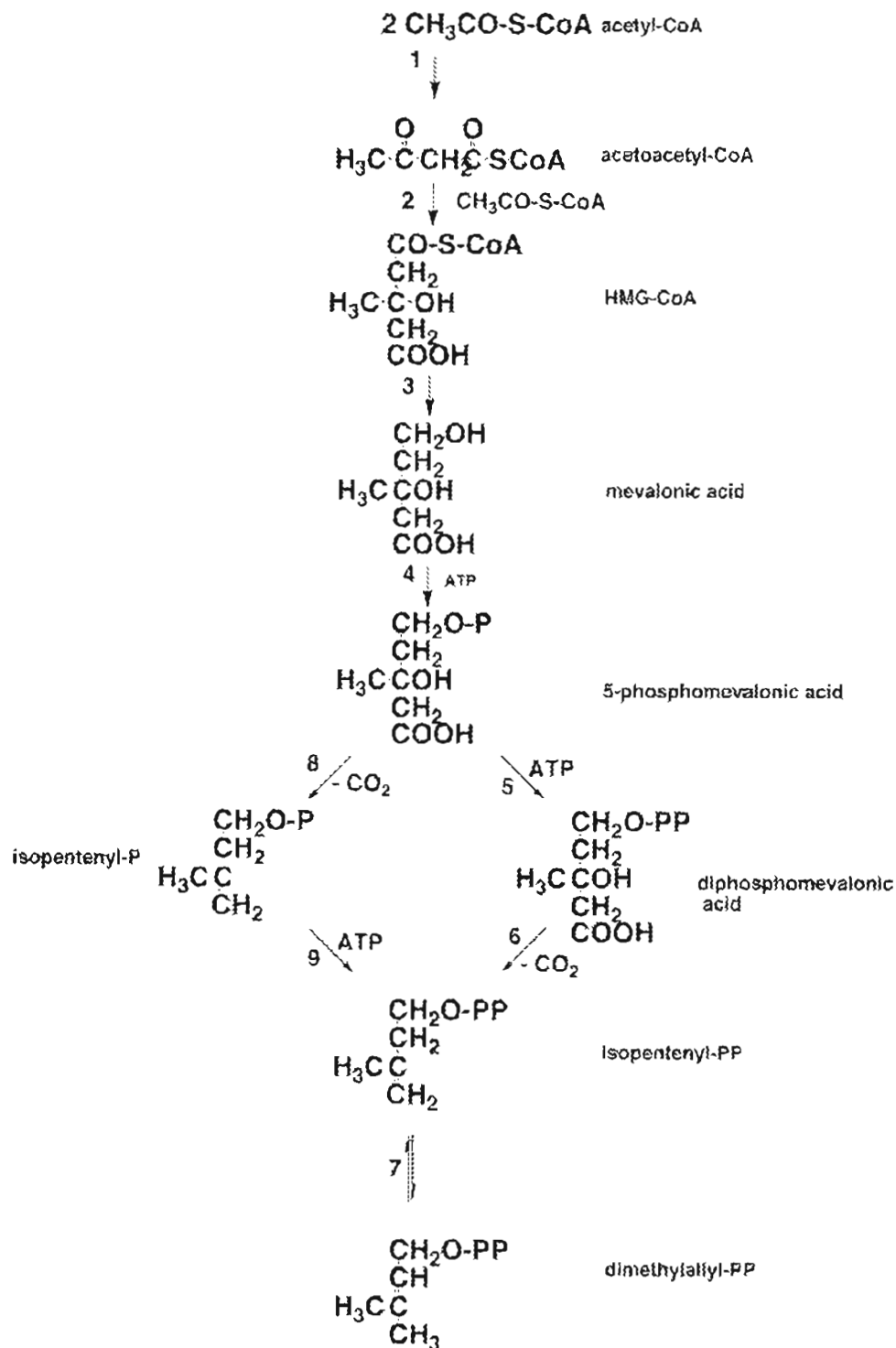


Figure 20A

Y. lipolytica CLIB122:: pYLA(MAP29)

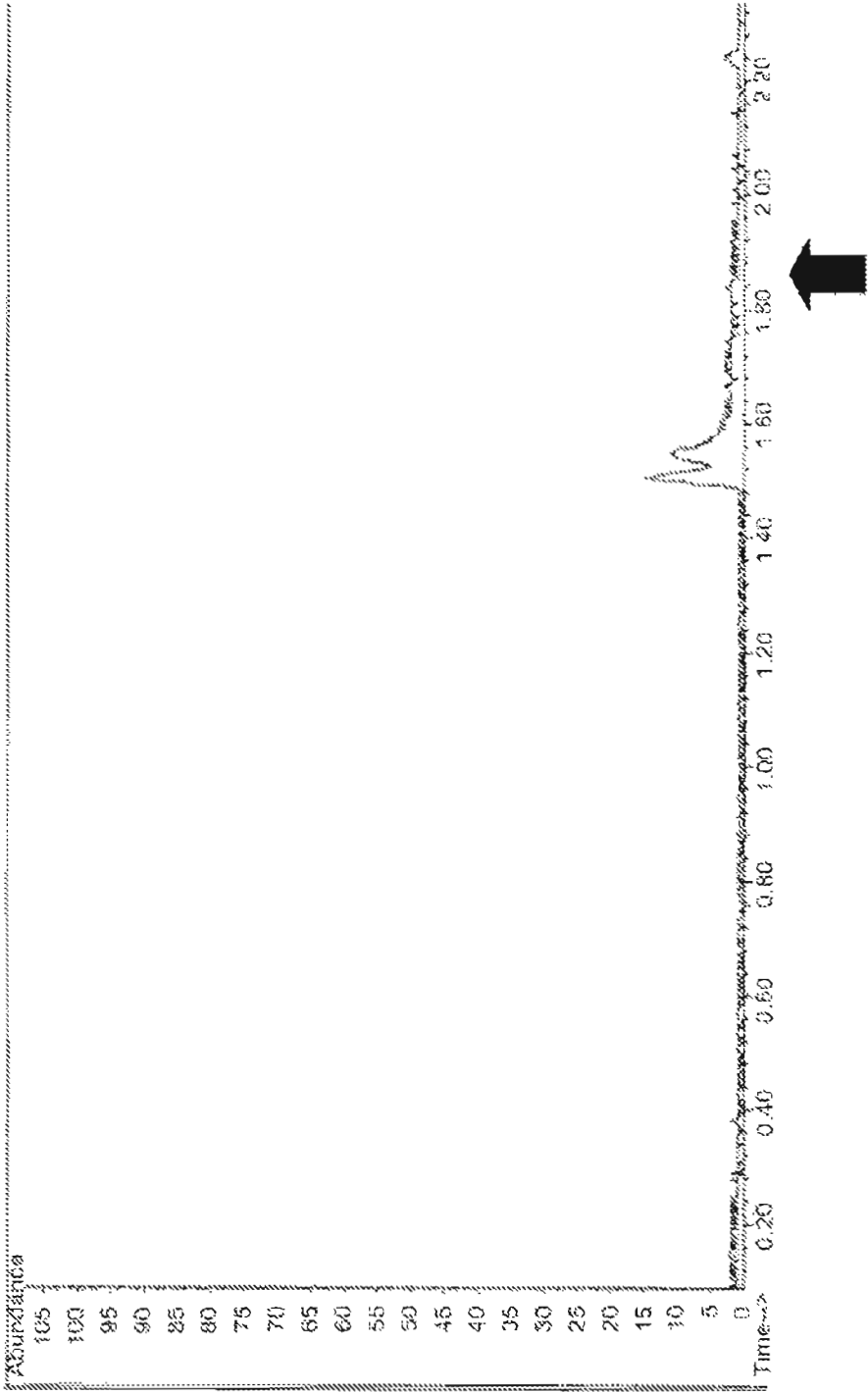


Figure 20B

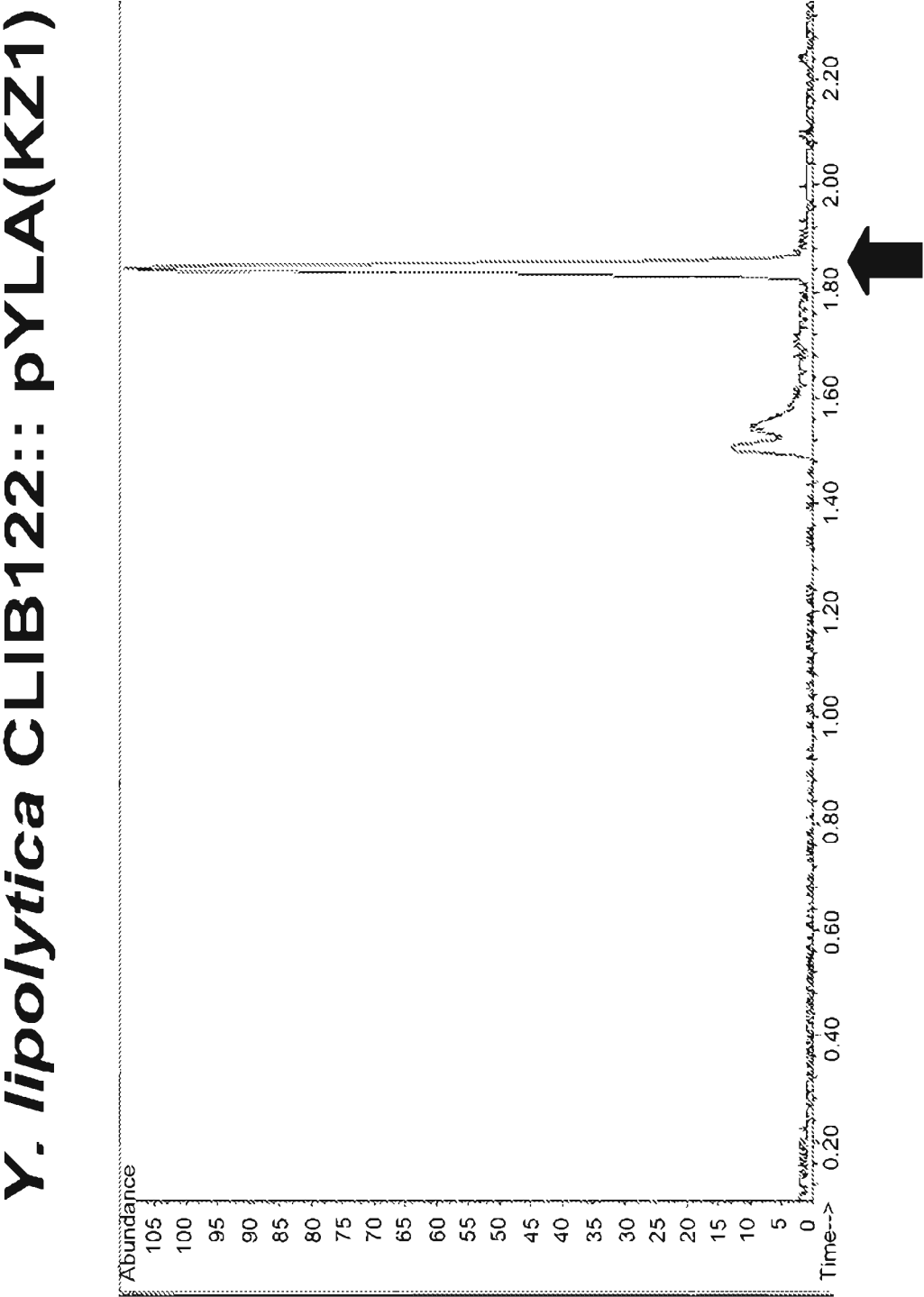


Figure 21

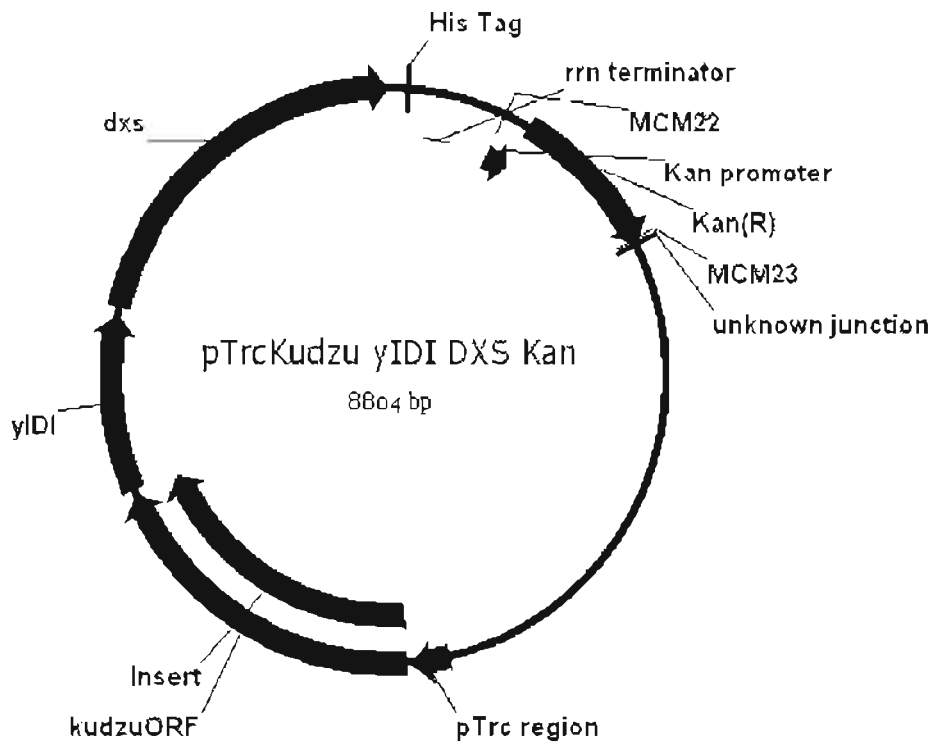


Figure 22B

gagtcattcagggtggtgaatgtgaaaccagtaacgttatacagatgtcgcagagtatgccggt
gtctcttatcagaacgtttccgcggtggtgaacpaggccagccacgtttctgcgaaacgcggg
aaaaagtggagcggcgatggcgagctgaattacattcccaacgcggtggcacaacaactggc
gggcaaacagtcgttgcgtgaltggcggttgccacctccagttctggccctgcacgcgcggtcgcaa
attgtcgcggcgatataaatctccgcgcgcatcaactgggtgccagcgtgggtggtgtcgatggtag
aacgaagcggcggtcgaagcctgtaaagcggcggtgcacaattctctcgcgcgaacgcggtcagtg
gctgatcatfaactatccgctggatgaccaggtatgcaattgctgtggaagctgcctgcactaat
gttccggcggttatttcttgatgtctctgaocagacacccatcaacagttatttcttctcccatg
aagacggtacgcgactggcggtggagcatctgggtgcgattgggtcaccagcaaatcgcgctgtt
agcgggcccattaaagtctgtctcggcgcgctctgggtctgggtgggtggcataaatatctcact
cgcaatcaaatcagcgcgtagcgggaacgggaagggcactggagtgccatgtccggttttccaa
aaaccatgcaaatgctgaatgagggcatcgttcccactgcgagtgtgtgttgccaacgcatcgat
ggcgctggcgcaatgcgcgcgcatcaccaggtccgggtgcgcggttgggtgcggatactcgggt
gtgggatacgcagatacgaagacagctcatgttataccgcgcgtcaaccacatcaaacagg
atttctgcctgtcggggcaaacagcggtggacgcgttgcgtgcaactctctcagggccaggcggt
gaagggcaatcagctgttgcgcgtctcactggtgaaaagaaaaaccacccgtggtgcccatac
caaacgcgctctccgcgcggttggcgacttcaatgaatgcagctggcagacaggtttcccgac
tggaaagcgggtagtgagcgcaacgcgaattaatgtgagttagcgcgaattgatctggtttgaca
gcttatcatcgactgcacggtgcaccaatgcttctggcgtaggcagccatcggaagctgtggt
atggctgtgcaggttcaatcactgcataatctgtgtcgtcagggcgcaactccggttctgga
taacgttttctgcgcgcgcatcaatcaggttctggcaaatattctgaaatgagctgttgcaaat
taactcatccggtctgtataatgtgtggaattgtgagcggtataacaatttcacacaggaacagc
gcgcgtgagaaaaagcgaagcgactgctcttcaacaatttatcagacaaactctgtgtgggcac
tcgaccgggaattatcgattaaacttattattaaaaattaaagaggfataatattatctcgat
taaatagggaggaataaaacatgtgtgcgacctctctcaatttactcagattaccgagcataa
ttcccgctcgttccgcaaaactatcagccaaacctgtggaaatttccgaattcctgcaatccctggag
aacgaacctgaaagtggaaaagctggaggagaaagcgaacaaactggaggaagaagtctcgtgca
tgatcaacgcgtgtagacacccagcgctgtccctgctggagctgatcgacgatgtgcagcgct
gggtctgacctacaaatttgaaaaagacatcataaagccctggaaaaacatcgtactgctggac
gaaaaacaaagaaacaaatctgacctgcacgcacaaecgctctgtcttccgctctgctgcgtcagc
acggttctcgaggttctcagggatgttcttgagcggttcaaggataaagaagggtgttctcagcgg
tgaaactgaaaggtgacgtccaaaggcctgctgagcctgtatgaaagcgtcttacctgggttctcag
ggtgagaaacctgctggaggagggcggtaccttttccatcaccacacctgaagaacaaacctgaag
aaggcatataacaaagggttgcaagaacagtgagccacgcgcctggaaactgcatatcaccagcg
ctctgcaacgctctggaggcacgttgggtccctggatcaatacgaacgcgaagaacgcgcatcaccg
ctgctgctggagctggcgaaagctggatttcaacatggtacagacccctgcaccagaaagagctgc
aagatctgtccgctgtgtggacccgagatgggctggctagcaaacctggatttctgtaocgcacg
cctgatggaggttatttctgggcactgggtatgggcgcagacccgcagtttgggtgaatgtcgc
aaagctgttactaaaatgttgggtctggtgacgatcatcgatgaagtgatgaagtttatggca
ctctggacgaactgcacgttccacgatgctgtagagcgctgggacgttaacgetaltacac
cctgcgcgactatataaactgtgttctcggcactgtacaaacacggttaacgacacgtccat
tctattctgaaagagaaagggtcataacaacctgtccatctgacgaaaagctggcggtgaactgt
gcaaacgcttctgcgaagaggcgaaatggtccaaacaaacaaatattcccggttcttccaaagta
cctggaaaaagcgcagcgttctcctcccggtgtgagcgctgctggcgccgtcttacttctccgta

Figure 22C

tgcacagcagcaggaagacatctccgaccacgcgcgtgcgttccctgaccgacttccatgggtctgg
tgcgttctagctgcgttatcttccgcctgtgcacagatctggccacctctgcggcggagctgga
acgtggcgagactaccaattctatcattagctacatgcacgaaaacgatggtaaccagcgaggaa
caggcccggaagaactgcgtaaactgatcgacgcgaatggaaaaagatgaalcgtgaacgcg
ttagcgactccacctgctgcttaagcgttcatggaaatcgcagttaacatggcacgtgttcc
ccactgcacctaccagtatggcgatggctctgggtcgcccgactacggcgactgaaaaccgcac
aaactgctgctgattgaccccttcccgattaccagctgatgtatgtctaacctgcacgcctt
aggaggtaaaaaaaatgactgcgcacaacaatagttatgccccatgggtgcagtatctagttacg
ccsaatttagtgcaaaaaccsaaccctgaagacattttggaagagtttccctgaaattattccatt
acaacaaagacctaataccgatctgtgagacgtcaaataacgaaagcgagaaacatgtttt
tctgggtcatgatgaggagcaaatgaagttaattgaatgaaaattgtattgttttggattgggacg
ataatgctattgggtgcgggtacdaagaaagttytcatltaaltggaataattgaaaagggttt
actacatcgtgcatctccgtctttattttcaatgaacaaggtyaattacttttacaacaaaga
gccactgaaaaaataactttccctgatctttggaactaacacatgctgctctcatccactatgta
ttgatgacgaattaggtttgaagggttaagctagacgataagattgaaggcgctattactgcggc
ggtgagaaaaactagatcatgaattaggtattccagaagatgaactaagacaagggttaagttt
cactttttaaacagaatccattacatggcaccagcaatgaacatgggggtgaacatgaaattg
attacatcctattttataagataaacgctaaagaaaaacttgactgtcaaccccaacgtcaatga
agttagagacatcaaatgggtttcacaanaatgatttgaaaactatgtttgctgacccaagttac
aagtttacgccttgggtttaagattatttgcgagaattacttattcaactgggtgggagcaattag
atgacctttctgaagtggaataatgacaggcaaatccatagaatgctataaacacgcgtctctga
ttcgcctttaggaggttaaaaaacatgagttttgatattgccaaataccgcacctggcaatgg
tcgactccacccagggttacgactgttgccgaaagagagtttacggaactctgcgcgcaact
gcgcgcctatttactcgacagcgtgagccgttccagcgccacttcgcctccgggctgggcacg
gtcgaaactgacgcgtggcgctgcactatgtctacaacaccccggttgacccaattgatttgggatg
tggggcatcaggcttatccgcataaaaattttgaocgyacgcgcgcgacaaaatcggcaccatccg
tcagaaaggcggtctgcacccgttcccggtggcgcgcggaagcgaatatgacgtatlaagcgtc
gggcattcatcaacctccatcagtgccgggaattgggtattgctgtgcggaanaagagga
aaaaatcgccgcacccgtctgtgtcattggcgatggcgcgattacgcgagcatggcgtttgaagc
gatgaatcacgcggcgcatatccgtctgatatgctgggtgattctcaacgacaatgaatgtcg
atttccgaaaatgtggcgcgctcaacaacccatctggcacagctgctttccggtaagctttact
cttcaactgcgcgaaggcggggaaaaaagt tttctctggcgtgcgcgcaattaaagagctgctcaa
acgcacccgaagaacatattaaaggcatggtagtgcctggcacgttggttgaagagctgggcttt
aactacatcggcccggtggacgggtcargatgtgctggggttatcccaacgctnaagaacatgc
gcgaactgaaggcccgagttcctgcataatcatgaccanaaaaggctcgtggttatgaacggc
agaaaaagaccogatacctttccacgcctgcttaaatttgatccctccagcggttggtttgccc
aaaagttagcgggcggtttgcggagctatccaaaaatctttggcgactgggtgtgcgaaacggcag
cgaaagacaacaagctgatggcgattactccggcgatgcgtgaagggtccggcatgggtcgagt
ttcactgtaaatcccggtatcgctacttcgaagctggcaattgcggagcaacacgcgggtgacctt
gctgcgggtctggcgattgggtgggtacaaaacccattgtcgogatttactccactttctgcac
ggcctatgatcaggtgctgcattgacgtggcgattcaaaagctccggctcctgttccgcatcga
ccgcgcgggcatlgttgggtgctgacgggtcaaacccatcagggtgcttttgatctctcttactg
cgtgcataccggaaatgggtcattatgaccccgagcgatgaaaacgaatgtcgccagatgctct
ataccggctatcactataacgagggcccgctcagcggtgcgctacccgcgtggcaacgcggkcg

Figure 22D

cgtggaaactgacgccgctggaaaaactaccaattggcaaggcatttgtgaagcgtcgtggcgag
aaaactggcgatcccttaacttttggtacgctgatgccagaagcggcgaaagtcccggaatcgtga
acgccacgctggcgatatgcgttttggtaaacggcttgatgaagcgttaattctggaaatggc
cgccagccatgaagcgtggtcaccgtagaagaaaaacgccaattatgggcggcgccaggcagcggc
gtgaacgaagtgcgtgatggcccatcgtaaacagtaaccgtgctgaacattggcctgcggact
tctttattccgcaagggaactcaggaagaaatgcgcgcggaactcggcctcgatgccgctggat
ggaagccaaaatcaaggcctggctggcataaactgca

SEQ ID NO:10

Figure 23A

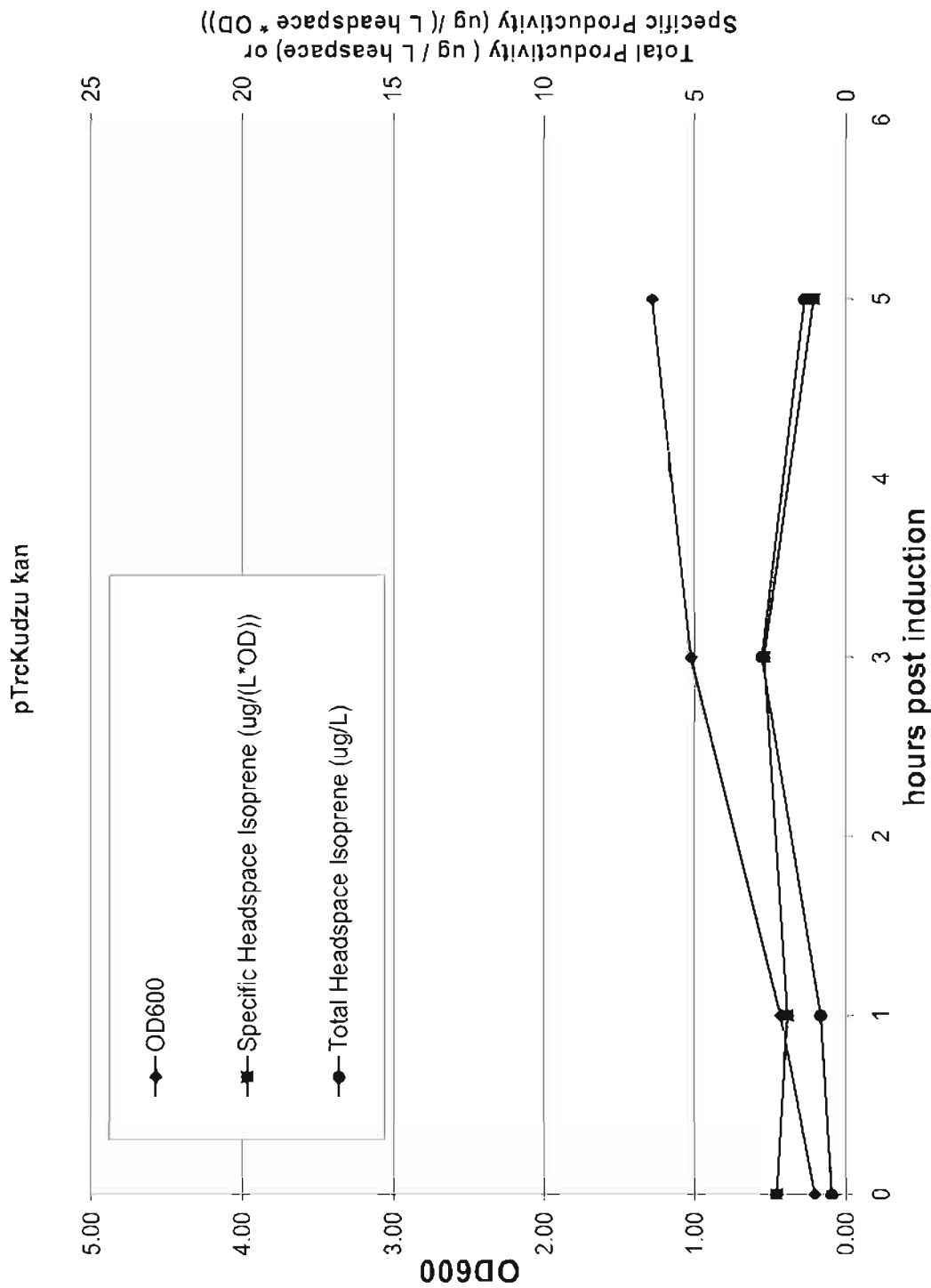


Figure 23B

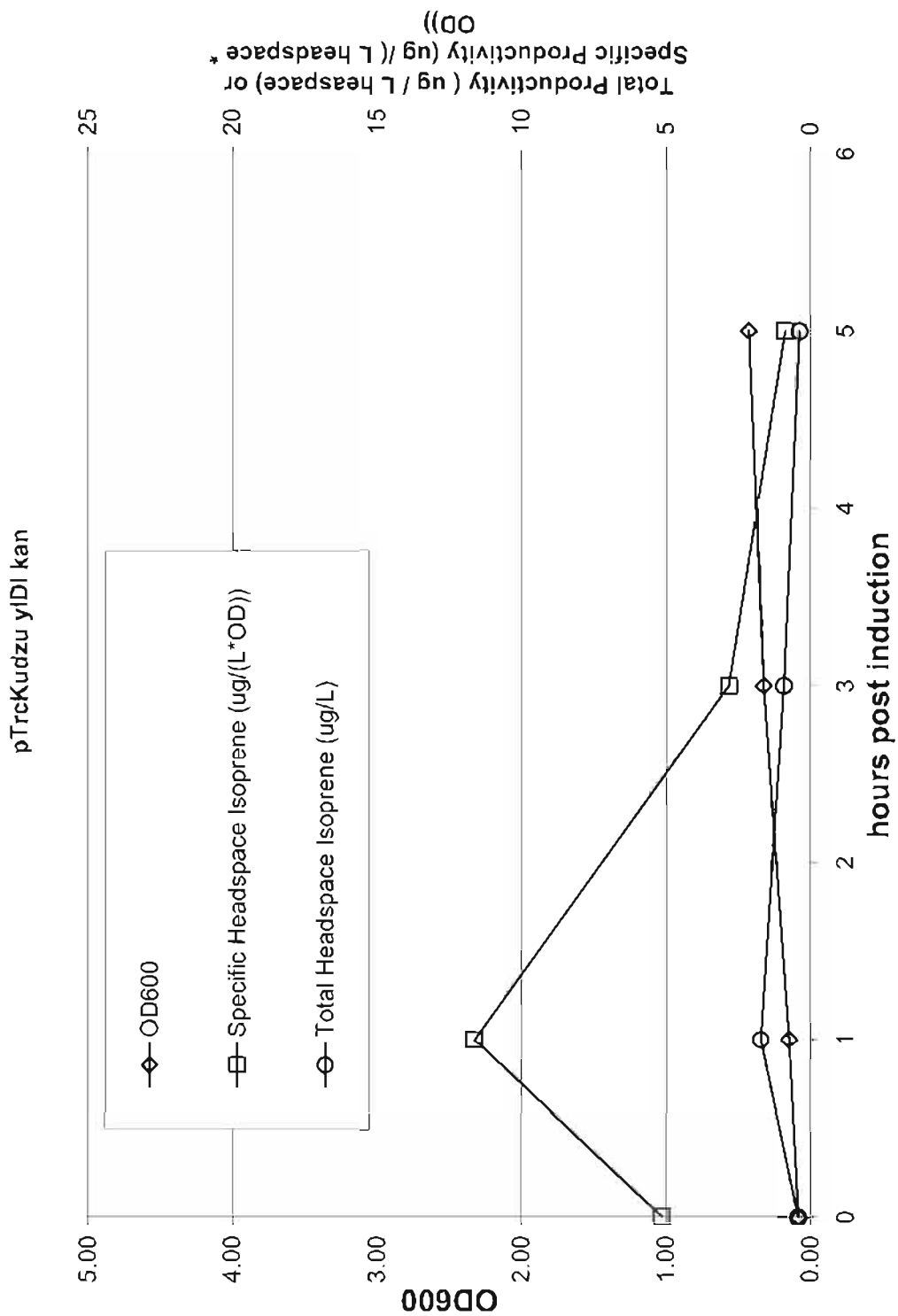


Figure 23C

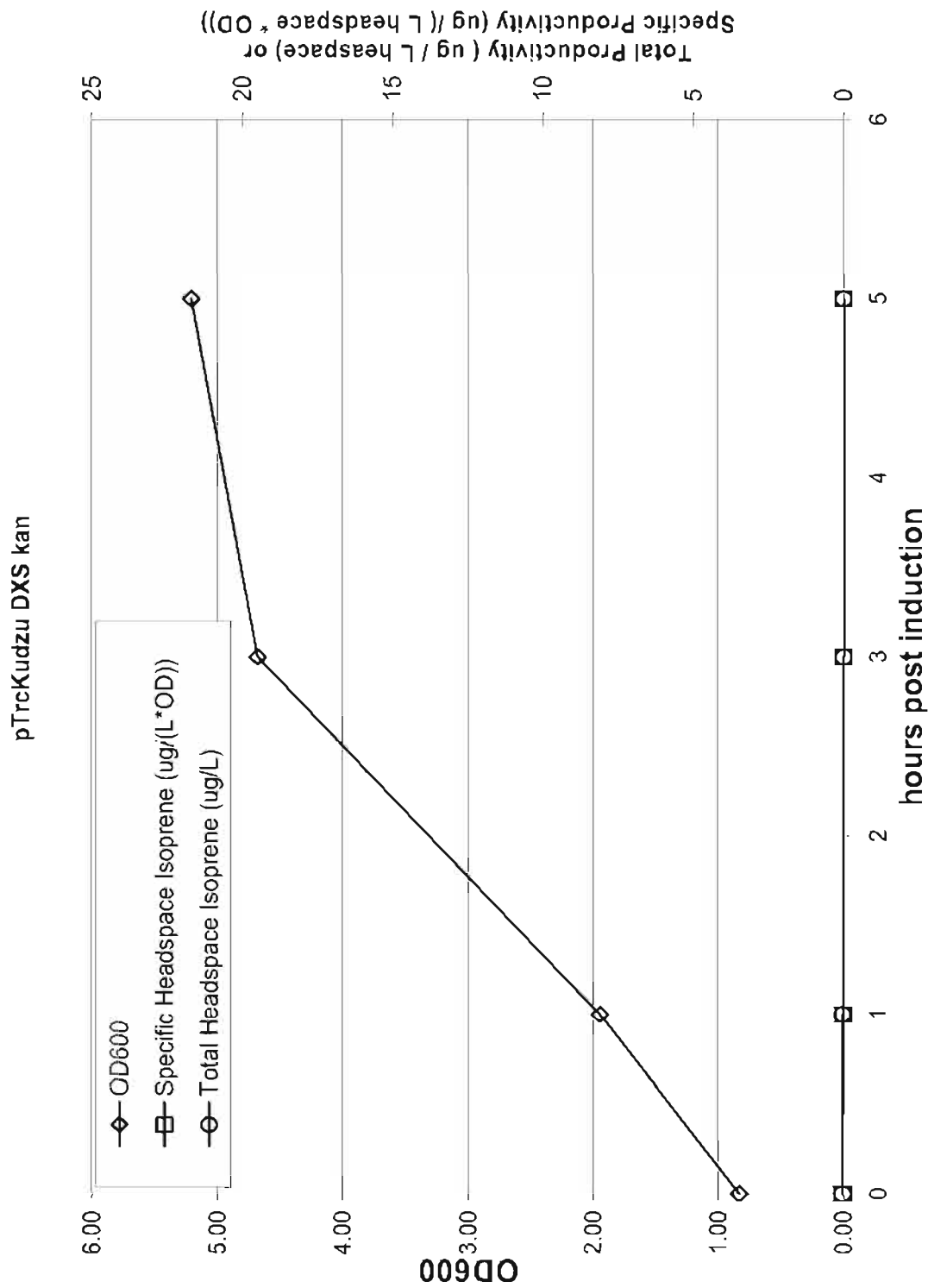


Figure 23D

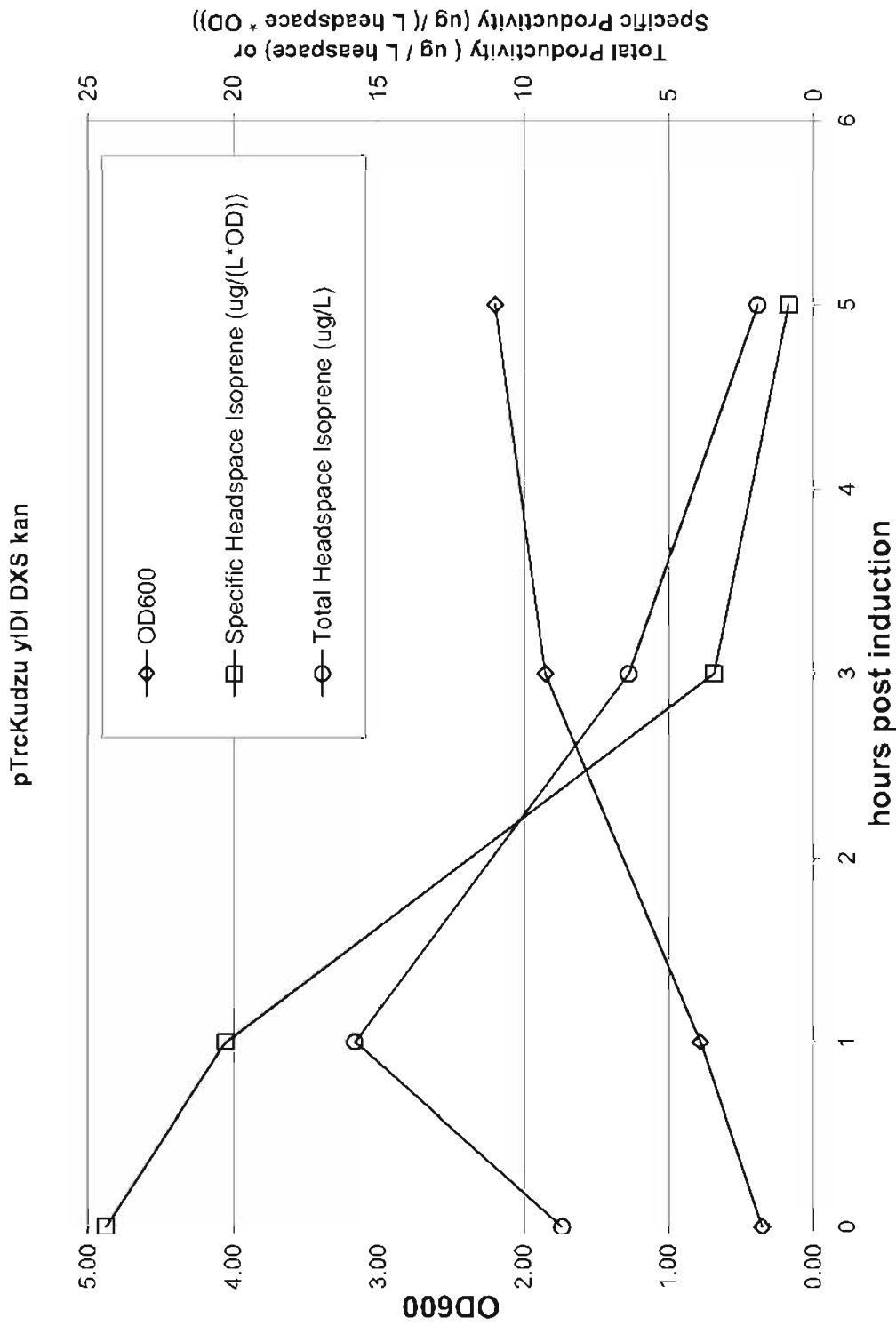


Figure 23E

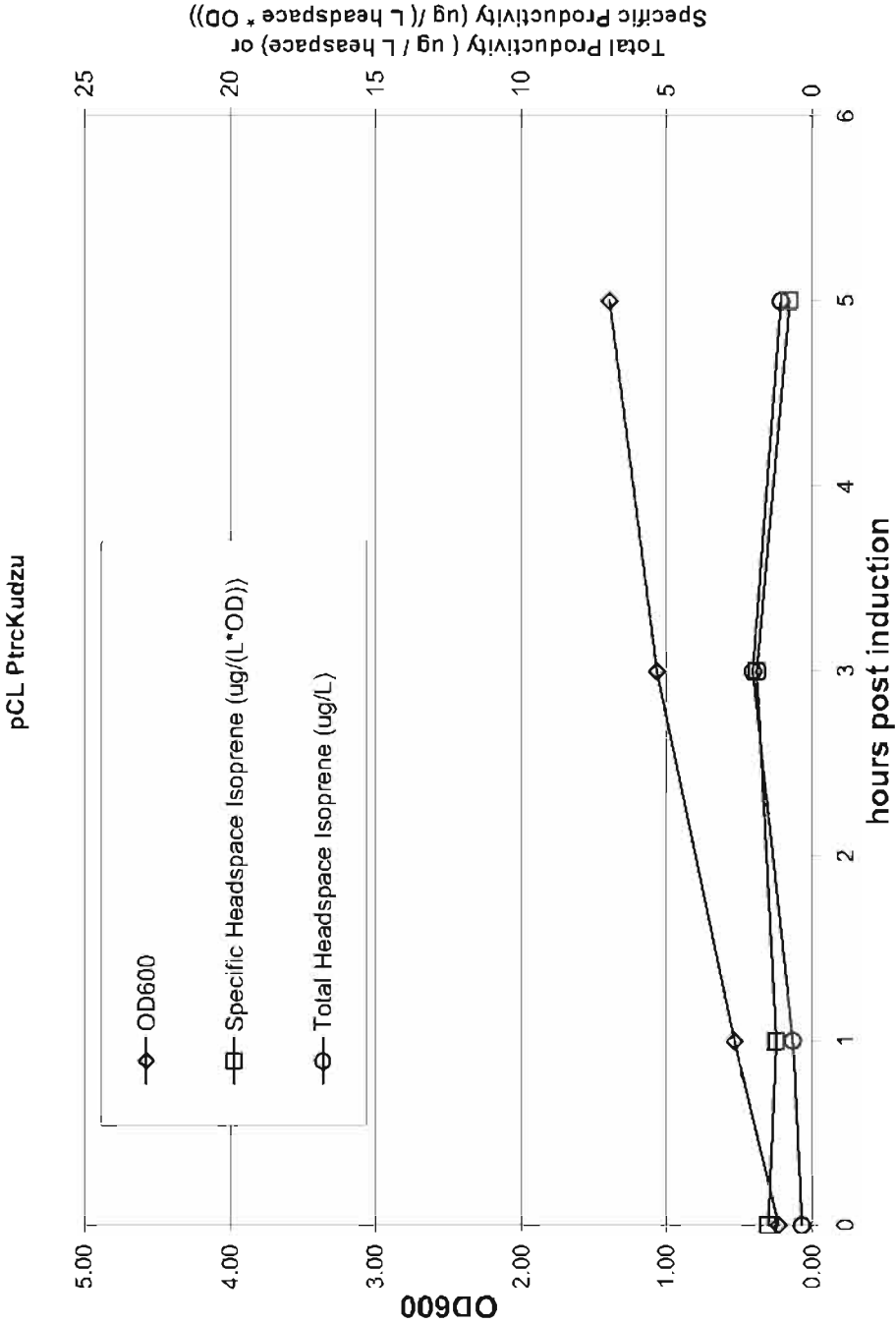


Figure 23F

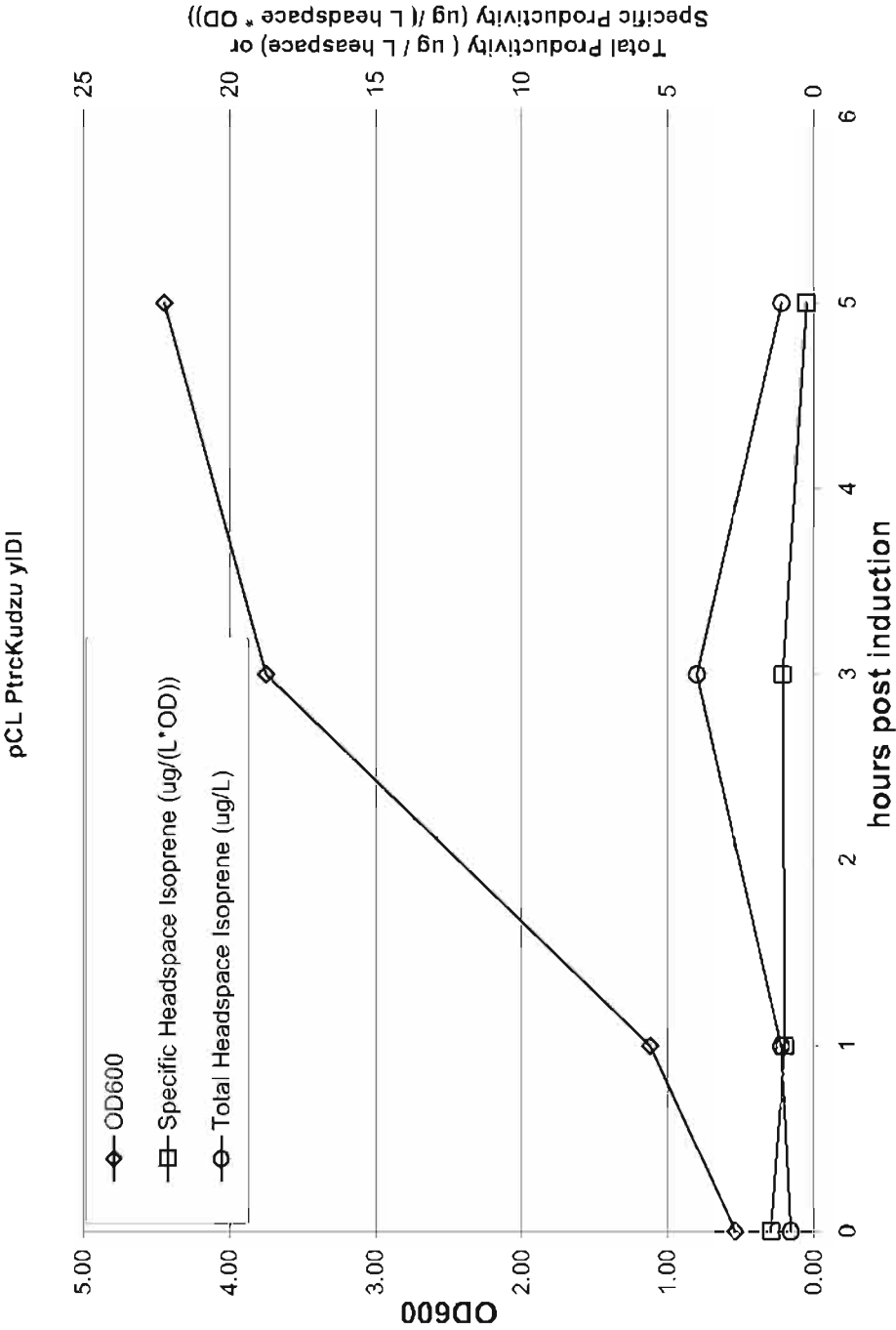


Figure 23G

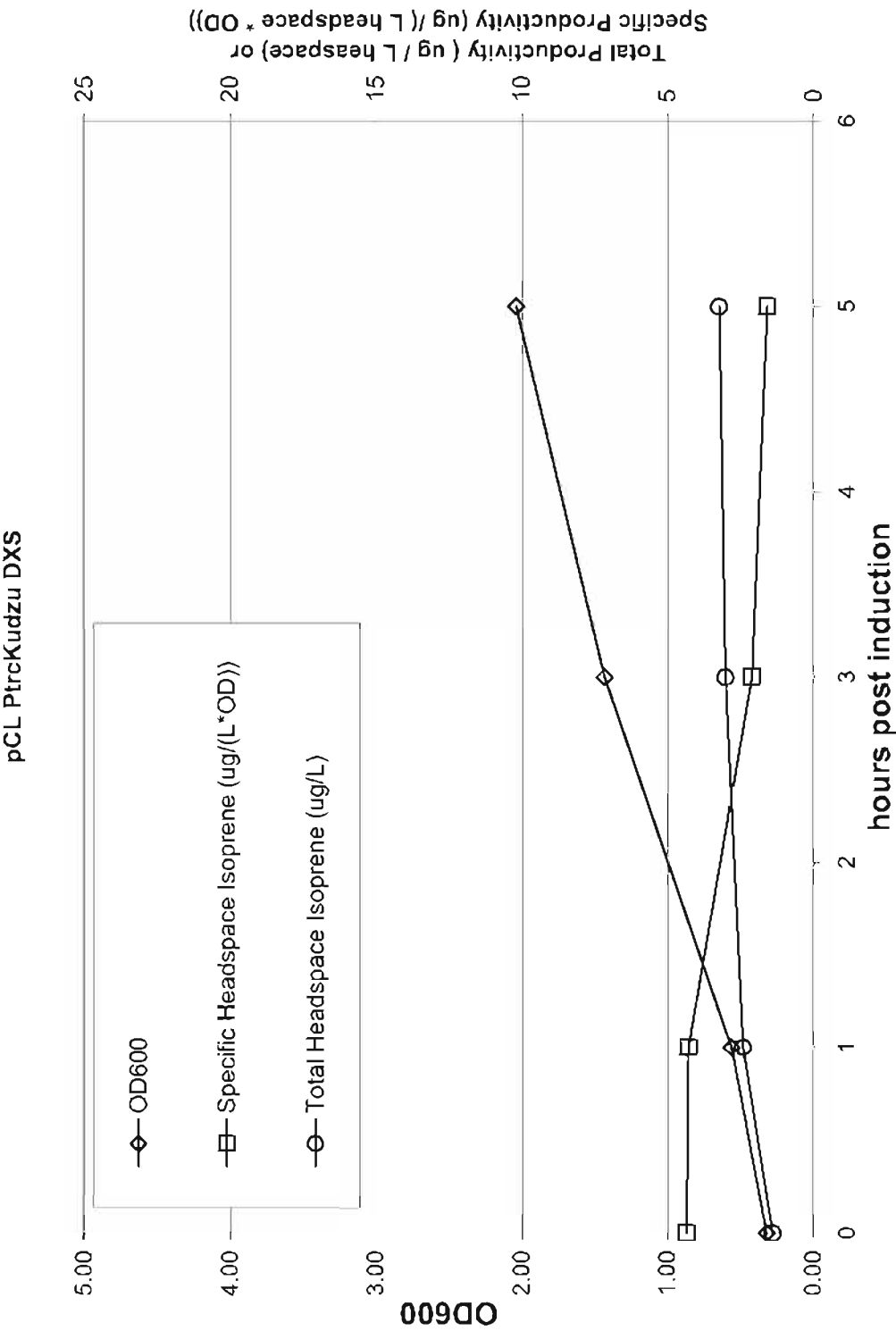


Figure 23H

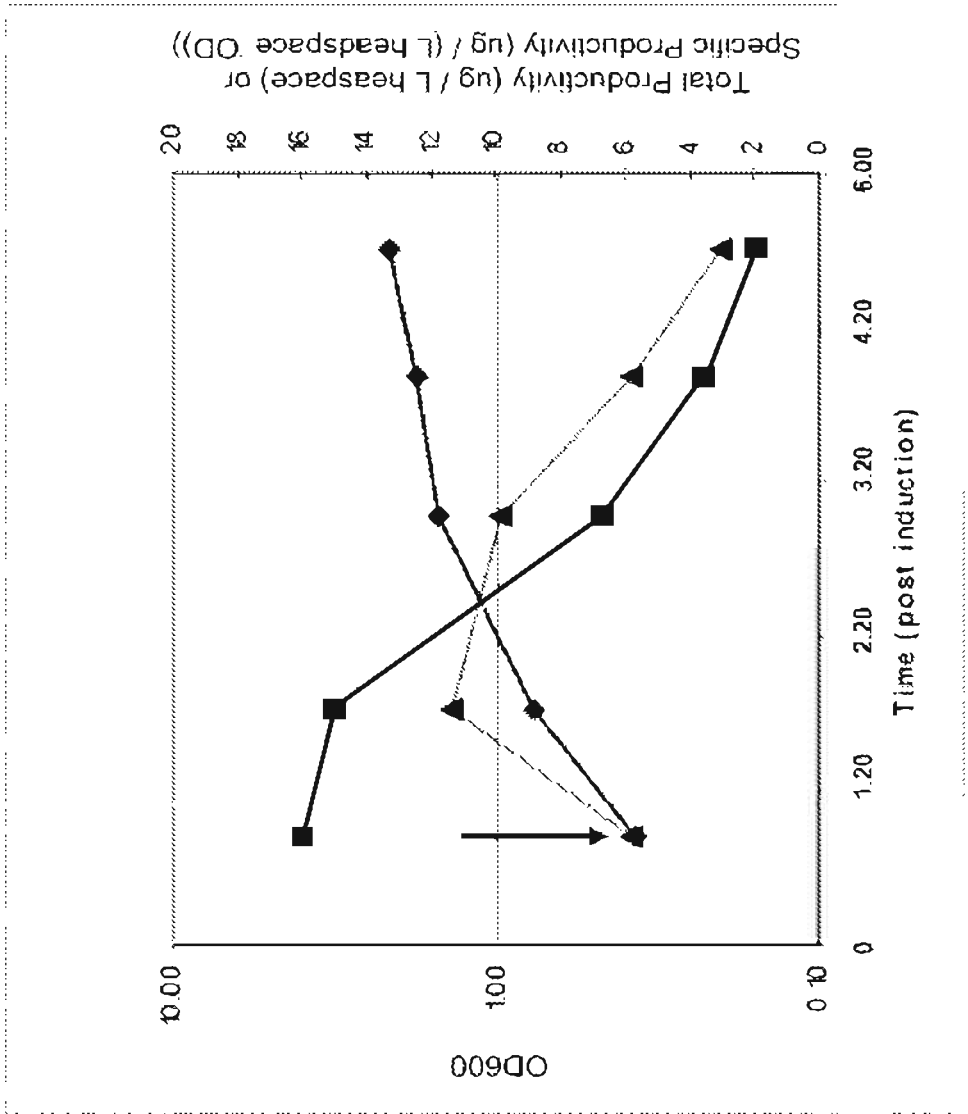


Figure 24

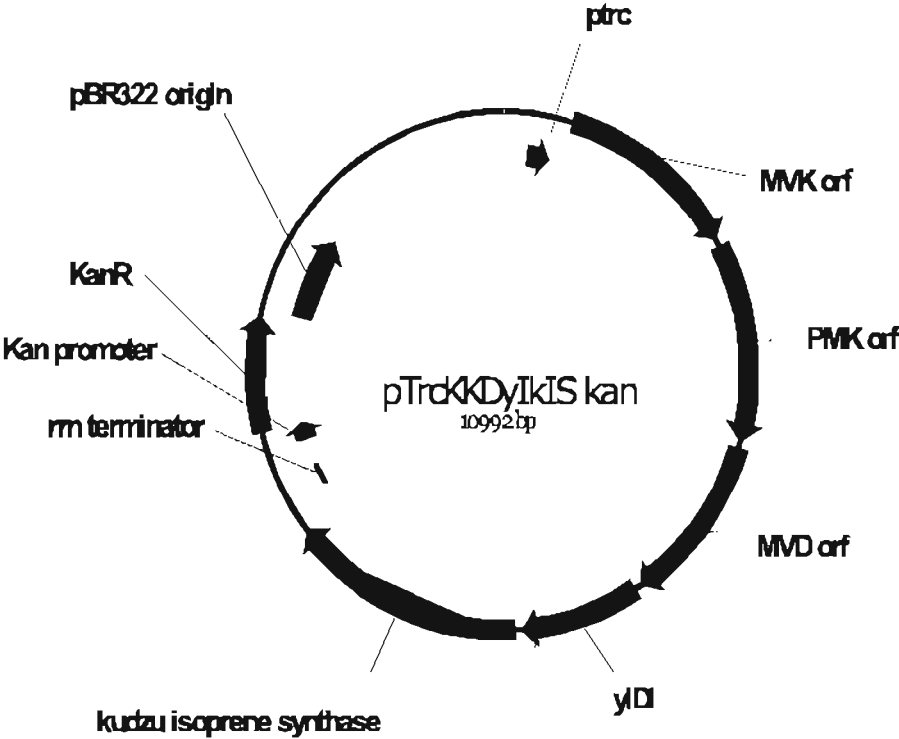


Figure 25A

5' -

gttttgacagcttatacatcgactgcacgggtgcaccaatgcttctggcggtcaggcagccatcggaa
 gctgtgggtatggctgtgcagggtcgtaaatcaactgcataatctgtgtcgctcaaggcgcaactccc
 gttcttgataaatgttttttgcgcgcgacatcataacgggttcttggaataattctgaaatgagctg
 ttgacaattaatcatcoggetcgatataatgtgtggaattgtgagoggataacaatttcacacag
 gaaacagcgccgctgagaaaaagcgaagcggcactgctctttaacaatttatcagacaaatctgt
 gtgggcactcgacogggaatttatcgatttaactttatttattaaaaatbaaagaggtatatattaar
 gtatcgattaaataaggnggaataaaaccatggatccgagctgggatccactagtaacggcgccgc
 agtgtgctgggaatttcgcctttaggaggtaaaaaaacatgtcattaccggttcttaacttctgcac
 cgggaaggttattatttttgggtgaacactctgctgtgtacaacaagcctgcccgtcgtctgttag
 tgtgtctgcttgagaacctacctgctaataagcgagtgcatctgcaccagatactattgaattg
 gacttcccggacattagctttaatcataagtggtccatcaatgatctcaatgccatccaccagg
 atcaagtaaaactcccaaaaatttggccaagggtcaacaagcaccgattggcttgtctcaggaaat
 cgttagtcttttggatccggttgttagctcaactatccgaatccttccactacatgacagcgttt
 tgtttcctgtatatgttltgtttgcctatgcccccatgccaagaattttaagttttcttttaaagt
 ctactttaccocatcggtgctgggttgggtcacaagcgcctctatttctgtatcacbtggccttagc
 tatggcctacttgggggggttaataggatctaatgacttggaaaagctgtcagaaaacgataag
 catatagtgaaatcaatgggccttcataaggtgaaaagtgatctcacgggtacccttcaggaaatag
 ataacgctgtggccacttatggtaatgcctgctatcttgaaaaagactcacataatgggaacaat
 aaacacaaaaaattttaagttcttagatgatttcccagccattccaatgatccctaaacctatact
 agaattccaagggtctacaaaagatctltgttgcctcgcgttctgtgtgttgggtcaccgagaaaatttc
 ctgaagttatgaagcccaattctagatgccatgggtgaatgtgcctacaaaggcttagcgatcat
 gaataagtttaagtaaatgttaaggccacgatgacgaggtgtgagaaactaatgaactgtat
 gaaccaactattggaattgataagaataaatcatggactgcttgtctcaatcgggtgttctcctc
 ctggattagaacttattaaaaatctgagcgatgatttgagaattgggtccacaaaacttaccgg
 tgcctgggtggcgcggttgcctctttgactttgttacgaagagacattactcaagagcgaattgac
 agcttcaaaaagaaatttgcaagatgatttttagttacgagacatttgaaaacagacttgggtggga
 ctggctgctgttttgttaagcgcacaaaaatttgaaataagatctttaaatacaaatccctagttatt
 ccaatttatttgaaaaataaaactaccncaaaagcaacaaattgacgatctattaltgocaggaaac
 acgaatttaccatggacttcataagctaatttgcgatagggttgcaaccttaaggagggaaaaaa
 acatgtcagagttgagagccttcagtgccccagggaagcgttaotagctgggtggatatttagt
 ttttagatacaaaatatgaagcatttgttagtcggaattatoggcaagaatgcattgctgtagccca
 ccttacgggttcatttgcaagggtctgataagtttgaagtgcgtgttgaaaagttaacaatttaag
 atggggagtggtgtgacatatagtcctaaaagtgggttcattcctgtttcgataggcggatc
 taagaaccttccattgaaaaagttatcgctaacgtatttagctactttaaacctsaacatggac
 gactactgcaatagaaacttgttcgttattgatacttctctgatgatgcctaccattctcagg
 aggtatagcgttacccaacatcgtggcaacagaagattgagtttccattcgcacagaaattgaaga
 agtccccaaaaacagggtgggtgcctcggcagggtttagtccacagtttcaactacagcttgggc
 tcccllttlttltatgggaacttggaaaalaaatgtagacaaatatagagaagttattcataatttag
 cacaagttgctcattgtcaagctcagggttaaaatttgaagcgggtttgatgttagcggcgccagc
 atatggatctatcagatatagaagattcccacccgcatttaactcctaatttgccagatatttga
 agtgcctacttacggcagtaaacggcgcatlttgggttgatgaagaagactggaatatattacgatta
 aaagtaacctttaccttcgggatttaactttatggatgggcgatattaagaatggttcagaaac
 agtaaaactgggtccagaaggtaaaaaatttggtatgattccgatatgcagaagacttgaaaata

Figure 25B

tatacagaactcgatcatgcaaattctagatttatggatggactatctaaactagatcgcttac
acgagactcatgacgattacagcgatcagataatttgagtctcttgagagggaatgactgtaoctg
tcaaaagtatccctgaatcacagaagtttagagatgcagttgccacaatttagacgttccctttaga
aaaataactaaagaatctggtgccgatctcgaaacctcccgtaaaaaactagcttattggatgatt
gocagagcttaaaaggagttcttacttgccttaatacctgggtgctgggtgggttatgacgccattgc
agtgattactaagcaagatgtttagatcttagggctcaaacccgtaatagacaaaagattttctaaag
gttcgaatggctggatgttaactcaggctgactgggggtgttaggaaagaaaaagatccggaaactt
atcttgataaaataaotlaaggtagctgcattgcagaattccgcccttaaggaggaaaaaaaatga
ccgtttacacagcatccgttaacggcaacccgtcaacatcgcaaaccttaagfattgggggaaaaag
ggacacgaagttgaatctgcccacaaattcgtccatattcagtgactttatcgcaagatgaactc
agaacgttgacccctcgccgtactgcacctgagtttgaaacggcagacactttgtggttaaatggag
aacacacagcatcgacaatgaagaactcaaaattgtctgcgcgacctacgccaattaagaaa
ggaaatggaatcgaaaggacgctcatlgccacattatctcaatggaaactccacattgtctcc
gaaaaataactttccctacagcagctgggttttagcttccctccgctgctggctttgctgcattggct
ctgcaattgctaaagttalaaccaattaccaacagtcacacttcagaataatcttagaatagcaagaaa
gggtctgggttcagcctgttagatcgctgttttggcggatagctggcctgggaaatgggaaagct
gaagatgggtcatgattccatggcagtcacaaatcgcaacagctctgactggcctcagatgaaag
cttgtgtccctagtgctcagcgatattaaaaaggatgtgagttccactcagggtatgcaattgac
cgtggcaacctccgaactatttaaagaaagaattgaacatgtcgtlaccuaagagatttgaaagtc
atgagtaaaagccattgtttgaaaaagatttcggccacctttgcaagggaacaaatgatggattcca
actctttccatgccacatgtttggactcttccctcccaatattctacatgaatgacacttccaa
gcgtatcatcagttgggtgccacacccattaatcagttttacggagaaaacaaatcgttgcatacag
tttgatgcagggtccaaatgtgtgtttgtactacttagctgaaaatgagtcgaaactctttgcatt
ttatctataaattgttttggctctgttccctggatgggacaagaaatttactactgagcagcttga
ggctttcaaccatcaatttgaatcatctaaacttactgcacgtgaattggatcttagagtggcaa
aaggatgttgcagagtgatttttaactcaagtcgggttcaggcccaacaaagcaacaaacgaatctt
tgattgacgcaagactggcttaccaaagggaataagatcaattcgtgcctcgccttaggagg
taaaaaaaatgactgcgcgacaacaaatagttatgcacatgggtgcagttatctagttacgccaat
tagtgcaaaaacaaacacotgaagacattttggaaagatttccctgaaatttatccattacaaca
aagacctaataccgatctagtgagacgtcaaatgacgaaagcggagaaacatgtttttctgggt
catgatgaggagcaaatlaagttaatgaatgaaaattgtattgttttggattgggacgataatg
ctattgggtgccggtaaccaagaaagtttgtcatttaatggaaaataftgaaaagggtttactaca
tcgtgcattctccgtctttatcttcaatgaacaagggtgaattacttttacaacaaagagccact
gaaaaataaactttccctgatcttttggaactaacacatgctgctctcatccactatgtattgatg
acgaattaggtttgaagggttaagctagacgataagattaaaggcgctattactgcggcggtgag
aaaactagatcatgaattaggtattccagaagatgaaactaagacaaggggtaagtttcaacttt
ttaaacagaatccattacatggcaccacgaantgaaccatgggggtgaacatgaatattgattaca
tccattttataagatcaacgctaaagaaaaacttgactgtcaaccccaaacgctcaatgaagttag
agaactcaaatgggtttcaacaaatgatttgaaaactatgtttgctgacccaagttacaagttt
acgccttgggttcaagattattttgcgagaattactttatcaactgggtgggagcaattagatgacc
ttctgaagtggaanaatgacaggcaaatlcatagaatgctataaacaacgcttccctgcatlccgc
cttaggagggtaaaaaaacatgtgtgcgacctcttctcaatttactcagattaccgagcstaatt
ccgctcgttccgcaaacctacagccaaacctgtggaatttcgaattcctgcaatccctggagaa
cgacctgaaggtggaaaagctggaggagaaagcgaccaaactggagggaagaagttcgtgcattg

Figure 25C

atcaaccgtgttagacaccacagccgctgtccctgctggagctgatcgacgatgtgcagccctgg
gtctgacctacaaatttgaanaagacatcatataagccctggaaacatcgtactgctggacga
aaacanaaagaacaaatctgacctgcaogcaaccgctctgtctttccgtctgctgctcagcac
ggtttctgaggtctctcaggatgtttttgagcgtttcaaggatnaagaagggtggtttcagcgggtg
aactgaaagggtgacgtccaaaggccctgctgagccctgtatgaagcgtcttacctgggtttcgaggg
tgagaacctgctggaggaggcgcgtacctttccatcacccacctgaagaacaacctgaaagaa
ggcatlaataaccaagggttgagaaacagtgagccacgccttggaactgccatatcaccagcgtc
tgacacgctctggaggcaagttggttccctggataaatacgaacccaagaaacccgcatcaccagct
gctgctggagctggcggaagctggatttttaacatgggtacagacccctgcaaccagaaagagctgcaa
gatctgtccgctgggtggacogagatggggccctggctagcaaaactggattttgtacgcgacccgc
tgatggaagtttatctctgggcaactgggtatggcgccagaccgcagtttggtgaatgkcgcaa
agctgttaactaaaatgttttggtctggtgacgatcatcgatgacgtgtatgacgtttatggcaact
ctggacgaactgcaactgttcccgatgctgttagagcgttgggacgttaacgctattaacacccc
tgccggactatatagaacactgtgtttccctgghacgtgtacaaacacccgttaacgacacgtccatctc
tattctgaagaggaagggtcatacaaacctgtccctatctgacgaanaagctggcggtgaactgtgc
aaagcctttctgcaagaggcgaaatgggtccaaacaaacaaatttatcccggtttctccaaagtacc
tggaanaacgcacaggtttccctccctccggtgtagcgtgctggtggcgccgtcttacttttccgtatg
ccagcagcaggaagacatctccgacacgcgcgtgggttccctgaccgacttccatgggtctggtg
cgttctagctgggttatcttccgctgtgcaacgatctggccacctctgcccgggagctggaaac
gtggcgagactaccaattctatcattagctacatgacagaaaacgatgggtaccagcgagggaaca
ggcccgcggaagaaactgcgtaaactgatcgacgcgcgaatggaaaaagatgaatcgtgaacgcgtt
agcgaactccacctgctgctaaagcgttccatggaaatcgacgttaacatggcacgtgttctcc
actgcaactaccagtatggcgatgggtctgggtcgccacagactacgggactgaaagccgcacataa
actgctgctgattgacccctttcccgattaaacagctgatgtatgtctaaactgcagctgggtacca
tatgggaattcgaaagctttctagaacaaaaactcatctcagaagaggatctgaatagcgccgctc
gaocatcatcatcatcatcattgagtttaaacggtctccagcttggtctgttttgccggatgaga
gaagattttcagccctgatacagattaaatcagaacgcagagcggtctgataaaacagaatttg
cctggcggcagtagcgcggtgggtcccaactgaacccatgcgcgaactcagaagtgaacgcgcgtg
gcgcgatgggtagtggtgggtctcccatgcgagagtagggasctgcagggcatcaataaaaac
gaaaggctcagtcgaagaaactgggcctttcgttttatctgttgggttgccgtgaaacgctctcc
gagtaggacaaatccgcggggagcggtttgaacgttgcaagcaacgggcgcggaggtggcg
gcaggaagccgcgcataaaactgcccaggtcatcaatgaagcagaaggccatcctgacggatggcc
tttttgctgtttctacaaactctttttgtttatctttctaaatacattcaaatatgtatccgctt
aacgggaattgcaagctggggcgccctctggttaaggttggaagccctgcaagtaaaactggat
ggctttctcgccgccaaggatctgatggcgaggggatcaagctctgatcaagagacaggatga
ggatcgttttcgcatgatgaacaagatggatttgacgcgaggttctccggccgcttggttgga
ggctatctggctatgactgggcacacagacaaatcggtgctctgatgcgcgctgttccggt
gtcagcgcagggggcgccggtttcttttgtaagacacgacctgtccggtgcctgaatgaactg
caagacgagggcagcgcggtatcgtggctggccacgaagggcgttccctgcccagctgtgctc
acgttctcactgaagcggaagggaactggctgctatctggcggaagtgcggggcaggatctcc
gtcatctcacttgcctcctgcccagaaagtatccatcatggctgatgcaatgoggcggtgcat
acgttctgatccgctacctgcctatccgacacacagcgaacatccatccagcagacagta
ctcggtatggaagccggtctgtctgatcaggatgatctggacgaagagcatcaggggctcgccgc
agccgaactgttcgcccaggtcaaggcgagcatgcccgaaggcgaggatctcgtcgtgacccat

Figure 25D

ggcgatgcctgcttgcggaatatcatgggtggaaaaatggccgcttttctggattcatcgactgtg
 gcgggctgggtgtggcgaccgctatcaggacatagcgttggctaccgctgatattgctgaaga
 gcttggcggggaatgggtgaccgcttccctcgctgtttacgggtatcgccgctcccgattcgag
 cgcacgcgcttctatcgcttcttgacgagttctctgacgcgatgacaaaaatcccttaacgtg
 agttttcgttccactgagcgctcagaccccgtagaaaaagatcaaggatcttcttgagatccctt
 tttctcgcgctaatctgctgcttgcacacaaaaaaaccacgctaccagcggtggtttgtttg
 ccggatcaagagctaccnaactcttttccgaaggtaactggcttcagcagagcgagataccaa
 atactgtccttctagtgttagccgtagttaggccaccacttcagaaactctgtagcaccgcctac
 atacctcgctctgctaatcctgttaccagtggtgctgctgcaqctggcgataagtcgtgtcttacc
 ggggttggactcaagacgatagttaaccgataaaggcgacggttcgggctgaacgggggggttcgt
 gcacacagcccgcttggagcgaaacgaactacacggaactgagataacctacagcgctgagctatg
 agaaagcgccacgcttccgaagggaagaaagggcggaacgggtatccggttaagcggcaggggtcgga
 acaggagagcgacagagggagcttccaggggggaacgcctgggtatctttatagtcctgtcggt
 ttgcacacctctgacttgagcgctcgatttttgtgatgctcgtcagggggcgagcctatggaa
 aaacgcagcaacgcgggctttttacgggttccgtggcttttgcctggcttttgcctcacatgttc
 tttcctgcttctacccctgattctgttgataaccgtatctacgcctttgagtgagctgataccg
 ctgcgcgacgcgaacgacgagcgcgagcgagtcagtgagcgaggaagcggaagagcgctgat
 gggttatcttctccttaacgcatctgtgcggtatcttcacacgcgatatgggtgcactctcagtaaa
 atctgctctgagtcgcgatagttaagcagtaaacactccgctatcgctacgtgacctgggtcat
 ggctgcgcgcgcgacacccgcacaccccgctgacgcgcctgacgggcttgtctgctcccgga
 tccgcttacagacaagctgtgacggtctccgggagctgcattgltcagaggttttcacgctcat
 caccgaaacgcgcgagggcagcagatcaattcgcgcgcgaaggcgaagcggcattgcattacgtt
 gacacacatcgaaatgggtgcacacacctttcgcgggtatggcatgataagcgcccggaagagagtcatt
 tcagggtgggtgaatgtgaaaccagtaacgttatagcatgtgcagagtatgcgggtgtctctta
 tcagacgcttcccgctgggtgaaccaggccagccacgcttctgcgaaaacgcgggaaaggtg
 gaagcggcgatggcgagctgaattacattcccaacgcgctggcacaacaactggcgggcaaac
 agtcgttgcctgatggcgctgcacacctccagctctggccctgcacgcgcgctgcacaaattgtcgc
 ggcgattaxatctcgcgcgcgatcaactgggtgccagcgctgggtggtgtcgatgggtagaacgaagc
 ggctcgaagcctgtaagcgcgcgctgcacacaccttctcgcgcgaacgcgctcagtggtgctgatca
 ttaactatccgctggatgacaggatgocattgctgtggaagctgectgcaactaatgttccggc
 gttatttcttgatgtctctgaaccagacacccatcaacagttattattttctcccatgaagacggt
 accgcactggggtggagcatctggtcgcattgggtcaccagcaaatcgcgctgttagcgggcc
 catthaagttctgtctcggcgcgctctgcgtctgctggctggctggcataaatatctcactcgcaatca
 aattcagccgatagcggaaacgggaaggcgactggagtgcaatgtccgggttttcacacaaacatg
 caaatgctgaatgagggcatcgttcccaactgcgatgctgggttgccaaacgatcagatggcgctgg
 ggcaatgcgcgcacattaccgagtcgggctgcgcgttgggtgcggatctctcggtagtgggata
 cgacgatccggaagacagctcatgttatatccgcgcgtcaaccacacacacacaggttttgc
 ctgctggggcaaacacgcgctggacgcgtctgctgcaactctctcagggccaggcggtgaagggca
 atcagctgttgcgcgtctcactggtgaaaagaaaaaacacccctggcgcccaatcgcgaacgcg
 ctctcccgcgcttggcgatctaatlaalgacgtggcagacaggttcccgactggaaagc
 ggccagtgagcgcaacgcgaattaatgtgagttagcgcgcaattgatctg

SEQ ID NO:11

Figure 26

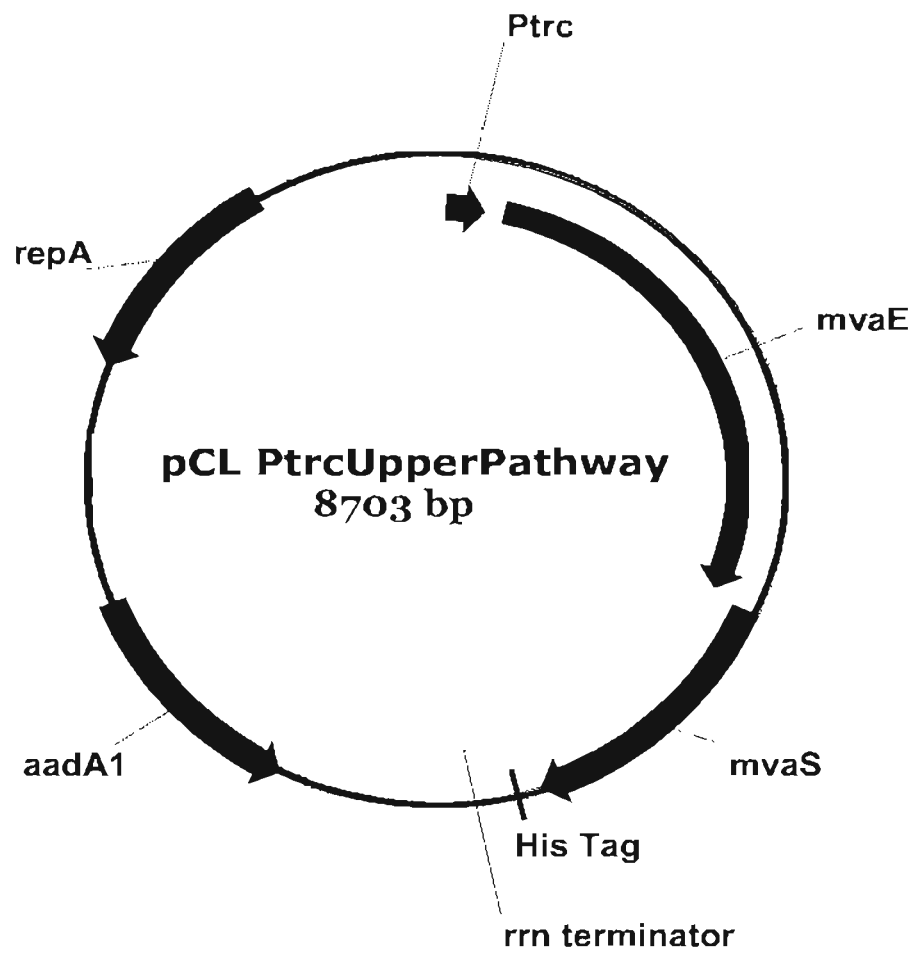


Figure 27A

5' -

cccgtcttactgtcgggaattlcgcgttggcgcgattcattaatgcagattctgaaatgagctgtt
 gacaattaatcatccggctcgtataatgtgtggaattgtgagcggataacaatttcacacagga
 aacagcgcgcgtcagaaaaagcgaagcggcactgctctttaacaatttatcagacaatctgtgt
 gggcactcgaaccggaattatcgattaaactttatttataaaaaattaaagaggtatataatgt
 atcgattataaagaggaataaaccatggatccgagctcaggaggtaaaaaacatgaaaaca
 gtatgtattattgatgcattacgaacacaaattggaaaatataaaggcagcttaagtcaagtaa
 gtgccgttagacttaggaacacatgttacacacacacacttttaaaaagacattccactatttctga
 agaaattgatcaagtaactctttggaatgttttacaagctggaaatggccaaaatccgcacga
 caaatagcaataaacagcggtttctctcatgaaattccgcgaatgacgggttaattgaggtctgcg
 gatcagggaatgaaggccgttatlltggcgaacaaattgattcaattaggagaagcgggaagtttt
 aattgctggcgggattgagaatatgtcccaagcaoctaazattacaacgttttaattacgaaca
 gaaagctacgatgcgccttttctagtatgatgtatgatggattaaaggatgccttttagtggtc
 aggcgaatgggcttaactgctgaaaatgtggccgaaaagtatcatgtaactagagaagagcaaga
 tcaattttctgtacattcacaaataaaagcagctcaagcaagcagaagggatattcgtgtac
 gaaatagccccattagaagtatcaggaaacgcttctgtgagaaagatgaagggtattgcgcctaatt
 cgagcgttgagaagctaggaaacgcttaaaacagtttttaaaagaagacggtaactgtacacagcagg
 gaatgcatacaacattaatgatggggcttctgctttgatttatgtctcacaagaatatgcgaa
 gcaacgggttctcttatttagctattattcgagacagtggtggaagtccgtattgatccagcct
 atatgggaatttgcgcgattaaagccattcaaaaactgttagcgcgcgaatcaacttaactacgga
 agaaattgatctgtatgaatcaacgaagcatltgcagcaacttcaatcgtgggtccaaagagaa
 ctggctttaccagaggaanaaggtcaacatttatgggtggcgggtatttcattaggtcatgcgattg
 gtgccacaggtgctcgtttatttaacaggttttaagttafcaattaaatcaaaaagaaaagaata
 cggagtggtctctttatgtatcggcgggtggcttaggaactcgtatgctactagagagaacctcag
 caaaaaaaacagccgattttatcaaatgagtcctgaggaaacgcttggtctctctcttaattg
 aaggccagattttctgctgatcaaaaaaagaatttgaataacggctttatcttcgcagattgc
 caatcatatgattgaaaatcaaatcagtgaaacagaagtgccgatggcggttggtttacattta
 acagtgagcgaactgatttatlltgggtaccaatggcgacagaagagccctcagttattgcggctt
 tgagttaattgggtgcaaaaatagcaacaggattttaaacaagtgaaatcaacaacgcttaattgcgtg
 acaaatcgttttttacgatgttgcagatcccgagtcattgattgataaactacaagtaagagaa
 gcggaagtttttbaacaagcagagtttaagttatccatctatcgttaaacggggcggcggttaa
 gagatttgaatatcgtacttttgatgaatcatttgtatctgtcgaacttttagtagatgttaa
 ggatgcaatgggggcaataatcgttaacgctatgttgggaaggtgtggccgagttgttccgtgaa
 ttggtttgcgggagcaaaaagattttatllcagttatttaagtaattatgccacggagtcgggtgtta
 cgatgaaaaacgctattccagtttcaagtttaagtaaggggagcaatggccgggaaattgctga
 aaaaattgttttagcttcacgctatgcttcatttagatccttatcgggcagtcacgcataacaaa
 ggaatcatgaatggcattgaagctgtagtttttagctacaggaaatgatcacgcgcgtgttagcg
 ctctctgtcatgcttttgcgggtgaaggaaggtcgcctaccaaggcttgactagttggacgctgga
 ttgcgcaacaactaattggtgaaatttcagttccgcttgccttagccacgggttgccgggtgccaca
 aaagtcttacctaatactcaagcagctgctgatttggtagcagtgacggatgcaaaagaactaa
 gtcgagtagtagcggctgttgggttggcacaataattagcggcgttacgggccttagctctctga
 aggaattcaaaaaggacacatggctctacaagcagcttclltagcgatgacggctcggagctact
 ggtaaagaagttgagggcagtcgctcaacaattaaaacgtcaaaaacgatgaaccaagaccgag
 ccatggctatttttaaatgatttaagaaaacaataaaggaggtaaaaaacatgacaattgggat

Figure 27B

kgataaaattagtttttttggggcccttattatattgatattgacggcaactggctgaagccaga
 aatgttagacccctggaaaattttcataattgggtattgggcaagaccaantggcggtagaaccatca
 gccaagatatgtgacattttgcagccaatgccgcagaagcgatcttgaccaagaagataaaga
 ggcattgatattgggtgattgtgggactgagtcagtatcgatgagtcaaaagcggccgcagtt
 gtottacatcgttttaattggggattcaacctttcggtcgctctttogaaatcaaggaagcttgtt
 acggagcaacagcaggccttacagtttagctaagaatcactagccttacatccagataaaaaagt
 ettggtcgttagcggcagataattgcaaaatatggccttaattctggcggtagagcctacacaagga
 gctggggcgggttgcaatgttagttgctagtgaacgcgcattttggccttaaaagaggataatg
 tgatgctgacgcaagatatctatgacttttggcgtccaaacaggccacccgtatcctatggtcga
 tggctcctttgtcaaacgaacctaatacctaattctttgcccaggtctgggatgaacataaaaaa
 cgaaccggtcttgattttgcagattatgatgctttagcgttccatatttccttacacaaaaatgg
 gcaaaaaagccttattagcaaaaaatctccgaccaaactgaagcagascaggaaacgaatttttagc
 ccgttatgaagaaagtatcgtctatagtcgtcgcgttaggaaacttgatatacgggttcaacttat
 ctgggactcatttcccttttagaaaaatgcacgactttaaccgcaggcaatcaaatgggtttat
 tcagttatgggttctgggtgctgtcgtgaatttttcaactgggtgaattagtagctgggttatcaaaa
 tcatttacaaaaagaaaactcatttagcactgctggataatcggacagaactttctatcgtgaa
 tatgaagccatgtttgcagaaaatttagacacagacattgatcaaacgcttagaagatgaattaa
 aatatagttatttctgctatttaataataacggttcgttcttatcgaaactaagagatctgcagctg
 gtaccatatgggaattcgaagcttggggccgaacaaaaactcatctcagaagaggatctgaara
 ggcgcgtcgacacatcatcatcatcatttagttrtaaacggtctccagcttggctgttttggc
 ggatgagagaagattttcagcctgatacagattaaatcagaacgcagaagcggctctgataaaac
 agaatttggcctggcggcagtagcgcgggttggtcccaactgaacccatgcggaactcagaagtga
 acgcgtagcgcggatggtagtgtgggtctcccaatgcgagagtagggaaactgccaggcatca
 aataaaacgaaaaggctcagtcgaaagactgggctcttcgtttctatctgtttgttgcgtgaa
 gctctcctgagtaggacaaatccgcgggagcggatttgaaacttgcgaagcaacggcccgag
 ggtggggggcaggaacgcgcgcataaaactgcagggcatcaaatgaagcagaaggccatctcgac
 ygatggccttttgggtttctacaaaactcttttgggttattttctaaatacattcaaatatgt
 atccgctcatgagacaataaacctgataaatgcttcaataatctggcgttaatagcgaagaggcc
 cgcacogatcgccctcccaacagttgcgcagcctgaatggcgaatggcgcctgaltgoggtatt
 ttctccttaogcatctgtgoggtatttcaacacgcgatgtggtgcactctcagtacaatctgctc
 tgatgcgcgatagtttaagccagcccgacacccgcgaacacccgctgacgagcttagtaaaagcc
 ctgcgtagatttttaattgoggatgttgcgatttaettgcgaactattgcgataacaagaaaaagc
 cagcctttcatgatatactcccaatttgggttagggcttattatgcacgcttaaaaaataataaa
 agcagacttgacctgatagtttggctgtgagcaattatgtgcttagtgcatctaacgcttgagt
 taagcgcgcgcggaagcggcgtcggcttgaaacgaattgttagacattatttgcgactacctt
 ggtgatctcgctttcagctagtggacaaattcttccaaactgatctgcgcgcgaggccaaagcga
 tctttcttctgtccaaagataagcctgtctagcttcaagtatgaacggcgtgatactgggcggcga
 cgcgtccattgcccagtcggcagcgaatctctggcgcgatttttgcgggttaactgcgctgta
 ccaaatgcggggaacgtaagcactacatttgcgtcatgcgcagccagtcgggcggcaggttc
 catagcgttaagggtttcatttagcgcctcaaatagatcctgttcagggaacccgatcaagagtt
 cctccgcgcgtggacctaaccaggcaacgcctatgttctctgttcttgcagcaagatagccag
 atcaatgtcgatcgtggctggctcgaagataacctgcaagaatgcatgtgcgtgccattctcca
 aattgagttcgcgcttagctggataacgcacagggaatgatgtcgtcgtgcacaaatggtga
 ctctacagcgcggagaaactcgtctctccagggggaagccgaagtttccaaaaggctcgttgat

Figure 27C

caaagctcgccgcttgtttctcaagccttacgggtcaccgtaaccagcaaatcaatatcaactg
 tgtgggttcagggccgcatccactgaggagccgtacaaatgtaaggccagcaacgtcggttcga
 gatggcgcctcgatgaagccaaactacctctgatagttgagtcgatacttcggcggtcacccgcttc
 cctcatgatgttttaactttggttttagggcgactgcccctgctgogtaacatcggttgctgclccat
 aacatcaaacatcgacccacggcgtaacgcgcttgctgcttggatgcccagggcatagactgta
 ccccaaaaaaacagtcataacagccatgaaaacggccactgcccgttaccacccgctggttc
 ggtcaaggttctggaccagttgctgtagcgcatacgcctacttgcattacagcttacgaaccgaa
 caggttatgtccactgggttcgtgcccctcatcggtttccacgggtgctgctcacccggcaacct
 tgggacagcagcgaagtgcaggcatttctgtccctggctggcgaaacgagcgcaaggtttcggtctc
 cagcgcatogtcagggcatrgggcgcccttgctgttctctctacggcgaaggtgctgtgcacggatctg
 ccttggttcaggagatcggsagaccccgccgctcgccggcgcttgccgggtggtgclgaccccg
 atgaagtgggttcgcatccctcggtttcttggaaggcgagcatcggtttgttcgcccagcttctgta
 tggaaacgggcatgcccagtcagtgagggtttgcaactgcccgtcaaggatctggatttcgatcac
 ggcacgatccatcggtgcccggaggcgcaagggttccaaaggatcgggcccttgatgttacccgagagct
 tggcaccacagcctgcccggagcaggggaatttaattcccaagggttttgctgcccgcacaaagggt
 gttctcggtgttgctagtctgttatcagaatcgagatccgggttcagccgggttgccgggtgaa
 agcgctatttctccagaattgcccagatcttttcccccaggaggcgctcactgggtcccggtg
 tgtcgccagctttgatttcgataagcagcatcgccgtgttcaggctgctcatgtgtgactgttga
 gctgtascaagttgtctcaggtgttcaatttcaatggtctagttgcttgggtttactgggttca
 ctggtctattaggtgttcaatgctgttcaatctgttaccattgttcgatctgttcatggtgaacag
 tttgaatgcacccaaaaactcgtaaaagctctgatgtatctatcttttttacacccgttttcatct
 gtgcataatggccagttttccctttgatattgtaacgggtgacagttgttctacttttgtttgta
 gtcttgatgcttcactgatagatacaagagccataagaaactcagatcccttcggtatttagcca
 gtatgttctctagtgtgggttcggtgttttggcgtaggcctagagaaacgaaccattgagatcata
 cttaactttgcatgtcactcaaaaattttgcccacaaaactgggtgagctgaatttttgcagttaaa
 gcacgtgtaggtgttttcttagccggttatgtagggtaggaatctgatgtatgggtgtgttgga
 ttttgtccaccattcatttttatctgggtgttctcaagttccggttaagagatccatttgtctatc
 tagttcaacttggaaaaatcaacgttatcagtcggggcgccctcgcttatcaaccacaaatttcata
 ttgctgttaagtggtttaaactcttacttattgggttccaaaacccattgggttaagccttttaaac
 catggtagttattttcaagcatttaacatgaacttaattcactcaagggttaactctctatatttgc
 cttgtgagttttcttttgtgttagttcttttaataaccactcataaatccctcatagagtatttg
 ttttcaaaagacttaacatgttccagattatattttatgaatttttttaactggaaaagataag
 gcaatatctcttcaactaaaaactaatttctaatttttgcgttgayaaacttggcatagtttgtcca
 ctggaaaatctcaagcctttaaccaaagggttccctgatttccacagtttctogtcatcagctct
 ctgggttgccttagctaatatccacataagcattttccctactgatgttcatcatctgagcggtatt
 ggttataagtgaaagataacggctccgttcttcccttgtagggttttcaatcggtgggttgagtag
 tggcacaacagcataaaaattagcttgggttccatgctccgttaagtcataagcgacaaatcgctagt
 tcaatttgcctttgaaaacaaactaatccagacataactctcaattgggtctagggtgatttttaacac
 tataccaaattgagatgggctagtcaatgataattactagtccttttccctttgagttgtgggtat
 ctgtaaattctgctagacctttgctggaaaaacttgtaaatctctgctagacccctcgtaaatcc
 gctagacctttgtgtgttttttttgggttatattcaagtggttataattttatagaataaagaaag
 aataaaaaaagataaaaaagaatagatccagccctgtgtataactcactactttagtcaggttcc
 gcagttattacaaaaggatgtcgcaaacgctgtttgtctctctacaaaacagaccttaaaaccc
 aaaggcttaagtagcccccctcgcaagctcgggcaaatcgctgaatattcccttttgtctccgacc

Figure 27D

Atcaggcacctgagtcgctgtctttttcgtgacattcagttcgctgogctcacggctctggcag
tgaatgggggtaaatggcactacaggcgcttttatggattcatgcaaggaaactaccataat
acaagaaaagcccgtaacgggttctcagggcgttttatgggggtctgctatgtggtgctatc
tgactttttgctgttcagcagttcctgccctctgattttccagttctgaccacttcggattatcc
cgtgacaggtcattcagactggctaagtcacccagtaaggcagcgggtatcatcaacaggetta

(SED ID NO:12)

Figure 28

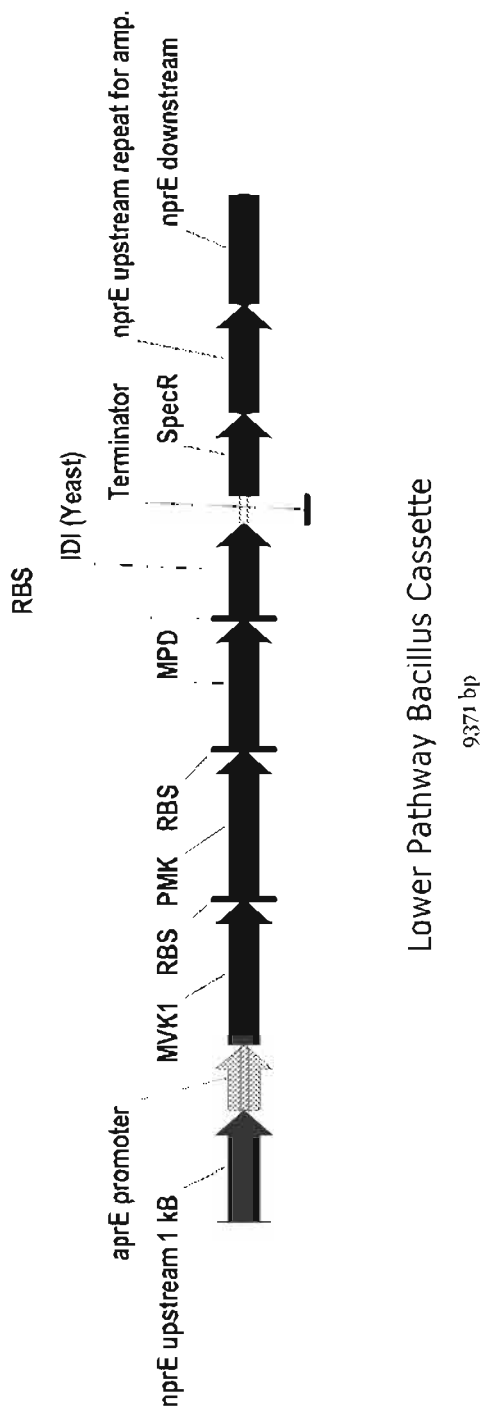


Figure 29A

5' -

t g t a a c c t t t g c t t t c a a a t g a g t a g a a t a a t g c a c a t c c a t g t t t g t a t c g t g c a a a t a a a g
 t g t t t c a t c c g t a g g a a a a a t g a c t t t a g t a t c t g t t c c g c t t t t c t g a t g a a a f g t g c t c c
 c c g a a a a a t t g a a t g a a t c a t g g a c a t t t g o t g g c t t g a t a c a g c g a a a g c a g c c g t t c c t a
 t g t t a t a a a t c g g a t t t a a c a g c a g g a c a a a a a c a c c a t g a c a g c c a t c g t c a c c c a c t t a t t
 e a c a g c a c a t a a a c c t t t c c t g a c t t t t g g a a c a g a t g a t a g c t c a t c a a a a t c c c g c c a t t
 g c c a a a t a a a t c g t a t a t g g c a t t a c t g c a c c a t a a t c t t t g a g a t t t g a t t g g g a t a t g g c g
 c a a g c a g c a a g c a a g c a g t c c g a t a a t c a g c g t a t a a a a t a a g c c t a g t a a g a t c t t a t c c g t
 t e t c c a a t a c a g e t t g a z a a a c a c t a c a t t c a a c g c a a t g g g a a g a y t g a t g a t g a a a a c a g a
 a a c a g a a t g c a a t c g g c t c c a t c c c a t c c g g g t a t t c c t t c c a a t a c g a a a g a a a c t a a a a
 t c a t t t g t a c g a t c g g c a a a c t g a c a a c a g c a a g g t c g a a c g t a t a a a a c t t a c c c t t t c c g c c
 a t g a t c a c g c g c a t c a g c a t a t a g t g a a a a g c c g t c a g c a g c a c a t a t c c g t a t a a c a a a a a a
 t g c a g c a g c g g c a g c a g t t c t t t t c c g t c c t c t c t a a g t a a g c g c t g g t g a a g t t t g t t g a t t
 g c a c c t g g t g a a t a a g t t c a a c a g a c a c t c c c g c c a g c a g c a c a a t c c g c a a t a t a c a c c c g c
 c a g a a c a t t g t g c g c t g c c g g t t t a t t t t g g g a t g a t g c a c c a a a a g a t a t a a g c c c g c c a g a
 a c a a c a a t t g a c c a t t g a a t c a g c a g g g t g c t t t g t c t g c t t a a t a t a a a a t a a c g t t e g a a a t
 g c a t a c a t a a t g a o t g a a t a a c t c a a c a c g a a c a a c a a c t c c a t t t t c t t c t g e t a t c a a a a
 t a a c a g a c t c g t g a t t t t c c a a c y a g c t t t c a a a a a a g c c t c t g c c c c t t g c a a a t c g g a t g c
 c t g t c t a t a a a a t t c c c g a t a t t g g t t a a a c a g c g g g c a a t g g c g g c g c a t c t g a t g t c t t t
 g c t t g g c g a a t g t t c a t c t a t t t c t t c c t c c c t c t c a a t a a t t t t t c a t t c t a t c c c t t t c
 t g t a a a g t t t a t t t t c a g a a t a c t t t a t e t c a t g c t t t g a a a a a t a t c a c g a t a a t a c c
 a t t g t t c t c a c g g a a g c a c a c g c a g g t c a t t t g a a c g a a t t t t t c g a c a g g a a t t t g c c g g g a
 c t c a g g a g c a t t t a a c c t a a a a a g c a t g a c a t t t c a g c a a a t g a a c a t t t a c t c a t g t c t a t
 t t t c g t t c t t t c t g t a t g a a a a t a g t t a t t t c g a g t c t c t a c g g a a t a g c g a g a g a t g a t a t
 a c c t a a a t a g a g a t a a a t c a t c t c a a a a a a t g g g t c t a c t a a a a t a t t a t c c a t c t a t t a c
 a a t a a a t t c a c a g a a t a g t c t t t a a g t a a g t c t a c t c t g a a t t t t t a a a a g g a g a g g g t a a
 a g a g t g t c a t t a c c g t c t t a a c t t c t g c a c c g g g a a a g g t t a t t a t t t t t g g t g a a c a c t c t g
 c t g t g t a c a a c a a g c c t g c g t c g t g c t a g t g t g t c g t g t g a g a a c c t a c c t g c t a a t a a g
 c g a g t c a t c t g c a c c a g a t a c t a t t g a a t t g g a c t t c c c g g a c a t t a g c t t t a a t c a a a g t g g
 t c c a t c a a t g a t t t c a a t g c c a t c a c c g a g g a t c a a g t a a a c t c c c a a a a a t t g g c c a a g g c t c
 a a c a a g c c a c c g a t g g c t t g t c t c a g g a a c t c g t t a g t c t t t t g g a t c c g t t g t t a g c t c a a c t
 a t c c g a a t c c t t c a c t a c c a t g c a g c g t t t g t t t c c t g t a t a t g t t t g t t t g c c a t g c c c c
 e a t g c c a a g a a t a t t a a g t t t t c t t t a a a g t c t a c t t t a c c c a t c g g t g c t g g g t t g g g t c a a
 g c g c c t c t a t t t c t g t a t c a c t g g c c t t a g c t a t g g c c t a c t t g g g g g g t t a a t a g g a t c t a a
 t g a c t t g g a a a a g c t g t c a g a a a c g a t a a g c a t a t a g t g a a t c a a t g g g c c t t c a t a g g t g a a
 a a g t g t a t t c a c g g t a c c c c t t c a g g a a t a g a t a a c g c t g t g g c c a c t t a t g g t a a t g c c c t g c
 t a t t t g a a a a g a c t c a c a t a a t g g a c a a t a a c c a a a c a a t t t t a a g t t c t t a g a t g a t t t
 c c c a g c c a t t c c a a t g a t c c t a a c c t a t a c t a g a a t t c c a a g g t c t a c a a a a g a b c t t g t t g c t
 c g c g t t c g t g t g t t g g t c a c c g a g a a a t t t c c t g a a g t t a t g a a g c c a a t t c t a g a t g c c a t g g
 g t g a a t g t g c c c t a c a a g g c t t a g a g a t c a t g a c t a a g t t a a g t a a a t g t a a a g g c a c c g a t g a
 c g g g c t g t a g a a a c t a a t a a t g a a c t g t a t g a a c a a c t a t t g g a a t t g a t a g a a t a a a t c a t
 g g a c t g c t t g t c t c a a t c g g t g t t t c c a t c c t g g a t t a g a a c t t a t t a a a a a t c t g a g c g a t g
 a t t t g a g a a t t g g c t c c a c a a a a c t t a c c g g t g c t g g t g g c g g g g t t g c t c t t t g a c t t t g t t
 a c g a a g a g a c a t t a c t c a a g a g c a a a t t g a c a g c t t c a a a a a g a a a t t g c a a g a t g a t t t a g t

Figure 29B

Tacgagacatttgaacacagacttgggtgggactgggtggtgttgttaagcgcaaaaaatttga
 ataaagatctttaaatacaaatccctagttattccaatttatttgaaaataaaaactaccacaaagca
 acaaattgacgatctatttattgocaggaaacacgaatttaccatggacttcataaaaggagagg
 gtgtcagagttgagagccttcagtgcccagggasagegttaactagctggtggatatttagttt
 tagatacaaaatatgaagcatttgttagtcggatttatcggaagaatgcatgctgttagccatcc
 ttacgggttcattgcaagggtctgataagtttgaagtgcgtgtgaaaagtaaacatttaaagat
 ggggagtggtgtaccatataagtoctaaaagtgggttcatttcctgttctogtagggggatct
 agaacccttctattgaasaagttatcgctaacgtatttagctacctttaaaccataacatggacga
 ctactgcaatagaaacttgttcgttattgatatttctctgatgatgcctaccattctcaggag
 gatagcgttaaccgaacatcgtggcaacagaagattgagtttctattcgacacagaattgaagaag
 tcccaaaacagggctgggtcctcggcaggtttagtcacagttttaactacagctttggcctc
 ctttttctgtatcggacctggaaaataatgtagacaaatatagagaagttattcataatttagca
 caagtttgtctcattgtcaagctcagggtaaaaattggaagcgggtttagttagcggcggcagcat
 atggatctatcagatatagaagattcccccgcatttaattcttaatttgccagatatattggaag
 tgctacttaaggcagtaaaactggcgcatatttgggttgatgaagaagacgggaattattacgattaaa
 agtaaccatttacctcgggatttaactttatggatggggatatttaagaatgggttcagaacacag
 taaaactgggtccagaaggtaaaaaattgggtatgatttcgcataatgccagaaagcttgaaaatata
 tacagaactcgaatcatgcaaatcttagattttatggatggactatctaaactagatcgcttacac
 gagactcatgacgattacagcgatcagatatttgagttctcttgagagggaatgactgtacctgtc
 aaaagtatcctgaaatcacagaagttagagatgcagttgccacaattagaagttccttttagaaa
 aataactaaagaactctgggtgcctatctgaacctcccgtaacasactagcttatgggatgattgc
 cagaaccttaaaaggagttcttacttgccttaatacctgggtgctgggtgggttatgacgccattgcag
 tgatttactaagcaagatgttgatctttagggctcaaaacgctaatgacaaaagattttctaaagg
 tcaatgggtggatgtaactcagggtgactgggtgttaggaangaaaaagatccggaaaacttat
 cttgataaataaaagygaggggtgacgggtttacacagcatccgttacggcacccggccacacatcg
 caaccttaagttattgggggaaaagggaacagaagttgaattctgccaccaatttcgtccatactc
 agtgactttatcgcaagatgacctcagaacggttgacctctgcggctactgcacctgagtttgaa
 cgcgacactttgtgggttaantggagaaccacacagcatcgacaatgaaagaactcaaatgtgtc
 tgcgcgacctacgccaatfaagaaaggaaatggaaatcgaaaggacgctcattgccacatttctc
 tcaatggaaactccacattgtctccgaaaataacttctactacagcagctgggtttagcttctctc
 gctgctggctttgtctgcattgggtctctgcatttgcataagttataccaattaccacagttcaactt
 cagaataatctagaatagcaggaagggtctgggtcagcttgtagatcgttggtttggcggata
 cgtggcctgggaaatgggaaaagctgaagatgggtcatgattccatggcagtaaaaatcgcagac
 agctctgactggcctcagatgaagcttggtgtcctagttgtcagcgatattaaaaggatgtga
 gttccactcagggfatgcaattgacgggtggcaacctccgaaatcttaaaagaagaattgaaca
 tgtcgtaccaaagagatttgaagtcattggtlaaagccattgttgaaaagatttcgccacctt
 gcaagggaacaaatgatggattccactcttctcatgccacatggttggaactcttccctccaa
 tattctacatgaatgacacttccnagcgtatcatcagttgggtgcacacacattaatcagtttta
 cggagaaaacaatcgttgcatatacagtttgatgcaggtccaaatgctgtgtgtgtactacttagct
 gaaatgagtcgaaactcttgcatttctctataaattgtttggctctgttccctggatgggaca
 agaaatttactactgagpacttgagggtttcaaccatcaatttgaaatcatctaaactttactgc
 acgtgaattggatcttgagttgcaaaaggatgttgccagagtgatttttaactcaagtccggttca
 ggccacacaagaacaaacgaatcttggattgacgcaagactgggtctaccaaaaggaaataaagg
 agaggggtgactgcgcacaacaatagtatgcccacatgggtgcagttatctagttacgccaaattagt

Figure 29C

gcaaaacccaacacccctgaagacatttttggagaggtttcctgaaattattccattacacacaaaga
 cctaatacccgatctagttagagcgtcaaatgaagcaagcgagaaacatggtttttctggtcagt
 atgaggagcaaatgaagtttaattgaatgaaaattgtattgttttggattgggacgataatgctat
 tgggtgcgggtacaaagaaagtttgcatttaattggaaaatattgaaaagggtttactacatcgt
 gcatctctcgtcttttattttcaatgaacaagggtgaattacttttacaacaaagagccactgaaa
 aaataactttccctgatctttggactaacacatgctgctctcatccactatgtattgatgacga
 attaggtttgaagggttaagctagacgataagattgaaggcgctattactgcggcggtgagaaaa
 ctagalcatgaattaggtattccagaagatgaaaactaagacaagggttaagtttcaactttttaa
 acagaatccattacatggcaccaagcaatgaaccaagggtgaaacatgaaattgattacatcct
 attttataagatcaacgctaaagaaaaacttgactgtcaacccaaacgctcaatgaagtttagagac
 ttaaatgggtttcaaccaaatgatttgaaactatgtttgctgacccaagttacaagtttaogc
 cttgggttaagattatttgcgagaattacttattcaactgggtgggagcaattagatgaccttcc
 tgaagtggaaaatgacaggcaaatccatagaatgctataaaaaaaacggccttggccccggcg
 gttttttatttttttcttctcctcggcatgttcaatccgctccataatcgacggatggctcccto
 tgaanaatttttaacgagaaaacggcggtttgacccggctcagtcctcgttaacggccaaagtcctgaaa
 cgtctcaatcgccgcttcccggtttccgggtcagctcaatgcggttaacgggtcgggggcggttttcc
 tgataccggggagacggcattcgttaatttgaatacatacgaacaaatttaataazgtgaaaaaat
 acttcggaaacatttataaaaaataaccttatttggtactttacatgtttggatcaggagttgagagt
 ggaactaaabccaaatagtgatcttgccttttagtcgtctgtatctgacccsttgacagatcaaa
 gtaangaaatacttatacaaaaaatttagacctatttcaaaaaaataggagataaaagcaactt
 acgatataattgaatttaacaattatttctcagcaagaaatgggtacgggtggaatcatcctccaaa
 caagaattttattttatggggaatgggttaacagagctttatgaacaaggatacatttctcagaagg
 aatttaattcagatttaacataatgctttaccaagcaaaaagaaaaaatataagaatatccgg
 aaattatgacttagaggaatcaactacctgatattccattttctgatgtgagaagagccattatg
 gattcgtcagaggaatttaatagataatttatcaggatgatgaaacccactctatattaactttat
 gccgtatgatttttaactatggacaacgggttaaaatcataccaaaagatattgcgggaaatgcagt
 ggctgaattctctcatttagaactagggagagaaattttgttagcagttcgtagttatcttggg
 gagaataattgaattggactaatgaaaatgtaaatttactataaactattttaaataacagattaa
 aaaaattataatgtaacctttgctttcaaatgagtagaataatgoacatccatgtttgtatcg
 tgcaataaaagtgtttcactcgttaggaaaaaatgacttttagtatctgttccgctttttctgatg
 aaatgtgctcccgacaaaattgaatgaatcatggacatttgctggctttgatacagcgaaagc
 agcggttctatgtttatataatcggatttaacagcaggacaacaaaacaccatgacagccatcgtc
 acccacttattcaacgcacataaaaccttctcgtacttttggaaacagatgatagctcatcaaaa
 atcccgccatttgcaantaaatcgtatatggcattactgcacataatcttttgagatttgatt
 gggatatggcgcaagcagcaagacagcagtcgataatcagcgtataaaaaataagcclagttaa
 atcttatcgtttctccaatacagcttgaaaaacactacattcaacycaatgggaagagtgatga
 tgaaaaaacagaaacacgaatgcaatcggtccatcccatccgggtattccttccaatacgaaaa
 gaaactaaaaatcatttgtacgatcggaacactgacaacagcaaggtcgaaogtataaaactta
 ccctttccggcatgatcagcgggcatcagcatatagtgaagaagcgtcagcagcacatccgt
 ataacaaaaaatgcagcagcgccagcagttcttttccgtcctctcttaagtaagcgtgggtgaa
 gtttgggtgatttgacctgggtgaataagttcaacagaaactcccgccagcagcacaatccgcaat
 ataacacccggcaagaacatttggcgctgcgggtttattttgggatgatgcacaaaagatatata
 agcccgccagaaacaaattgaccattgaatcagcaggggtgtttgtctgcttaatatataata
 acgttcgaatgcaatcaataatgactgaataactccaacacgaacaaacaaagtgcgcatttt

Figure 29D

Ataaaagctaattgattcagtcacataaattgatagacgaattctgtctacaggtcacgtggctat
gtgaaggatcgcggtccagtttaagagcassaaacaltgacaaaaaattttatttatgctaaaat
tactattaatatatttgtatgtataataagattctcctggccaggggaattcttattttttgtg
gaggatcatttcattgaggaaaaatgagtcacagcttaacgtctcttaatttcagcttttgcccggtg
catatcacagccgatatgacacacctcttatttttgatgattttatcgcaaaagatctcattaa
cgaaaaagagtttatcgacatcagtaaaaatattgattcaagaatatcgtttttcacaaaagag
atcgccgaacgtcttcaaaatgatcttgaaaaaatattaaaatgggttgacaaatccagctgt
ctccaaacgcccctagcacgtgcttcttattgtgaaaaagtccttgacacacgaattaatcctggg
ggcaaaacagttatgtcattcttggagcgggactggatactttctgctttcggcattccagaatta
gaaaacagcttaacaggttttcgaggttgatcctcgccacacagcaattgaaaaaaataagc
tgaaggatgcaaatctgacaattccgggtcatcttcattttgttctatggatttcaccaaac
gttttctgtatgatctctcttagatgaaggatttaaaaacacaaaaacattcttcagcctctc
ggagtgtcttattatgtaacacgggaagaaaatgcaagcttgatcagcaatttatcttctcatg
tcccgcttggaagctctattgtttttgattatgaggacgaaacactttttacagcaaaagggaac
gtcgaatcgagttgaacatatggtgaagatggctgccgcaagcggggaaccgatgaatcatgt
ttcacttatcaagagattgaacatctg

SEQ ID NO:13

Figure 30

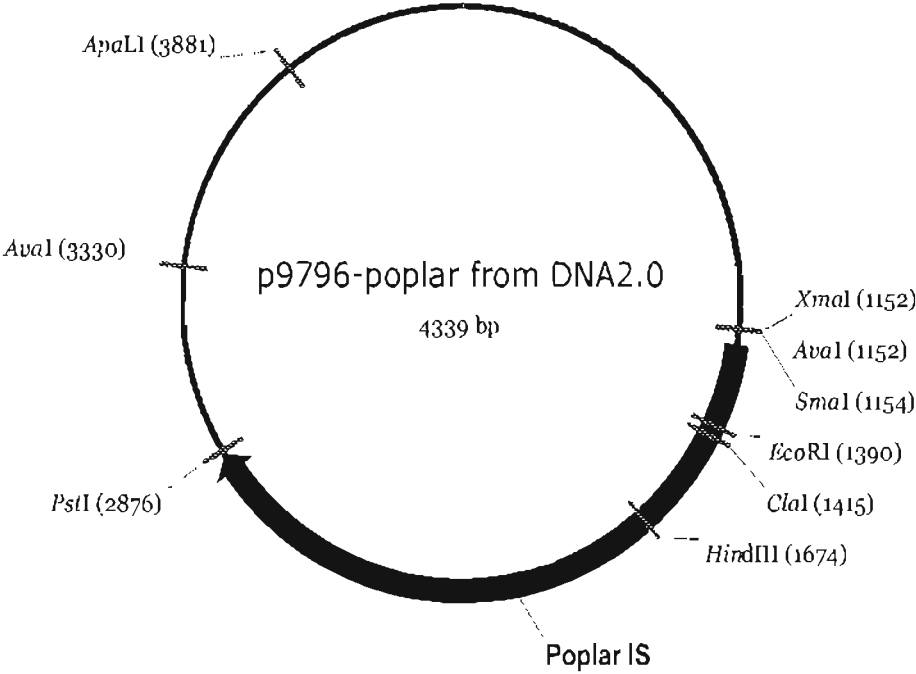


Figure 31A

5' -

tagaaaaactcatcgagcatcaaatgaaactgaattttattcatatcaggattatcaataccat
 atttttgaaaaagccgtttctgtaatgaaggagaaaactcaccgagggcagttccataggatggc
 aagatccctggatcggtctcgattccgaactcgtccaacatcaatacaacctattaatttcccc
 tcgtcaaaaataaggttatcaagtgaagaaatcccatgagtgacgactgaatccggtgagaatg
 gcaaaagtttatgcattttctttccagaacttggttcaacaggccagccattacgctcgtcatcaaa
 atcaactcgcatcaaccaaaccgttattcattcgtgattggcgtgagcgaggcgaaatacycga
 tcgctgtttaaaggacasttacaaaacagggaatcgagtgcaacccggcgaggaacactggcagcg
 catcaacaatattttcacctgaatcaggatattcttctaatccctggaaocgtgtttttccggg
 gatcgagtggtgagtaaccatgcatoatcaggagtaaggatataaatgcttgatggtcggaaat
 ggcataaattccgtcagccagtttagtctgaccatctcatctgtaacateattggcaacgctac
 etttgccatgtttcagaacaactctggcgcatcgggcttcccatacaagcgatagattgtcgc
 aactgtattgcccagacattatcgcgagcccatttatacccatataaantcagcatccatgttgaa
 tttaatccgggcttcgacgtttcccggttgaaatagggctcatattcttccctttttcaatattatt
 gaagcatttatcaggggttatgtctcatgagcggtacatatgtgaatgtatttagaaaaataa
 acaaataggggtcagtggttacaaccaatttaaccaattctgaacattatcgcgagcccatttata
 cctgaatatggctcataaacaccccttgggttgccctggcgccagtagcgcggtgggtcccaacctgac
 cccatggccgaactcagaagtgaaccccgtagcgccgatggtagtgtggggactcccatgaga
 ggttaggggaactgccaggcatcaataaaaacgaaaggctcagtcgaaagactgggctttcgcc
 cgggctaattagggggtgtcgcccttttagtgcgtgaacatgtgctctgtttctaccgagaacgt
 tttcttcaactgagacggaaaccgagggcagctcgttagcggaactacgagccgaatagctgggac
 taagatttctgtctcttccgataactgacgaactctattgaggtgtacaaagacaaagcaaaaga
 aactggagggtgaagtgcgcgcggaatataacacagagaagactgaatttctgaactctgclgga
 gctgatcgataacgtacagcgccctgggtctgggttaacgcttcgaactctgatattccgttcgcga
 ctggatcgtttctgaagcagcggggtttcgatggcggtgaccanaacgagccctgcaactacgg
 cgtctgctcttccgtctgctgcgtcagcaaggcttcgaagtttctcaggaagcatctccgggttt
 caaagatcaaaacggttaacttctggaaaacctgaaaggaagacactaaggcgatccctgagcctg
 tatgaggaagctttctggccctggagggtgagaacatccctggatgagggcgcgctattcgcc
 tctcccatctgaaagagctgtctgaagagaaatcgggttaaggaaactggcagagcaggttaatca
 cgcactggaaactgcgcctgcactcgttgatcccgagcgtctggaggcggtttgggtccatcgaaagc
 taocgcnaaaaggaggtatgctaaccaggttctgctggaaactggccatccctggactacaacatga
 tccagtcctgtttaccagcgtgatctgcgtgaaacctcccggttggtggcgccgtgtlgygcctggc
 gaccaaactgcacttcgctaaggacccgctgattgagctcttttactgggcagtcggcggttgcc
 ttccgaacctcagtatcttgaactgcgttaacagcgtttgcaaaatgttcagcttctgtactatta
 tcgacgacatctacgacgtttacggtactctggacgagctggaactgtttaccgacgctgtoga
 aogttgggatgtttaacgcocatcaacgatctgcctgactacatgaacctgtgcttccctggcactg
 tataacacgatcaacgaatttgcatacgacaacctgaaagacaaagggtgaaaacatccctgcctg
 acctgactaaagcgtgggcggatctgtgttaacgcttttctgcaagaagcgaaatggctgtataa
 caastccactccgacctttgacgattatttcggcaatgcctgganaatccagctctggcccgctg
 caactgatcttccgttattttgcggttgctccaaaacatcaaaaaggagggaattgaaaacctgc
 aaaaataccacgatatacattagccgttcttctcatatctttccgctgtgcaacgaactggcaag
 cgcgtccgcagagatcgcaactggcgaaacccgtaactctgtttctctgctacatgcgcaccaag
 ggcatttccgaagagctggcaaccgagagcgtaataatctgatcgacgaacctgtgaagaaaa
 tgaacaaagaaaaactgggtggctccctgttccgctaaacccgttcgtagagactgctabtaacct

Figure 31B

ggcagctcagagccactgcacctaccacaatgggtgacgcacatactagcccgatgaactgaet
cgtaaacgtgtactgtctgttatcccggaaccgattctgcggttcgaacgttaactgcagcgctc
aatcgaaaggggcgacacaaaattttatctaatgcataataataactgataacatctttagtt
tgtattatattttgtattatcggtgacatgtataattttgatatacaaaaactgattttcccttt
attattttcgagattttattttcttaattctctttaaacaactagaatatattgtatatacaaaaa
atcctaaataatagatgaatagtttaattataggtgttcatcaatcgaaaaagcaacgtatott
atttaaagtgcgttgctttttctcattataaggttaaataattctcatatatacagcaaatg
gacaggcgcccttaaaatattctgacaaatgctctttcccttaactcccccatataaaaaacccg
ccgaagcgggtttttacgttatttgcggattaacgattactcggttatcagaacgcgccaggggg
cccgagcttaagactggcgcgtcggtttacaacacagaaagaggtttgtagaacgcacaaaaggcc
atccgtcaggggcttctgcttagtttgatgcoctggcagttccctactctgccttccgcttcc
tcgctcaactgaactcgctgcgctcggtcggttcggctgcggcgagcggtatcagctcaactcaaagg
cggtaatatcgggttatccacagaatcaggggataaacgcaggaaagaaacatgtgagcaaaaaggcca
gcaaaaaggccagggaaccgtaaaaaggcccggttgcgtggcgtttttccataggctccgccccct
gacgagcatcacaaaatcgacgctcaagtccagaggtggcgaaacccgcacaggactataaagat
accaggcggtttcccccgggaagctccctcggtgcgtctcctgctccgacccctgcgcttaccgg
atacctgtccgctttctcccttcgggaagcggtggcgtttctcatagctcacgctgttaggtat
ctcagttcgggtgtaggctcgctccagctgggctgtgtgcacgaaccccggttcagcccg
acgctgcgcttatccggtaactatcgtcttgagtcacacccggtaagacacgaacttatccgc
actggcagcagccactggttaacaggatlagcagagcgaggtatgttagggggtgtacagagttc
ttgaagtgggtgggctaactacggtatcactagaagaacagtatattggtatctgcgctctgctga
agccagttaccttcggaaaaagagtgggtagctcttgatccggcaaacaaaacacccgctggtag
cggtgggttttttgtttgcaagcagcagattacgcgcagaaaaaagagatctcaagaagatccct
ttgatctttttacgggggtctgacgctcagtggaacgcgcgcgcggttaactcaccgttaagggt
tttggtcatgagcttgcccgctcccgctcaagtcagcgttaattgctctgcttt

SEQ ID NO:14

Figure 32

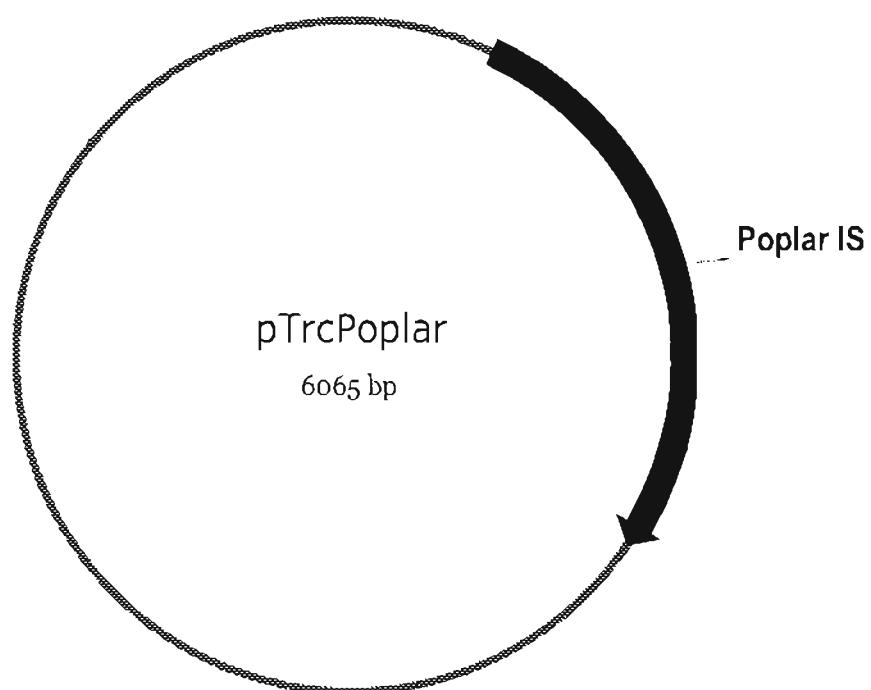


Figure 33A

5' -

gtttgacagcttatcatcgactgcaoggtgcaaccaatgcttctggcgtcaggcagccatcgga
gctgtggtatggctgtgcaggctcgtaaatcaactgcataatctgtgtcgctcaagggcgactcc
gttctggataatgttttttggcgcgacatcatasoggttctggcaaatcttctgaaatgagctg
ttgacaattaatcatccggctcgatataatgtgtggaattgtgagcggataacaatttcacacag
yaaanagcgcgcgtgagaaaaagcgaagcggcactgctctttaacaatttatcagacaatctgt
gtgggcactcgaccggaattatcgattaaotttattattaaaaattaaaggggtatatattaat
gtatcgattaaataaggaggaataaaacatgtgtctgtttctacccgagaacgtttctctcact
gagacggaaaccgaggcagctcgttagcgcgaactacgagccgaatagctgggactacgatttcc
tgctgtcttccgatactgacgaatctattgaggtgtacaagacaaagcaagaaactggagggc
tgaagtgcgcgcgaaattaaacacgagaaagctgaattctgactctgctggagctgatcgat
aacgtacagcgcctgggtctgggttaccgcttcgaatctgatatccgtgcgcactggatcgtt
tcgttaagcagcggcggtttcgatggcgtgacccaaaacgagcctgcaogctaccgcgctgtctt
ccgtctgctgctgagcagcggcttcgaagtctctcaggaagcattctccgggttcaaaagatcaa
aacggttaacttctcgaaacacctgaaagaagacactaaggcgatcctgagcctgtatgagggcaa
gnlttctggccctggaggggtgagaaatcctggatgagggcgcgctattcgccatctccacct
gaaagagctgltgaaagagaaaa:cggttaagggaactggcagagcagggttaatcaagcactggaa
ctgcgcctgcatcgttcgtaccagcgtctggagggcgttgggtccatcgaagcgtaaccgaaaa
aggaggatgctaaccagggttctgctggaactggccatcctggactacaacatgatccagtcct
ttaaccagcgtgatctgctgaaacctcccggttgggtggcgccgtgtgggcttggcgaccnaactg
cacttcgctaaggacccgctgattgagtccttttactgggcagtcggcgttggcttcgaacctc
agtattctgactgcctgaacagcgttgggaaaaatgttcagcttcgttactattatcgacgacat
ctacgacgtttacggtaactctggacgagctggaactgttctaccgacgctgtogaacgttgggat
gttaacgccatcaacgatctgctgactacatgaactgtgtcttctggcactgtataacacga
tcaacgaaatgcatacagacaacctgaaagacaaagggtgaaacacctgcctgacctgactaa
agcgtgggaggatctgtgttaacgctttctgcaagaagcgaatggctgtatacaaatccact
ccgacctttgaogaltatttcggcaatgcctggaaatccagctctggcccgctgcaactgatct
tcgcttattttgcggttgtccaaacatcaaaaaggaggaaattgaaaacctgcanaatacca
cgatatcattagcgtctcttcataatcttttcgctgtgcaacgacctggcaagcgcttcgca
gagatcgcaactggcgaaacogctaaactctgttctctgtacatggcgaccaagggcatttccg
aagagctgycacccgagagcgtaatgaatctgatcgacgaacctgtaagaaaatgaacaaaga
aaaactgggtggctccctgttcgctaaacoggttcgttagagactgctatttaacctggcactcag
agccactgcaactaccacaatgggtgacgcacatactagccggatgaactgactcgtaaacgtg
tactgtctgttatcccgaaacogattctgccttcgaacgttaactgcagctggtaaccatatgg
gaattcgaaqctttctagaacaaaaactcatctcagaagaggatctgaatagcgccgtcgacca
tcaatcatcatcatttgagttttaaocggctctccagcttggctgttttggcggtgagagaaga
ttttcagcctgatacagattaaatcagaacgcagaagcgtctgataaaaacagaatttgcctgg
cggcagtagcgcggtgggtccacactgaccccatgcggaactcagaagtgaacgcgctagcgcc
gatggtagtggtgggtctcccatgcgagagtaggggaactgcagggcatcaaataaaacgaaag
gctcagtcgaagactgggcctttcgttttatctgttcttctcggtgaacgctctcctgagta
ggacaaatccgcggggagcggatttgaaacttgggaagcaacggcccgagggtggcgggcaggy
acgcccgcataaaactgccaggcatcaaatthaagcagaaggccatcctgaoggatggccttttt
gcggtttctacaaactcttttctgtttatttttctaantacattcaaatatgtatccgctcatgag
acaataacccctgataaatgcttcaataatattgaaaaagggaaggtatgagtttcaacattt

Figure 33B

tgggtgcgccttattcccttttttgcggcatttttgccttccgtgttttgcctacccagaaacgc
tgggtgaaagtaaaagatgctgaagatcagttgggtgcacgagtggttacaatogaactggatct
caacagcggttaagatcccttgagaglttttgcgcgcgaagaaacgttttccaatgatgagcaactttt
aaagtctcgtatgtggcgcggtatttatcccggtgttgagcgcmgggcaagagcaactcggtcgcc
gcatacaactattctcagaatgacttggttgagtactcacoagtcacagaaaagcatcttaacgga
tggcabtgacagtaagagaatttatgcagtgctgccataaaccatgagtgataaactgcgggcnaa
ttactttctgacaaacgatcgaggagacogaaggagctaacccgcttttttgcacaaactgggggga
atgtanctcgcccttgatcggttgggaaacgggagctgaatgaagccataccaaacgcagcagcggtga
caaccacgatgcctgtagcaatggcacaacacgtttgcgcacaaactattaactggogaaactacttact
ctagcttcccgggcaacaacttaataagactggatggaggcggtataaagttgcaggaccacttctgc
gctcggccttccgggtcggtggtttattgctgataaactctgyagccgggtgagcggtgggtctcg
cggtatcattgcagcactggggccagatggtaagccctcccgatatcgtagttatctacacgacg
gggagtcaggcaactatggatgaacgaaaatagaacagatcgctgagatagggtgcctcactgattta
agcaatggtaactgtcagaccaagttaaactatataacttttagattgatttaaaacttcatttt
ttaatttaaaaggatctagggtgaagatcccttttgataatctcatgaaccaaaatcccttaacgt
gagttttcgttccaactgagcgtcagaccccgtagaaaagatcaaaggatcttcttgagatccctt
ttttctcgcggttaactctgctgcttgcaacaaaaaaacaccccgctaccagcggtgggttctgtt
ggcggtatcaagagctaccaactcttttccgaaggtaactggcttcagcagagcgagatacca
aataactgctcttctagtgtagccgttagttayggccaccacttcaagaactctgtagcaccgcta
cataactcgtctgctaactctgttaccaagtggtgctgcacgtggcgataaagtctgtgtctta
cggttggactcaagacgatatgttaccggataaaggcgacggttgggctgaacgggggggttcg
tgacacacagcccagcttgagagcgaacgacactacacccgaactgagataactacagcgtgagctat
gagaaagcgccacgcttccogaagggaaggaagggcggaacggttatccggttaagcggcagggctcg
aacagggagagcgccacgaggggagcttccagggggaaacgcctgggtatctttatagtcctgtcggg
tttgcgcacctctgacttgagcgtcgatttttctgtgatgctcgtcagggggggcgagccctatgga
aaaacgcacagcaacgcgggctttttacgggttcctggcctttctgctggccttttgcctcacatggt
ctttcctgcgttatcccttgattctgtggataaccggtattaccgcctttgagtgagctgatacc
gctcgcgcagcagaacgacccgagcgagcgagctcagtgagcgaggaagcggaagagcgccctga
tgcgggtattttctccttaccgcatctgtgcgggtatttcacacccgcataatggtgcactctcagta
aatctgctctgatgcgcgcatagttaagccaggtatacaactccgctatcgctacgtgactgggtca
tggctgcgcgcccgacacccgcacaccccgctgaugcgccctgacgggcttctctgctcccgcc
atccgcttacagacaagctgttgaccgtctccgggagctgcctgtgtcagaggttttccacogtca
taccgaaaacygcgcgagggcagcagatcaattcgcgcgcgaaggcggaagcgccatgcatttaacgt
tgacacccatcgaatgggtgcaaaaactttcgcgggtatggcatgatagcgcccggaagagagtc
ttcaggggtgggtgaatgtgaaacccagtaacgttatacagatgtgcagagtatgcgggtgtctctt
atcagacgggttcccgcggtgggtgaaccaggccagccacgtttctgcgaaaaacgcgggaaaaagt
ggaagcgggcgatggcgagctgaattacattcccaaccccggtggcacaacaaactggcgggcaaa
cagtcggttgcgtgattggcggttgccaccccgagctctggcctgcacgcgcgctgcacaaattgtcg
cggcgattaaactctgcgcgcgatacaactgggtgcacagcgtgggtgggtgtcgatggtagaacgaag
cggcgtcgaagcctgtaaagcggggggtgcacaaactctctgcgcgaacgcgctcagtggggtgac
attaaactatccgctggatgaacaggatgcacttctgttggaaagctgcctgcactaatgttccgg
cggttattttcttgatgtctctgaccagacacccatcaacagttatttttctcccatgaagacgg
tacgcgactgggcgtggagcatctggttcgcatgggttcacacagcaaatcgcgctgttagcgggc
ccattaaagttctgtctcggcgcgtctgcgtctggctgctgcatataatctcactcgaact

Figure 33C

aaattcagccgatatagcggaaocgggaaggcgaactggagtgccatgtcoggtttttcaacaaaccat
gcaaatgctgaatgagggcatcgttcccaactgcgalgctgggttgccaacgatcagatggcgcty
ggcgcaatgogcgccattaccgagtcggggtgcgcgttggtgcggatatctcggtagtgggat
acgaogataccgaagacaggtcatgttatatcccgccgtcaaccaccatcaaacaggattttcg
cctgctggggcaaacacagcgtggacogcttgctgcaactctctcagggccaggcgggtgaagggc
aatcagctgttgcccgctctcactggtgaaaagaaaaaccacccctggcgcccaatacgcaaacog
cctctcccgcgcggttgggcgattcattaatgcagctggcaogacaggtttcccgactggaaag
cgggcagtgagcgcaacgcgaattaatgtgagttagcgcggaattgatctg

SEQ ID NO:15

Figure 34

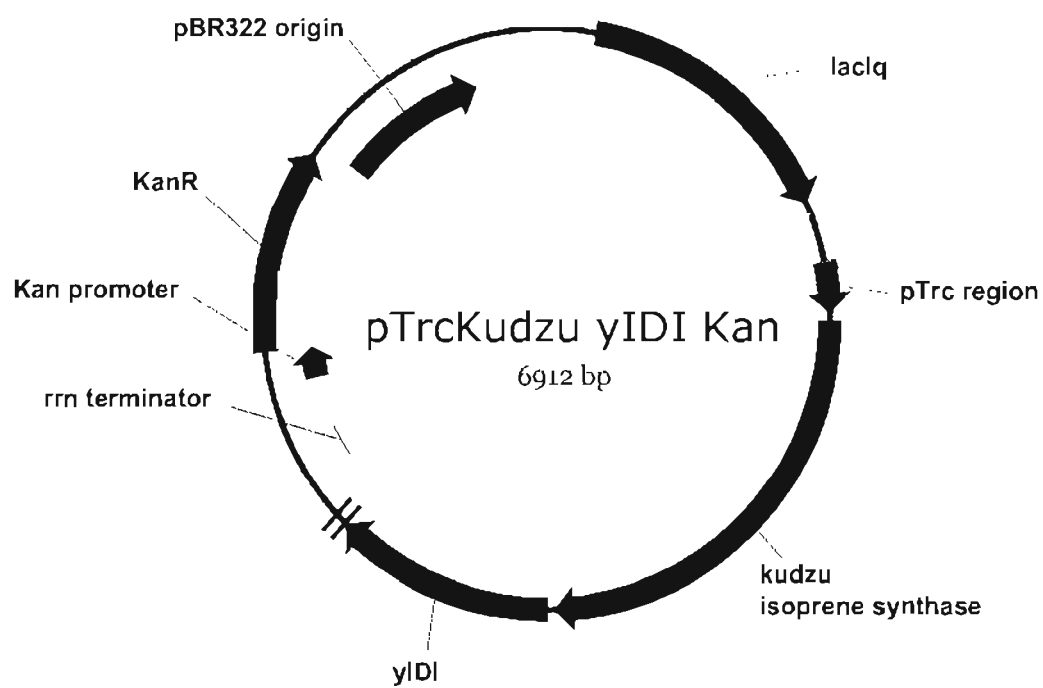


Figure 35A

5' -

ttgtctgtctcccggeatccgcttacagacaagctgtgaccgtctccgggagctgcatgtgtcag
 aggtttttcacogtcatcaccgaaaocgcgcgagggcagcagatcaattccgcgcgcgaaggcgaagc
 ggcattgcatltacgttgacaaccatcgaatgggtgcaaaacctttccgcggtatggcatgatagcgc
 ccggaagagaggtcaattcaggggtggtgaatgtgaaaccagtaacgttatccgatgtccgagagt
 atgcoggtgtctcttatacagacogtctcccgogtgggtgaaccaggccagccacogtctctgcgaa
 aacgcgggaaaaaagtggaaagcggogattggcggagctgaattacattcccaaccgcgtggcaca
 caactggcgggcaaacagtcgttgcgtatlggggttgccacctccagtcctggccctgcacgcgc
 cgtccgcaaaattgtccgcgcgattaaactctccgcgcgattcaactgggtggcagcgtgggtgggtgt
 gatggtagaagcgaagcggcgtcgaagcctgtaaagcggcgggtgcacaaatctctccgcgcacgc
 gtcagtgggctgatcattaaactatccgcctggatgaccaggatgccattgctgtggaaagctgcct
 gcaactaatgttccggcgttattttcttgatgtctctgaccagacaacccatcaacagttattttt
 ctcccatgaagaeggtacgcgcactgggcgtggagcattctggctccgattgggtcaccagcaaatc
 ggcctgttagcggggcccattaagtctctgtctccgcgcgtctgcgtctggctggctggcataaat
 atctccactcgcaatcaaatccagccgatagcgggaacgggaaggcgaactggagtgccatgtccgg
 ttttcaacaaaccatgcgaatgctgaatgagggcatcgttcccaactgcgatgtctgggtgccaac
 gatcagatggcgtcgggcgcgaatgcgcgcacattaccagagtcgggctgcgcgttgggtgcggata
 tctcggtagtgggatccgacgataccgaagacagctcatgttatatccgcgcgtcaaccacat
 caaacaggattttccgcctgtctggggcaaacaccagcgtggacccgttgcctgcaactctccagggc
 caggcgtgtgaagggaacatcagctgttgcocgtctcactgggtgaaaagaaaaaccacccctggcgc
 ccaataccgcaaacccgcctctcccgccgcgttggccgattcatttaattgtagctggcagcaggt
 tcccgactggaaagcgggcagtgagcgcacacgaatlaattgtgagttagcgcgaattgatctg
 gtttgacagccttatccatccagctgcacgggtgcagcaatgcttctggcgtcaggcagccatccgaa
 gctgtgtgtatggctgtgcaggtcgtaaatcaactgcataattcgtgtgcctcaaggcgcactcc
 gttctgggataattgttttttgcgcgcgaactcataacgggttctggcaaatattctgaaatgagctg
 ttgacaaatcaatccatccgcctcgtataatgtgtggaaattgtgagcgggataacaaatctccacag
 gaaacagcgcgcgtgagaaaaagcgaagcggcactgctctttaaacaatttatccagcaactctgt
 gttgggcactccagccgaattatccgactaaactttattattaaaaattaaagaggctatatattaat
 gtatccgatttaataaggagggaataaaacccatggtgcgaacccctctctcaattttactccagattac
 gagcataaktccgcgtcgttccgcasaactatcagccaaaacccgtggaatttccgaattccctgaat
 ccttggaagaacgaacctgaaagtggaaaagctggaggagaaagcgaacaaactggagggaagaagt
 tgcctgcatgatcaacccgtgtagaaccacagccgcgtctccctgctggagctgacccagatgtg
 cagcgcctgggtctgacctacaaatttgaaaaagacatcattaaagccctggaaaaacatcgtac
 tgcctggacgaaaaacaaaaagaacaaatctgacctgcacgcaacccgcctctgtcttccgctctgct
 ggcctcagcaccggtttccgaggtttctcaggatgttttttgagcgtttcaaggataaagaagggtggt
 ttcagcgggtgaactgaagggtgacgtccaaaggccctgctgagcctgtatgaagcgtcttaccctgg
 gtttcgaggggtgagaacccgtctggaggaggcgcgtacccctttccatcccccacccctgaagaacaa
 cctgaagaagaaggcattaataccaagggttgagaaacaagtgagccacgcctggaaactgcacat
 caccagcgtctgcacccgtctggaggcacgttgggtccctggataaatacgaaccggaaggaaaccc
 atcaccagctgtctgtggagctggcgaagcgtggatttttaacatgggtacagacccctgcaccagaa
 agagctgcaagatctgtccgcctgggtggacccagatgggcctggctagcaaacctggattttgtga
 ccgacccgcctgatggaaagtttattttctgggcactgggttatggcgcagacccgcagtttgggtg
 aatgtccgcaagctgttactaaaaatgtttgggtctgggtgacgatcatccatgacgtgtatgacgt

Figure 35B

ttatggcactctggacgaactgcaactgttcacccgatgctgtagagcgctgggacgttaacgct
 attaacacccctgccggactatatgaaactgtgtttccctggcactgtacaacaacggttaacgaca
 cgtctctattctattctgaaagagaaaggtcataacacccctgtctctatctgacgaaaagctggcg
 tgaactgtgcaaagcctttctgcaagaggcgaaatgggtccaaacaacaaaattatcccggttttc
 tocaagtacctggaaaaacgccagcgtttccctccctgggtgtagcgctgctggcgccgctcttact
 ttccgctatgccagcagcaggaagaacatctccgaccacgcgctgcgttccctgaccgacttcca
 tgggtctgggtgcgtttctagctgcgttatctccgctgtgcaacgatctggccacctctggggcg
 gagctggaacgtggcgagactaccaattctatcattagctacatgcacgaaaacgallggtacca
 gcggggaacaggcccgcggaagaactgcgtaaactgatcgacgccgaatggaaaaagatgaatcg
 tgaacgcgttagcgactccacccctgtgcctaaagcggttcattggaaatcgacgttaacatggca
 cgtgtttccacactgcaacctaccagtatggcgallggtctgggtcgccacagactacgcgactgaaa
 accgcatacaactgtctgtgattgaccccttcccgattaaacagctgatgtatgtctaaactgca
 tgcctcttagggaggtataaaaaaatgactggcgacacaaatagtatgcccattggtgaggtatc
 tagttacgccaaaattagtgcaaaaacaaacacactgaagacattttggaagagtttccctgaaatt
 attccattacaacaagaactaataccggatctagtggagcgtcaaatgacgaaagcggagaaa
 catgtttttctgggtcatgatgaggagcaaatgaagttantgaatgaaaattgtattgttttggg
 ttgggacgataatgctattgggtgcggtaccacgaaggtttgtcatttaabggaaaatattgaa
 aaggggttaactacatcgtgcattctccgctcttatttcaatgaacaaagggaattacttttac
 aacaaagagccactgaaaaaatcaacttccctgatctttggactaacacatgctgctctcatcc
 actatgtattgatgacgaattagggtttgaagggttaagctagacgataagattgaaggcgctatt
 actggcgcggtgagaaaaactagatcatgaattagggtattccagaagatgaaactaagaacaaggy
 gtaagtttctacttttttaacagaatccattacatggcaccacgaatgaacccatggggtgaaca
 tgaattgattacatctattttatnagalcaacgctaaagaaaaactgactgtcaacccaaac
 gtcattgaagttagagacttcaaatgggtttccacaaatgatttgaaaaactatgtttgctgacc
 caagttacaagtttaagccttgggttaagattatttgcgagaattacttattcaactgggtggga
 gcaattagatgacctttctgaagtggaaaaatgacaggaattcatagaatgctataacaacgc
 gtccctgcagctgggtaccatatgggaatttgaaggtttcttgaacaaaaactcatctcagaagag
 gatcgaatagcgcgctgacccatcatcatcatcatcattgagtttaaacgggtctccagcttgg
 ctgttttggcggtgagagaaagattttcagcctgatacagattaaatcagaacgcagaagcgggt
 ctgatanaacagaattttgcctggcgccagtagcgcggtgggtccacactgaccccatgccgaact
 cagaagtgaacgcgctagcgccgatggtagtgggtgttcccaatgcgagagtagggaaactg
 ccaggcatcaataaaaaacgaaaggctcagtcgaagactgggctttcgttttatctgtttgttt
 gtcgggtgaacgctctccctgagtaggaacaaatcccgccgggagcggatttgaaactgccaagcaa
 cggcccgagggtggcgggcaggacgcgcgcataaaactgcaggcatcaaatgaagcagaagg
 ccactcctgaaggatggccttttgcgtttctacaaaactotttttgtttattttctaaatcat
 tcaaatatgtatccgcttaacccgaattgcagctggggcgccctctggtaagggttgggaagcc
 ctgcaagtaaaactggatggctttctcgccccaaggatctgatggcgccagggtgatcaagctct
 gatcaagagacaggatgaggatcgtttccgaatgattgaacaaagatggattgcacgcaggttctc
 cggccgcttgggtggagaggctattcggctatgactgggcacaaacagacaaatcggtgctctga
 tgcgcgcgtgtccggctgtcagcgaggggcgcccggttctttttgtcaagaacgacctgtcc
 ggtgcctgaatgaactgcaagacgaggcagggcggtctatcgtggctggccacgacggggcgttc
 cttgcgcagctgtgctcgacgttctcaactgaagcgggaagggaactggctgctattgggcgaagt
 gccggggcaggatctcctgtcatctcacccttgcctcctgcgagaaagtatccatcatggctgat

Figure 35C

gcaatgcggcggtgcatacgtttgatccggctacgtgccattccgaccaccaagcgaaacatc
gcatacgagcgagcacgtactcggtatggaagcgggtcttctgtagatcaggatgatctggacgaaga
gcatacaggggctcgcccgagccgaactgttcgccagggtcaaggcgagcatgccgacggcgag
gatecgtcgtgacccatggcgatgctgtgtgcgaatatcatggtggaaaatggccgctttt
ctggattcatcgactgtggccggtgtgggtgtggcgacggctatcaggacatagcgttgggtac
ccgtgatattgctgaagagcttggcggggaatgggctgacggctccctcgtgctttaagggtac
gcggctcccgattcgacagcgcatcgcccttctatcgccctcttgcacgagttctcttgacatgacc
aaaatcccttaacgtgagttttcgttccactgagcgtcagaccccgtagaaaagatcaaggat
cttcttgagatcctttttttctgcgcgtaatctgctgcttgcaaacaaaaaaaccacggctacc
agcggtgggtttgtttgcgggatcaagagctaccactctttttccgaaggtaactggcttcagc
agagcgagataccataactgtctctctagtgtagcggtagttaggccaccactcaagaact
ctgtagcaccgctacatacctcgctctgtctaatccgttaccagtggctgctgccagtggcga
taagtctgtcttaccgggttggactcaagacgatagttaccggataaggcgacagcggtcgggc
tgaacggggggttcgtgcacacagcccagcttggagcgaacgaactacacggaactgagatacc
tacaagctgagctatgagaaagcgccacgcttcccgagggaagaaaggcggaacaggtatccggt
aagcggcagggtcggaacaggagagcgcaagaggagcttccagggggaacgcctgggtatctt
tatagtcctgtcgggtttcgccacctctgacttgagcgtcgtcttttctgtatgctcgtcagggg
ggcgagccatggaanaacgcacagcaacggcgctttttacggttcctggccttttctgtggcc
ttttgtctacatgttcttctcggttatccctgattctgttgataaccggtattaccgcttt
gagtyagctgalacggctcgcccgacgcgaacgacgcgagcgagcgagtcagtgagcgaygaag
cggaagagcgctgatgoggtatcttctcttaogcatctgtgcggtatctcacacgcgatatg
gtgcactctcagtaaatctgtctctgatgcgcatagttaagccagtatacactccgctatcgc
taegtgaactgggtcatggctgcgccccgacacccgcacaacacccgctgacgcgccttgacgggc

SEQ ID NO:16

Figure 36

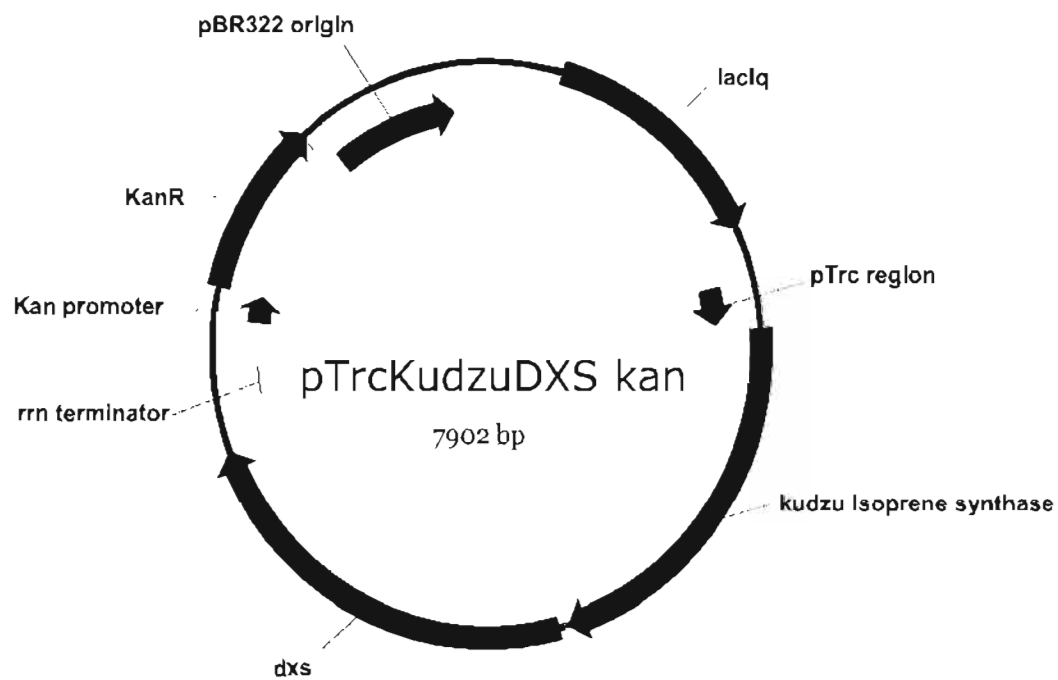


Figure 37A

5'-

ttgtctgtctccgggcatccgcttacagacaagctgtgaccgtctccgggagctgcatgtgtcag
 aggttttcacogtcatcaccgaaacgcgcgagggcagcagatcaattcgcgcgcgaaggcgaagc
 ggcattgcatcttacgttgacacccatcgaatggtgcaaaacctttcgcggtatggcatgatagcgc
 ccggaagagagtcattcagggtggtgaaatgtgaaaccagtaacgtttatacgatgtcgcagagt
 atgcgggtgtctcttatcagacogtttcccggtggtgaaaccaggccagccacgtttctgcgaa
 aaogcgaggaaaaagtggaaagcggcgatggcgagctgaattacattcccaaccgcgtggcaca
 caactggcgggcaaacagtcgttgcgtgattggcggttgccacctccagtcctggccctgcacgcgc
 cgtcgcgaattgtcgcggcgattaaatctcgcgcgcatcaactgggtgcacagcgtggtggtgtc
 gatggtagaacgaagcggcgctcgaagcctgtaaagcggcggtgcacaatctctcgcgcacgc
 gtcagtggtgctgatttaactatccgctggatgaccaggatgccattgctgtggaagctgcct
 gcaactaatgttccggcggttattttcttgatgtctctgaccagacacccatcaacagtaattttt
 ctcccatgaagacggtaacgcgactggggtgagcattctgggtgcattgggtcaccagcaaatc
 gcgtgttagcggggccatttaagttctgtctcggcgcgctctgcgtctggctggttgcataaat
 atctcacctcgcaatcaaatccagccgatagcggaaacgggaaggcgaclygagtgccatgtccgg
 ttttcaacaaaccatgcaaatgctgaatgagggcatcgttcccaactgcgatgctggttgccaac
 gatcagatggcgctggcgcaatgcgcgccattaccgagtcggggctgcgcgttggtgcgata
 tctcggtagtggaatacgcagatccgaagacagctcatgttatatccgcgcgtcaaccacat
 caaacagggttttgcgtgtcgggcaaacacagcgtggaccgcttgcgtgcaactctctcagggc
 caggcggtgaaaggcaatcagctgttgcgcgtctcactggtgaaaagaaaaaacccctggcgc
 ccaatagcaaacccgcctctcccgcgcggttggtgcgatttcattaatgcagctggcagcaggt
 tcccgactggaaaagcggcgagtgagcgcaacgcaatbaatgtgagttagcgcgaattgatctg
 gtttgacagcttatcatcgactgcacggtgcaccaatgcttctggcgtaaggcagccatcgga
 gctgtggtatggctgtgcaggttgtaaatcactgcataattcgtgtgcgtcgaaggcgactcc
 gtcttgataatgttttttgcgcgcacatcataacgggttctggcaaatattctgaaatgagctg
 ttgacaattaatcactccggctcgtataatgtgtggaattgtgagcggataaacaatttcacacag
 gaacacgcgcgcgtgagaaaaagcgaagcggcactgctctttaacaatttatcagacaattctgt
 gtagggcactgcacgggaattatcgatttaactttattttaaaattaaagaggtatatattaat
 gtatcgatttaantaaggagggaataaacatgctgtgcagacctctctcaatttactcagattacc
 gagcataattcccgctgttccgcgaactatcagcgaacctgtggaatttcgaattcctgcaat
 ccttgagaaacgacctgaaagtggaaagcgtggaggagaaagcgaacaaactggaggaaagagt
 tgcgtgcattgatcaacgtgtagacaacccggcgctgtccctgctggagctgatcagcagatgtg
 cagcgccctgggtctgacctacaatttgaaaaagacatttaaaagccctggaaaacatcgtac
 tgcgtgagcgaaaaacaaaaagaaacaastctgaacctgcacgcaacogctctgtcttccgtctgct
 ggcctcagcaacgggttgcagggttctcaggatgtttttgagcgtttcaaggataaagaagggtggt
 ttcagcgggtgaactgaagggtgacgtccaaaggcctgctgagcctgtatgaagcgtcttaacctgg
 gtttcagagggtgagaacctgctggaggaggcggtacotttcccatcaccacctgaagaaaca
 cctgaaagaaggcatttaataccaagggttgacagaacaagtgaagccacccctggaactgccat
 caccagcgtctgcacogtctggaggacogtgggttccctggataaatacgaacccgaagaaacgc
 atcaccagctgctgctggagctggcgagctgggttttaacatggtacagacctgcaccagaa
 agagctgcaagatctgtcccgctgggtggacccagatgggctggctagcaaacctggattttcta
 cgcgaacogctgatggaagttaatttctgggcactgggtatggcgccagaccgcagtttggtg
 aatgtcgcgaagctgttactaaaatgtttgggtcgtggtgacgatcatcgtatgacgtgtatgacgt
 ttatggcactctggacgaactgcaactgttccacgatgctgtayagcgtgggacgttaacgct

Figure 37B

attaacacccctgcccgaactatataaactgtgtttccctggcactgtacacacccgttaacgaca
 cgtccctattctattctgaaagagaaagggtcaataacacccctgtccctattctgacgaaaagctggcg
 tgaactgtgcaagccctttctgcaagaggcgaaatgggtccaaacacaaaatttatcccgcccttc
 tccaagtaacctggaaaacggccagcgtttccctccctccgggtgtagecgtgctggcgccgtcttact
 tttccgtatgccagcagcaggaagacatctccgaacacggcgtgctgcttccctgaaccgaattcca
 tgggtctgggtgggttctagctgggttatcttccgctgtgcaacgatctggccacctctggcgcg
 gagctggaaacgtggcgagactaccaattctatcattagctacatgcacgaaaaagatggtaacca
 gcgaggaaacaggcccggaagaaactgggtaaactgatogacggcgaatggaaaaagatgaatcg
 tgaacggcttagcgactccacccctgctgcttaaaaggcgttcattggaactcgcaqtaaacatggca
 cgtgtttcccaactgcacctaaccagtatggcgatgggtctgggtcgcccgactaaccgactgaaa
 accgcatacaaaactgctgctgattgacctttcccgatttaaccagctgatgtatgtctaaactgca
 ttccgctctaggaggtaaaaaacatgagttttgatattgcaaaatacccgaccctggcactgy
 tcgaactccaccacaggagttacgactggttgcggaagagaggtttaccgaaactctgcgacgaact
 gcgcgcgtatttactcgacagcggtgagccgttcacagcgggaacttcgctccggggtgggcacg
 gtogaactgacccgtggcgctgcaactatgtctaacacaccccgctttgaccaattgatltgggaly
 tggggcatcaggcttatccgcataaaattttgacgggacggccgcgacaaaatcgccaccatccg
 tcagaaaggcggtctgcaaccgttcccggtggcgggcggaaggaatatacgctattazgcgtc
 gggcatctacaaacctccatcagtgccgggaattgggtattggcggttgcctgcgaaaaagagga
 aaaatcgccgcacccgtctgtgtcaltggcgatggcgcgattaccgcaggeatggcggtttgaagc
 gatgaatcacggcgggcgatataccttccgatagctggtgatctctaacgacaatgaaatgctg
 atttccgaaaatgcccggcgctcaacaaacccatctggcscagctgctttccgggttaagctttact
 cttaactgcgcgaaggcggggaaaaaagttttctctggcggtgcgcgcaatttaagagctgctcaa
 accgaacgaagaaacataattaaaggcatggtagtgcctggcaccgttgtttgaagagctgggcttt
 aactacateggcccggtggagggtaacgatgtgctggggcttatccaccacgctaaagaacatgc
 ggcacctgaaagggcccgagttccctgcatactcatgacaaaaaaggtcgtgggttatgaacggg
 agaaaaagacccgatcaatttccacggcggtgcctaaatttgatccctccagcggtgttttgcgg
 aaaagttagcggggtttgcccagctatccaaaaatctttggcgactgggttggtgcgaaacggcag
 cgzaagacaaacagctgatggcgattactccggcgatgctgaaaggttccggcatgggtcgagtt
 ttaacgtaaattcccggtatcgtacttgcagctggcaattggcgagcaacacggcggtgaacttt
 gctgggggtctggcgattgggtgggtacaaacccattgctgcgatttactccacttccctgcaac
 ggccctatgatcaggtgctgcagtgacgtggcgattcaaaaagcttccgggtccctgttcgccatcga
 ccggcggggcatgtgtgggtgctgacggtcaaaacccatcagggtgcttttgatctctcttaacty
 cgtgcatataccggaaatgggtcattatgaccccgagcgatgaaaacgaatgtcgccagatgctct
 ataccggctatacactataacgatggcccgctcagcggtgctgctaccggcggtggcaacgggctcg
 cgtggaaactgacgcgcgtggaasaaactaccaattggcaaaaggcatttgtgaagcgtcgtggcgag
 aaactggcgatcccttaacttttggtacgctgatgccagaagcgggcgaaagtgcgcgaatcgctga
 ccggcacgctgggtcgatatgggttttgtgaaacggcttgatgaagcggttaattctggaaatggc
 cggcagccatgaagcgctgggtccacgtagaagaaaaacggccatttatggcgggcgaggcagcgcc
 gtgaacgaagtgtgatggcccatcgtaaacaggtacccgtgctgaacattggcctgcgggact
 tctttatttccgcaaggaaactcaggaagaaatgcgcgcggcaactcgccctcgatgccgctggtat
 ggaagccaaaaatcaaggccctggctggcataactgcagctgggtaccatattgggaattcgaagctt
 tctagaacaaaaactcatctcagaagaggatctgaatagcggcgctcgaccatcatcatcatcat
 catagggtttaaacgggtctccagcttggctgttttggcggtatgagagaagattttcagcctgat
 acagatttaantcagaacgcagaagcggtctgataaaacagaattttgcctggcgcgagtagcgcg

Figure 37C

gtggtcccacctgaacccatgcccgaactcagaagtgaaaagccgtagcgcgcgtatggtagtggtg
ggtctcccatgagagtaggggaactgccaggcatcaaataaaacgaaaggctcagtcgaaag
actgggccccttctgttttatctgtttgtttgtcgggtgaaagctctctctgagtaggacaaatccgcc
gggagcggatttgaaagcttggaagcagcggcccgagggtggcgggaggaagcccgccataa
actgccaggcatcaaattaagcagaaggccatccctgaaggatggcctttttgctttctacaaa
ctctttttgttttattttctaaatacattcaaataatgtatccgcttaacgggaattgccagctg
ggcgcccctctggttaaggttgggaagccctgcaaagttaaactggatggctttctcgccgccaag
gatctgatggcgaggggatcaagctctgatcaagagacaggatgaggatcgtttcgatgatt
gaacaagatggattgcaagcagggttctcgccgcgttgggtggagaggetattcggtatgact
gggcacaacagacaaatcggtgtctctgatgcgcgcgttgggtggagaggetattcggtatgact
gggcacaacagacaaatcggtgtctctgatgcgcgcgttgggtggagaggetattcggtatgact
gggtctctttttgtcaagaagcagctgtcggtgcgcgttgggtggagaggetattcggtatgact
ctatcgtggctggcagcagcggcgttctctggcagcgtgtgtctgacgttgtcactgaagcgg
gaagggaactggctgtctattgggcgaagtgcggggcaggatctctgtcatctcacttgcctcc
tgccagaaaagtatccatcatggctgatgcaatgcggcggtgcatacgttggatccggctacc
tgccatttcgaccaccaagcgaacatcgcatcgagcagcagctactcggatggaaagcgggtc
ttgttgatcaggatgatctggacgaagagcatcaggggctcgccgagcagcgaactgttcgccaag
gctcaaggcagcagcatgcgcagcggcgaggatctcgtcgtgaccatggcgatgcttgcttgcg
aatatcatggtggaaatggcgcctttctctgattcatcgactgtggcggcctgggtgtggcgg
accgctatcaggacatagcgttggctaacctgtgatattgctgaagagcttggcggggaatgggc
tgacggcttctcgtgtttacgggtatcgccgctcccgatttcgacgcgcctcgccttctatcgc
ctctctgacgagttctctcgacgcgatgacaaaaatcccttaacgtgagttttctgttccactgag
cgtcagaccccgtagaaaagatcaaaggatctctcttgagatccctttttctgcgcgtaactctg
ctgcttgcacaacaaaaaacacccgctaccagcgggtgggtttgtttgcgggatcaagagctacca
actctttttcgaagggttaactggttcagcagagcgcagataacaaataactgtccttctagtg
agcggtaggttaggcacacacttcaagaactctgtagcagcgcctacatacctcgtctgctaat
cctgttaccagtggtgtctgcagtgggataggtcgtgtcttaccgggttggactcaagacga
tagttaccggataaaggcgcagcgggtgggtgtgaacggcgggttcgtgcacacagccagcttgg
agcgaacgacctacacogaactgagatacctacagcgtgagctatgagaaagcgcacgcttcc
cgaagggaagaaaggcggacaggtatccggtaagcggcagggttcggaaacaggagagcgcacgagg
gagcttccagggggaaacgcctgggtatctttatagtcctgttgggttttcgccaacctctgacttg
agcgtcagttttttgtgagctcgtcagggggggcggagcctatggaaacacgcagcaacgcggc
ctttttacgggttcttggccttttgcggccttttgcctcacatgttcttctcgtggttatccct
gattctgttgataaacgtattaccgcctttgagtgagctgataccgctcgcgcagcgcgaacga
ccgagcgcagcaggtcagtgagcaggaagcgggaagagcgcctgatgcgggtattttctccttac
gcctctgtcgggtatttcaacacgcataatgggtgcaactctcagtaacaatctgctctgatgcgcga
tagttaagccagtatatacctcgcctatcgtcagctgactgggtcatgggtgcgcgcgcgacccc
gccaacacccgctgacgcgcctgacgggc

SEQ ID NO:17

Figure 38

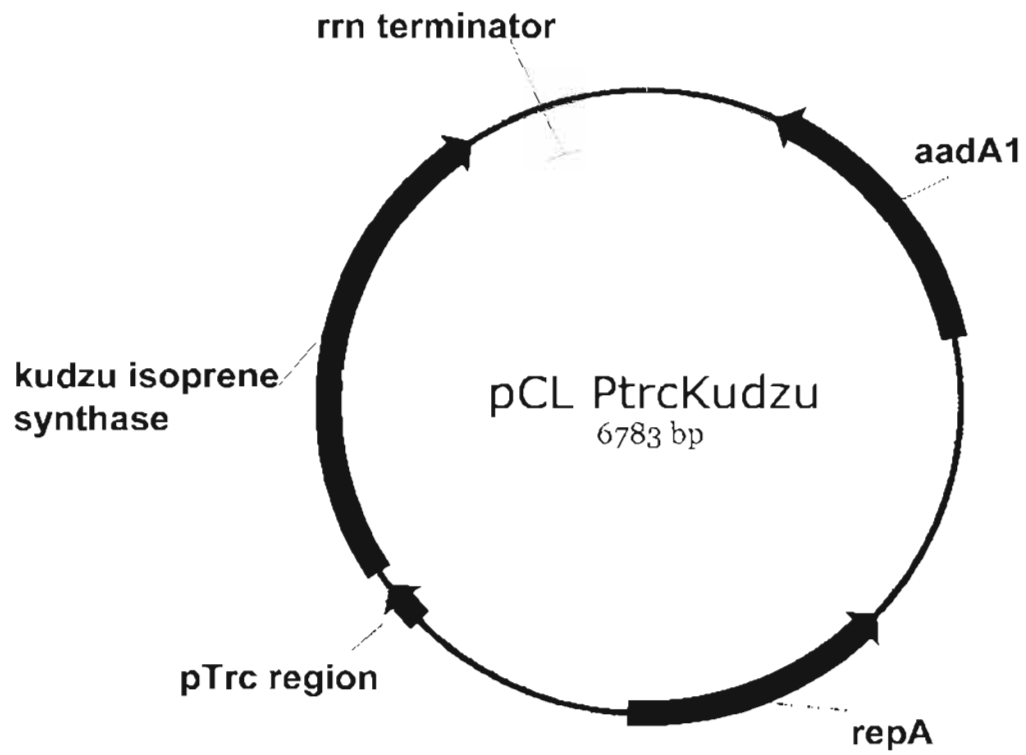


Figure 39A

34 -

[illegible]

Figure 39B

ttacgagatccatttctgtctatctagttcaacttggaaaatcaacgtatcagtcgggggggcoctcg
cttatcaaccaccaatttccataattgctgtaagtggtttaastcttacttatctgggttcaaaacc
cattgggttaagccttttaaactcatggtagttattttcaagcatttascattgaacttaattccat
caaggetaatctctatacttgccttctgaggtttctcttctgtgttagttcttttaataaccactc
ataaatccctcatagagttatttgttttcaaaagacttaacatgttccagatttatattttatgaat
ttttttaactggaaaagataaggcaatctcttcaactaaaaactaatctcaatttttgccttg
agaaottggcatagtttcttccactggaaaatctcaagcctttaaccaaggattctgtatttc
cacagttctcgtcatcagctctctgggttctttagctaatacaccataagcattttccctactg
atgttcatcatctgagcgtatttgggttatnaagtgaacgataccgtccgttcttctctgtagggt
tttcaatcgtgggttgagtagtgcacacagcatataaatttagcttgggttcatgctccgttaa
gtcatagcgaactaatcgttagttcatttggcttggaaaacaactaatcagacatacatctcaat
tggcttaggtgattttaactcactataccaattgagatgggttagtcaatgataattactagctc
tttctctttaggttctgggttatctgttaattctgtctagaccttctgtggaaaacttgtaaattc
tgctagacccctctgttaattccgttagaccttctgtgtgttttttttgtttatattcaagtggct
ataatttatagaataaagaaagaataaaaaagataaaaaaagaaatagatcccagccctgtgtata
actcactaactttagtcagttccgcagttattacaaaaggatgtcgcaaacgctgttttgcctct
acaaacacagacctttaaaccctaaaggcttaagtagcaccctcgcaagctcgggcaaatcgtg
aatatctcttctgtctcgaaccatcaggtcacttgagtcgctgtcttcttctgtgacattcagttc
gctgogctcaagcctctggcagtgaaatgggggttaaatggcactacagggcgccttctatggatc
atgcaaggaaactaccataatacaagaasggccgtcagggccttctcagggcgttttatggc
gggtctgctatgtgtgtgtctatctgacttttctgtgttcagcagttctctgcccctctgattttcca
gtctgaccactctgggttatctcgggtgacaggtctattcagactgggttaatgcacccagtaaggca
gggttatcactcaacaggcttaccogtcttactgtcgggaattcgcgttggcogattcattlaatg
cagattctgaaatgagctgttgacaatttaattcatccggctcgtataatgtgtggaattgtgagc
ggataaacaatttcacacaggaaacagcgcgcgtgagaaaaagcgaagcggcactgctctttaa
aatttatcagacaaatctgtgtgggcaactcgacgggaattatcgaattaaetttattttaaaaaat
taaagagggtatattatattgtatcgaattcaataaaggaggaaataaaccatgtgtgtgacccctct
tcaatttaactcagattaccgagcataartcccgctcgttccgcaactatcagccaaacctgttg
aatttctgaattcttgcattccctggagaagcagctgaagtggaagcctggaggagaaagcga
ccaaactggagggaagagttcgtctgatgatcaacogtctgagacacccagcgcgtgtccctgct
ggagctgatcgacgatgtgagcgcctgggtctgacctacnaatttgaazaagacatcatttaa
gcccctggaaaacatcgtactgctggacgaaaaacaaaagacaaatctgacctgcacgcaaccg
ctctgttcttccgtctgctgctgcgcacgggttctcaggggttctcaggtatgtttttgagcgttt
caaggataaagaaggtgggttccagcgggtgaactgaaggtgacgtccaaagcctgctgagcctg
tatgaagcgtcttaccctgggttctcaggggtgagaacctgctggaggaggcgcgtaccttttcca
tcaaccacctgaagaaacaacctgaagaaggcatbaataccaaggttgcagaacaagttagcca
cgccctggaactgccataatcaccagcgtctgcacogtctggaggcaggttgggttcttggataaa
taagaaocgaagaaacccgatcaccagctgctgctggagctggcgaagctggattttaacatgg
taccagacccctgcaccagaaagagctgcaagatctgtcccgctgggtggaccgagatgggcctggc
tagcaactggattttgtacgcgacccgctgatggagtttatttctgggcactgggtatggcg
ccagaccccgagtttgggtgaatgtcgaagctgttaactaaaatgttttgggtctgggtgacgatca
teqatgacgtgtatgacgttttatggcaotctggacgaactgcaactgttccacgatgctgtaga
gogctgggaogttaacgctatttaacacccctgcgggaactatatgaaactgtgttctcggcactg
tacaacaccgttaacgacacgtctctatctctatctgaaagagaaaggctcataacaacctgtctct

Figure 39C

atctgacgaaaagctggcgtgaactgtgcaaagcctttctgcaagaggcgaaatgggtccaaaca
caaaattatcccggctttctccaagtaacctggaaaaagccagcgtttctctctccgggtgtagcg
ctgctggcgccgtcttacttttccgtatgccagcagcaggaagacatctccgaccacgcgctgc
gttccctgaccgaacttccatggctctgggtgcgttctagctgggttatcttccgcctgtgcaacga
tctggccacacctctgcgggcggagctggaacgtggcgagactaccaattctatcattagctacatg
cacgaaaaacgatggtaaccagcaggaacaggcccgcgagaagaaatgggttaaatgatcgacgcgc
aatggaaaaagatgaatcgtgaacgcgttagcgactccaccctgctgacctaaagcgttcatgga
aatcgccagttaacatggcacgtggtttcccaactgcaoctaccagtatggcgatgggtctgggtcgc
ccagactacgcgactgaaaaaccgcatcaaaactgctgctgattgacctttcccgattaaaccgc
tgatgtatgtctaaactgcagctggtaccatattgggaattcgaagctttctagaacaaaaactca
tctcagaagaggatctgaatagcgccgtcgaccatcatcatcatcatttgagtttaaacgggt
ctccagcttggctgttttggcggtatgagagaagatttccagcctgatcacagattaaatcagaac
gcagaagcggctctgataaaacagaatttgcctggcgccagtagcgcggtgggtccacacctgacc
catgcggaactcagaagtgaaacgcgtagcgccgatggtagtgtgggtctcccatgcgaga
gtagggaaactgcccaggcatcaaataaaacgaaaggctcagtcgaaagactgggcctttcgtttt
atctgttgtttgtcggtgaacgctctcctgagtaggacaaatccgcccgggagcggatttgaacg
ttgcgaagcaacggcccgagggtggcggyccagcagcccgccataaactgccaggcatcaaat
taagcagaaggccatcctgacggatggcctttttgcgtttctacaaactctttttgttatttt
tctaaatcattcaaatatgtatccgctcatgagacaataaccctgatcaaatgcttcaataat

SEQ ID NO:18

Figure 40

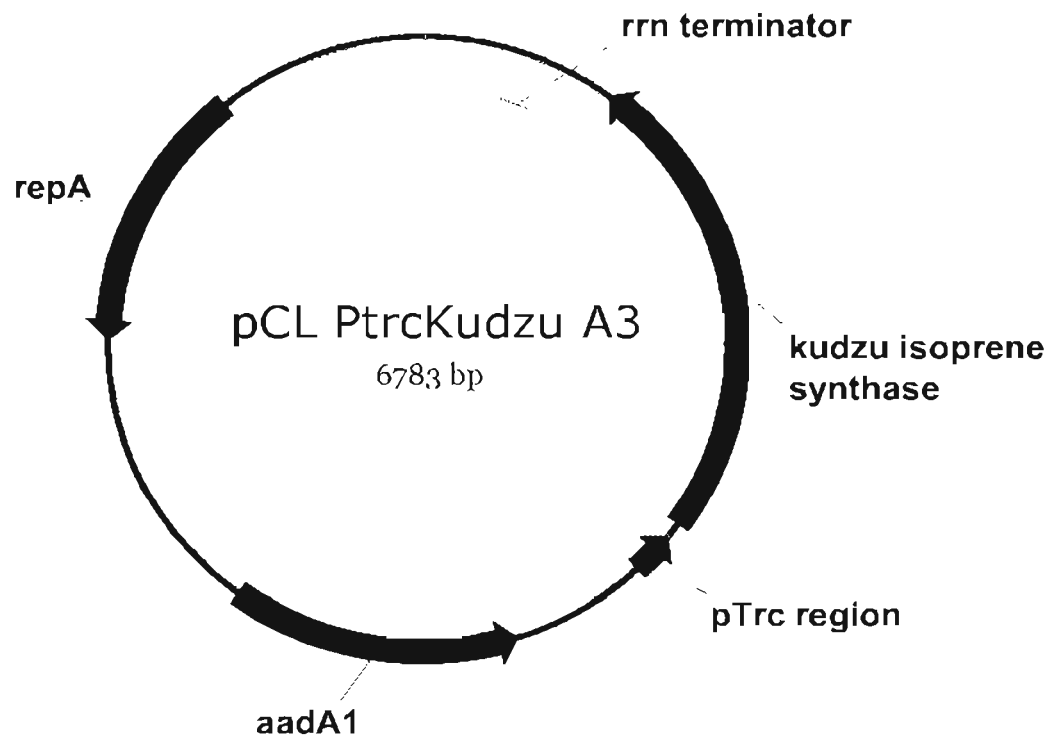


Figure 41A

5' -

cccgctcttactgtcgggaatttcggttggccgatttcattaatgcagattattgaagcaatttacc
agggttattgtctcatgagcggatatacatatttgaatgtatttagaaaaataaacaataaaggagtt
tgtagaaaacgcaaaaaggccatccgtcaggatggccttctgottaatttgatgcctggcagttt
atggcgggggtcctgcgcggccacctccggggcgttgccttcgcaacgttcaaaatccgctccggg
eggatitgtctactcaggagagcgttcacccgacaaacaacagataaaaacgaaaggccagctct
ttcgactgagcctttcgttttatttgatgcctggcagttccctactctcgcatggggagacccc
acaactaacatcggcgctacggcgttttcactctctgagttcggcatggggtcagggtgggaccaccg
cgctactgcgcgcaggcaaatctctgttttatcagaccgctctctgcgtctctgatttaatergtat
caggctgaaaatctctctctcctccgcaaaaacagccsagctggagaccgtttaaactcaatgat
gatgatgatgatggtegacggcgctatttcagatcctctctctgagatgagtttttcttctagaaa
gotttcgaattcccatatggtaaccagctgcagtttagacatacatcagctgggttaatcgggaagg
gtcaatcagcagcagttttgatgcgggttttcagtcgcgttagtctggggcagccagaccatcgcca
taactggtaggtgcagtgaggaaacacgttgcctatggttaactgcgatttccatgaacgcttttagga
gcagggtggagtcgctaaacggtttcagcagttcatcttttccattccggcgctcgatcagtttaacg
cagttcttccggggcctgttctctgcgtggtaaccatcgttttcgtgcagtagotaatgatagaa
ttggtagtctcgcacagtttcacagctccgcgcagaggtggccagatcgttcgcacaggcggaaga
taacgcagctagaaacgcacccagaccatggaaagtcggtcagggaacgcagcgctggtcggagat
gtcttctctgctgctggcaacgggaaagtaagacggcgccagcagcgtacacccggaggaggaa
acgctggcgttttccaggtaacttggagaaagccgggataatttcttcttggtaggaccatttcgcct
cttgcagaaaggctttgcacagtttcacgcagcttttctctcagataggacaggttggttatgacc
ttctctcttccagaaatagaataggacgtgtcgtttaacgggtgttgcacagtgccaggaaacacagt
ttcatatagtcgggcagggtgtttaatagcgtttaacgtccacgcgtctccacagcctcggtagaca
gttgcagttcgtccagagtgccataaacgtctctacacgtctctcgtatgacgtcaccagacccaaa
catttttagtaaacagctttgcgacatttcacccaaactgcgggtcttggcgccatacccagtgcccag
aaataaaacttccatcaggcggtgcggtlacaaaaatccagtttgcctagccaggcccatctcgggtcc
accagcgggacagatcttgcagctcttctctggtgcagggtctgttaaccatgttaaaatccagctt
cgccagctccagcagcagctgggtgatgcggttcttccggttcgtatttatccaggaaacccacgk
gcttcagacaggtgcagacgttgggtgatalatggcagttccagggcgtgggtcacttctgttctgcaa
ccttgggtattaatgccttcttccaggttgggtcttccaggtgggtgatggaaaggtacgcgcctc
ctccagcaggttctcaccctcgaaacccaggttaagacgcttccatacaggtccagcaggtcttg
acgtcacccttccagttccacgctgaaacccacctctctatccttgaacgctcaaaaacatct
gagaaacctcgaaacgtgtgtgacgcagcagacggaaagacagagcgggttgcgtgcaggtcaga
tttctgtcttttttcttctccagcagtaacgatgttttccaggggttttaattgatgtcttttcca
aatttgtagggtcagacccaggcgctgcacatcgtcgatcagctccagcagggaacagcggtggg
tgtctacacggttgatcatgcagcgaactctctctccaggttgggtcgtttctctctccagctt
ttccactttcaggtcgttctccagggattgcagggaatttcgaaattccacaggtttggtgatag
tttgcggaaacgacgggaatttatgctcggtaattctgagtaaattgagaagaggtgcacacatgg
tttatctctctcttattttaaagcagatcatttaataataacctctttaaatttttaataataaagtta
atcgataaattccgggtcgagtgcccacacagattgtctgtataaattgttaaaagagcagtgccgct
tcgctttttctcagcggcgctgtttctctgtgtgaaattgttatccgctcacaattccacacatt
atacagagcgggtgatataattgtcaacagctcatttcagaatctggcgttaatagcgaagaggcc
cgcaccgatcgccttcccaacagttgcgcagcctgaatggcgaatggcgctgatgcggtatt
ttctctctacgcctctgtgcgggtatttcacacccgcatatgggtgcactctcagtaaatctgctc

Figure 41B

[illegible]

Figure 41C

cttgtagagttttcttttgtgttagttcttttaataaccaactcataaatectcatagagttattg
ttttcaaaagacttaacatggtccagatttatattttatgaatttttttaactggaaaagataag
gcaatatctcttaactaaaaactaattctaatttttcgcttgagsacttggcatagtttgtcca
ctggaaaatctcaaaagcctttaaccaaaaggatttctgatttccacagttctcgtcatcagctct
ctgggttgcttttagctaatcacccataagcattttccctactgatgttcatcatctgagcgtatt
gggtataaagtgaacgataccgtccgttctttccctgttagggttttcaatcgtgggggtgagtag
tgccacacagcataaaaattagcttgggttcatgctccgttaagtcatagcgactaatcgtcagt
tcatttgctttgaaaaacaactaattcagacatacatctcaattgggtctaggtgattttaatcac
tataccaattgagatgggctagtcgaatgataaattactagtccttttcccttgagttgtgggtat
ctgtaaattctgctagacctttgctggaaaacttgtaaaattctgctagaccctctgtaaattcc
gctagaccctttgtgtgtttttttgttttatattcaagtgggtataaatttatagaataaaagaaag
aataaaaaaagataaaaaagaatagatcccagccctgtgtataaactcaactacttttagtcagttcc
gcagttattacaaaaggatgtgcgaacgctgtttgctcctctacaaaaacagaccctaaaaaccct
aaaggcttaagtagcaccctcgcaagctcgggcaaatcgctgaatattccttttgtctccgacc
atcaggcaacctgagtcgctgtcttttttctgtgacattcagttcgtctgogctcacggctctggcag
tgaatgggggtaaatggcactacaggcgcttttatggattcattgcaaggaaactacccataat
acaagaaaagcccgctcacgggcttctcagggcggttttatggcggggtctgctatgtgggtgctatc
tgactttttgctgttcagcagttccctgcccctctgattttccagttctgaccacttcggattatcc
cgtgacaggtcattcagactggctaatgcaaccagtaaggcagcggtatcatcaacaggctta

SEQ ID NO:19

Figure 42

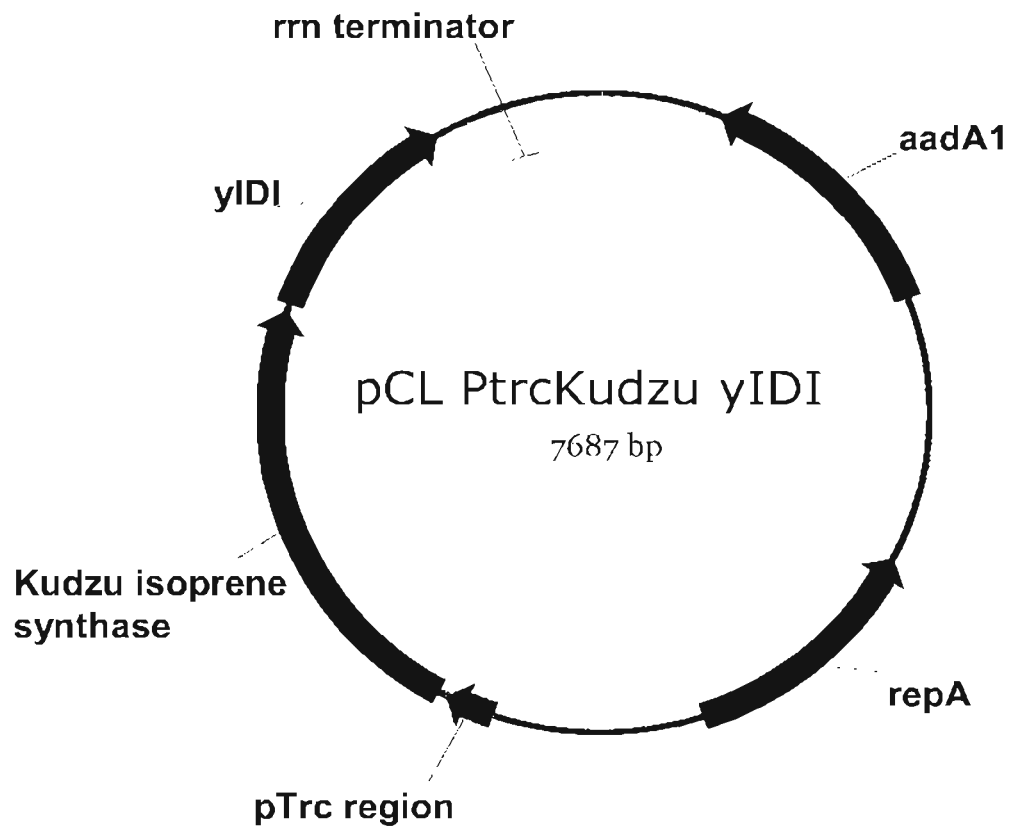


Figure 43B

ttacgagatccatttgtctatctagttcaacttggaaaatcaacgtatcagtcggggcgccctcg
 cttatcaaccaccaatttcatattgctgtaangtgttttsaatctttacttattgggttcaaaaacc
 cattgggttaagcccttttaaaactcatggtagttattttcaagcatttaacatgaacttaaattoat
 caaggetaatctctatatttgccttgcgagttttcttttgggttagttcttttaataaccactc
 ataaatcctcatagagttatttgttttcaaaaagacttaacatgttccagatttatattttatgaat
 ttttttaactggaaaagataaggcaatctctcttcaactaaaaactaattctaattttctcgttg
 agaacttggcatagtttgcactggaaaatctcaaaagcctttaaccaaggattcctgatttc
 cacagttctcgtcatcagctctctgggttgccttagctaatcaaccataagcattttccctactg
 atgttcatcatctgagcgttattgggtataagtgaaacgataccgtccgttcttccctttaggggt
 tttcaatcgtgggggttagtagtgccacacagcataaaaattagcttgggttcatgctccgttaa
 gtcataagcgactaatcgttagttcatttgcctttgaaaacaactaattcagacatacatctcaat
 tgggtcaggtgatttttaactcactataaccaattgagatggggttagtcaatgataattactagtcc
 ttttccctttaggttgggttatctgtaaattctgctagaccttgcctggaaaacttgaatttc
 tgcagacccctctgtaaattccgtctagaccttgcctgggttttttttgggttatatttcaagtggtt
 ataatttatagataaagaagaataaaaaaagataaaaaggaatagaleccagccctgtgtata
 actcaactactttagtcagttccgcagttattacaagggtggtcgcacacgctggttgcctct
 acaaaaacagaccttaaaaacccataaggcttaagtagcaacctcgcagctcgggcaaatcgtg
 aataattccttttgcctccgaacctcaggcaccctgagtcgctgcttttccgtgacattcagttc
 gotgogctcacggctctggcagtgatgggggttaattggcaactacagggccttttatggattc
 atgcaaggaaactacccataatacaagaaaagcccgtaacgggcttctcagggcgttttatggc
 ggggtctgcttatgtgggtgctatctgacttttgcctgttcagcagttcctgocctctgattttcc
 gtctgaccacttcggatttatcccgtagcaggtcattcagactggcctaattgcaaccagtaaggca
 ggcgtatcatcaacaggettacccgctcttactgtcgggaattcgcgttggccgattcattaatg
 cagattctgaattgagctgttgacaattaatcatccgctcgtataatgtgtggaattgtgagc
 ggataacaatttcaacaggaacagggcggcgtgagaaaaagcgaagcggcactgctcttttaac
 aatttatcagacastctgtgtgggcactcgcacgggaatttatcgatttaactttatttataaaaat
 taagaggttatataattatgtatcgatttaataaggaggaataaaceatgtgtgcgaacctctc
 tcaatttactcagattacggagcataattcccgctcgttccgcaactataagcctaaacctgtgg
 aatttcgaattcctgcacccctggagaaacgacctgaaagtggaaaagctggaggagaaagcga
 ccaactggaggaagaagttcgtctgatgatcaacccgtgtagacacccagccgtctccctgct
 ggagctgttcgacgatgtgcagcgcctgggtctgaectacaaatttgaaaaagacatcattaaa
 gncctggaaaacatcgtactgctggacgaaaacaaaaagaacaaatctgaactgcacgcaacgg
 ctctgtctttccgtctgctgogtccagcagggtttcagagggttctcaggatgtttttgagcgtt
 caaggataaaggaggtgtttcagcgggtgaactgaaaggtgacgtccaaggcctgctgagcctg
 tatgaagcgtcttacctgggtttcagagggtgagaaactgctggaggaggcgcgtaccttttcca
 tcaaccaactgaagaaacacctgaasgaaggcaattaatccaagggttgcagaacaagttagcca
 cgccttggaaactgcaataatcaccagcgtctgcacccgtctggaggcacgttgggttccctggataaa
 taccgaacggaaagaaacggcatcaccagctgctgctggagctggcgaagctggatttcaacatgg
 tacagacccctgcaccagaasgagctgcaagatctgtcccgctgggtggacggagatgggocctggc
 tagcaaaactggattttgtacggcgaacggcctgatgggaagtttatttctgggcactgggtatggcg
 ccagacccgcagtttgggtgaatgtgcgaagctgttactaaaaatgtttgggtctgggtgacgatca
 tcatgacgtgtatgacgtttatggcactctggacgaactgcaactgttcaaccgatgctgtaga
 gogctgggaacgttaacgctcttaacacccctgcgggaactatataaaaactgtgtttccctggcactg
 tacaacacccgttaacgacacgtcctattctatttctgaagagaaaaggtcataaacaacctgtcct

Figure 43C

atctgacgaaaagctggcggtgaactgtgcaagcccttctgcaagaggcgaaaatgggtccaacaa
 caaaatttatcccggtcttctccaagtaacctggaaaacggccagcgtttctctctccgggtgtagcg
 ctgctggcgccggtcttacttttccgtatgccaagcagcaggaagacatctccgaccacgcgctgc
 gtctccctgacccgacttccatggctctgggtgcttctagctgctgttatcttccgcctgtgcaacga
 tctggccacacctctgcccgggagctggaacgtggcgagactaccaattctatcattagctacatg
 caccgaaaacgatgggtaccagcgaggaacagggcccgcggaagaactgcgttaaactgatcgacgcg
 aatggaaaaagatgaatcgtgaacgcgttagcgactccacctgctgcctaaagcgttcatgga
 aatcgccagttaacatggcactgttctccactgcaactaccagtatggcgatgggtctgggtcgc
 ccagactacgcgactgaaaaacggcatcaactgctgctgattgacctttcccgattaacccagc
 tgatgtatgtctaaactgcctcccttagggaggtaaaaaaaatgactgcccagacaacaatagta
 tgcccatgggtgcagtatctagttacgcacaattagtgcaaaaaccaacacctgaagacatttt
 ggaagagtttctggaattattccattacaacaaagacctaatcccgatctagtggagcgtca
 aatgacgaaaagcggggaacatgtttttctgggtcatgatgaggagcaaatgaagttaatgaatg
 aaaaattgtattgttttggattgggacgataatgctattgggtgccggtaccaagaaagtttgtca
 tttaatggaaaatattgaaaagggtttactacatcgtgcattctccgtctttattttcaatgaa
 caaggtgaattacttttacaacsaagagccactgaaaaataactttccctgatctttggacta
 acacatgctgctctccactatgtattgatgaogaattagggttgaagggttagctagacga
 taagattaaaggcgctattactgcccgggtgagaaaactagatcatgaattaggtattccagaa
 gatgaactaagacaaggggttaagtttcaactttttaaacagaatccattacatggccaccaagca
 atgaaccatgggggtgaacatgaaattgattacatcctattttataagatcaacgctaaagaaaa
 cttgaactgcnaeccaaaacgctcaatgaagtttagagacttcaaatgggtttcaccaaatgatttg
 aaaaactatgtttgctgacccaagttacaagtttaogccttgggttaagatttattgcgagaatt
 acttattcaactgggtgggagcaattagatgacctttctgaagtggaasatgacaggcaaatcca
 tagaatgctataacgacgcgtctctgcagctgggtaccatafggggaattogaagctttctagaacg
 aaaaactcatctcagaagaggatctgaatagcgccgtcgaccatcatcatcatcatcattgaggt
 taaaoggtctccagcttggctgttttggcggtatgagagaagattttcagcctgatccagattaa
 atcagaacgcagaagcgggtctgataaaacagaatttgcttggcgccagtagcgcggtgtgtccca
 cctgaccccatgcggaactcagaagtgaacgcgcgtagcgccgatggtagtggtgggtctcccc
 atgcgagagtagggaactgccaggcatcaatanaacgaagggtcagtcgaaagactgggct
 ttcggttttatctgtttgtttgtcgggtgaacgctctctgagtaggacaaatccgcggggagcgga
 tttgaaggttgcgaagcaacggcccgagggtggcgggcaggaacgcccgcataaactgccagg
 catcaaatgaagcagaaggccatcctgacggatggcctttttgctttctacaaactcttttg
 tttatcttctaaatacattcaaatatgtatccgctcatgagacaataacctgataaatgctt
 caataat

SEQ ID NO:20

Figure 44

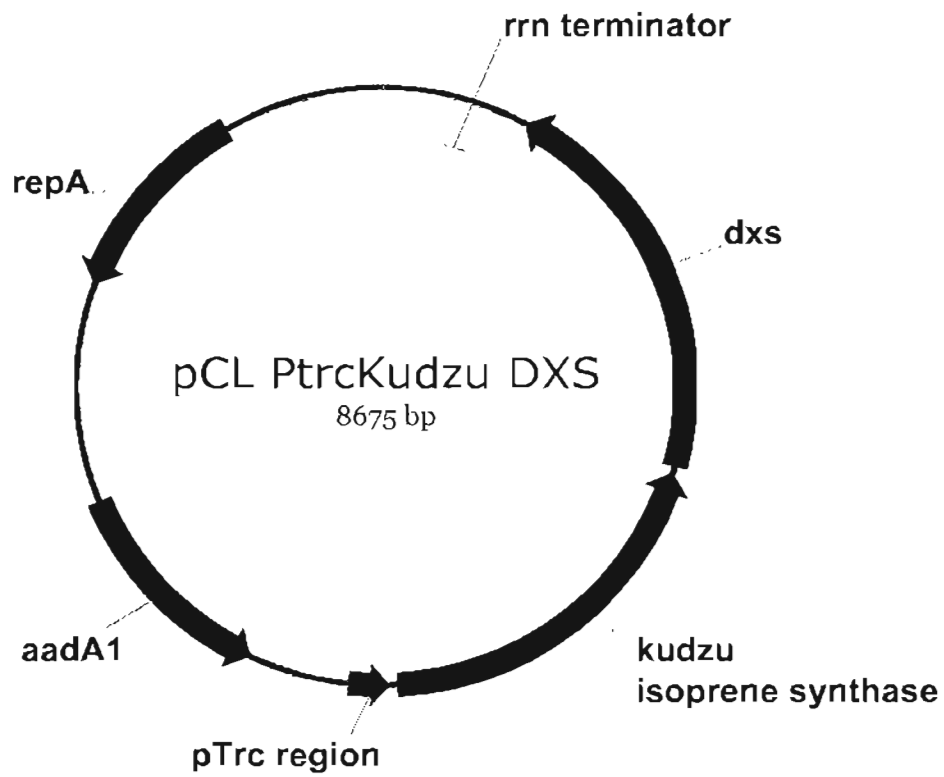


Figure 45A

5' -

ccggtcttactgtcgggaatttcggttggccgatttcattaatgcagattattgaagcattttatc
 agggttattgtctcatgagcggatacatatttgaatgtatttagaanaataaacaanaaagagtt
 ttagaanaacgcaaaaaggccatccgtcaggatggcctctctgcttaatttgatgectggcagttt
 atggcgggggtcttgcgcgcacccctcggggcgttgccttcgcaacggttcaaatccgctccgg
 cggatttgcctactcaggagagcgttccaccgacaaacaacagatanaaacgaaaggcccagctc
 ttgcactgagcctttcggttttatnrgatgectggcagttccctactctcgoatggggagacccc
 acactaccatcggcgctacggcgttccactctcgagttcggcatggggtcaggtgggaccaccg
 cgtactgcgcgcaggcaaatctgttttatcagaccgctctcggttctgatttaactctgtat
 cagggtgaaatctctctcatccgcacaaacagccaaagctggagaccgtttaaactcaatgat
 gatgatgatgatggtcgacggcgctattcagatccctctctcgagatgagttttgttctagaaa
 gcttogaattcccatatggtaaccagctgcagttatgcacgcaggccttgattttggcttccat
 accagcggcatcgagggccgagttcggcgcgcatctctctcctgagttccttgcggaataaagaag
 tcgggcaggccaatgttcagcaacgggtactgggtttacgatggccatcagcaacttcgttccgc
 cgtgcctgcgcgcgcacataatggcggtttctctctacggtgaccagcgcttcgatggctggcggc
 catctccagaatttaacgcttccctcaagcgggtttccacaaaacgcataatcgaccagcgtggcggtc
 agcgattcggcgacttccgcgctctcgccatcagcgctaccaaggttaaggatccgcagttctc
 cggccagcaacgcttccaatgctttggcaattggtagtttttccagcggcgctcagttccacgce
 gacgcggttgcacgcgggttagcgccacgcgtgcacgggcccacgttatagtgatagccggtatag
 agcatctggcgacatttgtttctcctcgctcggggctcaaatgaccatttccggtatgcacgcga
 gtttaagagagatcaaaagcaacctgatgggtttgacgcgtcagcaaccaaatgcgcgcgcggtc
 gatggcgaacaggacccgaagcttttgaatcgcaacgtcatgcagcaacctgatcataggcgct
 tgcaggcaagtgaggttaaatcgcgcacaaatgggtttgtaccaccaaatgcgcagaccgcagca
 aggtccaccgcgtgttgctcggcaatttgcacgcgtcgaagtagcgatccgggaatttaccgtgaaaa
 ctgcaccatgcgcgaaccttcacgcctcgcgcggagttaacgcacacagcttggttcttctcgt
 ggcgtttcgcacacacagctgcacaaagatttttgaatagctcggcaaacgcgcgctacttttcg
 gcaaacacacgcgtggagggtatcaaatttaggcaacggcgtggaaagtgttcgggtcttttctgc
 cggttccataaccaagaccttttttggctcatgatattgcaggaaactgcgggcttccaggctcgcgc
 atgttcttttagcgtgggtgataagcgcgcagacatcgtgacgcgtccacggggccgatgtagttaa
 agcccgagctcttcaaaacacgtgcacggcactacatgcctttaatatgttcttcgggtgcgttc
 gacgagctcttttaatttggcggcgcgcgcagagaaaaactttttccgccttcgcgcagtgagag
 taaagcttaccggaagcagctgtgcacgatggttgttgagcgcgcgcagacatttccggaaatcg
 acatttccatttgcgttgagaatcaccagcatatcaggacgggatcgcgcgcgcgtgatccatgc
 ttcaaacgcgcctgcctgcggtaatgcgcgcacatgcacacagacgggtgcggcgatttttg
 ccttcttttccgcgcgcacacgcacataaccaatccggcactgatggaggttgatgaatgcgcga
 cgtttaatacgtcatattcgccttccgcgcgcgcacgggaacgggtgcagacgcctttctgacg
 gatgggtgcgcattttgttcgcgcgcgtccgggtcaaaattttatgcggataagcctgatgcgcaca
 tcccaaatcaattggtcgaacgggttgttgtagacatagtcagcgcgcacgggtcagttcgcacg
 tgcgcgcgcgcggaggggaagtgcgcgcgtggaaacgggtcgcgcgtctgagtaaatagcgcgcgcg
 ttctgcgcgcaggttccggtaaacctctcttccgcgcacagctcgttaactcctgggtggagtcgac
 agtgccaggggtcgggtatttggcaatatcaaaactcatgttttttaccctcctaagggcgaatg
 cagttagaatatacatcagctggttaatcgggaaggggtcaatcagcagcagtttgatgcgcgttt
 teagtcgcgtagctctgggcgcacccagacacatccgcataccggtaggtgcagtggggaacacggtg
 caatgttaactgcgatttccatgaacgcctttaggcagcaggggtggagtcgctaaacgcgttcacg

Figure 45B

attcatcttltccattcggcgtcgatcagtttacgcagttcttcggcggcctgttctctcgctg
gtaccatcgttttcgtgcattgtagctaatgatagaattggtagtctcggccacgttccagctccg
ccgcagaggtggccagatcgttgcacaggcgggaagataacgcagctagaacgcacagacatg
gaagtccgtcagggaaacgcagcgcgtggtcggagatgtcttcctgctgctggcatacggaaaag
taagacggcggccagcagcgtacacccggaggaggaaaacgtcggcgttttccaggtaacttggaga
aagccgggataaatttggttgttggaccatttcggcctcttgcagaaaggccttgcacagttcagc
ccagcttttcgtcagataggacaggttgttatgaccttctcttccagaatagaataggacgtg
tcgttaacgggtgttgtacagtgccaggaaacacagtttcatatagtcgggcagggtgttaataag
ggttaacgtcccagcgtctacagcctcgggtgacagttgcagttcgtccagagtgccataaac
gtcatcacagtcacatcgatgatcgtcaccagacccaaacattttagtaacagcttgcgacattca
ccaaactcggggtctggcggccatccagctgcgcgaaataaaactccatcaggcgggtcggcta
caaaatccagtttgcctagccaggcccatctcgggtccacagcgggacagatcttgcagctctt
ctgggtcaggggtctgtaccatgtttaaataccagcttcggccagctccagcagcagctgggtgatgc
ggttcttccgggttcgtatttatccaggaaacacagctgcctccagacgggtgcagacgtggtgat
atggcagttccaggcgggtggctcacttgttctgcacccctgggtattaatgccttcttccaggtt
gttcttccaggtgggtgatggaaaagggtacgcgcctcctccagcaggttctccacctcgaaaccc
aggttaagacgcttcatacaggtccagcaggccttggacgtccaccttccagttccacgctgaac
cccttcttctcccttgaacgctcaaaaacatcctgagaaacctcgaaacgggtgctgacgcag
cagacgggaagacagagcgggttcggtgcaggtcagatttgtcttcttctgttctcgtccagcag
acgatgttltccagggtttaaagatgtcttcttcaaatttttaggtcagacccaggcgtgca
catcgtcgatcagctccagcaggggacagcgggtcgggtgtctacacgggttgatcagcagcgaac
ttcttccctccagtttgggtcgttctctccagcttctccacttccaggtcgttctccaggat
tgcaggaaatccgaaattccacaggttgggtcgatagtttgcgggaacgaacgggaattatgctcgg
taattctgagtaaaattgagaagaggttcgcacacatggttatttctccttatttaategatcacat
taatatatacctctttaaattttaaataaagtttaatcgataaattccgggtcaggtgcacacac
agattgtctgataaaattgtttaaagagcagtgccgcttccgttcttctccagcggcgtcttct
gtgtgaaattgttatccgctcacaattccacacattatacagagcgggatgatttaattgtcaaca
gctcatttccagaatctggcgtaataagcgaagcggcccgccacagatcgcccttcccaacagttgc
gcagcctgaatggcgaaatggcgccctgatgcgggtatttctcttccatccagcctctgtgcgggtattt
acacccgcatatgggtgcactctcagtaacaatctgctctgatgcgcctagtttaagccagcccca
caccgcgcaacacccgctgacagccttagttaagccctcgtcagattttaaagcggatgttgcg
attacttcgcgaactattgcgataacaagaaaaagccagccttctcgtgatctctcccaattt
gtgtagggtcttattatgcacgcttaaaaataataaaagcagacttgcctgatagtttgcgtgt
gagcaattatgtgctttagtgcatctaacgcttgagtttaagccgcgcgcggaagcggcgtcggct
tgaacgaattgttagacattatttgcgcactcccttgggtgatctcgccttccaggtagtggaca
aattcttccaaactgatctgcgcgcgagggccaaagcagatcttctcttctgcgaagataagcctgtc
tagcttcaagtatgacgggtgataactgggcggcagggcgtccattgcaccagtccgcagcgac
atccttcgggcgggatttctcccggttactgcgcgtgtaccaaafgcgggacaacgtaagcaactaoc
tttgcgtcctcgcagcccaagtcgggcggcgaggtccatagcgttaaggttttcatattagcgcct
caaatagatcctgttccaggaaacgggatcaaaaggttctcctccgcgttggaacctaccaaggcaac
gctatgttctcttgcgttttgcagcgaagatagccagatcaatgtcgatcgtggtgggtcgaag
atacctgcagaatgtcattgcgctgcacatttctccaaattgcagtttcgcgcttagctggataac
gccacgggaatgatgtcgtcgtgcacaacaatggtgacttctacagcgcgggagaatctcgtctc
tccagggggaagcgaagtttccaaaaggctggttgatcaaaagctcgcgcggttgttctcatcagc

Figure 45C

cttaagggtacogtlaaccagcaaatcaatatcaactgtgtggttcaggccggccatccactgagg
agcogtacaatatgtacggccagcaaatcogtgcgttcogagatggcgctcgatgacgccaaactacctc
tgataggttgagtcgataacttcggcgatcaccgcttccctcatgatgttttaactttgttttaggg
cgactgcccgtgtgogtaacatcggttgcgtgctccataacatcaaacatcgacccacggcgtaac
gcgcttgctgcttggtgcccagggcatagactgtacccccaaaaaacagtcataacaagccat
gaaaaacggccactgogccggttaaccacggctgcgttcgggtcaaggttcctggaccagttgcgtgag
cgcatagcgtacttgcatlacagcttacgaacggacaggttatgtccactgggttcgtgct
tcactccgtttccacgggtgtgogtcacccggcaacccctgggcagcagcgaagtogaggcatttct
gtccgtggtgaggcaacgagcgcaaggttcgggttcacacgcacgtccaggcattggcgcccttg
ctgttcttctacggcaaggtgctgtgcacggatctgccttggttcaggagatcggaagacctc
ggcgttcgaggcgttcggcggtggtgctgaacccggatgaagtggttcgcactccctcggtttct
ggaaggcgagcatcggtttgttcgccagcttctgtatggaacgggcattgggatcagtgagggt
ttgcaactgogggtcaaggatctggatttcgatcacggcacgacatcgtgcgggaggggcaagg
gctccaaaggatcgggcccttgatgttaaccagagagcttggaacccagcctgcgcgagcaggggaa
ttaattccacgggtttgtctgcccgaacgggtgttctgggtgttgcctagttttgttatcaga
atcgagatccggcttcagccgggttcggcggtgaagcgctatttcctccagaattgccatga
tttttccacggggagggtcactggctcccggtgttctgggaagctttgatccgataagcagc
atcgccgtgttccaggctgtctatgtgtgactgttgagctgtacaaagtgtctccagggtgtcaa
tttcatgtctcagttgtttgttttaactgggttccactgttctattaggtgttacatgctgttc
atctgttacattgtcgatctgttcattggtgaacagctttgaatgcacaaaaactcgtaaaagc
totgatgtatctatctttttacacogttttcatctgtgcabattggacagttttccctttgata
tgtaacgggtgaacagttgttctactttttgtttgttagctttgatgcttcaactgatagatacag
agccataagaacctcagatccctccgtatttagccagttatgttctctagtggttggttggttt
ttgogtgagccatgagaacgaaccttgagatcactactttgcactgtcaactcaaaaatttt
gctcaaaaactgggtgagctgaatttttgacgttaaaagcactcgtgtagctgtttttcttagtccgt
tatgtagggtaggaaatctgatgtaatgggtgttggtattttgtcaacactcatttttatctggt
gtctcaagttcggttaacgagatccatttgtctatctagttccacttggaaaaatcaacgtatca
gtcggggggccctcgcttatcaaccccaactttccatattgctgttaggtgtttaaatctttactta
ttgggtttcaaaaacccattgggttaagccttttaaaactcattggtagttattttcaagcattaacat
gaacttaaatctcaaggctaatctctatatatttgccctgtgagttttcttttgggttagttct
tttaataaacactcataaatccctcatagagtatttgggtttcaaaagacttaacatgttccagat
tatattttatgaatttttttaactggaaaagataaggaatattctctcaactaaaaactaattc
taatttttcgcttgagaacttggcatagtttgcactggaaaatctcaagccctttaaccaaa
ggattcctgatttccacagttctcgtcatcagctctctgggttgcctttagctaatcacccataag
cattttccctactgatgttcatcatctgagcgtatttgggtataagtgaaacgataccgctccgttc
tttccctgttaggggttttaactcgtgggggttgagtagtgccacacagcctaaaaattagcttggtt
tcactgctccgttaagtcatacgagactaactcgttagttcatttgccttgaaaaaactaattcag
acatacatctcaattgggtctaggttgatttttaactcactataaccaattgaagatgggttagtcaatg
ataattactagtccttttccctttgagttgtgggttatctgtaaattctgctagacctttgctgga
aaacttgtaaatctctgctagacccctctgtaaattccgctagacctttgtgtgttttttttgggtt
atattcaagtggttataatttatagaataaagaaagaaataaaaaagataaaaaagaatagatcc
cagccctgtgtataactcaactaactttagtcagttccgcagttattacaaaaggatgtcgcacaaacg
ctgtttgtctctctacaaaaacagaccttaaaacccctaaaggccttaagtagcaccctcgcaagct
cgggcaaatcgtgtaatttccctttgtctccgacccatcaggccacctgagtcgctgtctttttc

Figure 45D

Gtgcatttcagttcgctgcgctcacggctctggcagtgaaatgggggtaaatggcactacagggc
ccttttatggattcatgcaaggaaactaccataatacaaganaagcccgtcacgggcttctca
ggcggttttatggcggtctgctatgtggtgctatctgaacttttgctgttcagcagttcctgc
cctctgattttccagtcctgaccaacttcggattatcccgtagacaggtcatttcagactggctaata
caccagtaaggcagcggtatcatcaacaggetta

SEQ ID NO:21

Figure 46A

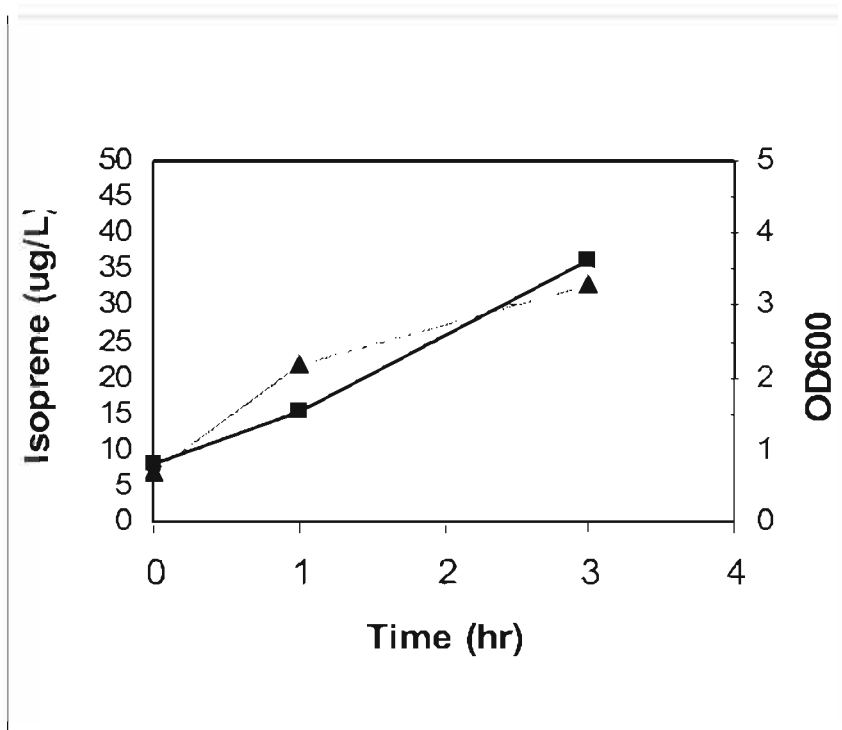


Figure 46B

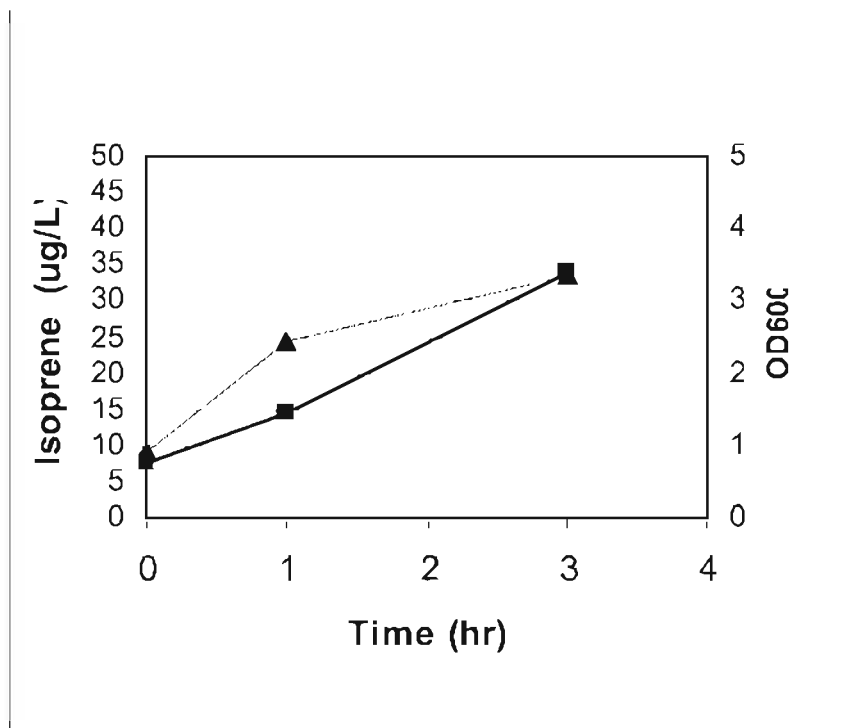


Figure 46C

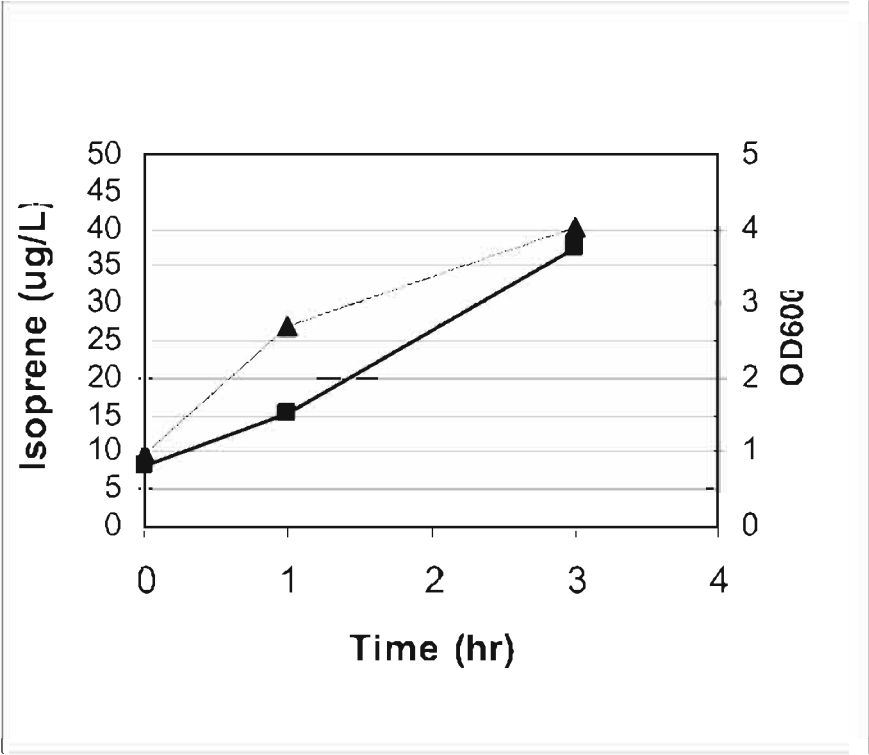


Figure 46D

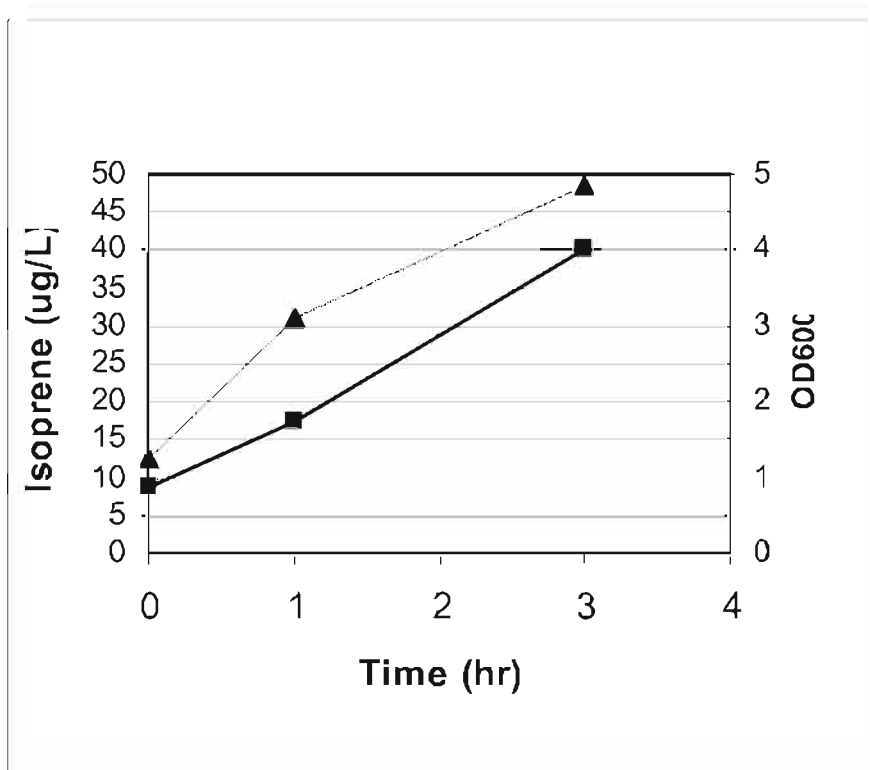


Figure 46E

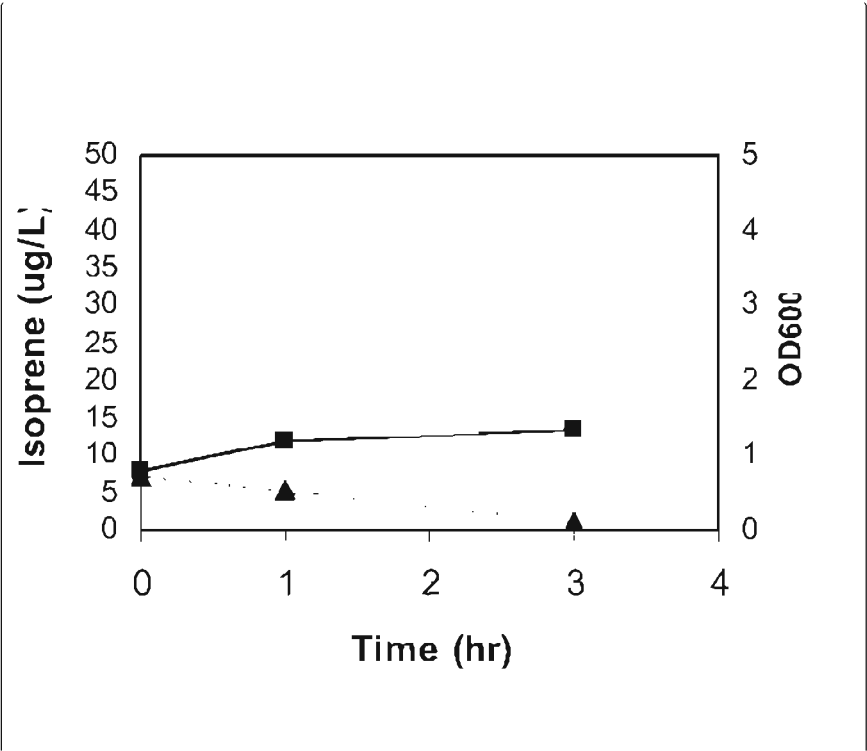


Figure 47A

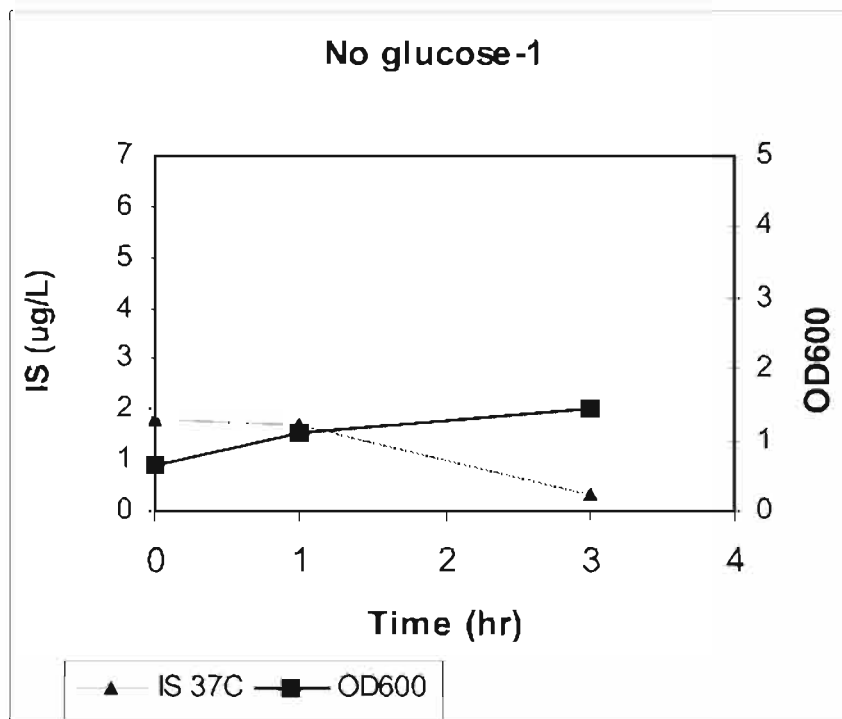


Figure 47B

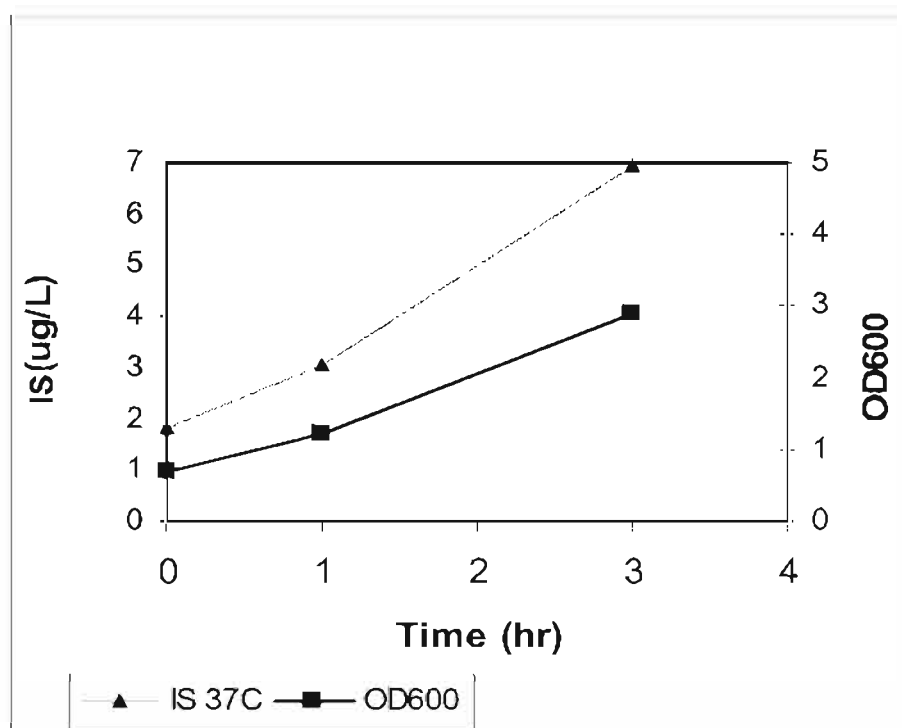


Figure 47C

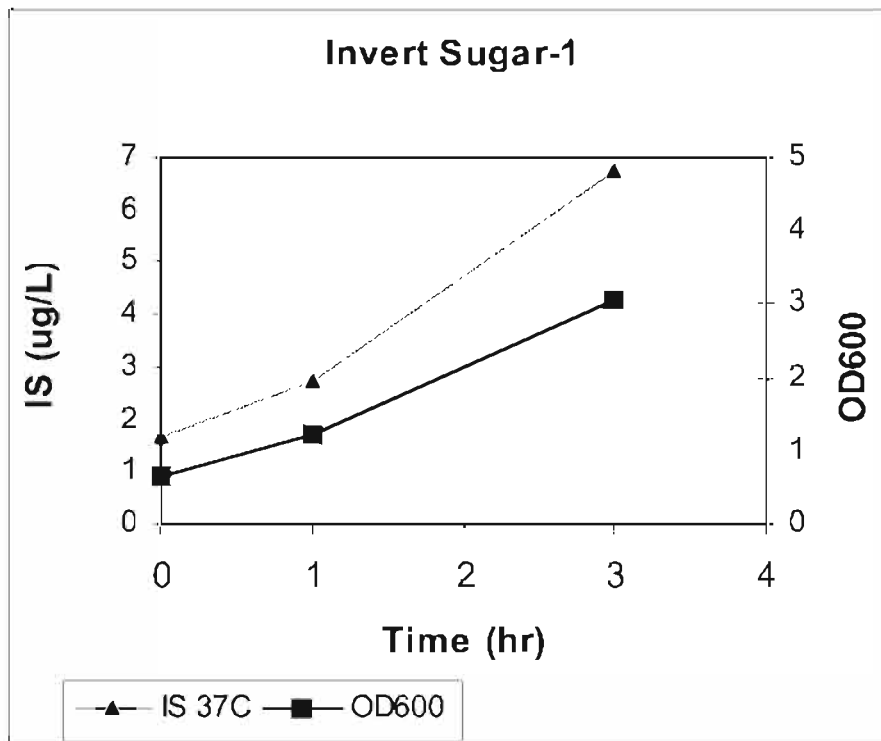


Figure 47D

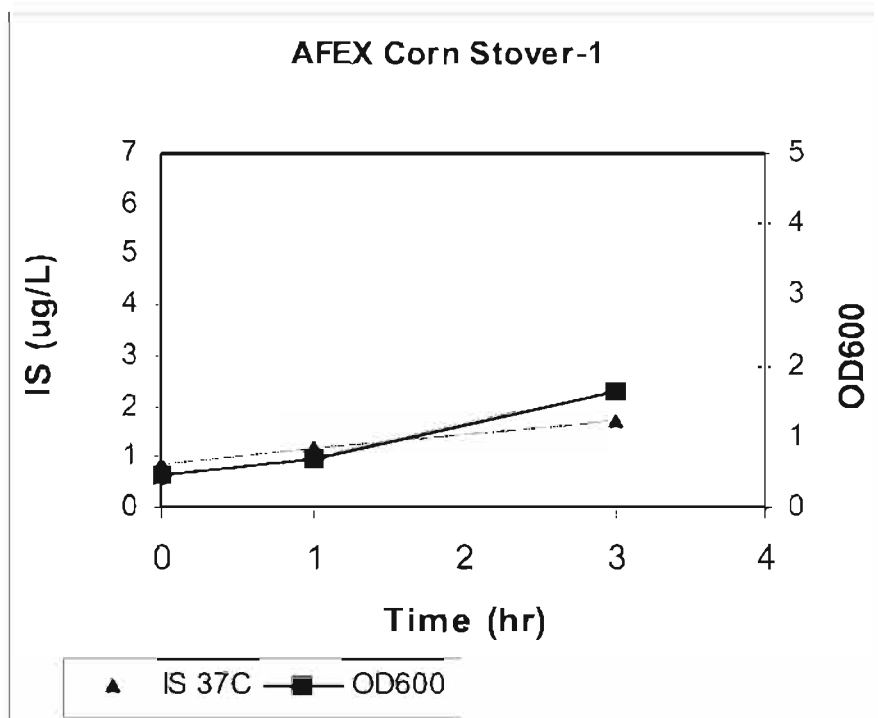


Figure 48A

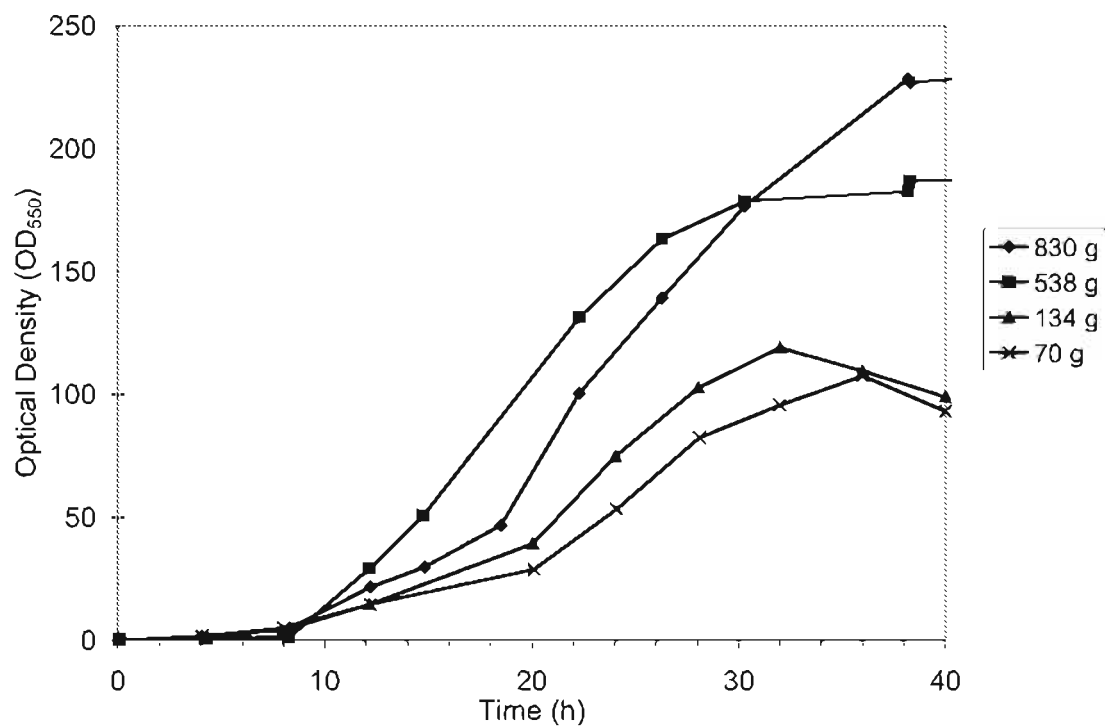


Figure 48B

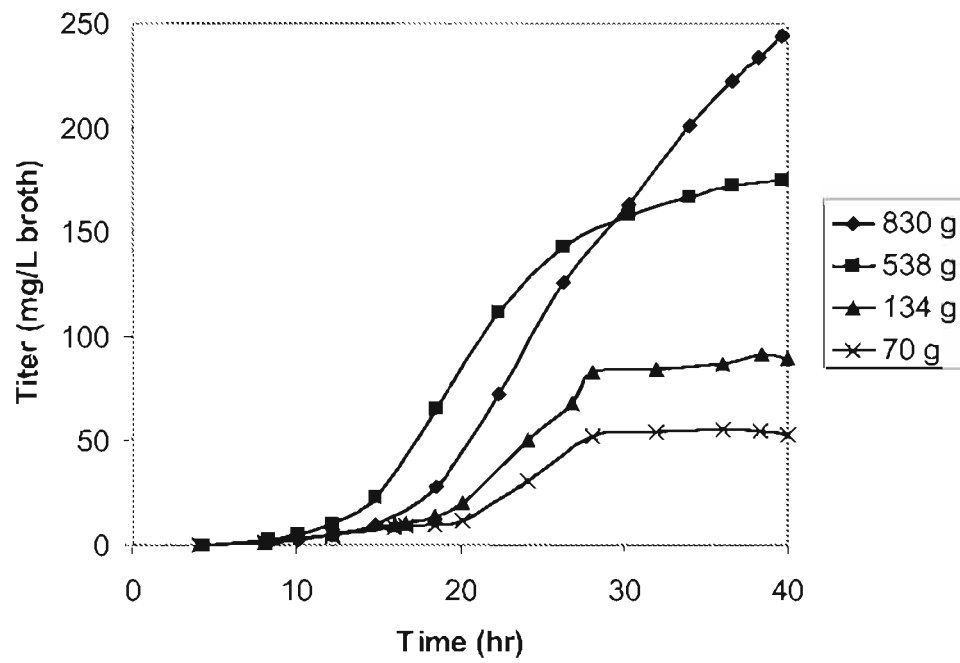


Figure 48C

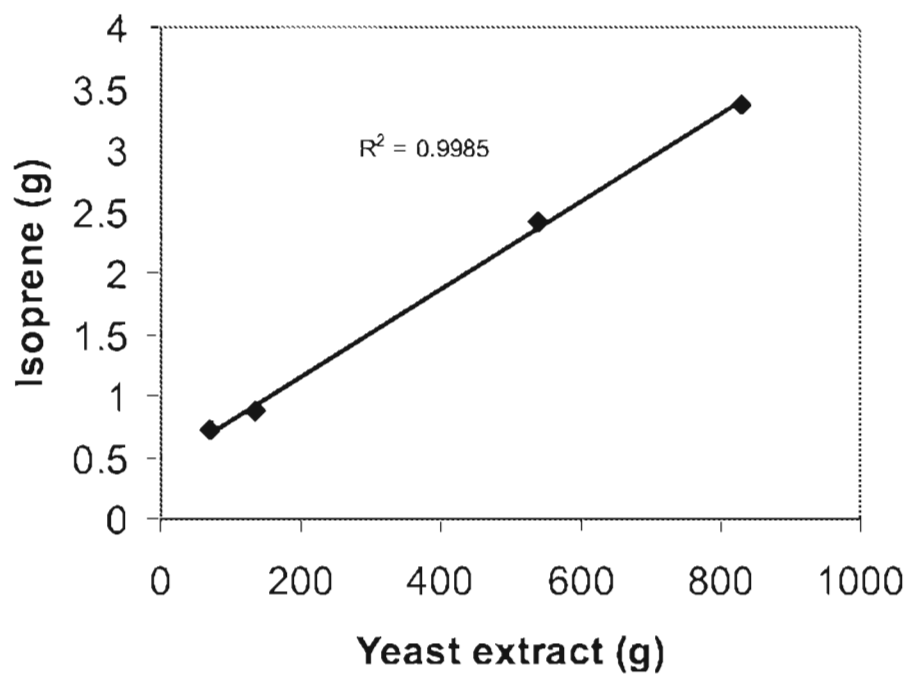


Figure 49A

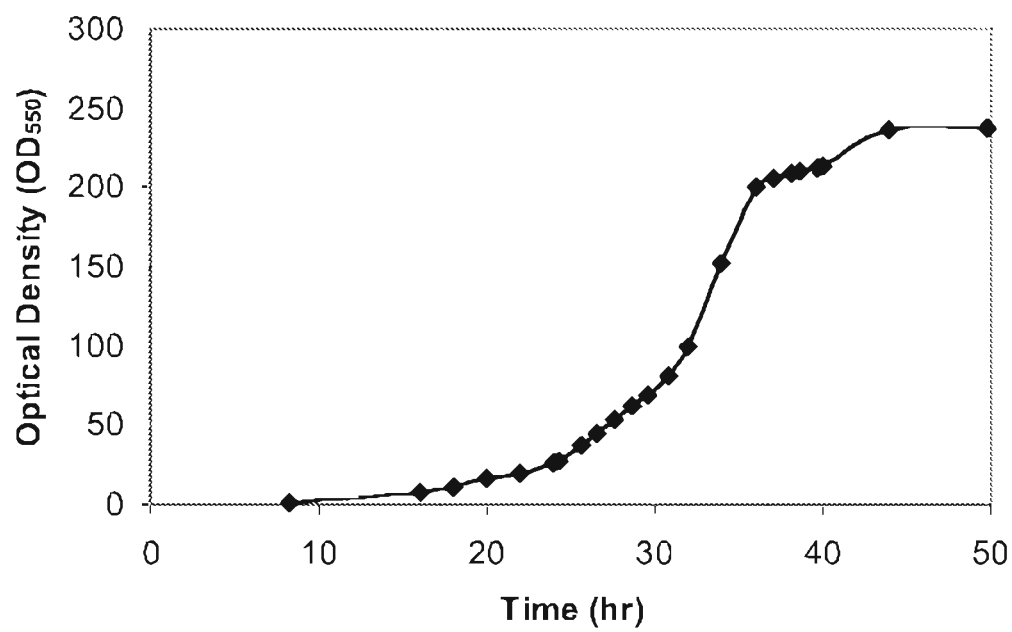


Figure 49B

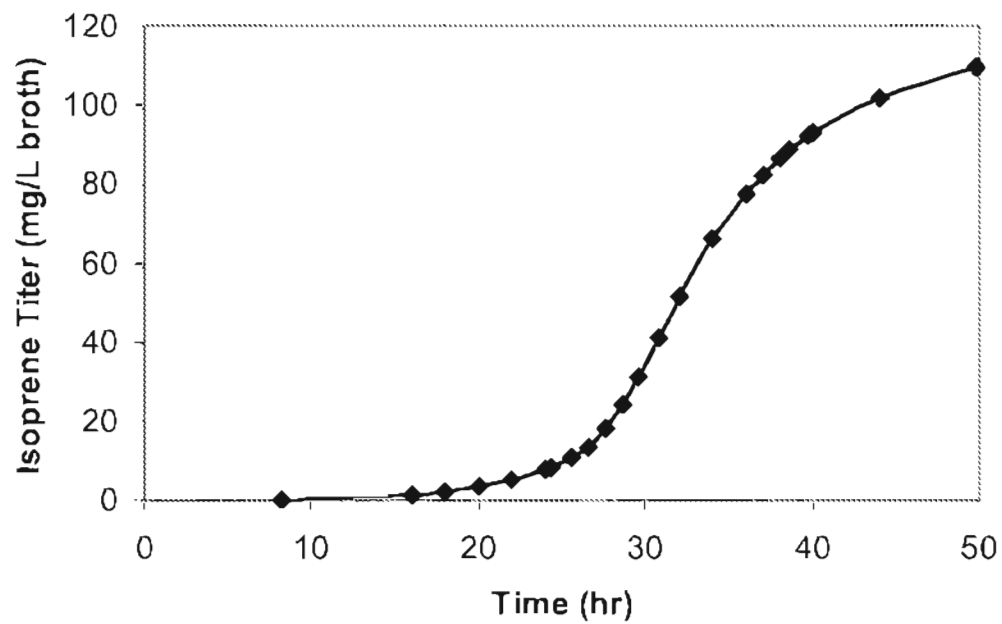


Figure 49C

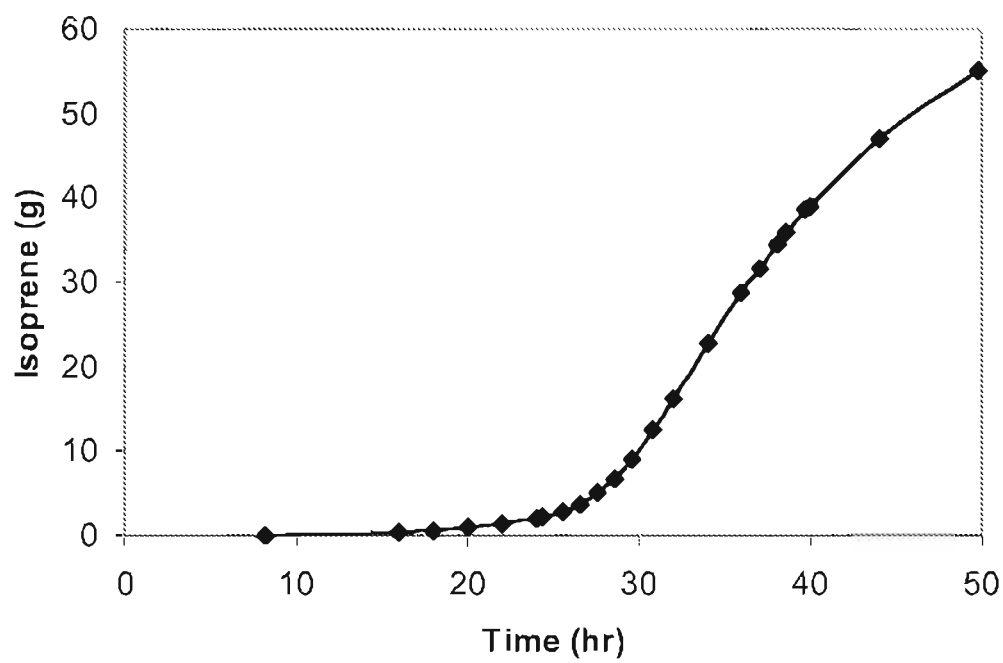


Figure 50

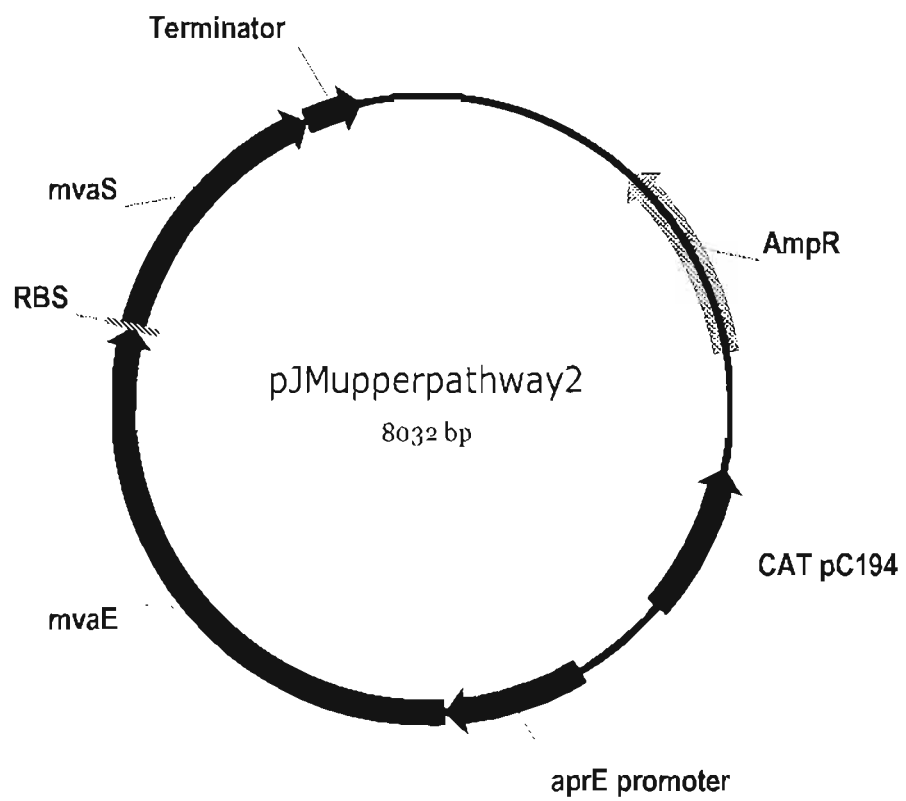


Figure 51A

5' -

tcgctgcgctcggctcgttcggctgcggcgagcggatcagctcactcaaaggcggtaatacgggt.
tatccacagaatcaggggataaacgcaggaaagaaacatgtgagcgaaggccagcaaaaggccag
gaaacgtaaaaaggcgcgcttgcctggcgttttcccatagggctccgccccctgacgagcatcac
aaaaatcgacgctcaagtcagaggtggcgaaacccgacaggactataaagataccaggcgttttc
ccccgggaagctccctcgtgcgctctcctgttcggacccctgcgcttacgggatacctgtccgc
ctctctcccttcgggaagcgtggcgtttctcatagctcaogctgtaggtatctcagttcggtg
taggtcgttcgctccaagctgggctgtgtgcacgaaccccccggttcagcccgacccgctgcgct
tatccggtaactatcgtcttgagtcacacccggtaagacacgacttatcgcacactggcagcagc
cactggtaacaggattagcagagcgaggtatgtaggcgggtgctacagagttcttgaagtgggtg
cctaactacggctacactagaagaacagtatcttggtatctgcgctctcgtgaagccagttacct
tcggaaaaagaggttggttagctctgtatccggcaaaacaaaccccgctggtagcgggtggtttttt
tgtttgcaagcagcagattacgcgcagaaaaaaaggatctcaagaagatcccttgatctttct
acggggtctgacgctcagttggaacgaaaaactcagtttaagggtatcttggtcatgagattatcaa
aaaggatcttcaactagatcccttttaaatataaaatgaagttttaaatcaatctaaagtataata
tgagtaaatcttggtctgacagttaccaatgcttaatcagtgaggycaactatctcagcgatctgt
ctatttctgctcatccatagttgcctgacaccccgctcgtgtagataaactacgatacgggagggct
taccatctggccccagtgctgcaatgataccgcgagacccacgctcaacggctccagattcctc
agcaataaaacagccagccgggaagggcggagcgcagaagtgggtcttgcaactttatccgctcc
atccagttctattaatttgttgccgggaagctagagtaagtggttcgcccagtttaatagtttgccga
acggttgttgccatttgctacagycatcgtgggtgtcagcctcgttcgtttgggtatgggttcattcag
ctccgggttcccaacgatcaaggcgagttacatgatccccatgttgtgcaaaaaagcgggttagc
tcttccggctctccgatcgttgtcagaagtaagtttggccgcagtggtatcactcatggttatgg
cagcactgcataaattctctactgtcatgcacccgtaagatgctttctgtgactgggtgagta
ctcaaccaaagtcattcttgagatagtggtatgcggcgacagaggttgctcttgcccggcgctcaata
cgggataaataccgcgcacacatagcagaactttaaaagtgtcatcattggaanaacgttcttcgg
ggcgaaaaactctcaaggatcttccgctggttgagatccagttcgatgtaacccactcgtgcacc
caactgatcttcagcatcttttactttcaccagcgttttcgggtgagcaaaaaacaggaaggca
aatgcgcgcaaaaaagggaataagggcgacacgggaatgttgaaatactcatactcttctctttc
aatatatttgaaagcatttatcagggttattgtctcatgagcggatataatstttgaaatgtattla
gaaaaataaacaataaggggttcgcgcacatttcccgaaaaagtgccacctgacgtctaagaa
accattattatcatgacattaaactataaaaaataggcgtatcaagaggccctttcgtctcgcgc
gtttcgggtgatgacgggtgaaaaactctgaaacatgcagctcccgagacgggtcaacagcttgctc
gtaagcgggtatgcggggagcagacaagcccgtagggcggctcagcgggtgttgccgggtgtcgg
ggctggcttaactatgcggcatcagagcagattgtactgagagtgccacatagatctggagctg
caatataaaaaactcttctcaactaacggggcaggttagtgacattagaaaaacgactgtaaaaa
gtacagtcggcatttatctcatattataaagccagtcatttaggcctatctgacaattctcgaat
agagttcataaaacatccctgcatgataaacatcacaaacagaatgatgtacctgtaaaagatagc
ggtaaatatattgaattacctttatataatgaattttcctgctgtaataatgggttagaaggtaat
tactattattattgatatttaagttaaaacagtaaatgaagtcacatggaaataatagaagaga
aaaagcattttcagggtataggtgttttgggaacacatttcccggaaccttatatttctctac
tcagaaggtatataaatcataaaaactcttgaaagtcattctttacaggagtcacaaataccagaga
atggttttagataacacatcaaaaatttgtataaagtggtcttaacttatcccaataacctauctc
tccgtcgtctatgttaacagttcttaaaagctgtatttgagtttatcacccttgctcactaagaaa
ataaatgcagggttaaaatttatatccctcttctgttttatgtttc

Figure 51B

ggtataaaacactaatatcaattttctgtggttatactaaaagtcgtttgttgggtcaaaataatg
 atkaaataatctcttttctcttccaattgtctaaatcaattttattaaagttcathtgatatgoc
 toctaaatttttatctaaagtgaatttaggagggttacttgtctgctttcttccattagaatcaa
 tctttttttaaagtcataattactgttaacataaatatataattttaaataatccacttttato
 caatttttctgtttgttgaactaatgggtgcttttagttgaagaataaaagacotatgcgggtgtgaa
 ataccgcacagatgcgttaaggagaaaataccgcacagggccattccgcattcagggtgcgca
 actgttgggaaggcgatcggtgcgggctcttctcttctattacggccagctggcgaaaggggatg
 tgcgtcaaggcgatgaagtgggttaacggccagggttttccagtcacgaagttgtaaaacgagc
 gcagtgccagcttgcatgctgcactccattttctctgtctctcaaaataacagactcgtga
 ttttccaaacgagctttcaaaaaagcctctgccccttgcaaatcggatgctgtctatataaatt
 ccgatatttgggttaaacagcgggcgcaatggcgggccgcactctgatgtctttgcttggcgaaatgtt
 catcttatttcttctctctctcaataattttttcattctatcccttttctgttaaagtttattt
 ttcagaatacttttatctatctgctttgaaaaaataatcagataatataccattgttctcagga
 agcacaacgcaggtcatttgaacgaattttttogacagggaatttgcgggactcaggagcattta
 aactaaaaaagcattgacatttcagcataatgaacatttactcattgtctattttctgttcttct
 gtatgaataatagttattttcaggtctctacggaaatagcgagagatgafatacctaataagagat
 aaaaatcatctcaaaaaaaggtctactaaatatatttccatctattacaataaattcacaga
 atagttcttttaagtaagttctactctgaattttttttaaaggagagggtaaaagagtgaaaacagt
 agttattatgtatgcattacgaacaccaatttggaaatatataaggcagcttaagtcasgttaagt
 gcggtagacttaggaacacatgttacacacacactttttaaagacattccactatttctgaag
 aatttgatcaagtaattcttggaaatgttttacaagctggaaatggccaaatcccgacagaca
 aatagcaataaacagcggtttgtctcatgaatcccgcaatgacggttaattgaggctctgcgga
 ccaggaaatgaaggcgttattttggcgaaacaaatgattcaatttaggagaagcggaagtttttaa
 ttgctggcgggattgagaatatgtcccaagcacctaataatracaaagtttaattacgaatacaga
 aagctacgatgcgctttttctagttatgattgtatgattgattacggatgcttttagtggtcag
 gcaatgggcttaactgctgaataatggggcggaaggtatcatgttaactagagaagagcaagatc
 aattttctgtacattccacattttaaagcagctcaagcacaagcagaagggatattctgctgaaga
 aatagccatttagaagtatcaggaaagcttctgggagaagatgaagggatttcgcccattctcg
 agcgttcgagaagctaggaaagcttaaaacagtttttaagaagaagcgtacgttaacagcagggga
 atgcatcaacatttaattgatggggctctctgctttgatcattgcttcacaagaatatgcggaagc
 acacggtcttcttatttagctatttattcgagacagtggtgaagtcggtattgatccagcctat
 atgggaatttgcgcgattaaagccattcaaaaactgttagcgcgcgaatcaacttactacgggaag
 aaattgatctgtatgaatcaacgaagcatttgcagcaacttcaatcgtggtccaaagagaact
 ggtttaccagaggaaagggtcaacatttatgggtggcggtatttccattaggtcatgcgatttgt
 gccacaggtgctcgtttatttaacgagtttaagttatcaattaaatcaaaaagaaaagaatatg
 gagggtcttcttattgtatcgcggtgggttaggactcgtctatgctactagagagaactcagca
 aaaaaaaaacagcgatttttctcaaatgagtcctgaggaaagcctgggttctctcttattatgaa
 ggccagatttctgctgatacaaaaaaagaatttgaanaatacggctttatcttcgcagatttcca
 atcatatgatttgaanaatacaatcagtgaaacagaagtgccgatggcggttgggttacatttaac
 agtggacgaaaactgattatttggtaaccaatggcgacagaagagocctcagttattgcggttttg
 agtaattggtgcaaaaatagcaaaaggtttaaaccagtggaatcaacaacgcttaattgcgtggac
 aaatcgttttttacgatgttgcagatcccgagtcattgattgataaaactacaagtaagagaagc
 ggaagtttttcaacaagcagagtttaagttatccatctatcgtttaaaggggggcgcggttaaga
 gatttgcataatcgtacttttgatgaatcatttgtatctgtcgaactttttagtagaigttaagg
 atgcaatgggggcaaatatcgtttaaagctatgttgggaaggtgtg

Figure 51C

gocgagttgttccgtgaatcggttgcggagcaaaagattttattcagtattttaagtaattatg
ccacggsgtccggttgttacgatgaaaacggctattccagtttccagtttaagtaaggaggagcaa
tggccggggaattgtctgaaaaaattgttttagcttcacgctatgcttcattagatccttatcgg
gcagtcacgcataacaaaggaaatcatgaatggcattgaagctgtagtttttagcta caggaaatg
atacacgcgctgttagcgtctcttgcacatgcttttgcgggtgaaggaaaggctcgtaccaaggctt
gactagttggacgctggatggcgaaacaactaattgggtgaattttcagttccgcttgccttagcc
acgggttggcgggtgccacaaaagtcttacctaaatctcaagcagctgctgatttgttagcagtgga
cggatgcaaaagaactaaagtcgagtagtagcggctgttgggttggcacaataatttagcggcgtt
acgggctttagtctctgaaggaaattcaaaaaggacacatggcctacaaagcagcttcttagccg
atgacggctcggagctactggtaagaagttgaggcagtcgctcaacaattaaaaacgtcaaaaa
cgatgaaccaagacccgagccatggctattttaaatgatttaagaaaacaataaaaaggagagggt
gacaaattgggattgataaaattagtttttttgtgcctcttatttatattgatatgacggcactg
gctgaagccagaaattgtagacccctggaaaatttcatattgggtatttggggcagagccaaatggcgg
tgaacccaatcagccaagatattgtgacatttgcagccaatgcccagagaagcgtatcttgaccaa
agaagataaaaggaggccattgatatgggtgatttgtogggactgagtcacgtatcgatgagtcaaaa
goggecgcagttgtcttaccatogtttaattggggatttcaaccttccgctcgtctcttccgaaatca
aggaagcttgttacggagcaacagcaggcttacagttagctaaagaatcagctagccttccatcc
agataaaaaagttcttggctcgtagcggcagatattgcacaaatatggcttaaatctcggcggtgag
cctacacaaaggagctggggcggttgcattgttagttgctagtgaaccgcgcatttgggttttaa
aaggaggataatgtgatgctgaacgaagatatactatgacttttggcgtccaaacagggccacccgtt
tccatgggtcgatgggtcccttgtcaaaacgaacccctacatccaatcttttgcaccaagtctgggat
gaacataaaaaacgaacccggtcttgaatttgcagattatgatgcttttagcgtcccatatttccct
acacaaaaatgggcaaaaaagcccttatttagcaaaaatctccgacccaaactgaagcagaacagga
acgaatttttagccggttatgaagaaagttatogtctatagtcgtcgcgttaggaaacttgtatacg
gggttcaclttatctgggaactcatttcccttttagaaaatgcaacgaacttaaccgcaggcaatc
aaattgggttattcagttatggttctgggtgctgtcgtgaaatttttccactggtgaatttagtagc
tgggtatccaaaatcattttcaaaaaagaaactcatttagcactgctggataatcggacagaactt
tctatcgttgaaatatgaagccatggttgcagaaactttagacacagacattgatcaaacgttag
aagatgaattaaaaatatagtatttctgcctattaataataaccgttcgttcttctcgaacctaaaa
aaaacccggtcttggcccccgggttttttattatttttcttccctccgcatgttcaatccgctcc
ataatcgacgggttggctccctctgaaaaattttaacgagaaaacggcggtttagccgggtcagtc
ccgttaacggccaagtccgaaacgtctcaatcgccgcttcccggttcccggtcagctcaatgcc
gtaacgggtcggcggttcttcccgataccggggagagcagcattcgtaatcggggtcccccgggtlac
cgagctcgaattcgttaactatgtcatagctgttccctgtgtgaatttgnatccgctcacaatt
ccacacaaatcagagccgggaagcataaagtgtaaagcctgggggtgcctaatgagtgagctaac
tcacabtaattgcgttgcgtccactgcccgccttccagtcgggaaacccgtgctgcccagctgca
ttaatgaatcggccaaacggcgggggagaggcggtttgcgtattggggcgtcttccgcttccctg
ctcaactgac

SEQ ID NO:22

Figure 52

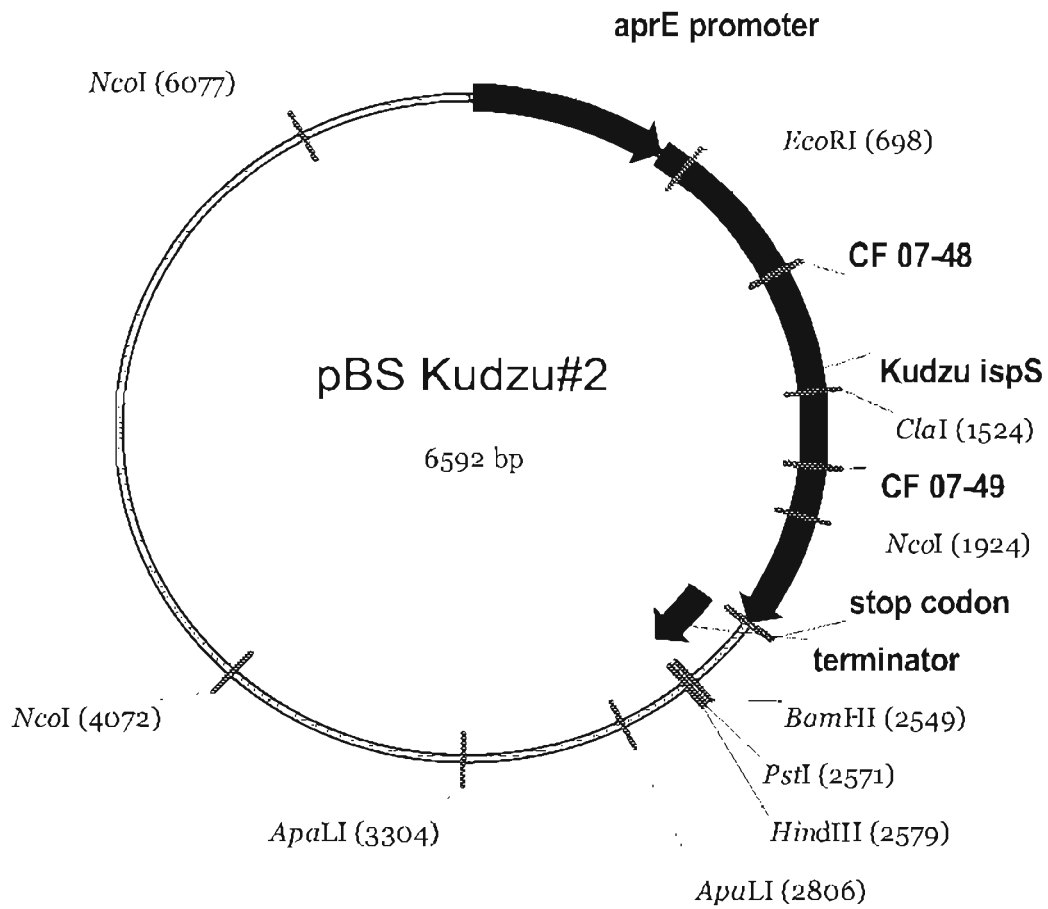


Figure 53A

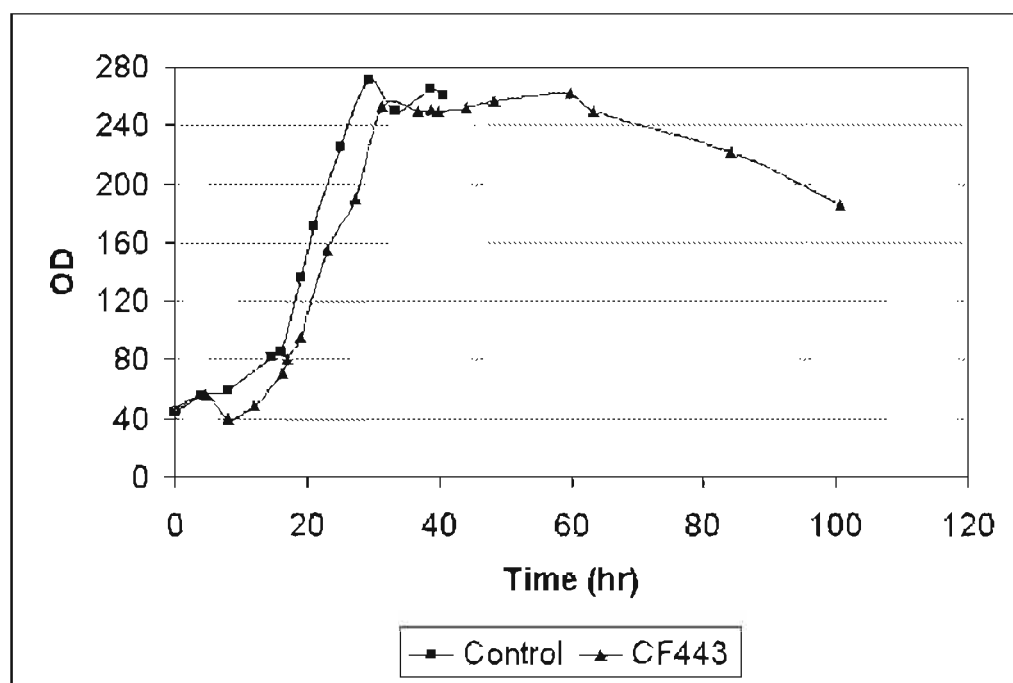


Figure 53B

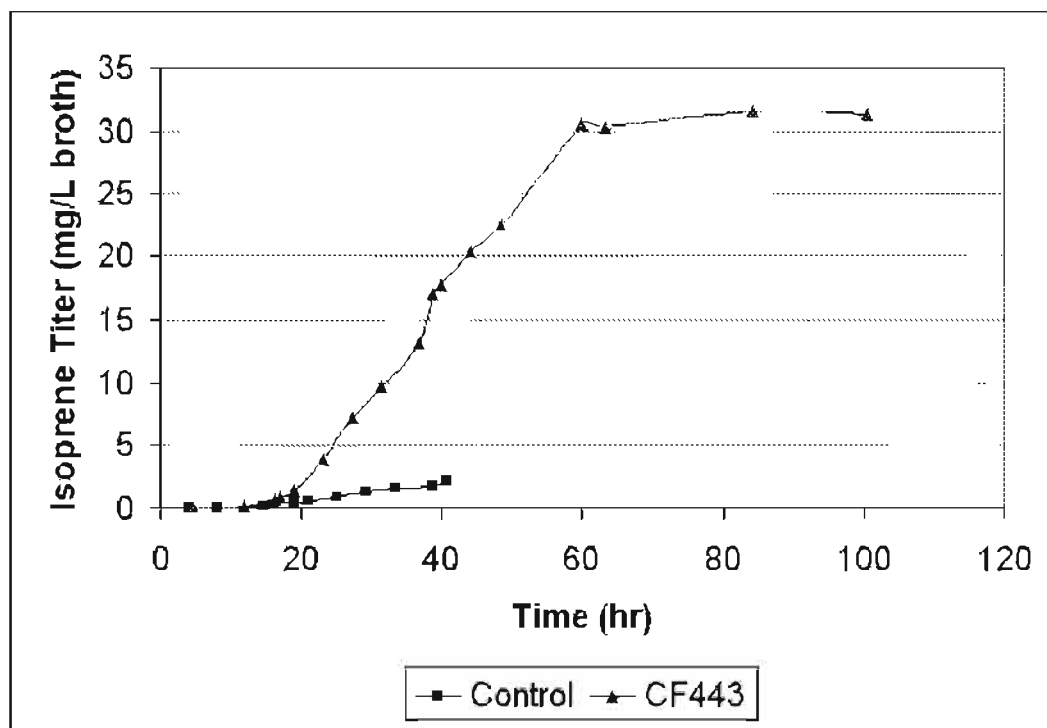


Figure 54

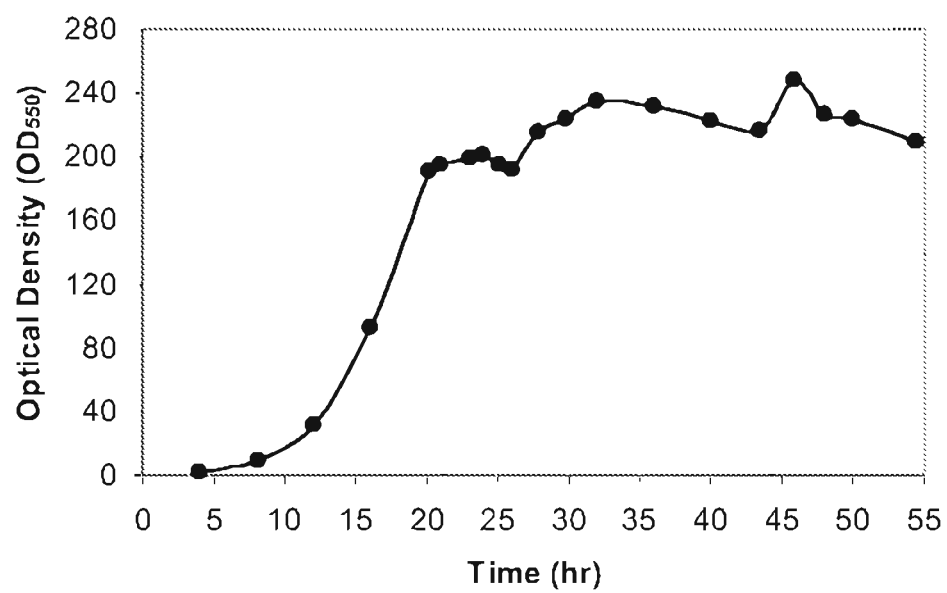


Figure 55

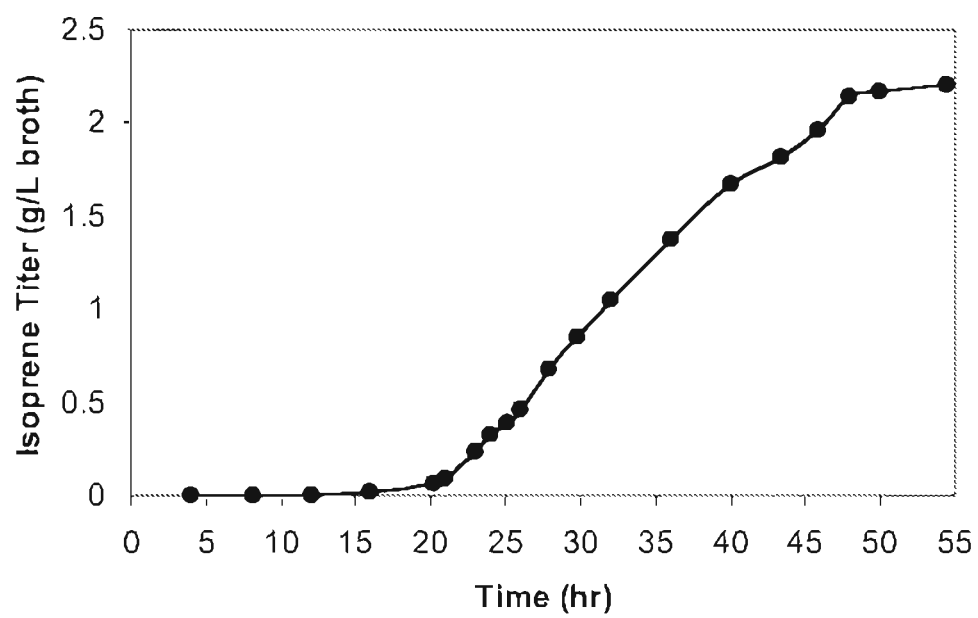


Figure 56

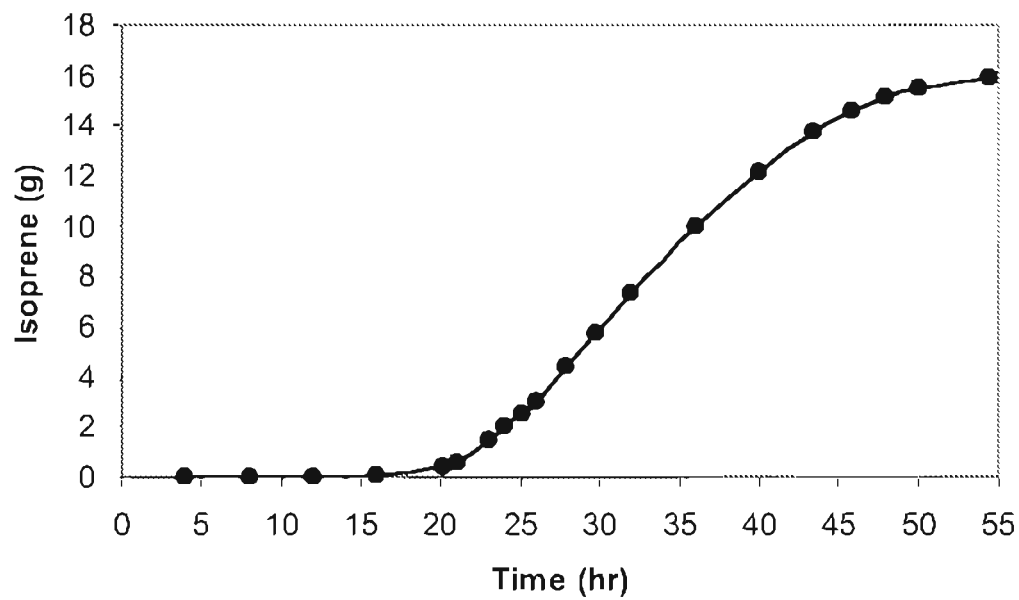


Figure 57

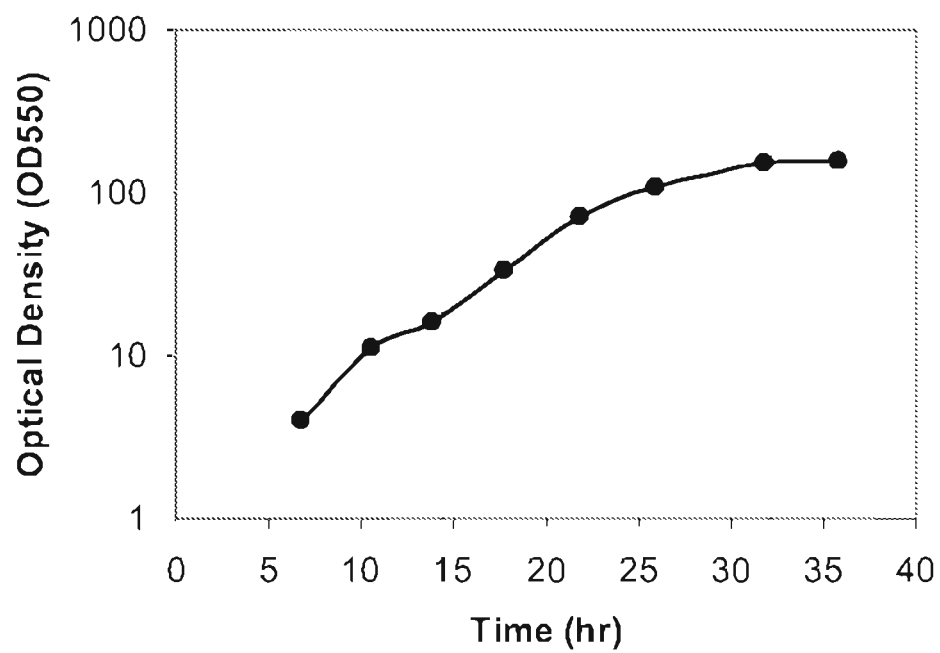


Figure 58

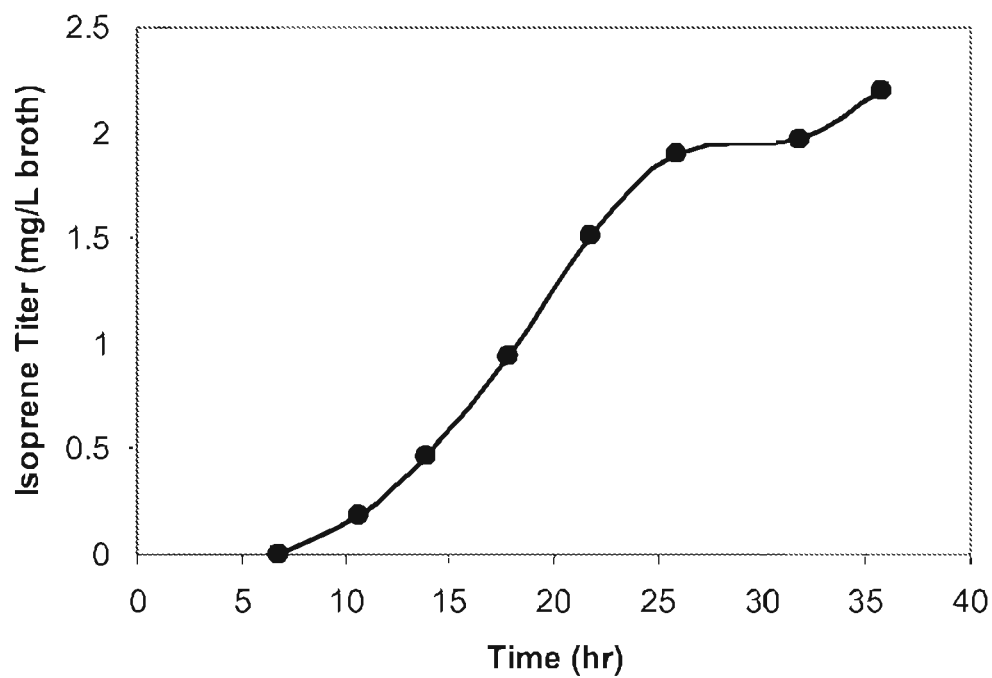


Figure 59

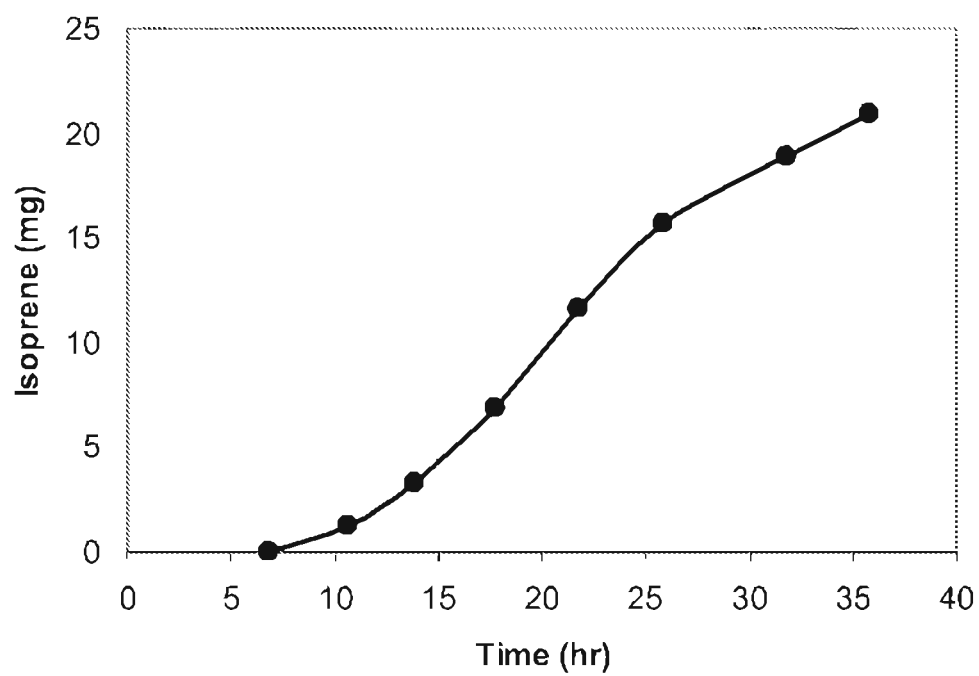


Figure 60A

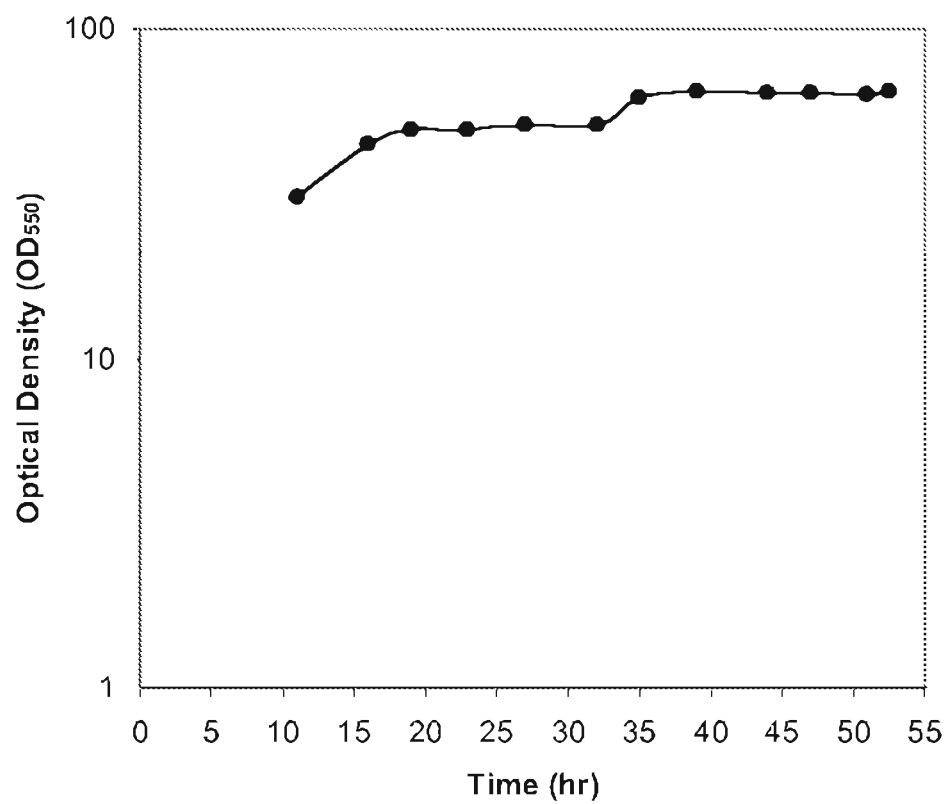


Figure 60B

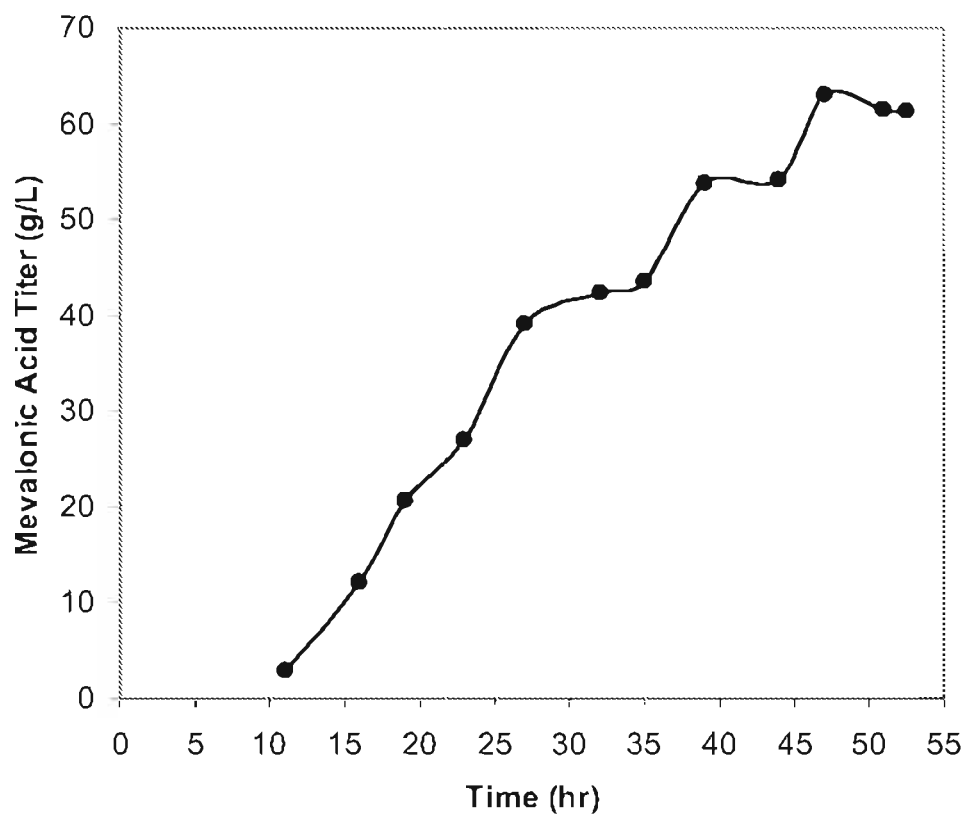


Figure 60C

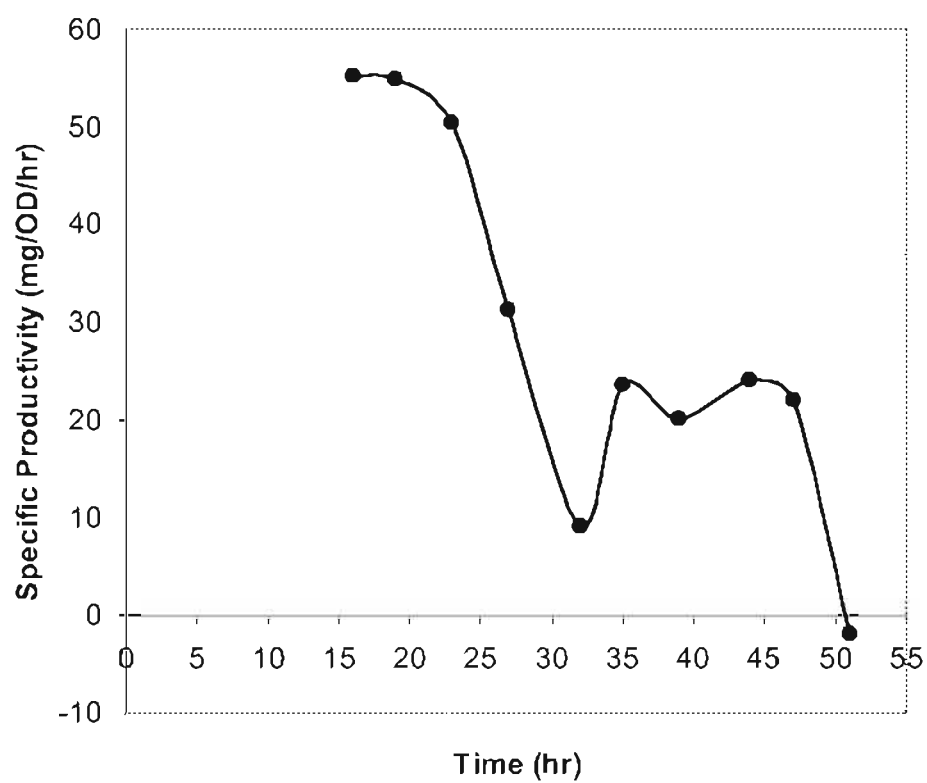


Figure 61A

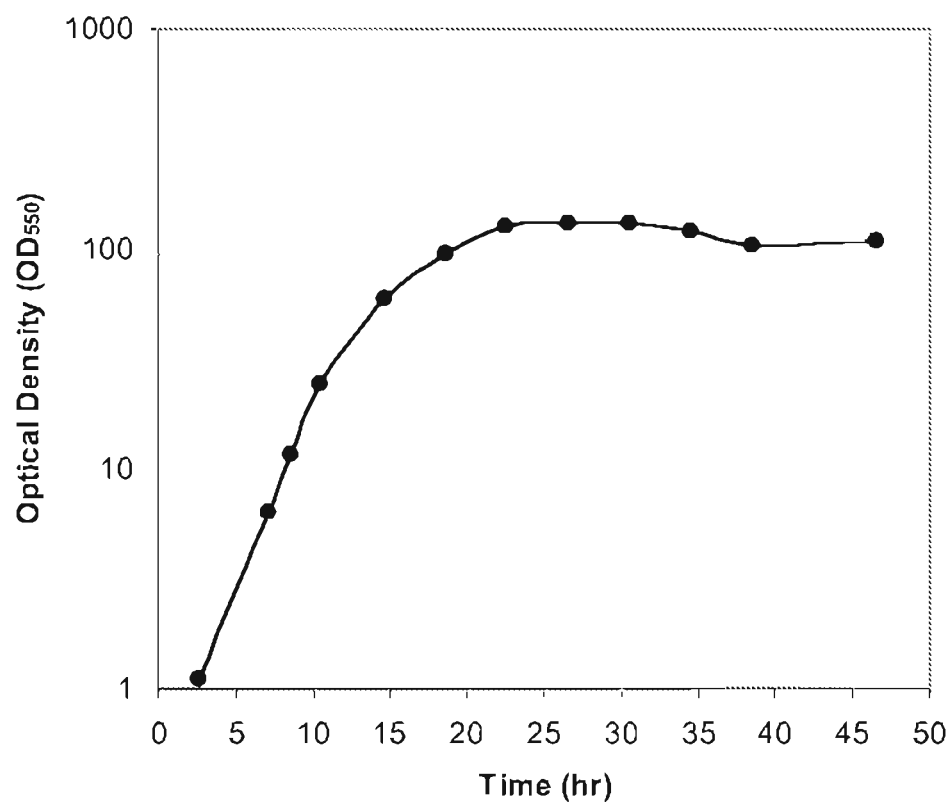


Figure 61B

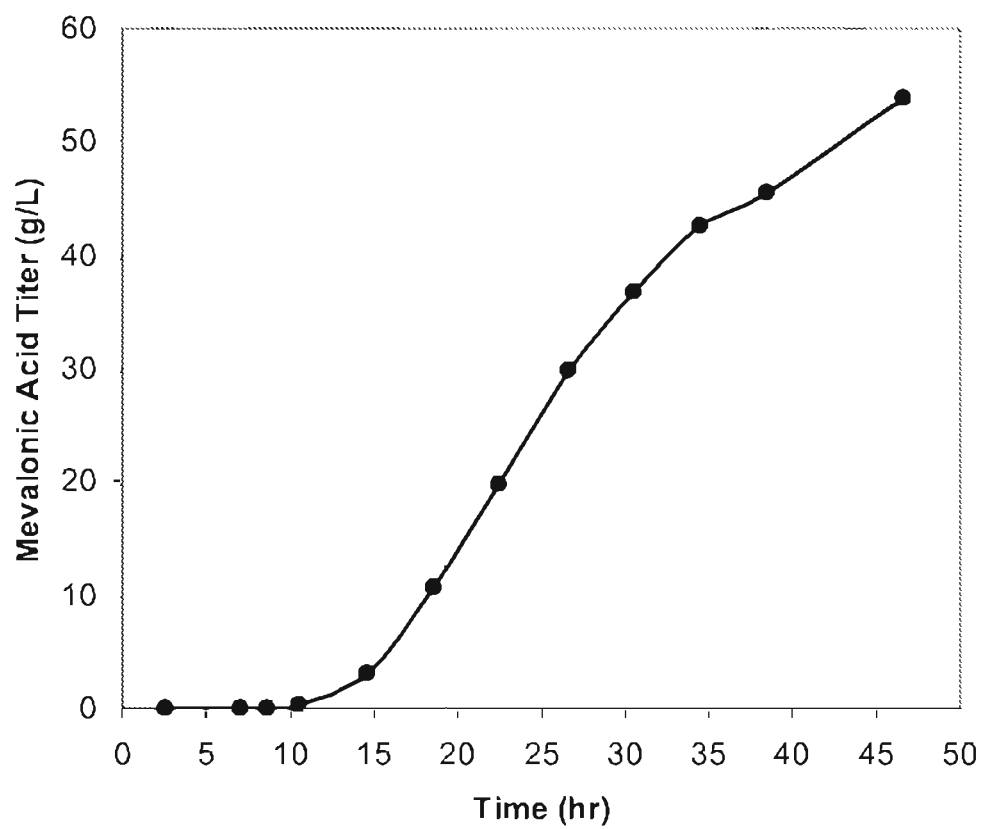


Figure 61C

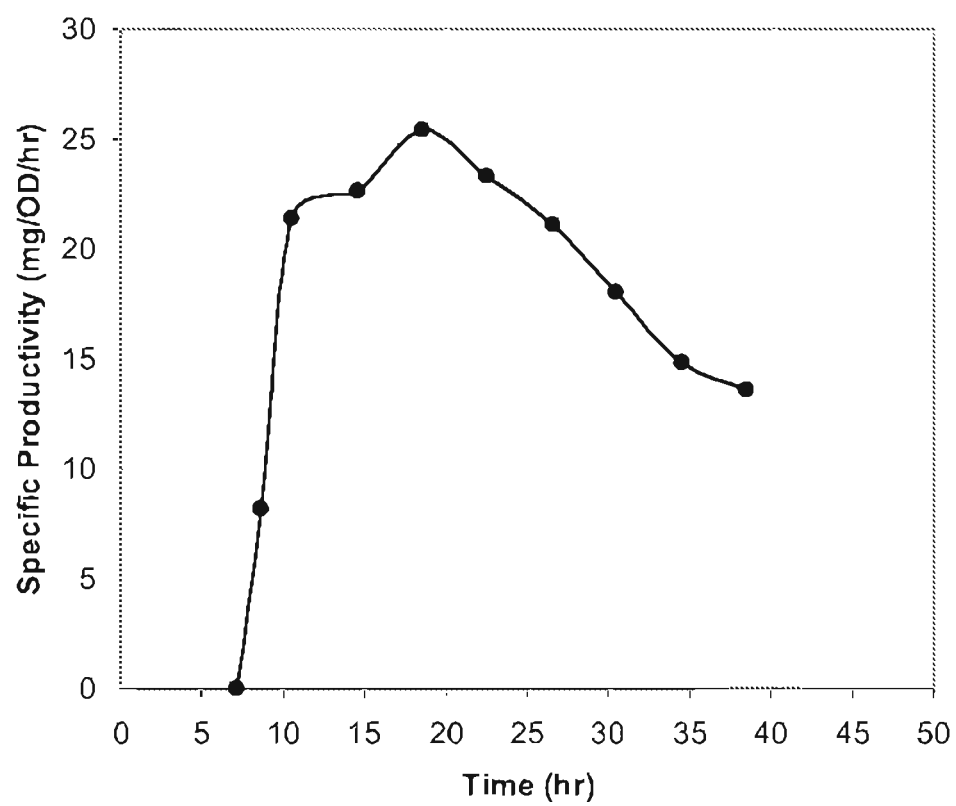


Figure 62A

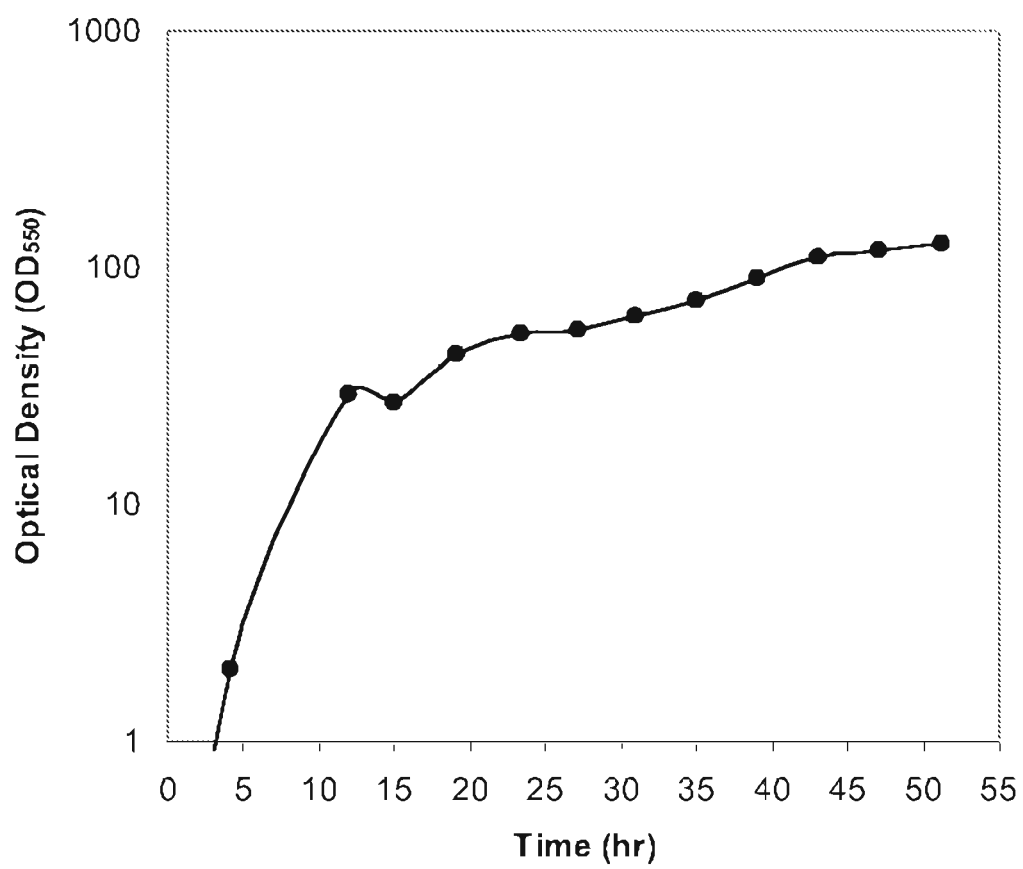


Figure 62B

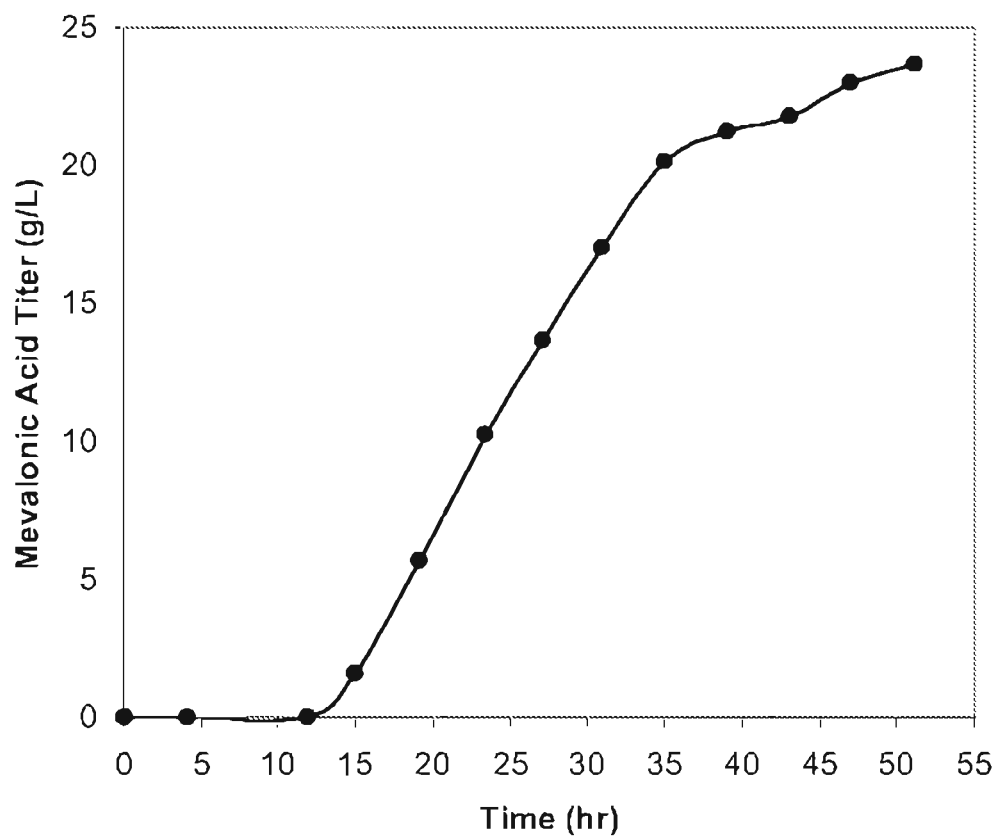


Figure 62C

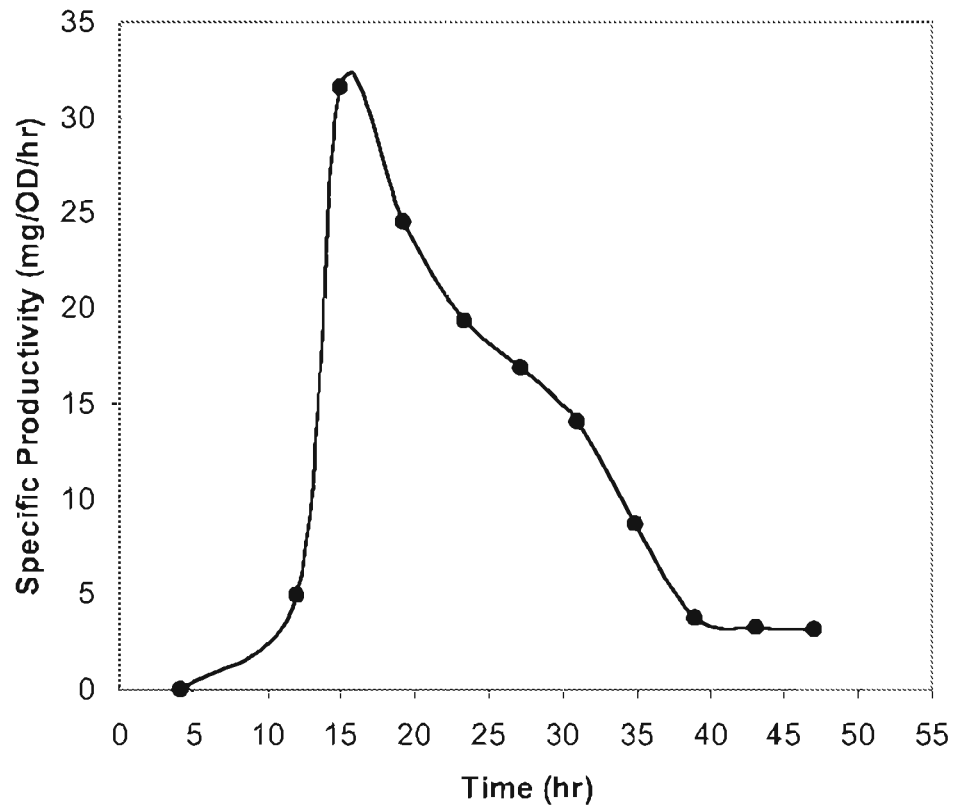


Figure 63A

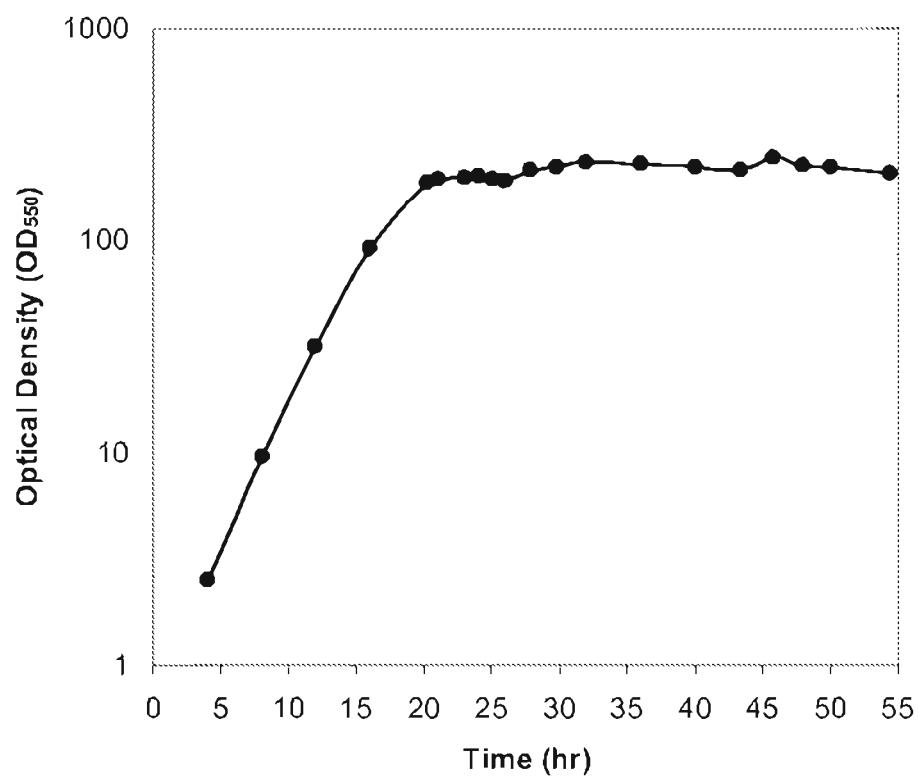


Figure 63B

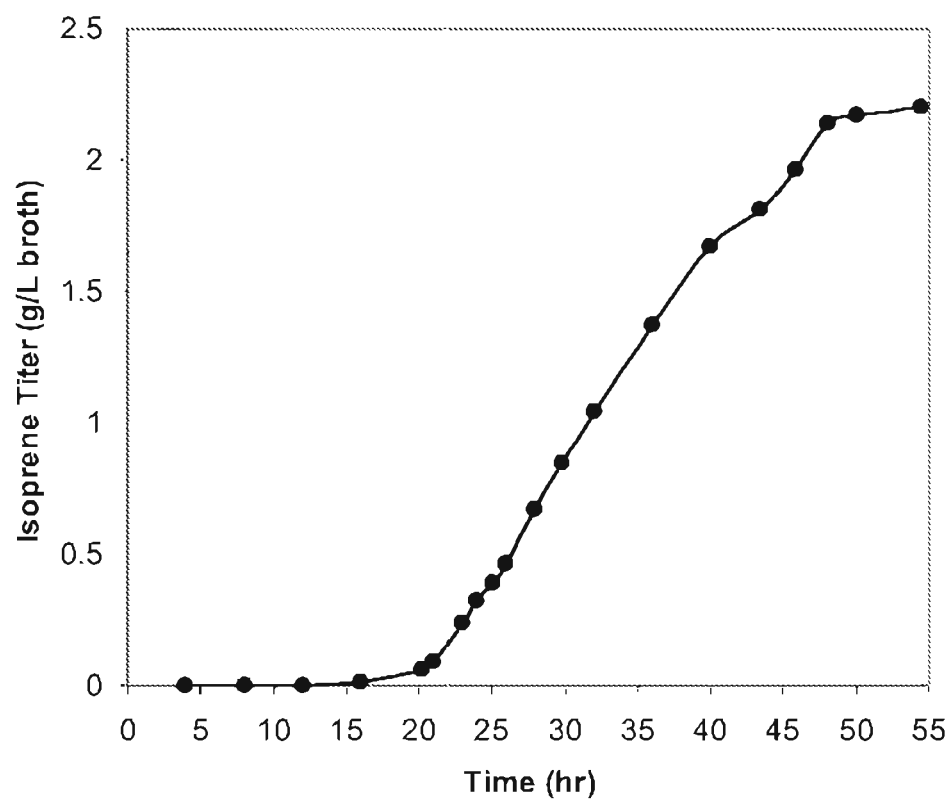


Figure 63C

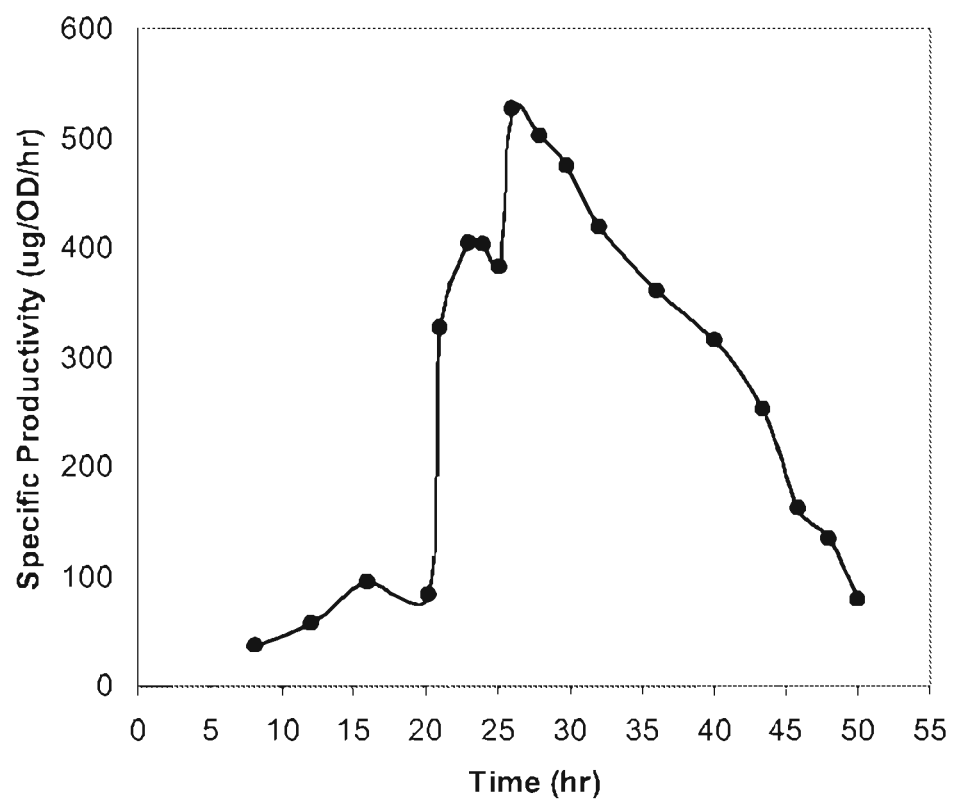


Figure 64A

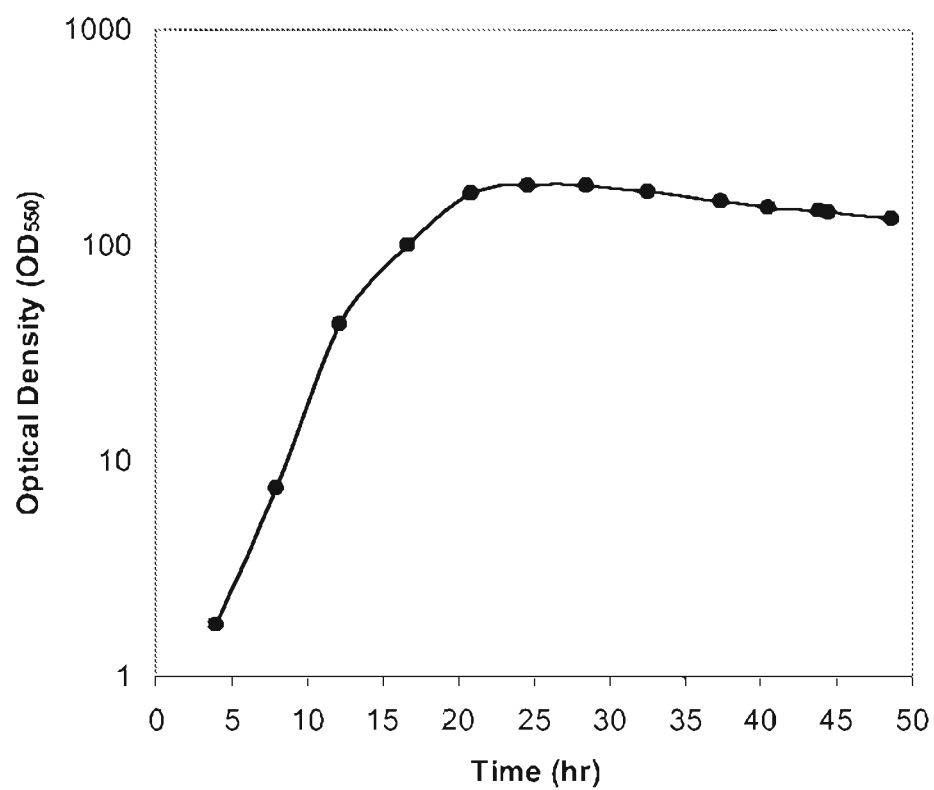


Figure 64B

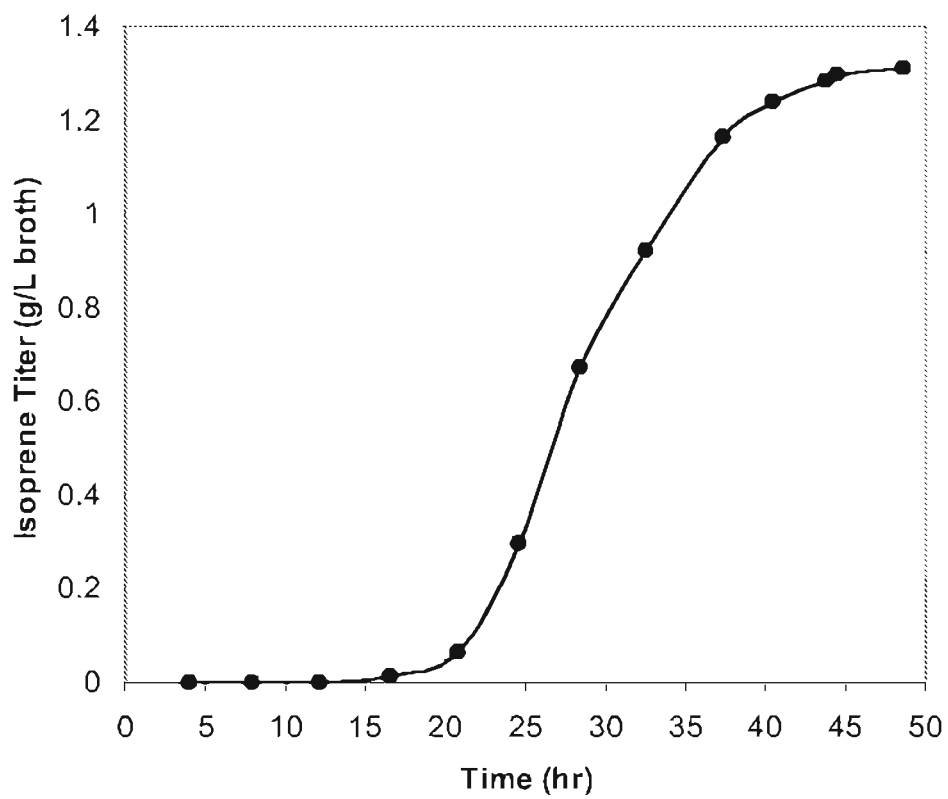


Figure 64C

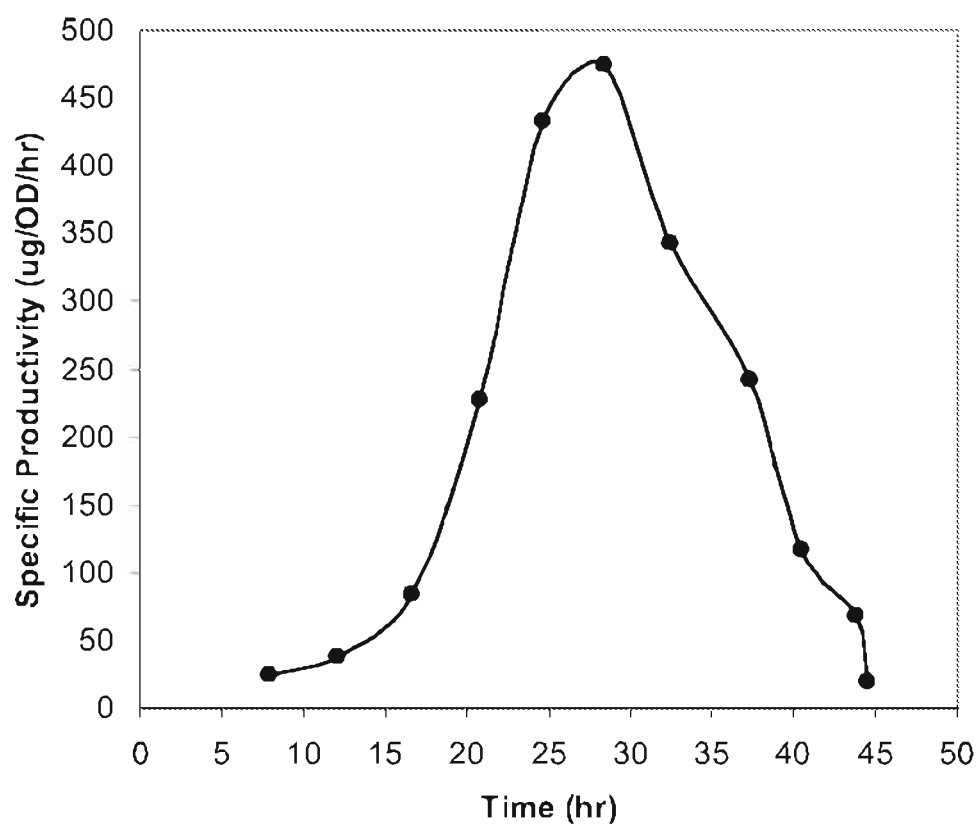


Figure 65A

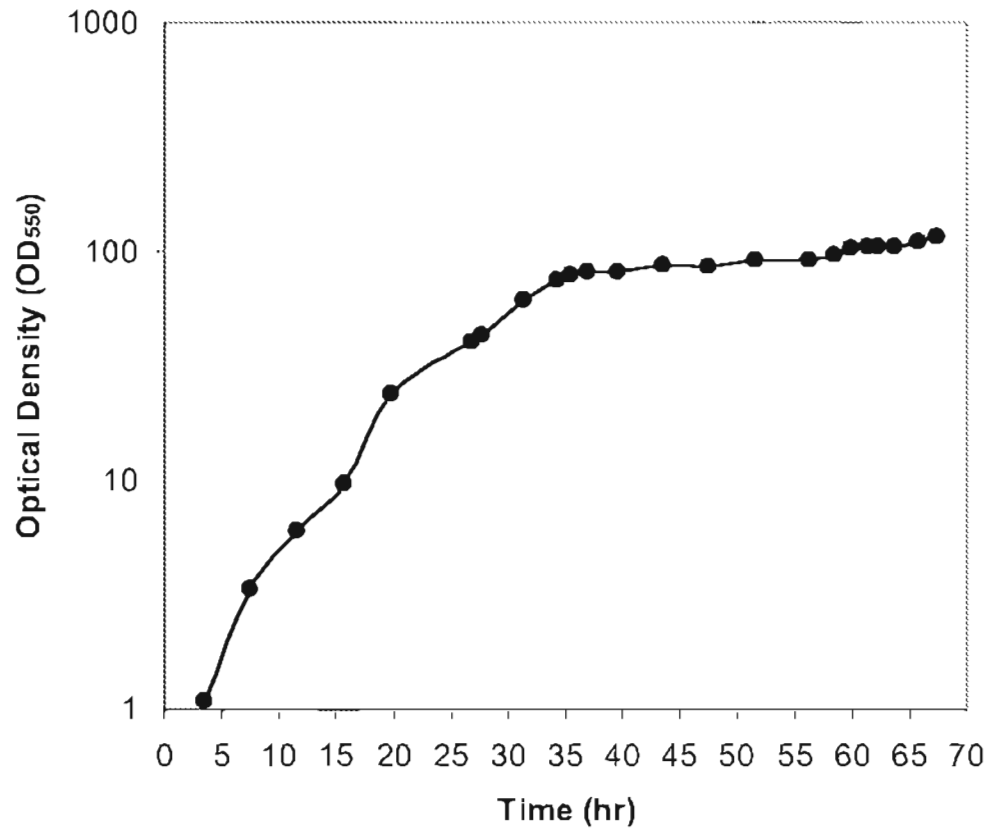


Figure 65B

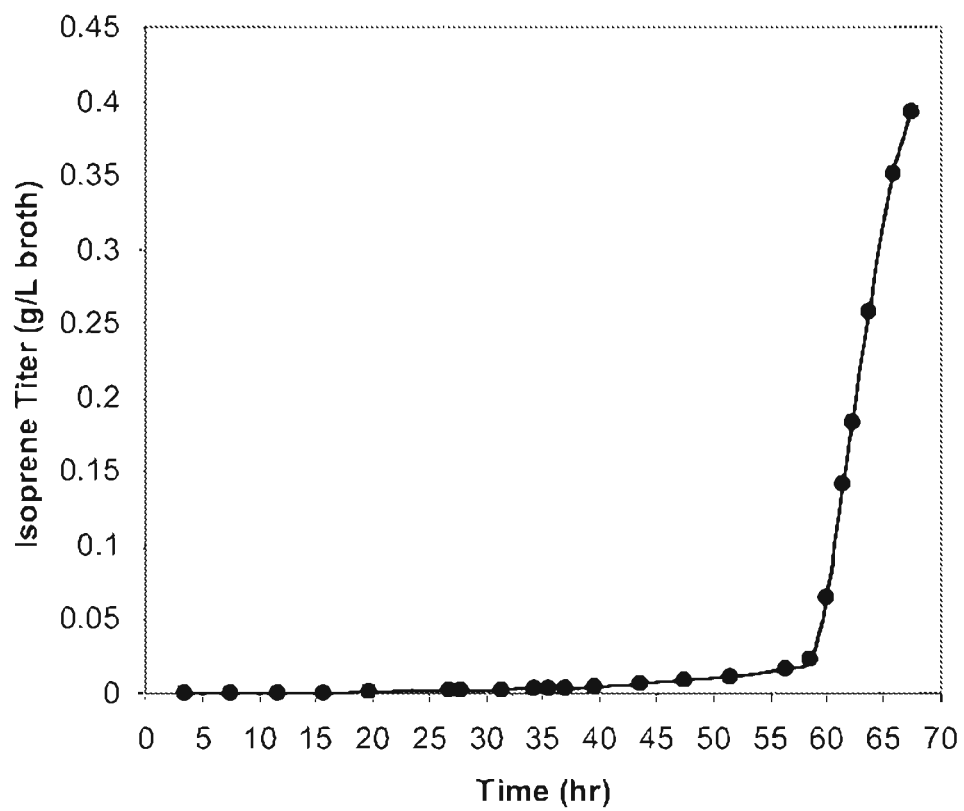


Figure 65C

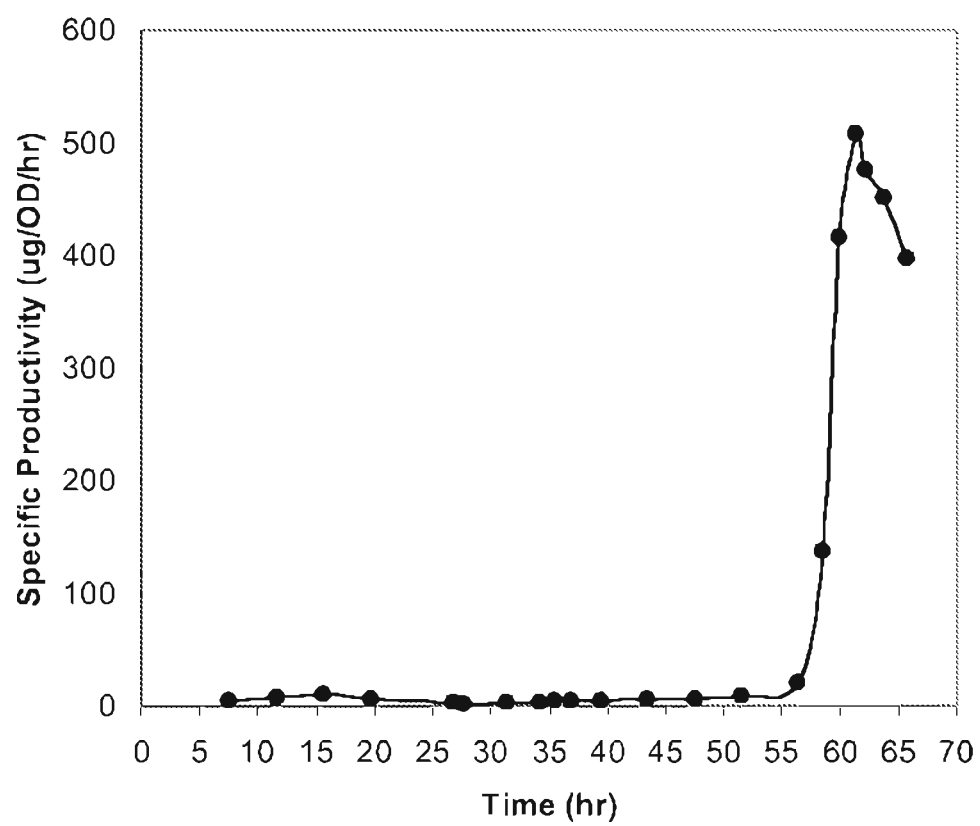


Figure 66A

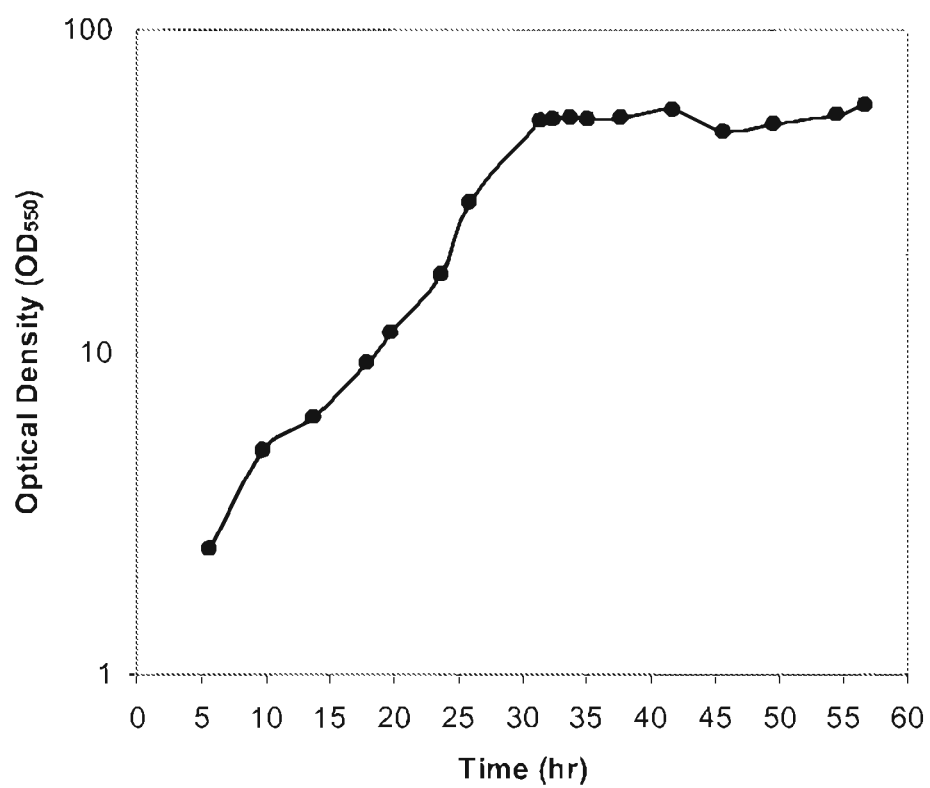


Figure 66B

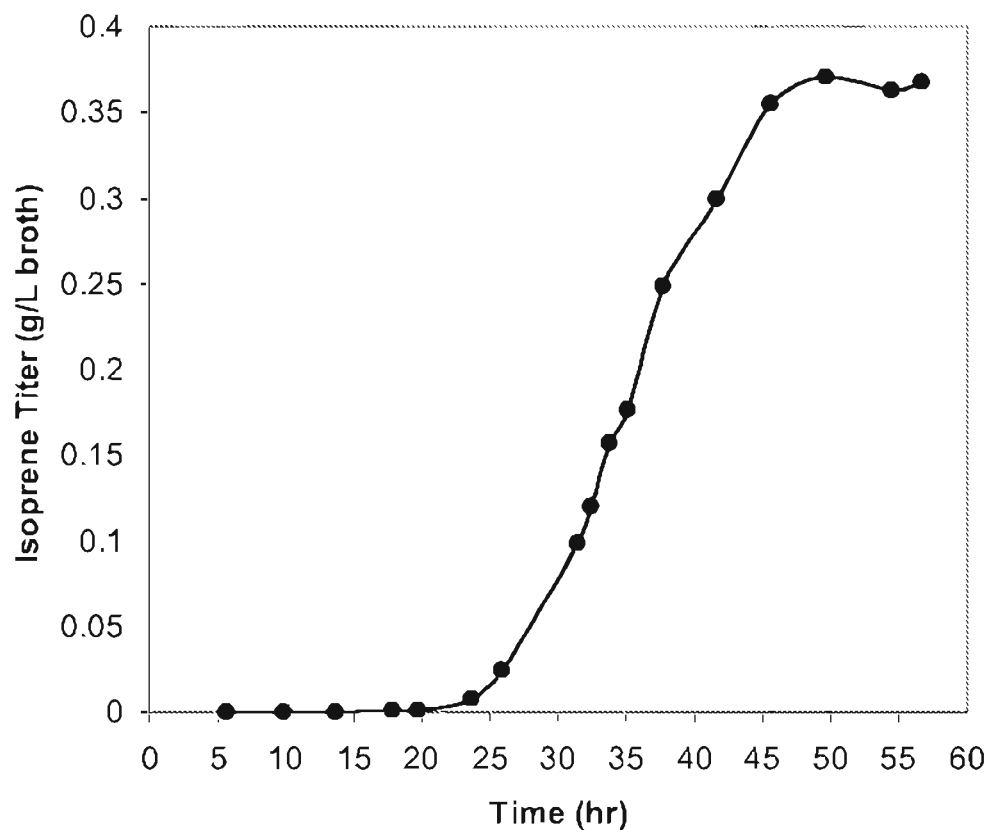


Figure 66C

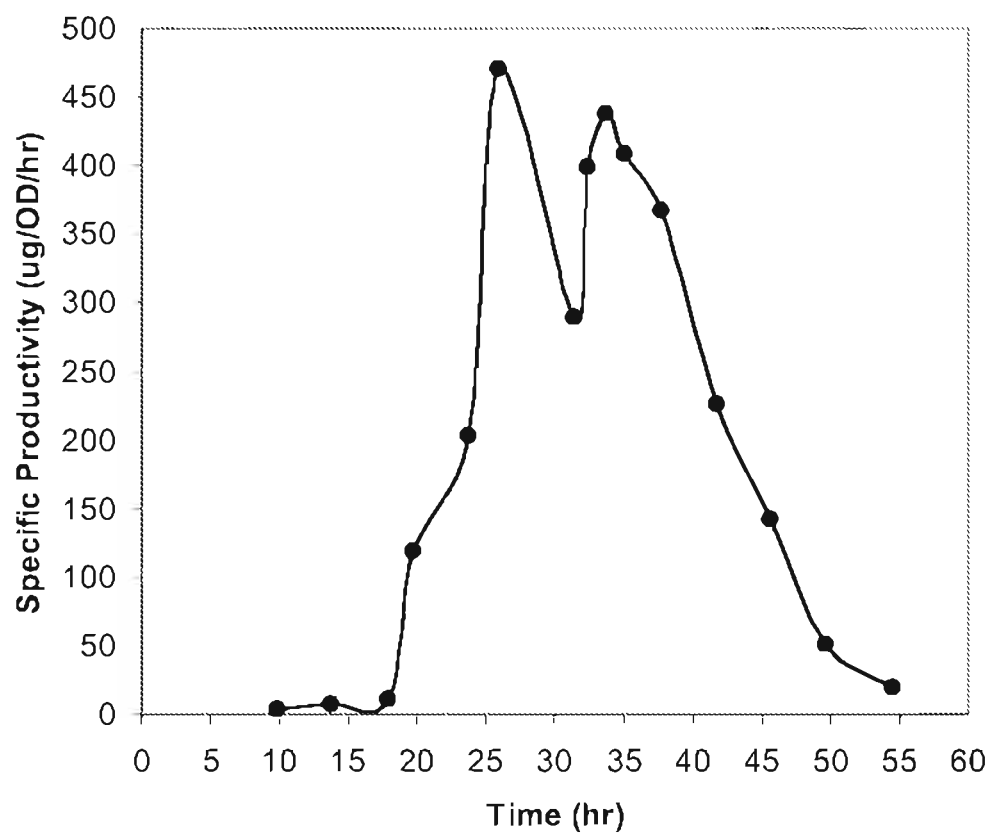


Figure 67A

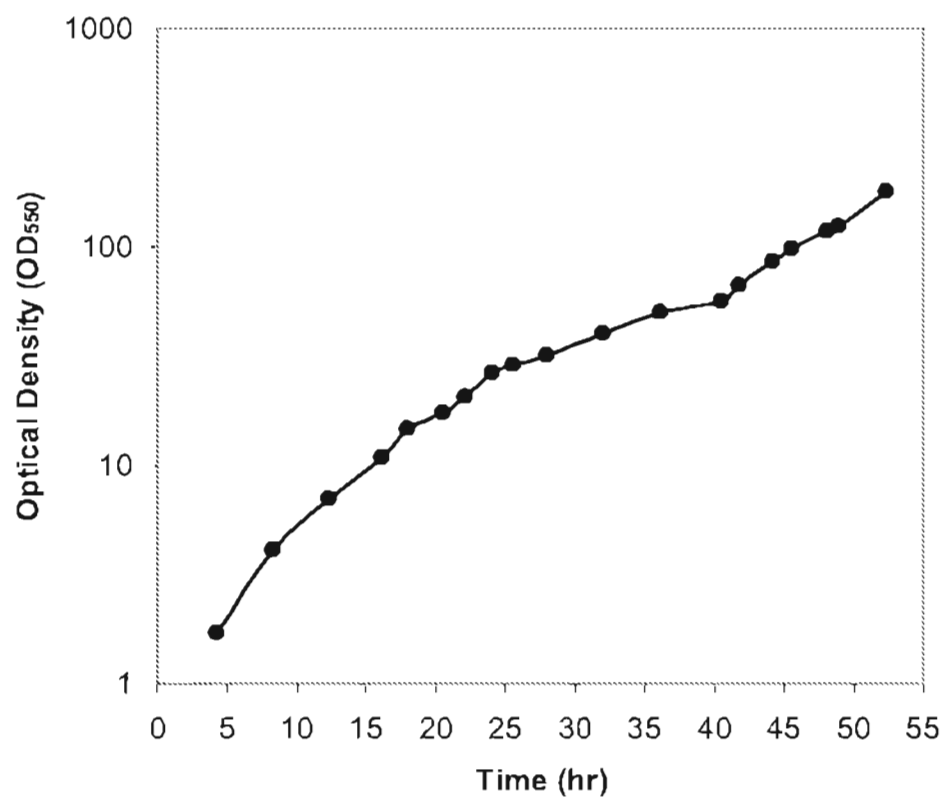


Figure 67B

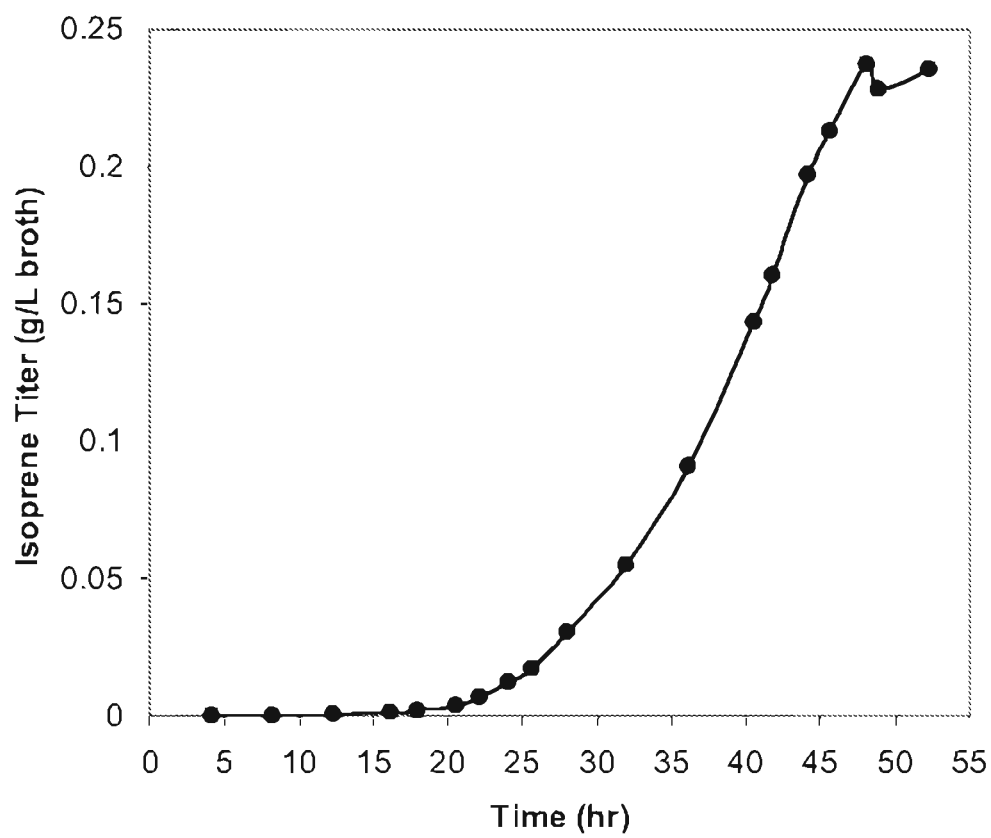


Figure 67C

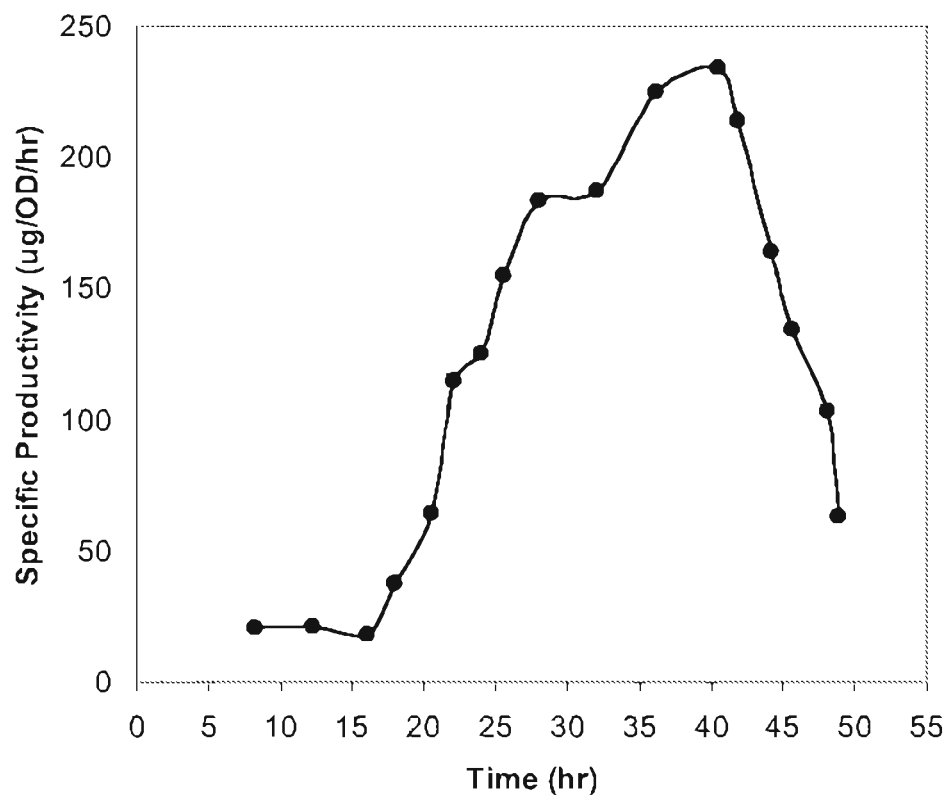


Figure 68

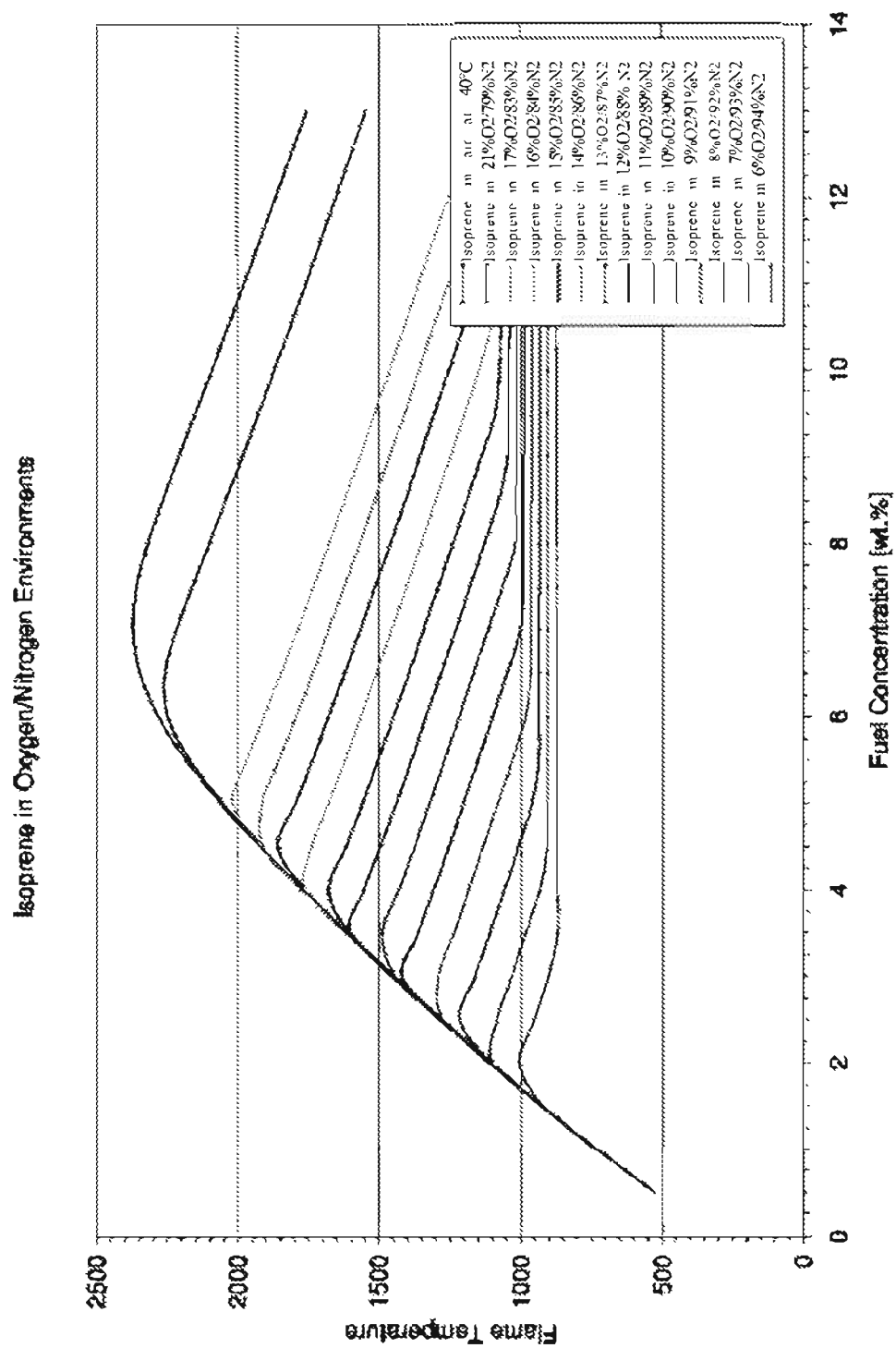


Figure 69

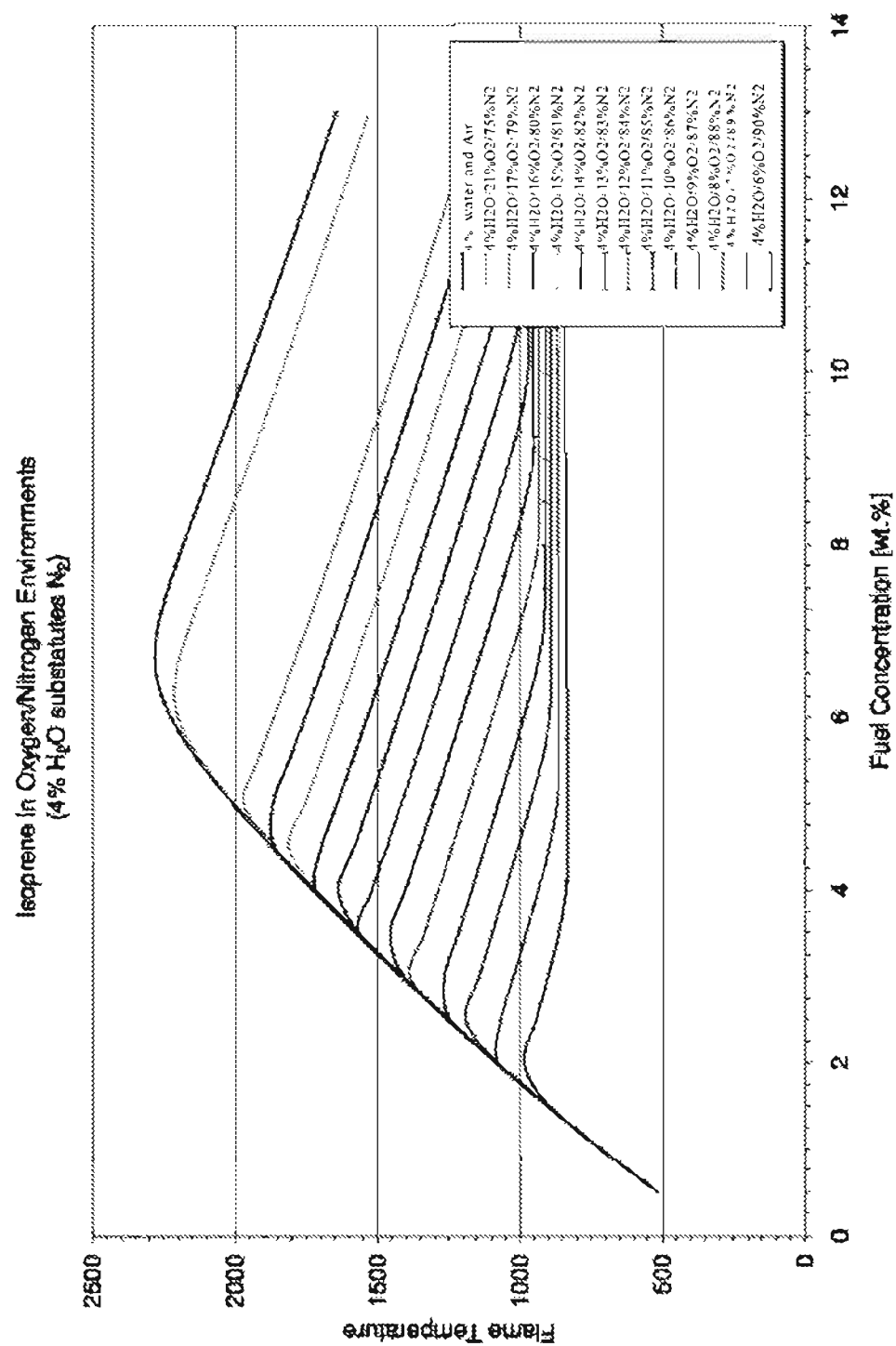


Figure 70

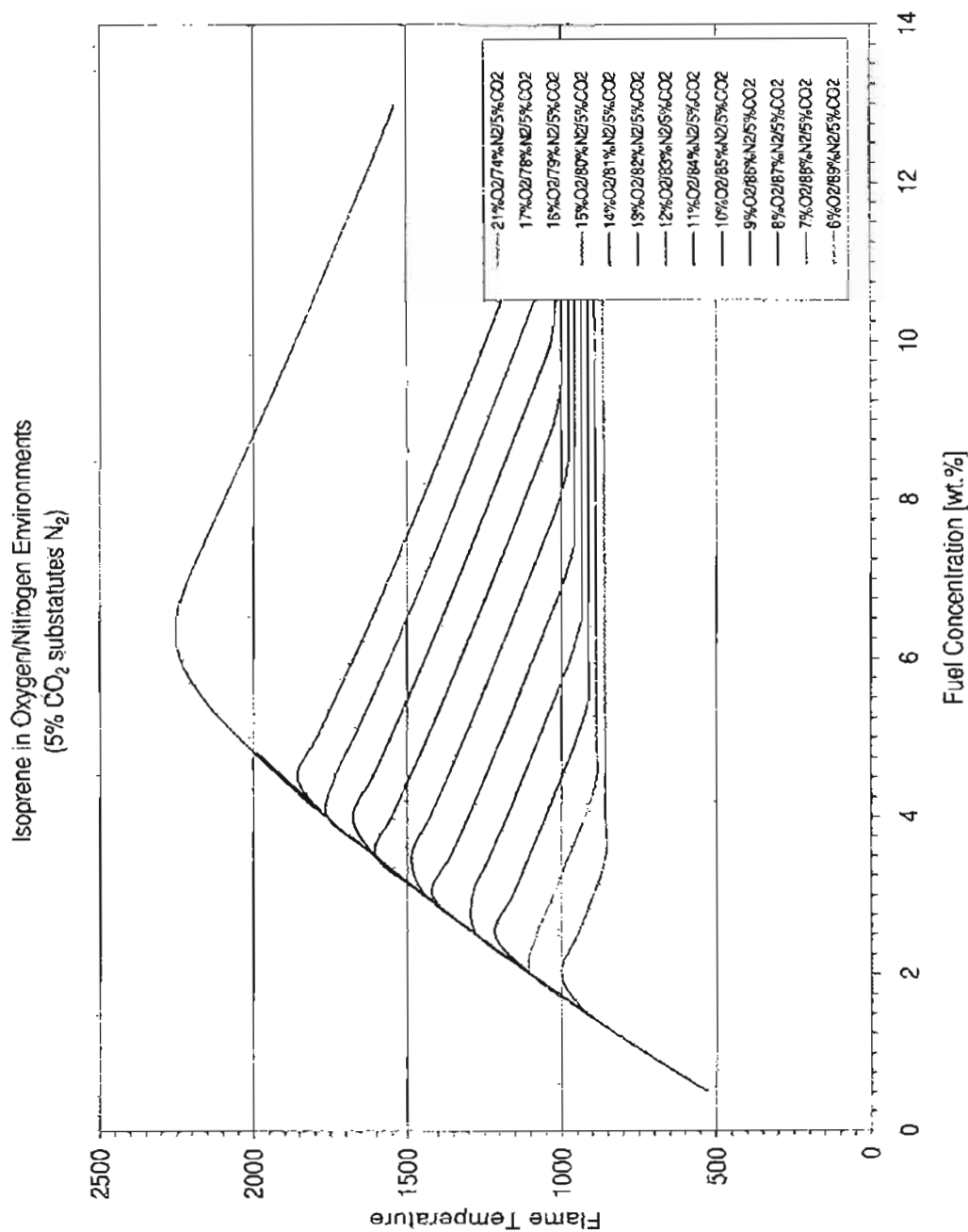


Figure 71

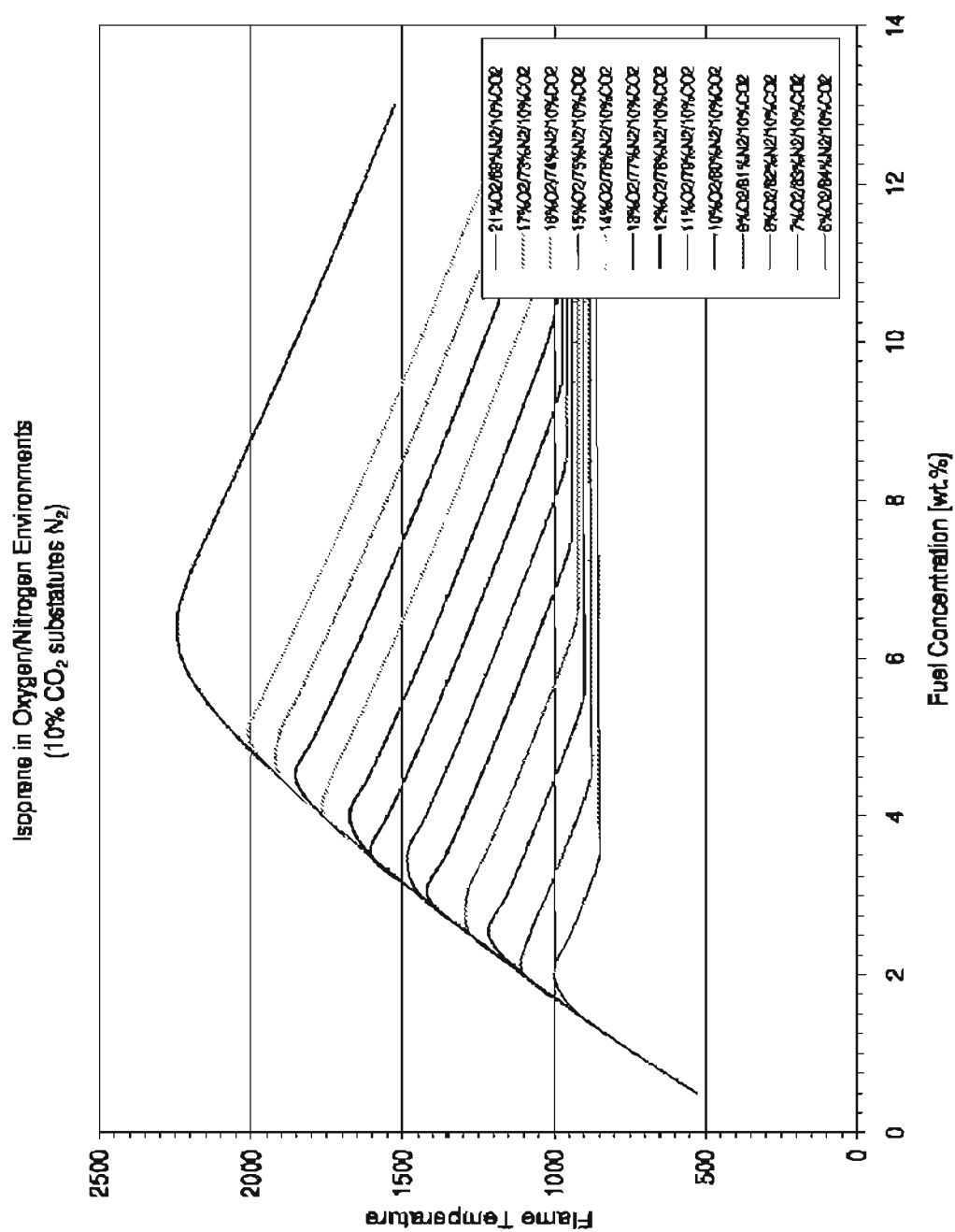


Figure 72

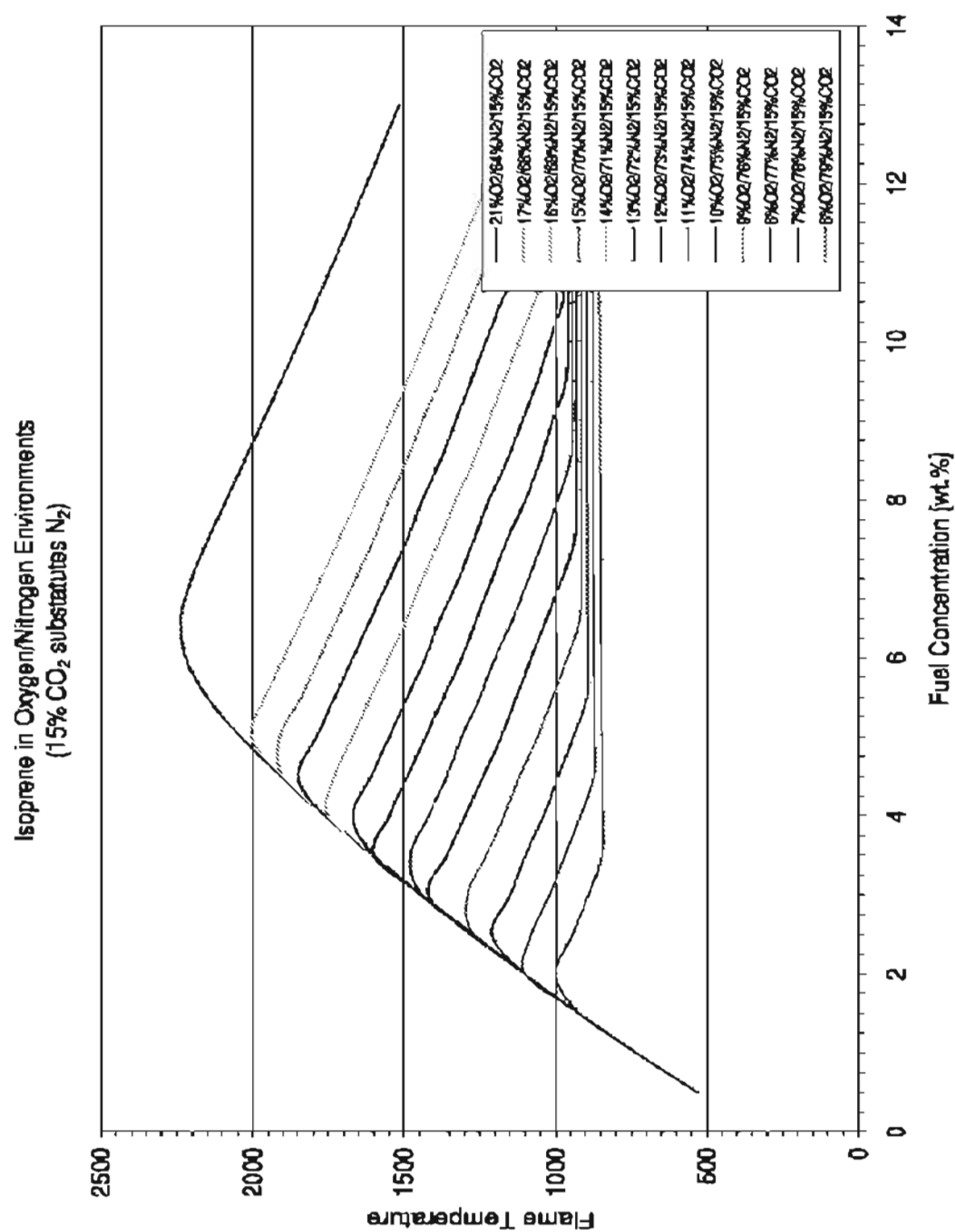


Figure 73

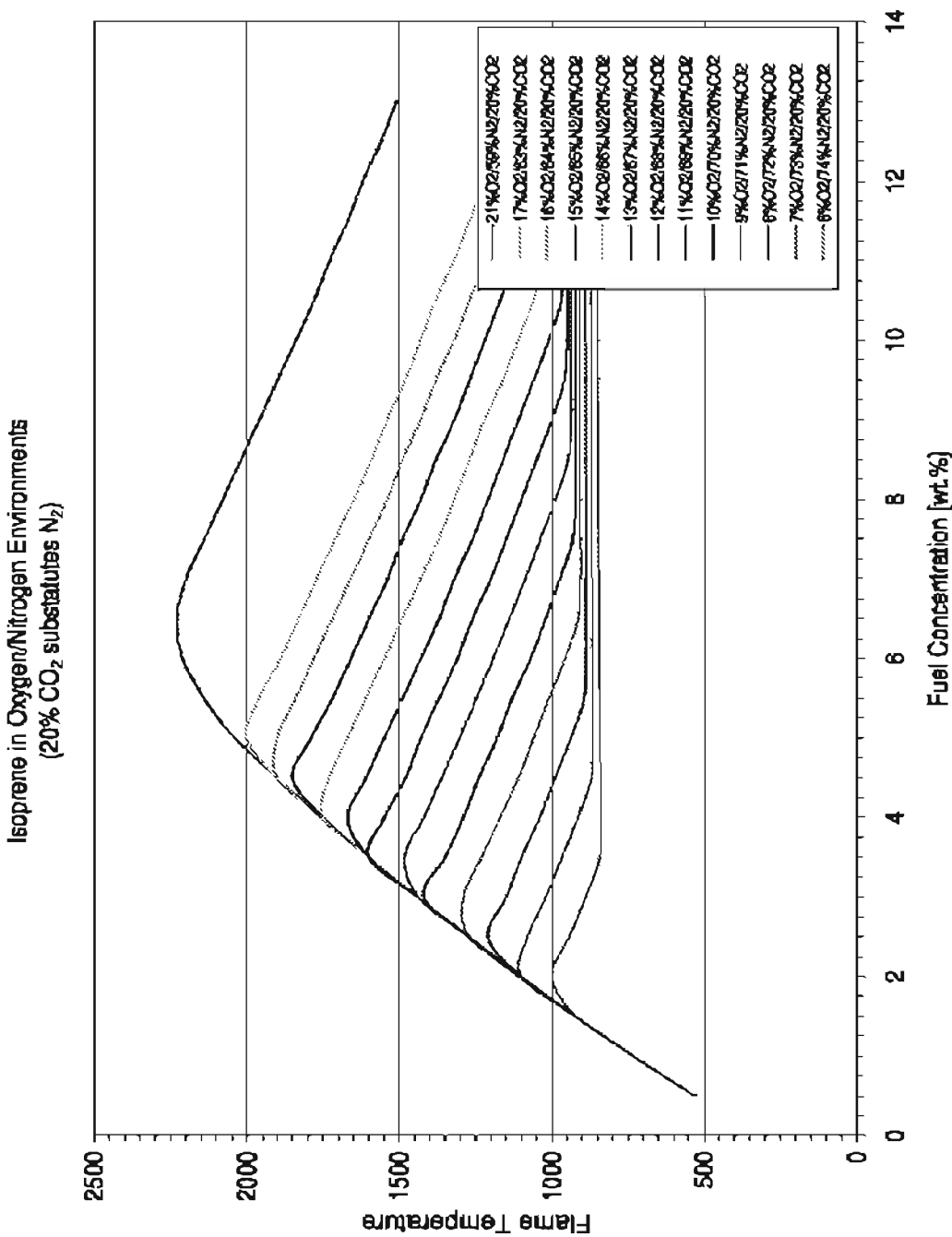


Figure 74

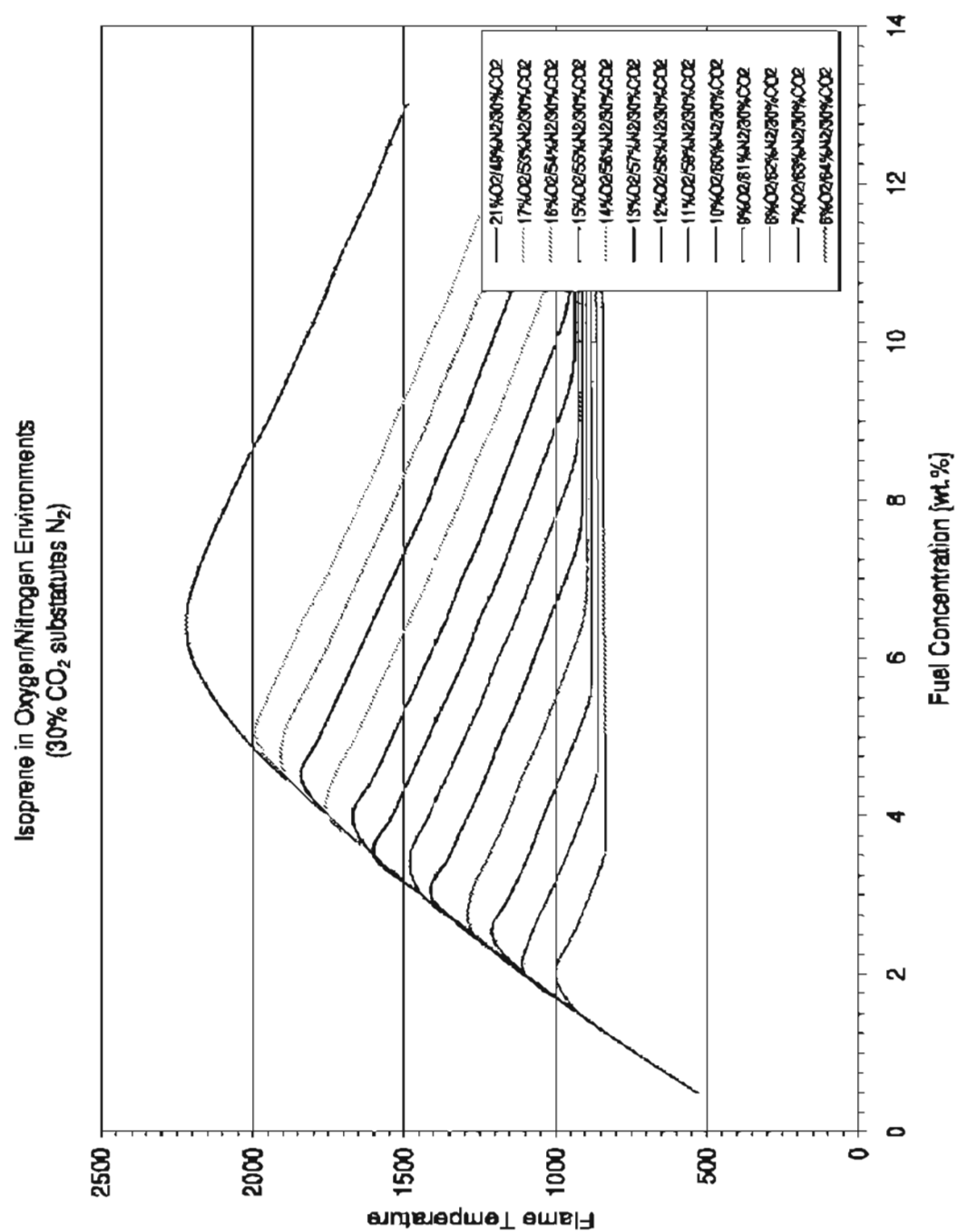


Figure 75A

Concentration at Deflagration													
Fuel Makeup			Oxidizer Makeup					Molar Concentration based on 100g of sample					
Fuel Conc.	Oxidizer Conc.	Isoprene	H ₂ O	O ₂	N ₂	Isoprene	H ₂ O	O ₂	N ₂	Total	Isoprene	O ₂	N ₂
(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)
Volumetric Concentrations based on ideal gas law													
3.10	95.90	100	0	12	86	4.56	0.00	36.34	594.54	345.44	1.32	10.52	88.16
3.10	96.90	100	0	12	87	4.56	0.00	39.37	301.08	345.01	1.32	11.41	87.27
3.10	96.90	100	0	14	85	4.56	0.00	42.39	287.52	344.57	1.32	12.30	86.37
3.10	96.90	100	0	15	85	4.56	0.00	45.42	284.16	344.14	1.32	13.20	85.48
3.10	96.90	100	0	16	84	4.56	0.00	48.45	280.70	343.71	1.33	14.10	84.58
3.10	96.90	100	0	17	83	4.56	0.00	51.48	287.24	343.28	1.33	15.00	83.68
3.10	96.90	100	0	21	79	4.56	0.00	63.59	273.40	341.55	1.33	18.62	80.05
3.50	96.50	100	0	11.1	88.9	5.15	0.00	33.47	306.39	345.01	1.49	9.70	88.81
4.40	95.60	100	0	12	88	6.47	0.00	25.85	300.46	342.78	1.89	10.46	87.65
5.50	94.50	100	0	13	87	8.09	0.00	38.39	283.63	340.10	2.38	11.29	86.33
6.60	93.40	100	0	14	86	9.71	0.00	40.66	286.87	337.44	2.88	12.11	85.01
7.60	92.40	100	0	15	85	11.18	0.00	43.31	280.50	334.99	3.34	12.96	83.73
8.50	91.50	100	0	16	84	12.50	0.00	45.75	274.50	332.75	3.76	13.75	82.49
9.60	90.40	100	0	17	83	14.12	0.00	48.03	287.97	330.11	4.28	14.55	81.18
13.50	86.50	100	0	21	79	19.85	0.00	56.77	244.05	320.67	8.19	17.70	76.11

Figure 75B

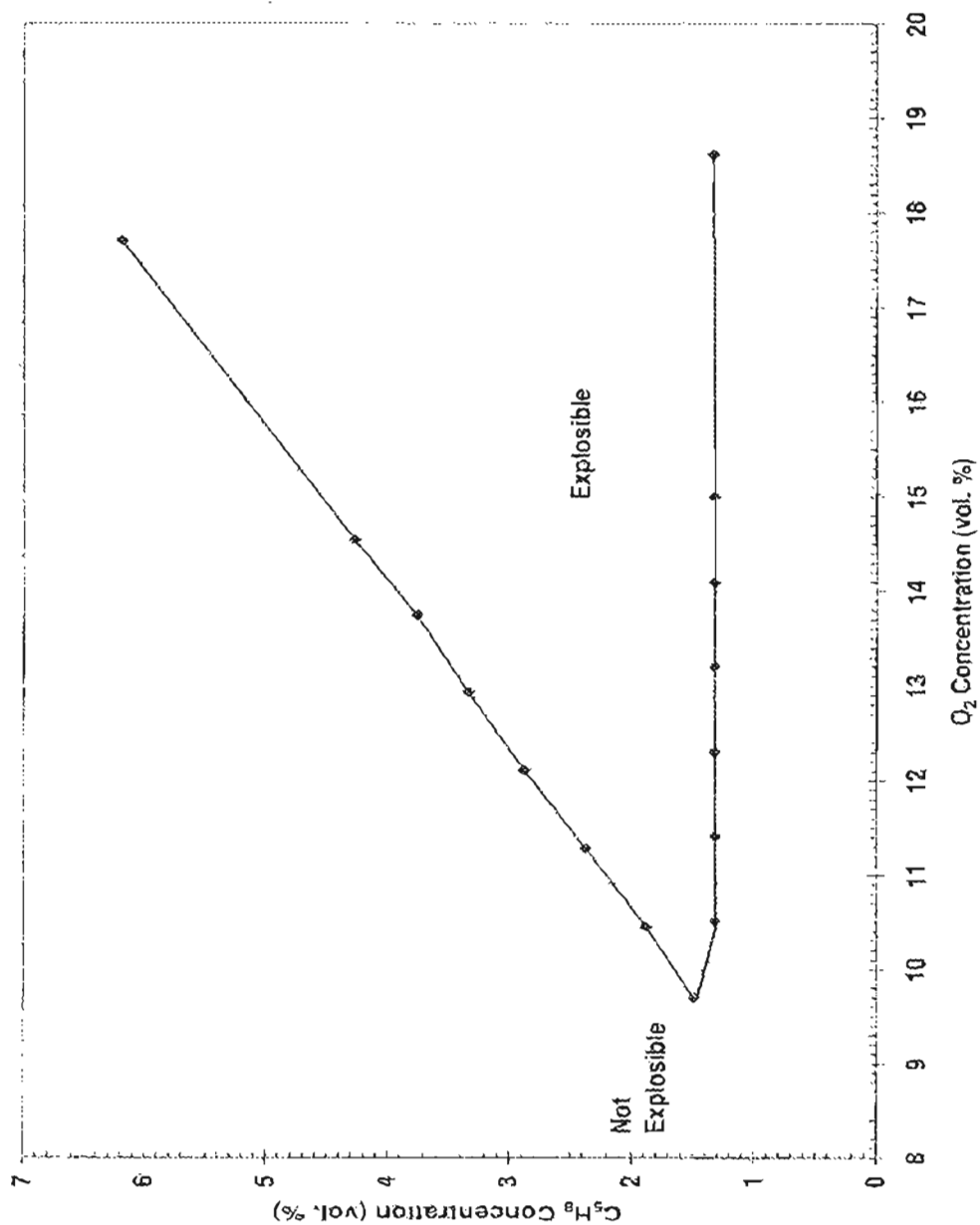


Figure 76A

Concentration at Deflagration												
Fuel Makeup			Oxidizer Makeup			Molar Concentration based on 100g of sample					Volumetric Concentrations based on ideal gas law	
Fuel Conc. (wt. %)	Oxidizer Conc. (wt. %)	Isoprene (wt. %)	H ₂ O (wt. %)	O ₂ (wt. %)	N ₂ (wt. %)	Isoprene (mole)	H ₂ O (mole)	O ₂ (mole)	N ₂ (mole)	Total (mole)	Isoprene (vol. %)	H ₂ O (vol. %)
3.252	96.748	100	4	12	84	4.78	21.50	35.28	280.24	352.81	1.36	10.28
3.274	96.726	100	4	13	83	4.81	21.49	39.29	286.72	352.33	1.37	11.15
3.290	96.710	100	4	14	82	4.84	21.49	42.31	283.22	351.86	1.38	12.02
3.288	96.712	100	4	15	81	4.84	21.49	45.33	279.77	351.43	1.38	12.90
3.286	96.714	100	4	16	80	4.83	21.49	48.36	276.33	351.01	1.38	13.78
3.284	96.716	100	4	17	79	4.83	21.49	51.38	272.88	350.58	1.38	14.66
3.276	96.724	100	4	21	75	4.82	21.49	63.48	259.08	346.87	1.38	18.19
3.500	96.500	100	4	17.5	82.5	5.15	21.44	94.68	281.22	352.49	1.46	9.84
4.200	95.800	100	4	12	84	6.18	21.28	35.93	287.40	350.78	1.76	10.24
5.300	94.700	100	4	13	83	7.79	21.04	38.47	280.72	348.03	2.24	11.05
6.400	93.600	100	4	14	82	9.41	20.80	40.95	274.11	345.28	2.73	11.86
7.400	92.600	100	4	15	81	10.88	20.58	43.41	267.88	342.74	2.18	12.68
8.500	91.500	100	4	16	80	12.50	20.35	45.75	261.43	340.01	3.68	13.46
9.400	90.600	100	4	17	79	13.82	20.13	48.13	255.82	337.71	4.08	14.25
13.300	86.700	100	4	21	75	19.58	19.27	56.90	238.23	327.95	5.96	17.35

Figure 76B

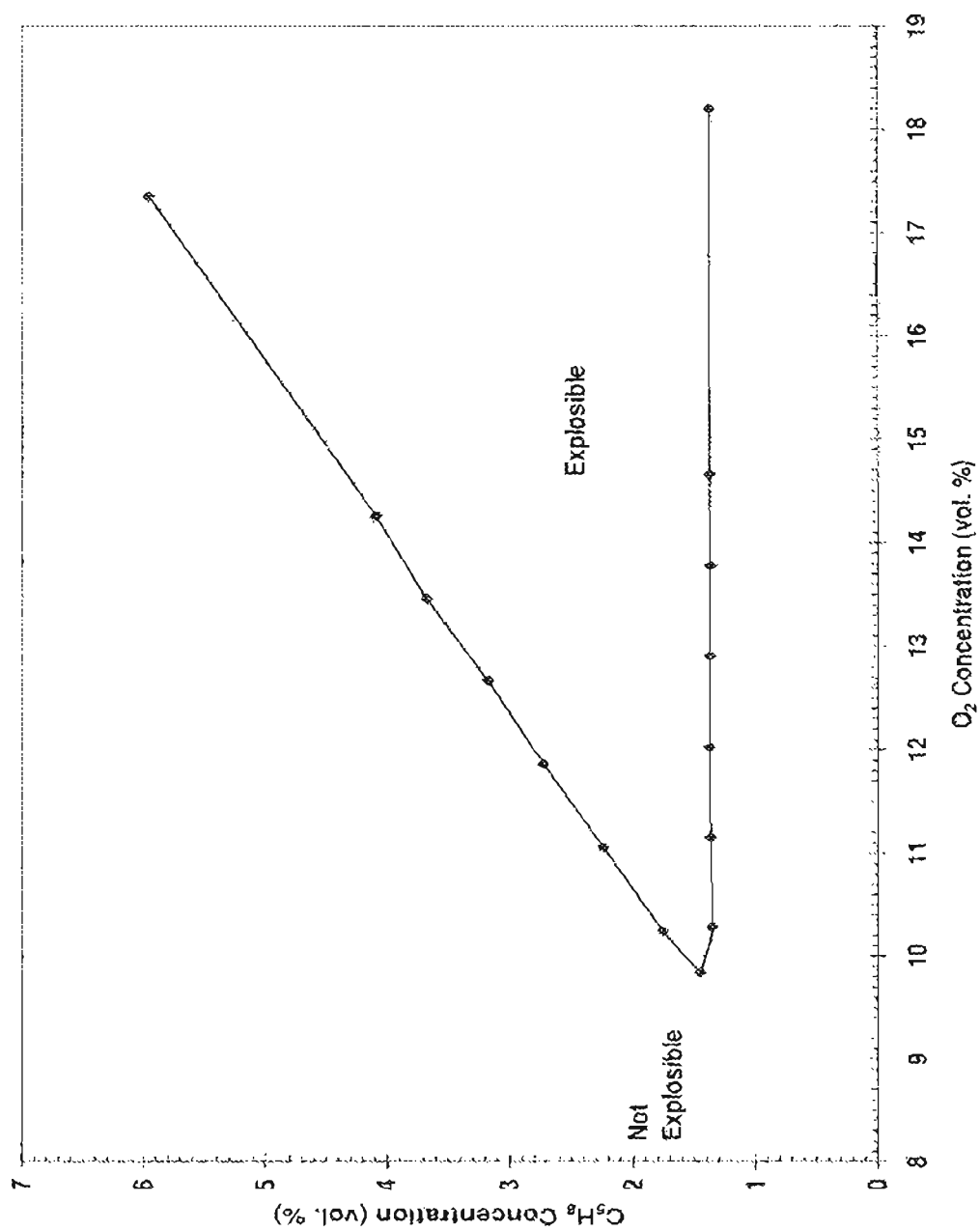


Figure 77

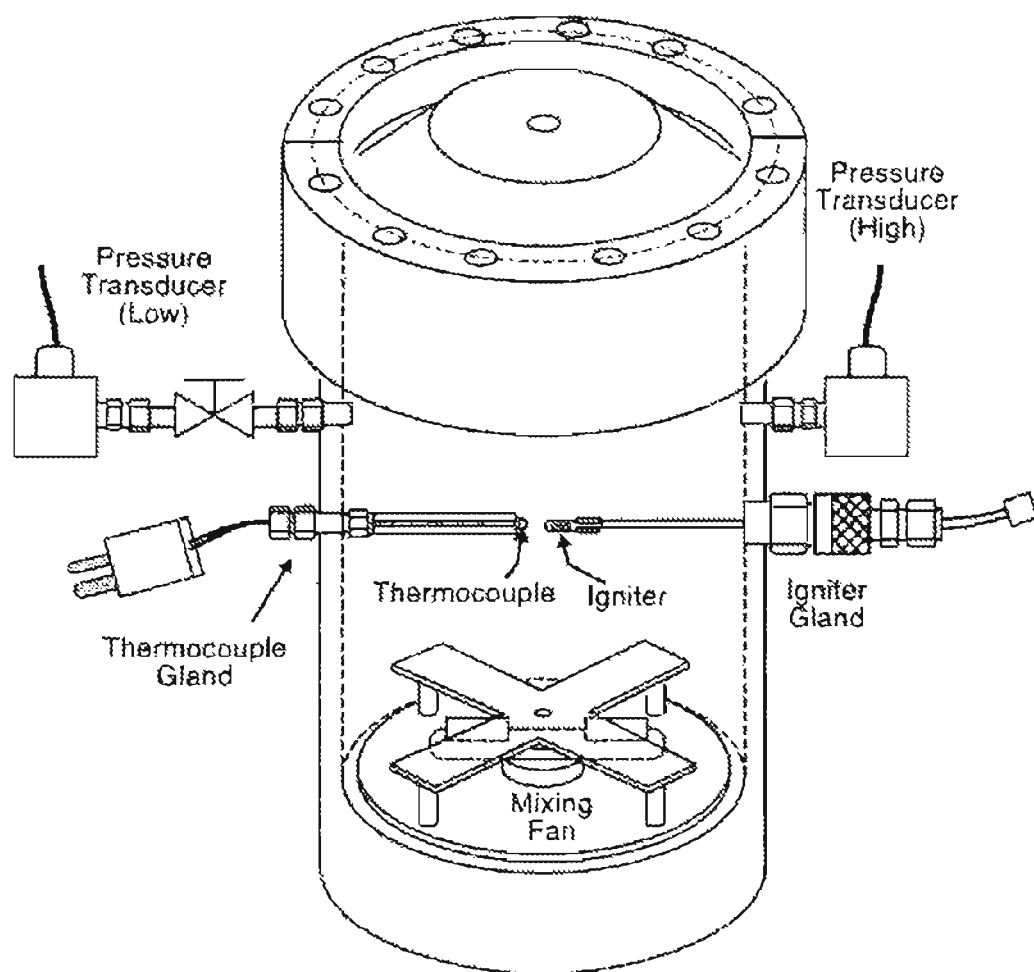


Figure 78A

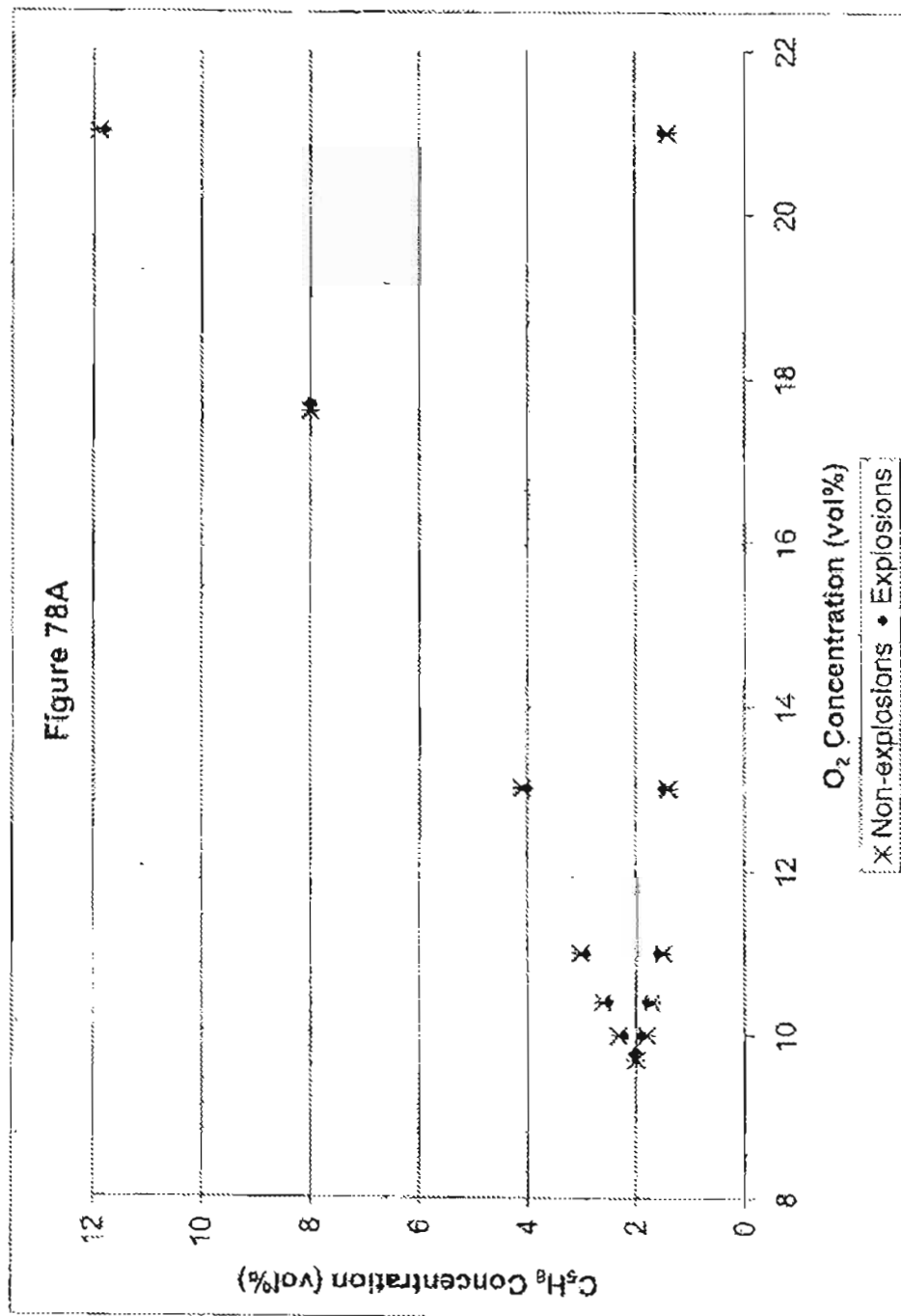


Figure 78B

Explosions		Non-explosions	
O ₂	C ₅ H ₈	O ₂	C ₅ H ₈
Concentration	Concentration	Concentration	Concentration
(vol. %)	(vol. %)	(vol. %)	(vol. %)
21.0	1.5	21.0	1.4
13.0	1.5	13.0	1.4
11.0	1.6	11.0	1.5
10.4	1.8	10.4	1.7
10.0	1.9	10.0	1.8
9.8	2	9.7	2
10.0	2.2	10.0	2.3
10.4	2.5	10.4	2.6
11.0	2.9	11.0	3.0
13.0	4.0	13.0	4.1
17.7	8.0	17.6	8.0
21.0	11.8	21.0	11.9

Figure 78C

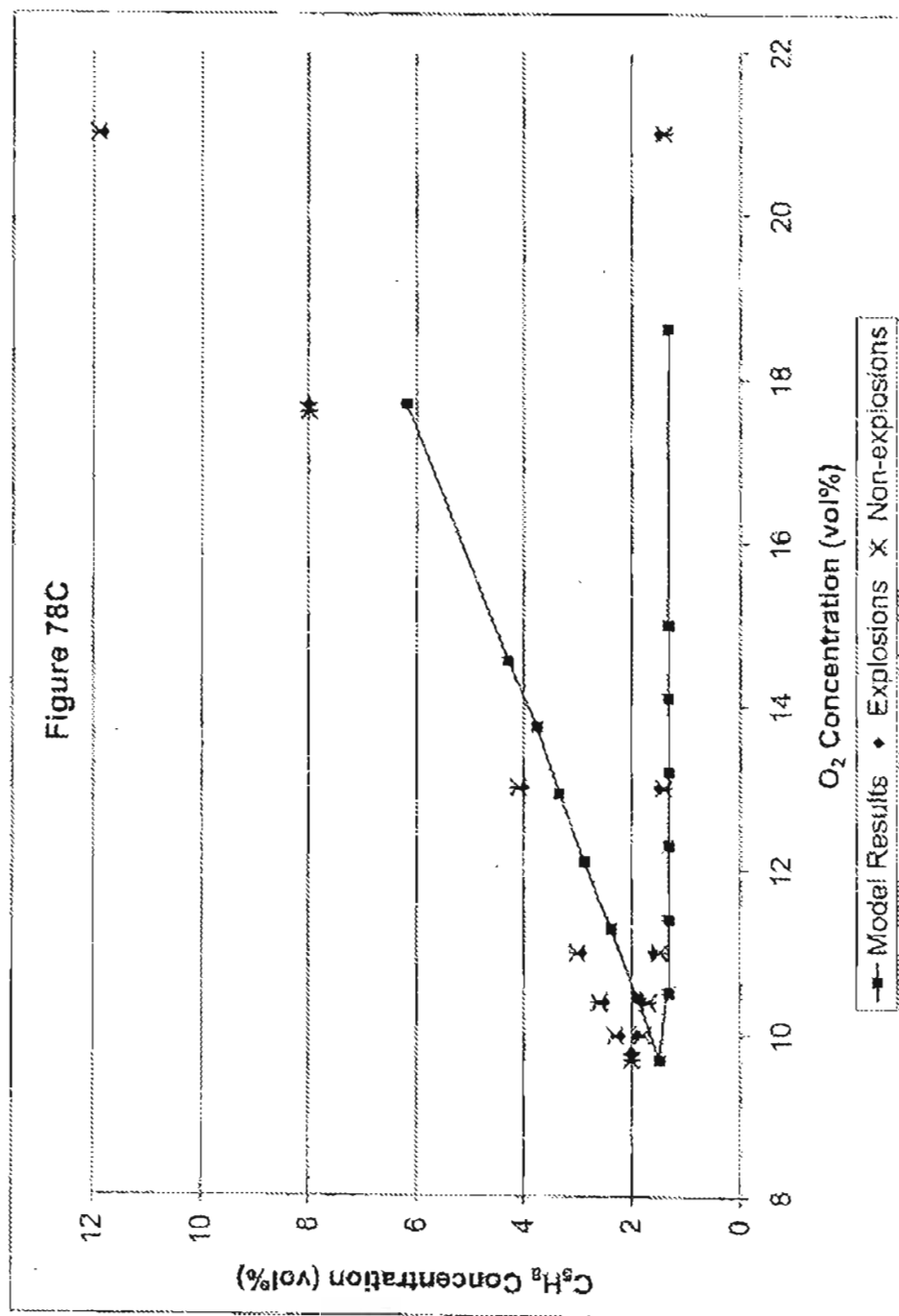


Figure 79B

Explosions		Non-explosions	
O2	C5H8	O2	C5H8
Concentration	Concentration	Concentration	Concentration
(vol. %)	(vol. %)	(vol. %)	(vol. %)
21.0	11.7	21.0	11.9
21.0	11.8	21.0	11.9
21.0	11.8	21.0	11.9
21.0	1.5	21.0	1.4
21.0	1.5	21.0	1.4
10.2	2.0	21.0	1.4
10.1	2.0	9.8	2.0
10.0	2.0	9.8	2.0
9.9	2.0	9.8	2.0

Figure 79C

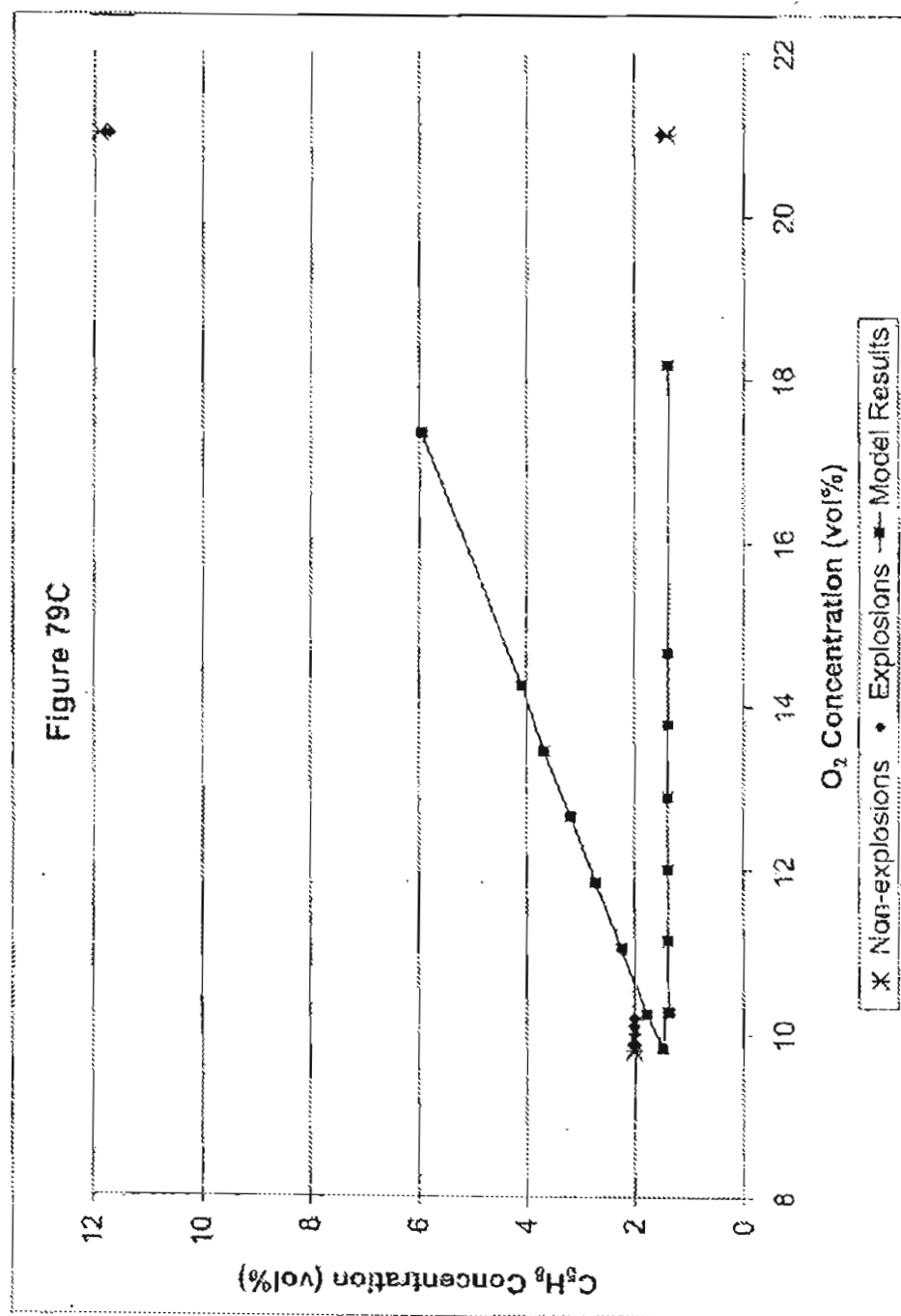


Figure 80A

TEST SERIES 1

Test	Data File Name	Temp °C	Initial Pressure bara	Partial Pressures			Concentrations			Result	Pex bara
				C ₂ H ₆ mbar	N ₂ mbar	O ₂ mbar	C ₂ H ₆ vol. %	N ₂ vol. %	O ₂ vol. %		
1	T11120700	40	1.012	12	787	213	1.2	77.8	21.0	Non-Explosion	1.05
2	T11120701	40	1.015	16	787	213	1.6	77.5	21.0	Explosion	5.5
3	T11120702	40	1.015	14	788	213	1.4	77.6	21.0	Non-Explosion	<1.02
4	T11120703	40	1.014	15	786	213	1.5	77.5	21.0	Non-Explosion	<1.02
5	T11120704	40	1.014	15	786	213	1.5	77.5	21.0	Explosion	4.31
6	T11120705	40	1.017	18	785	214	1.8	77.2	21.0	Explosion	5.47
7	T11120706	40	1.014	15	786	213	1.5	77.5	21.0	Explosion	4.51
8	T11120707	40	1.014	14	787	213	1.4	77.6	21.0	Non-Explosion	<1.02
9	T11120708	40	1.014	14	787	213	1.4	77.6	21.0	Non-Explosion	1.05
10	T11120709	40	1.015	102	700	213	10.0	69.0	21.0	Explosion	1.45
11	T11120710	40	1.014	102	699	213	10.1	68.9	21.0	Explosion	1.39
12	T11120711	40	1.014	106	695	213	10.5	68.5	21.0	Explosion	1.34
13	T11120712	40	1.014	113	688	213	11.1	67.9	21.0	Explosion	1.29
14	T11120713	40	1.014	122	679	213	12.0	67.0	21.0	Non-Explosion	<1.02
15	T11120714	40	1.014	117	684	213	11.5	67.5	21.0	Explosion	1.32
16	T11120715	40	1.014	120	681	213	11.8	67.2	21.0	Non-Explosion	1.08
17	T11130700	40	1.014	120	681	213	11.8	67.2	21.0	Explosion	1.09
18	T11130701	40	1.014	121	680	213	11.9	67.1	21.0	Non-Explosion	1.07
19	T11130702	40	1.015	121	681	213	11.9	67.1	21.0	Non-Explosion	1.06
20	T11130703	40	1.015	121	681	213	11.9	67.1	21.0	Non-Explosion	1.07
21	T11130704	40	1.015	30	853	132	3.0	84.0	13.0	Explosion	1.61
22	T11130705	40	1.014	35	846	132	3.5	83.4	13.0	Explosion	1.28
23	T11130706	40	1.014	39	843	132	3.8	83.1	13.0	Explosion	1.12
24	T11130707	40	1.015	41	842	132	4.0	83.0	13.0	Explosion	1.09
25	T11130708	40	1.014	42	840	132	4.1	82.8	13.0	Non-Explosion	1.06
26	T11130709	40	1.015	42	841	132	4.1	82.9	13.0	Non-Explosion	1.05
27	T11130710	40	1.014	42	840	132	4.1	82.8	13.0	Non-Explosion	1.05
28	T11130711	40	1.014	15	867	132	1.5	85.5	13.0	Non-Explosion	1.03
29	T11130712	40	1.014	16	866	132	1.6	85.4	13.0	Explosion	4.81
30	T11130713	40	1.014	15	867	132	1.5	85.5	13.0	Explosion	4
31	T11130714	40	1.014	14	868	132	1.4	85.6	13.0	Non-Explosion	1.03
32	T11130715	40	1.014	14	868	132	1.4	85.6	13.0	Non-Explosion	<1.02
33	T11130716	40	1.014	14	868	132	1.4	85.6	13.0	Non-Explosion	1.03
34	T11130717	40	1.015	20	863	112	2.0	87.0	11.0	Explosion	1.7
35	T11130718	40	1.014	26	874	112	2.6	86.2	11.0	Non-Explosion	1.08
36	T11130719	40	1.014	26	874	112	2.6	86.2	11.0	Non-Explosion	1.08
37	T11130720	40	1.014	26	874	112	2.6	86.2	11.0	Explosion	1.12
38	T11130721	40	1.015	29	874	112	2.9	86.1	11.0	Non-Explosion	1.08
39	T11130722	40	1.014	29	873	112	2.9	86.1	11.0	Explosion	1.1

Figure 80B

Test	Data File Name	Temp °C	Initial Pressure bara	Partial Pressures			Concentrations			Result	P _{exp} bara
				C ₂ H ₂ mbar	N ₂ mbar	O ₂ mbar	C ₂ H ₂ vol. %	N ₂ vol. %	O ₂ vol. %		
40	T11130723	40	1.014	30	872	112	3.0	86.0	11.0	Non-Explosion	1.08
41	T11130724	40	1.014	30	872	112	3.0	86.0	11.0	Non-Explosion	1.05
42	T11130725	40	1.014	30	872	112	3.0	86.0	11.0	Non-Explosion	1.05
43	T11130726	40	1.014	15	887	112	1.5	87.5	11.0	Non-Explosion	<1.02
44	T11130727	40	1.014	15	887	112	1.5	87.5	11.0	Non-Explosion	<1.02
45	T11140700	40	1.014	15	886	112	1.6	87.4	11.0	Non-Explosion	<1.02
46	T11140701	40	1.014	17	885	112	1.7	87.3	11.0	Explosion	1.81
47	T11140702	40	1.014	16	886	112	1.6	87.4	11.0	Explosion	1.54
48	T11140703	40	1.014	15	887	112	1.5	87.5	11.0	Non-Explosion	<1.02
49	T11140704	40	1.015	20	899	96	2.0	88.6	9.5	Non-Explosion	1.05
50	T11140705	40	1.014	20	898	96	2.0	88.6	9.5	Non-Explosion	1.05
51	T11140706	40	1.014	23	890	101	2.3	87.8	10.0	Non-Explosion	1.05
52	T11140707	40	1.015	23	896	106	2.3	87.3	10.4	Explosion	1.19
53	T11140708	40	1.014	25	884	105	2.5	87.2	10.4	Explosion	1.09
54	T11140709	40	1.014	25	883	105	2.6	87.1	10.4	Non-Explosion	1.05
55	T11140710	40	1.014	25	883	105	2.6	87.1	10.4	Non-Explosion	1.06
56	T11140711	40	1.014	26	882	105	2.6	87.1	10.4	Non-Explosion	1.07
57	T11140712	40	1.014	20	889	105	2.0	87.7	10.4	Explosion	1.21
58	T11140713	40	1.014	17	892	105	1.7	88.0	10.4	Non-Explosion	1.04
59	T11140714	40	1.014	18	891	105	1.8	87.9	10.4	Explosion	1.21
60	T11140715	40	1.014	17	892	105	1.7	88.0	10.4	Non-Explosion	1.03
61	T11140715	40	1.014	17	892	105	1.7	88.0	10.4	Non-Explosion	1.03
62	T11140717	40	1.014	21	890	103	2.1	87.8	10.2	Explosion	1.1
63	T11140718	40	1.014	21	891	102	2.1	87.9	10.1	Explosion	1.09
64	T11140719	40	1.014	21	892	101	2.1	88.0	10.0	Explosion	1.08
65	T11140720	40	1.014	22	891	101	2.2	87.9	10.0	Explosion	1.1
66	T11140721	40	1.014	23	890	101	2.3	87.8	10.0	Non-Explosion	1.06
67	T11140722	40	1.014	23	890	101	2.3	87.8	10.0	Non-Explosion	1.09
68	T11140723	40	1.014	19	894	101	1.9	88.2	10.0	Explosion	1.12
69	T11140724	40	1.014	18	895	101	1.8	88.3	10.0	Non-Explosion	1.06
70	T11140725	40	1.014	16	895	101	1.8	88.3	10.0	Non-Explosion	1.03
71	T11140726	40	1.014	18	895	101	1.8	88.3	10.0	Non-Explosion	1.04
72	T11140727	40	1.014	20	895	99	2.0	88.3	9.8	Non-Explosion	1.08
73	T11140728	40	1.014	20	895	99	2.0	88.3	9.8	Explosion	1.1
74	T11140729	40	1.014	20	896	98	2.0	88.4	9.7	Non-Explosion	1.06
75	T11140730	40	1.014	20	896	98	2.0	88.4	9.7	Non-Explosion	1.08
76	T11140731	40	1.014	20	896	98	2.0	88.4	9.7	Non-Explosion	1.07
77	T11140732	40	1.014	81	761	172	8.0	75.0	17.0	Non-Explosion	1.04
78	T11140733	40	1.014	81	750	183	8.0	74.0	18.0	Explosion	1.3
79	T11140734	40	1.014	81	754	179	8.0	74.4	17.7	Explosion	1.24
80	T11140735	40	1.014	81	757	176	8.0	74.7	17.4	Non-Explosion	1.03
81	T11140735	40	1.014	81	755	178	8.0	74.5	17.6	Non-Explosion	1.05
82	T11140737	40	1.014	81	756	178	8.0	74.5	17.6	Non-Explosion	1.03
83	T11140738	40	1.014	81	755	178	8.0	74.5	17.6	Non-Explosion	1.03

Figure 81

TEST SERIES 2

Test	Data File Name	Temp °C	Initial Pressure bar	Partial Pressures				Concentrations				Result	Pex bar
				H ₂ O mbar	C ₂ H ₆ mbar	N ₂ mbar	O ₂ mbar	H ₂ O vol. %	C ₂ H ₆ vol. %	N ₂ vol. %	O ₂ vol. %		
1	T11150700	40	1.014	41	119	641	213	4.0	11.7	63.2	21.0	Explosion	1.39
2	T11150701	40	1.014	40	121	640	213	3.9	11.9	63.1	21.0	Non-explosion	1.07
3	T11150702	40	1.014	41	120	640	213	4.0	11.8	63.1	21.0	Explosion	1.09
4	T11150703	40	1.014	40	121	640	213	3.9	11.9	63.1	21.0	Non-explosion	1.06
5	T11150704	40	1.014	40	120	641	213	3.9	11.8	63.2	21.0	Explosion	1.09
6	T11150705	40	1.014	40	121	640	213	3.9	11.9	63.1	21.0	Non-explosion	1.08
7	T11150706	40	1.014	40	15	746	213	3.9	1.5	73.6	21.0	Explosion	4.68
8	T11150707	40	1.014	41	15	745	213	4.0	1.5	73.6	21.0	Explosion	5.27
9	T11150708	40	1.014	41	14	746	213	4.0	1.4	73.6	21.0	Non-explosion	1.03
10	T11150709	40	1.014	42	14	745	213	4.1	1.4	73.5	21.0	Non-explosion	1.03
11	T11150700	40	1.014	41	14	746	213	4.0	1.4	73.6	21.0	Non-explosion	1.03
12	T11160701	40	1.014	41	20	850	103	4.0	2.0	83.6	10.2	Explosion	1.11
13	T11160702	40	1.014	41	20	851	102	4.0	2.0	83.9	10.1	Explosion	1.11
14	T11160703	40	1.014	41	20	850	101	4.0	2.0	84.0	10.0	Explosion	1.09
15	T11160704	40	1.014	41	20	850	100	4.0	2.0	84.1	9.9	Explosion	1.09
16	T11160705	40	1.014	41	20	854	99	4.0	2.0	84.2	9.8	Non-explosion	1.07
17	T11160706	40	1.014	40	20	855	99	3.9	2.0	84.3	9.8	Non-explosion	1.06
18	T11160707	40	1.014	41	20	854	99	4.0	2.0	84.2	9.8	Non-explosion	1.08

Figure 82

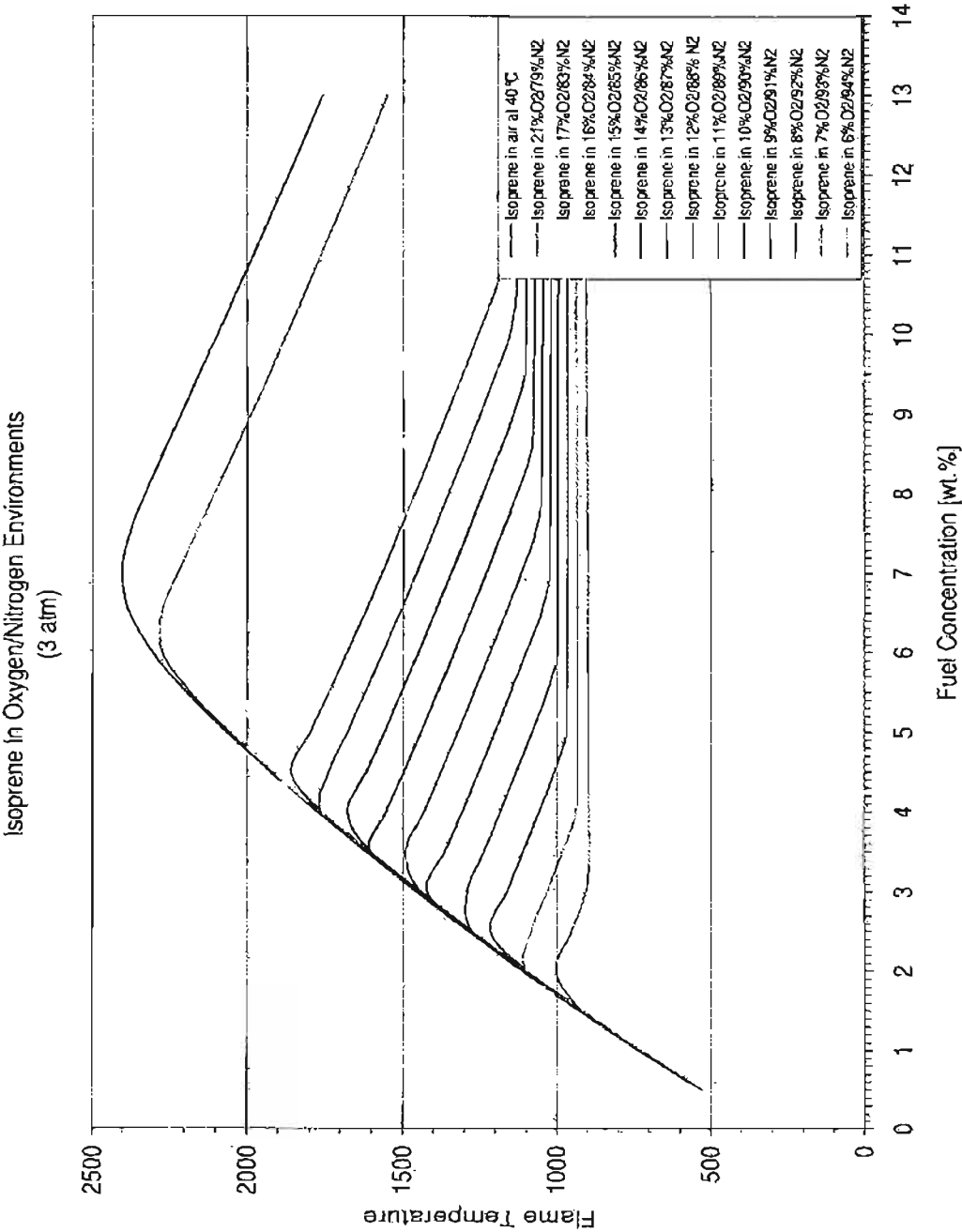


Figure 83

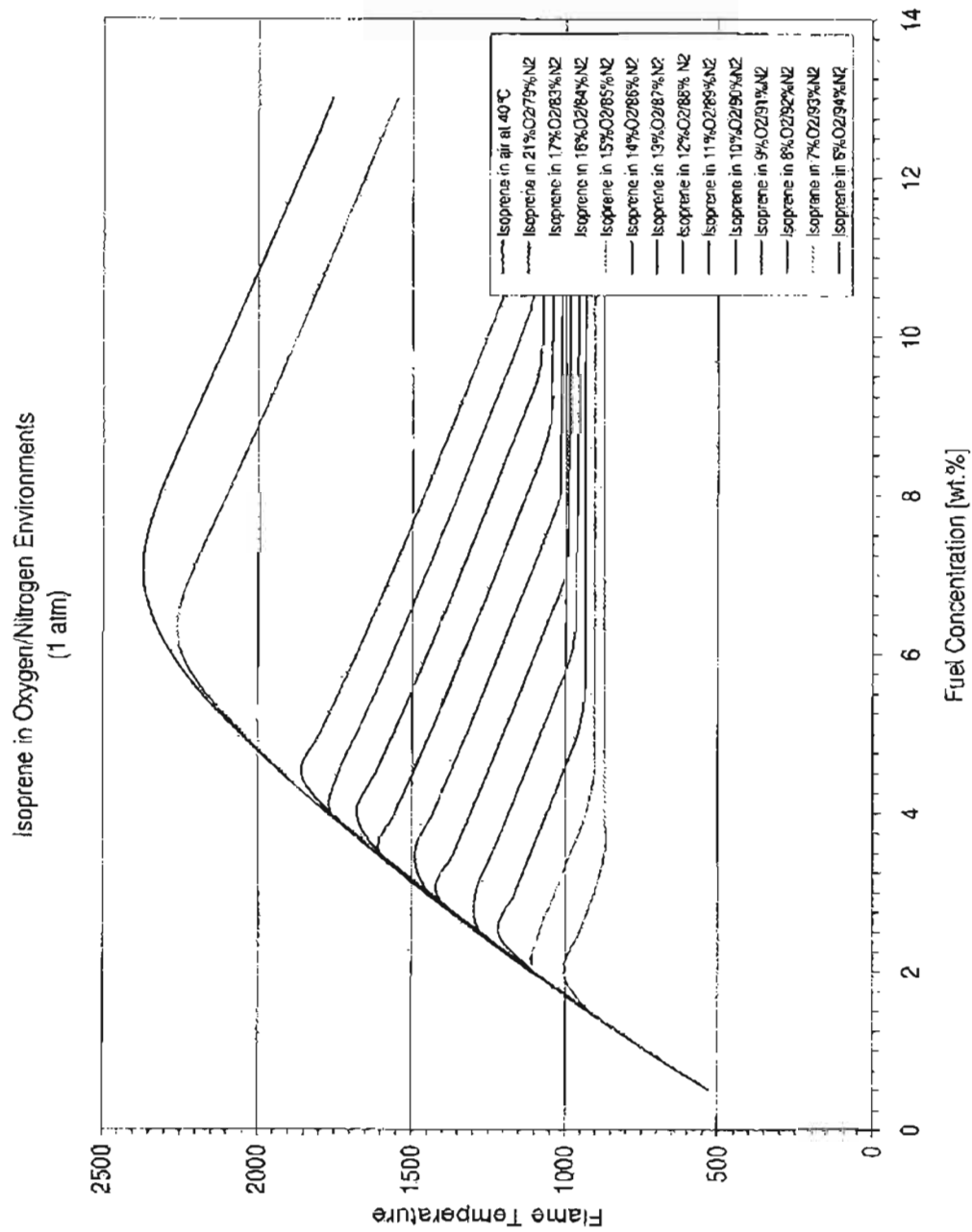


Figure 84

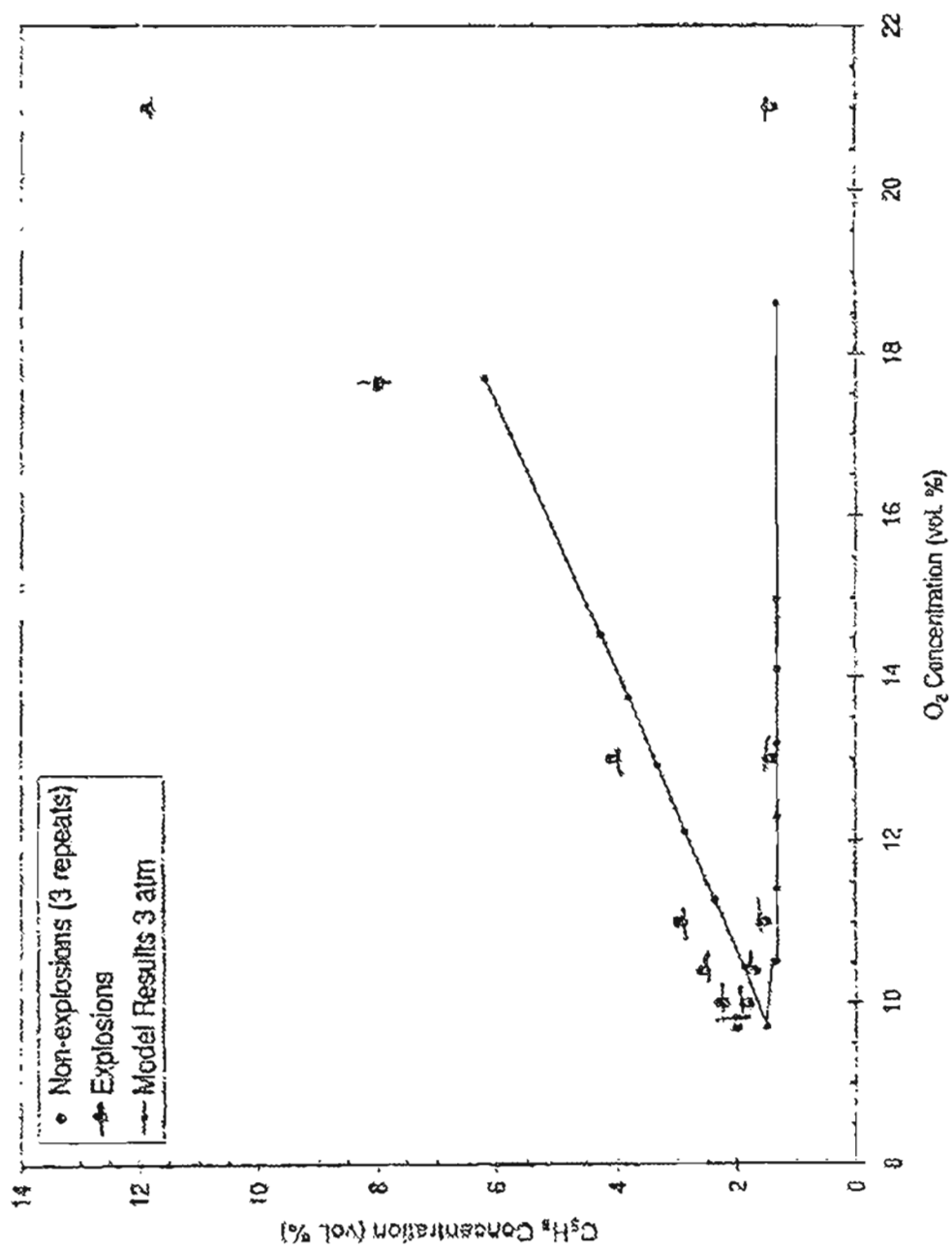


Figure 85

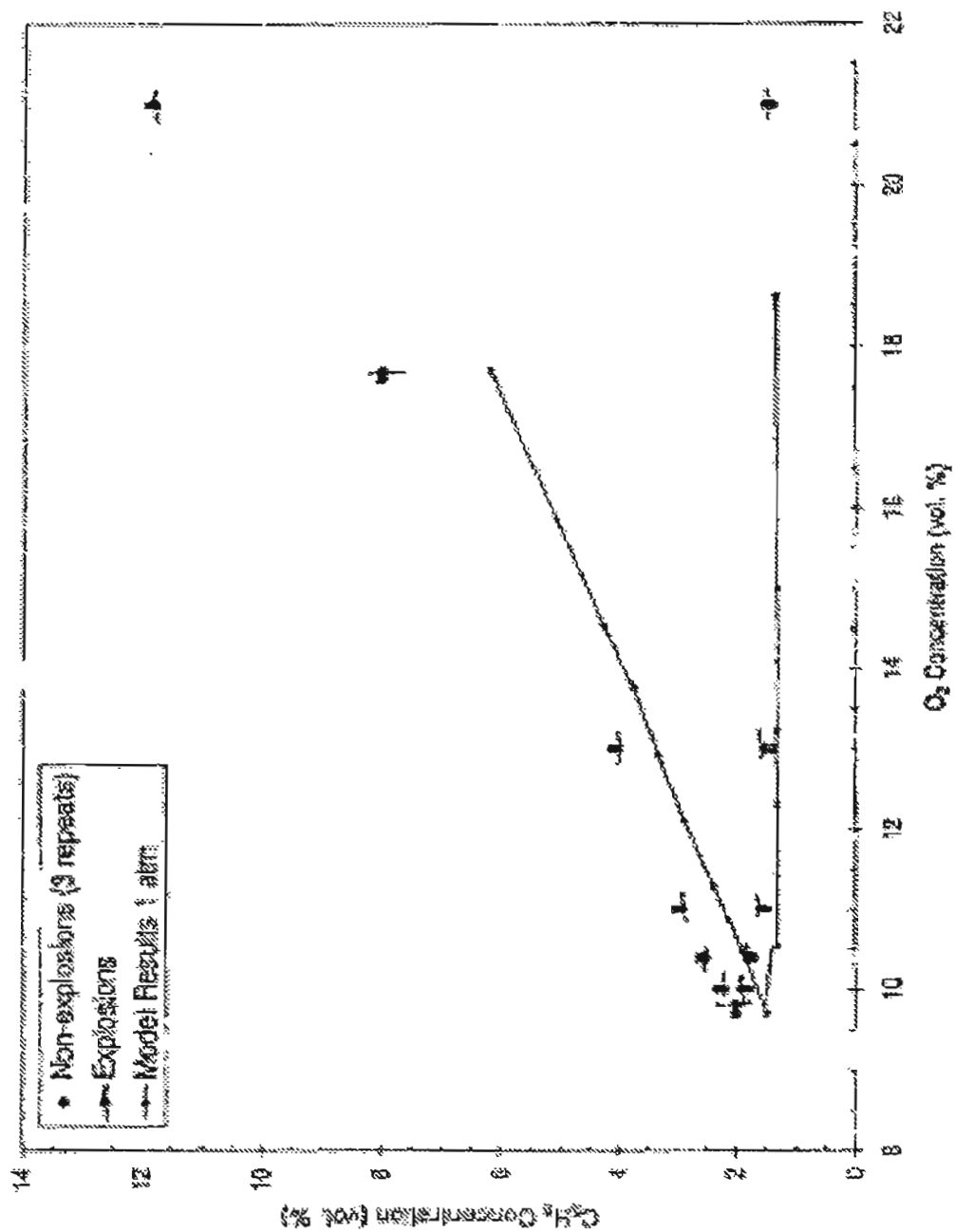


Figure 86A

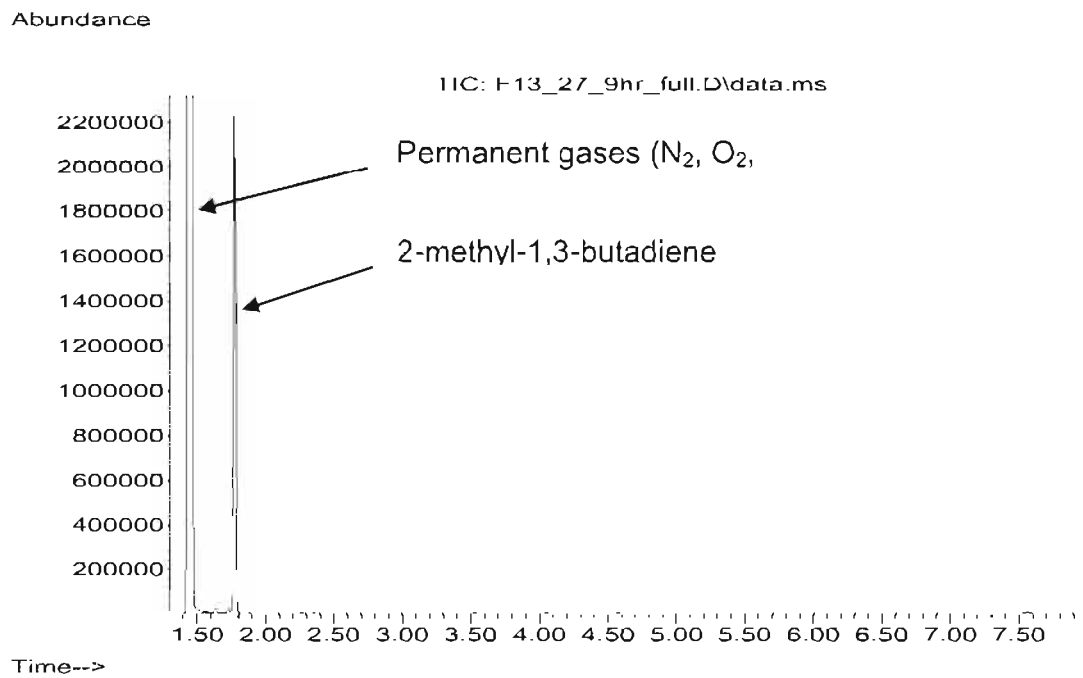


Figure 86B

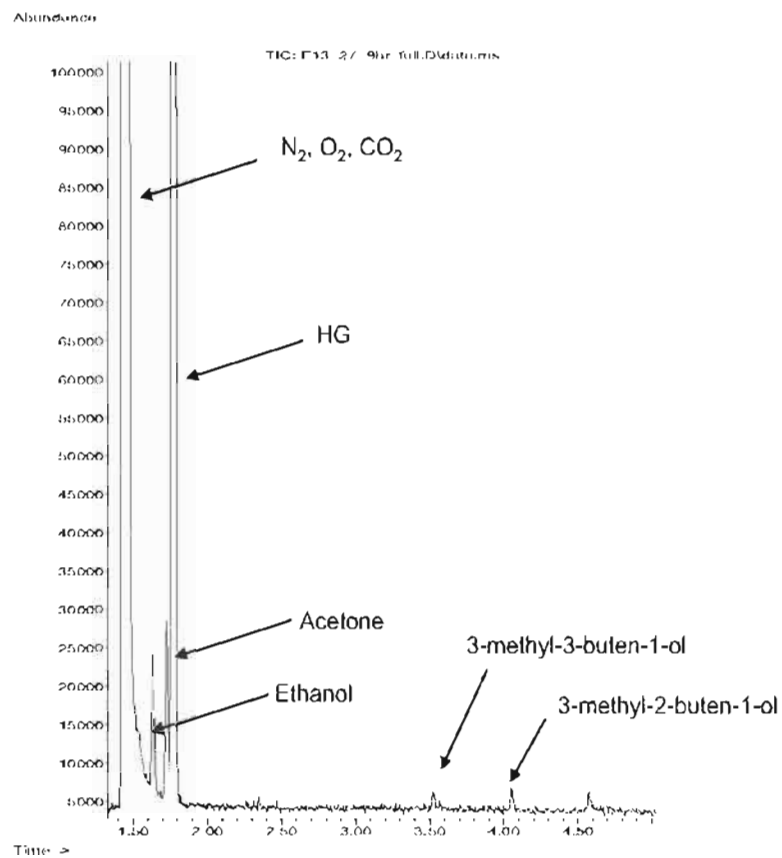


Figure 87A

Abundance

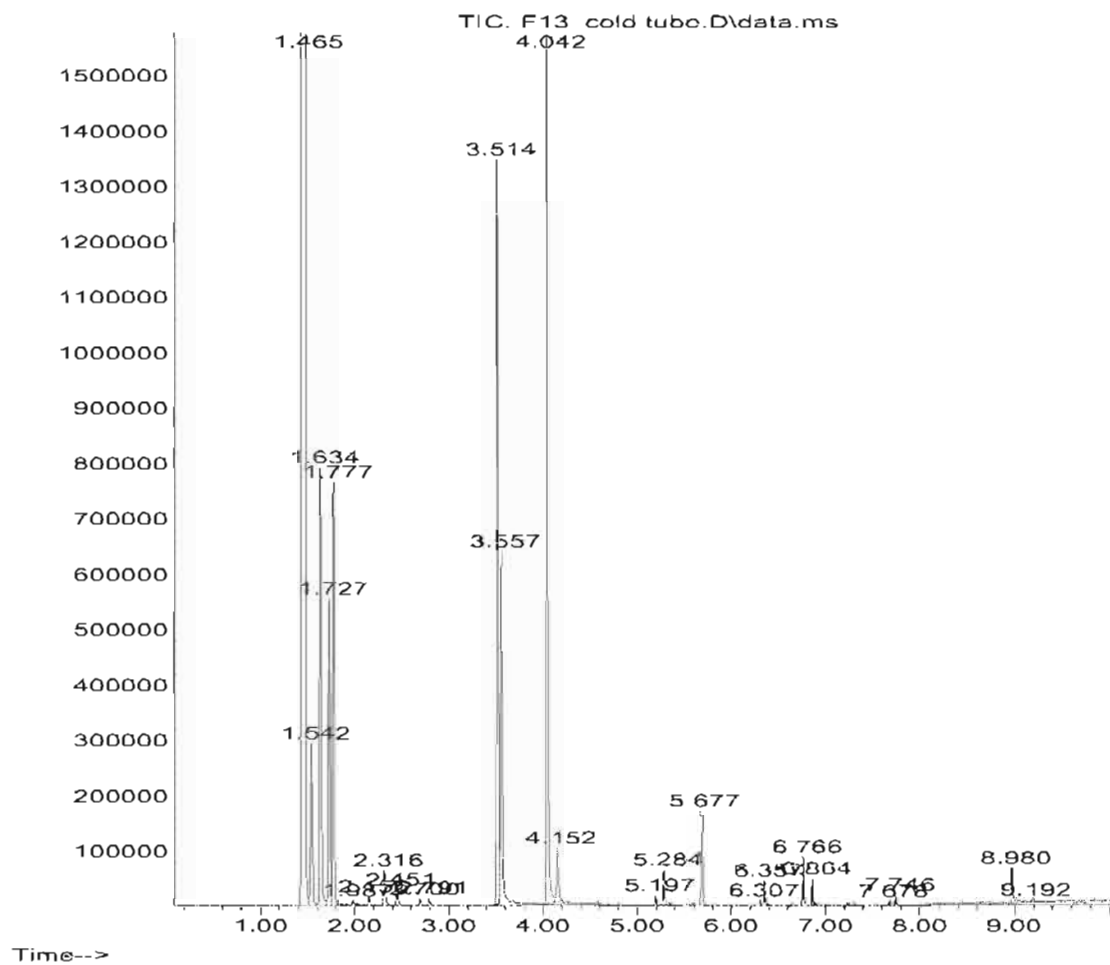


Figure 87B

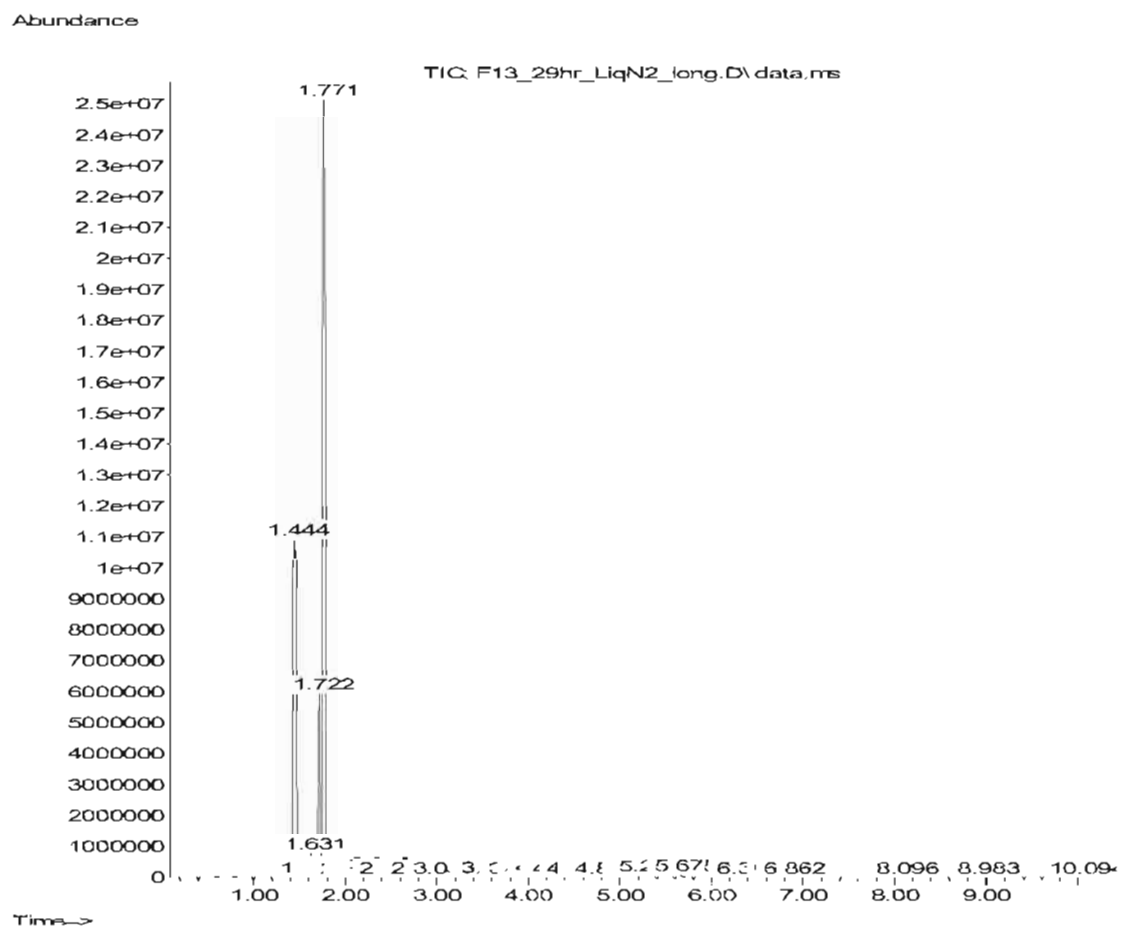


Figure 87C

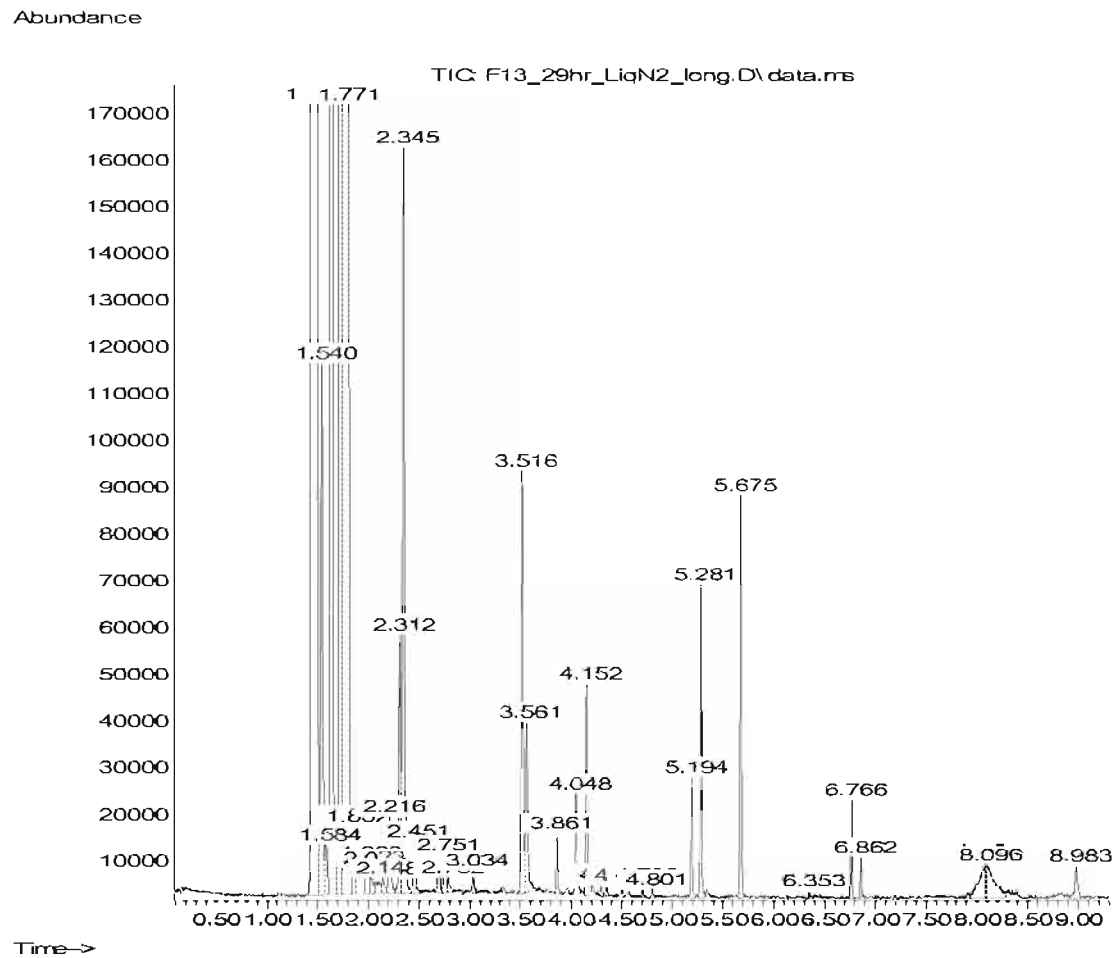


Figure 87D

Abundance

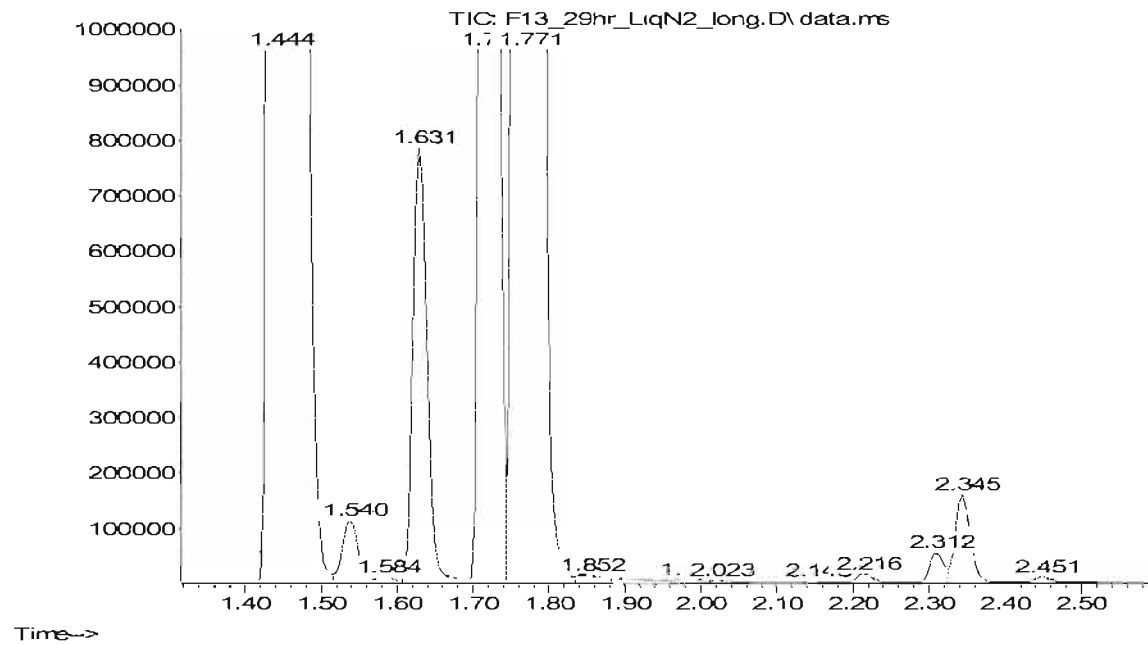


Figure 88A

Abundance

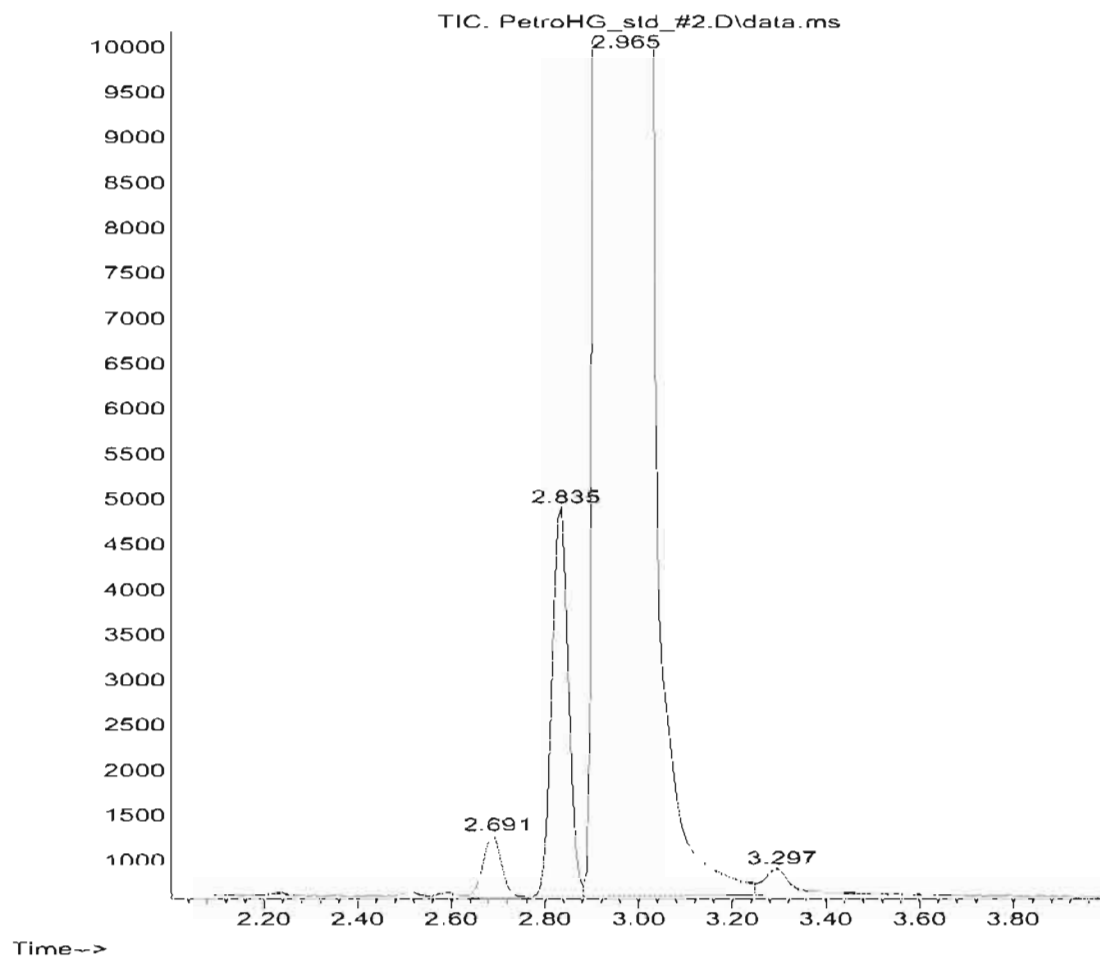


Figure 88B

Abundance

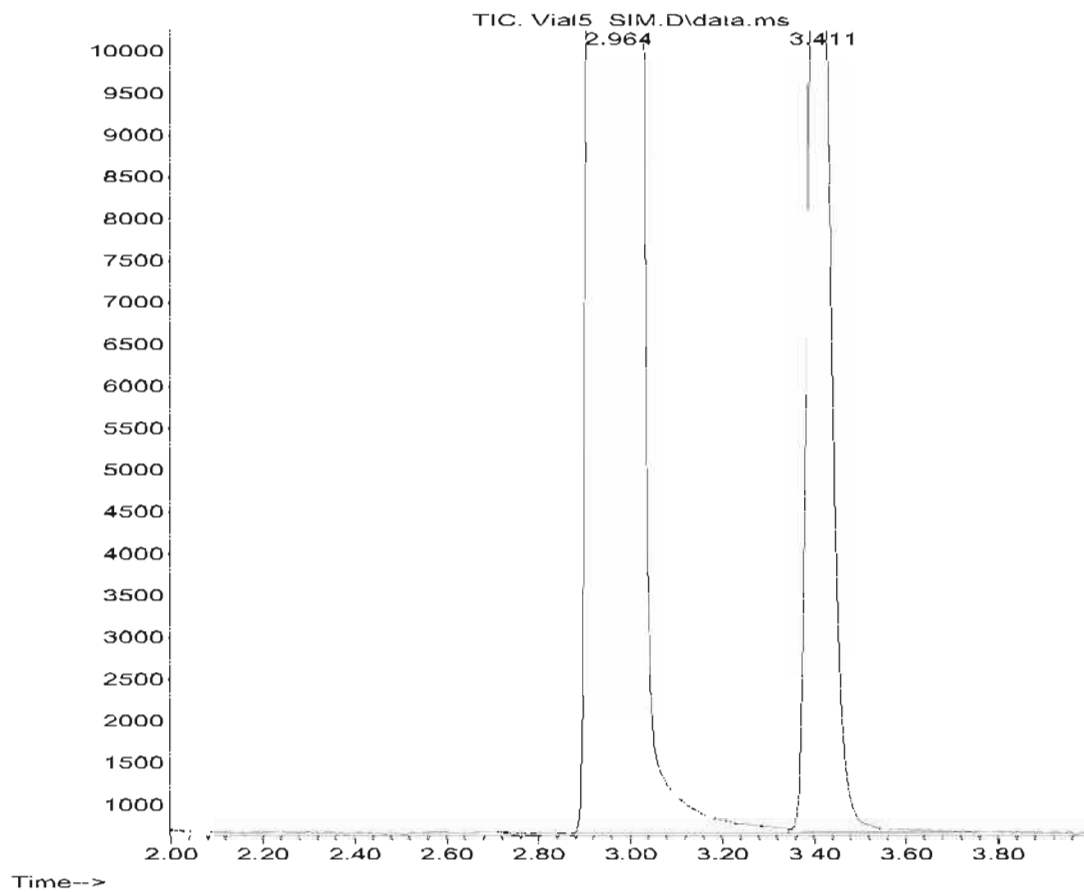


Figure 89

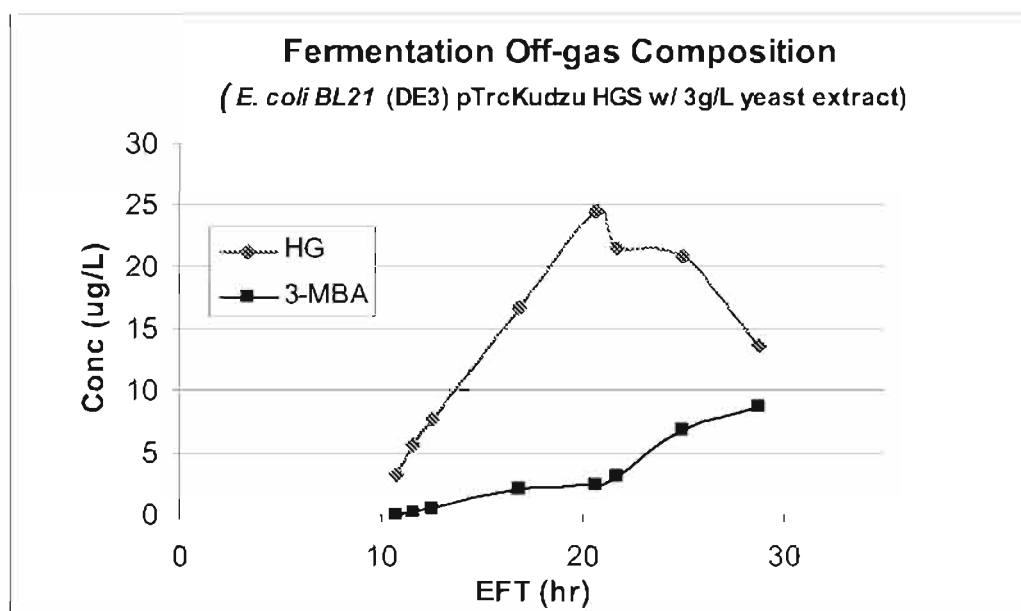
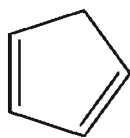
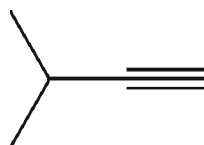


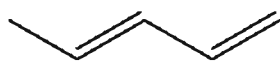
Figure 90



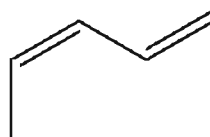
cyclopentadiene



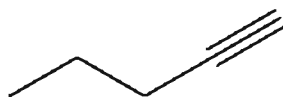
"isopryne" = 3-Me-1-butyne



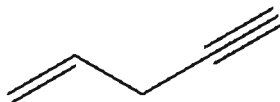
trans-piperylene



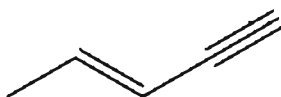
cis-piperylene



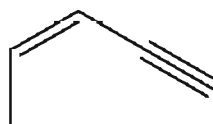
1-pentyne



pent-4-ene-1-yne



trans-pent-3-ene-1-yne



cis-pent-3-ene-1-yne

Figure 91

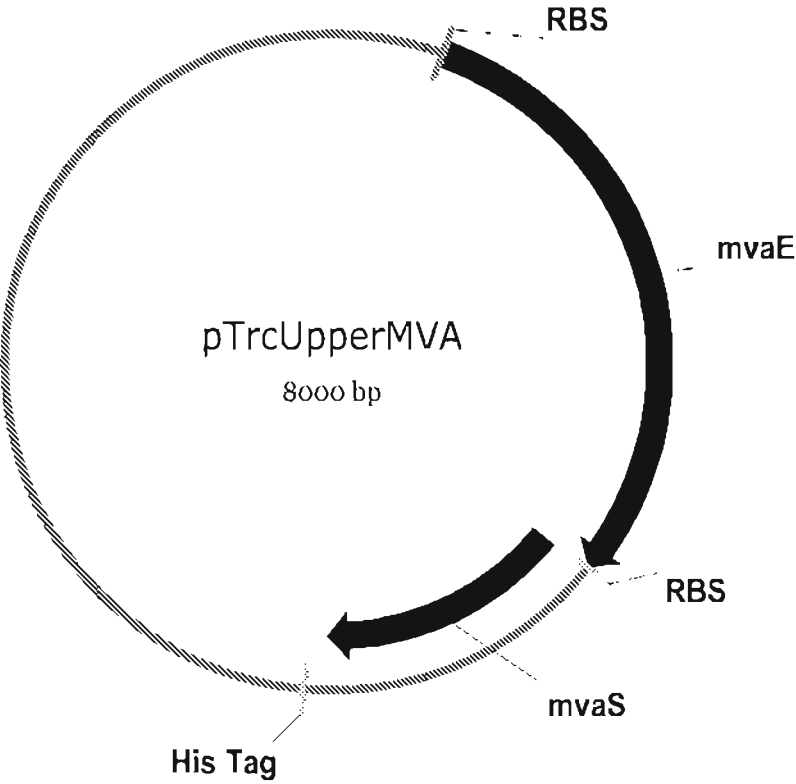


Figure 92A

1-

gtttgacagcctatcatcgaactgcacgggtgcaccaatgcttctggcgctcaggcagccatcggaagctgtggtatggcgtgacagg
 togtaaatcacgcatatctgtgtcgtcgaaggcgacgtccgttctggaatggttttgcggccgacatcataaaggctctggca
 satattctggaatgagctgtggaatataatcatccggctcgtatattgtgtgggaatgtgagcggataaacaattccacacagggaac
 agcgccgctgaggaatgaagcgaagcggcactgctcttaacaattatcagacaatctgtgtggcactcgaccggaattatcgat
 taactttatataaaaattaaagaggtatattatgtatcgattaaalaaggaggataaaccatggatccgagctcaggaggla
 aaaaaacatgaaacaggtatattatgagcattacgaacaccaaattggaaatataaaggcagcttaagtcagtaagtgccg
 tagacttaggaacacatgttacaacacaaactttaaaaagacattccactattctggaagaattgatcaagtaactttggaatgttt
 tacaagctgggaatggccaaatccgcacgacaatagcaataaacagcgggttgcctcatgaaatcccgcaatgacgggttaa
 tgaggctcgggaicaggaatgaaggccggtattttggcgaacaattgattcaatlaggagaaggcgaagttaattgctggcg
 ggtattgagaatgtgcccagcacctaaattacaacgttttaattacgaaacagaaagctacgatgcgccttttctagtatgatgtat
 gatggattacggatgctttagtggtcaggcaatgggcttaactgctgaatgtggcgaagaatgatcatgtacagaggaag
 agcaagatcaatttctgtacattcacaattaaaggcagctcaagcacaaagcagaagggaatttcgtgacgaatagcccatla
 gaagtacagggaacgctgtggagaaggaagagggttccctaatcagagcgttgagaagctagggaacgcttaaacagttt
 taaagaagacggtactgtacagcagggaatgcatcaacattatgtatgggcttctgcttgaattatgtcttcacaaagatag
 ccgaagccacagggcttcttatttagctatttccgagacaggtgtgggaagcggatattgacccagcctatgtgggaattccggat
 laaagccattcaaaaactgttagcgcgaatcaacttactacgggaagaattgatcgtatgaaatcaacgaagcatttgacgcaa
 ctcaatcgtgtgtccaaagagaactgtgttaccagagggaagaaggctcaacattatgtgtggcgggtatttcattaggctcagatg
 gtgccacaggtgctcgtttatlaacgagtttaagttatcaatataaagaagaagaatgtggatggcttcttattgtatcggc
 ggtgtgcttaggactcgtatgtactagagagacctcagcaaaaaaaacagccgatttatacaatgagtcctgaggaacgct
 ctggcttctcttataatgaaggccagattctgtgtatcaaaaaaagaatttgaanaaacggccttattctcagagattgccaatat
 atgattgaatatacaatcagtgaaacagaaagtccgaatggcggttgccttacaatcaacagtggaacgaaactgattttggtaacca
 atggcgacagaagagccctcagttattgctggctttagtaattgtgtgcaaaaatagcacaaaggatttaaacagtgaaatcaacaac
 gcttaattgcgtggacaaatcgttttattacgattgttcagatcccagctacgttattgataaaacacaaagtaagagaagcgggaattt
 tcaacaaagcagagtttaagttatcctatcgttaaacggggcggtggtcttaagagatttgcattatcgttctttagtaacattt
 tttctgtcgtcttttagtagatgttaaggatgcaatgggggcaaatatcgttaacgctatgttgaagggtgtggccgagttgtccg
 tgaatggttgcggagcaaaagatttattcagatttaagtaattatgccacggagtcggtgttacgntgaanaacggctattccag
 ttacagtttaagtaaggggagcaatggccgggaattgtgaanaaattgttttagcttcaacgtatgtcttattagatccttaccg
 gcagtcacgcataaanaagggaatcatgaatggcatgaagcgttagtttttagctacagggaatgataacgcgcgtgttagcgtctc
 ttgtcattgcttttgcgtgaagggaaggtcgtaccaaaggctttagctagttggacgctggatggcgaaacuaatattgtgaatttc
 agttccgctgtgtttagccacgggttggcgttgcacaaagcttaccataatcagcagcgtgtgtattgttagcagtgacggga
 tgcaaaagaaactaagtcagtagtagcggctgttgggttggcacaanaatttagcggcgttacgggctttagctcgaagggaatic
 aaaaaggacacatggctctacaagcacgttcttagcgtatgaaggctcggagctactggtaagaagtttagggcagtcgtcaac
 aattuaaacgtcaaaaacgatgaaccagaccgagccatggctattttaaagatttaagaaacaataaaggaggtaaaaaaa
 catgacaatttgggaattgataaaattagtttttgtgcccccttattatattgatagacggcactgtgctgaagccagaaatgtagacc
 ctggaaaatttcatatttggatttggcgaagaccatgtggcgtgaaccraatcagcraagatattgtgacatttgcagccaatgccc
 gcagaaagcgtcttgaccaaaagagatuaagaggccattgatgtgtgtattgtcgggactgtgtccagtaicgatgagtcanaa
 gcggccgcaggtgttcttaccgttznatggggatcaaccttctcgtcgtcttccgaatcaagggaagctgttacggagcaaca
 gcaggcttacagttagctaaatcacgtacccatcavagataaaaangcttggctgtagcggcagataattgaaaatatgg
 cttaaatctggcgttagcctacacaaaggagctgggtcgggttgcattgttagttgttagtgaccgcgcatttggctttaaag
 aggataatgtgattgtgacgaagatctatgactttggcgtccaacaggccaccglatccatgtgtcgaatgtccttgtcaa
 noganacataatcatttggccaaagtgtgggatgaacuaaaaacgaacgggtcttgatttgcagattatgaltgcttagc
 gtccaratccttaccacaaaatgggcaaaaagccttattagcaaaaatcctcgaacaaactgaagcagaacaggaacgaattt
 tagcccgttatgaagaagfatcgtctatagtcgtcgttaggaaactgtatacgggttcaatttctgggacatttcccttttag
 aaaaatgcacagacttaaccgcaggcaatcaaatgtttattcagttatgttctgtgtgtgtgcaattttcacagggtgaattag

Figure 92B

la g t c g t t a c a a a t c a t t i c a a a a g a a z c i c a t t a g c a c t g t g g a a t o g g a c a g u a e t t i c a t c g c i g a a t a g a a g c
e a t g t t t g c a g a a a c t t a g a c a c a g a c a t t g a t a a a c g t t a g a a g a t a a t a a f a t a g t a t t i c t g c t a t t a a f a s t a c c g t c g
t t o t a t c g n a a c t a a g a g a t o t g c a g c t g t a c c a l a t g g g a a t t c g a a g c t t g g g c c c g n a c a a a a a c t c a t c i c a g a a g a g g
a t o t g a a t a g c g c c g t c g a c c a t c a t c a t c a t c a t t g a g t t a a a c g t c c c a g c t t g g c t g t t t g g c g g a t g a g a g a a g a t t
t t c a g c c i g a t a c a g a t t a a a c a g a a c g c a g a a g c g g t o t g a t a a a c a g a a t t g c c t g c c g g c a g t a g c g c g g t g e g l o c c a
c c t g a c c c a t g c c g a z c l c a g a a g t g a a c g c c g t a g c c g g a t g t a g t g t g g g t c t c c c c a t g c g a g a g t a g g g a a c t
g c c a g g g a t c a a a t a a a c g a a g g c t c a g t o g a a a g a c t g g g c c t t c g t t a t o t g t t g t g c g g t g a a c g e t c t c t g a g t
a g g a c a a t c c g c c g g g a g c g g a t t g a n c g t t g c g a a g c a a c g g c c c g g a g g g t g c c g g g c a g g a c g c c c g c a t a a a c
t g c c a g g c a t c a a t t a a g c a g a a g g c c a t c t g a c g g a t g g c c t t t t g c g t t c a c a a a c t c t t t t g t t a t t t t c a a a l a c a t t
c a a a t a t g t a t c c g c t a t g a g a c a a t a a c c c t g a t a a a g t t c a a t a t a t g a a a a g g a a g a g t a f a g a t t c a a c a t t i c c g
t g t o g c c c t a t t c c c t t t t g c g g c a t t a g c c t c t g t t t g t c l e a c c a g a a a c g t g g t g a a a g t a a a g a t g c t g a a g a t c a
g t t g g g t g c a c g a g t g g g t t a c t o g a n c i g a t c l c a a c a g c g g l a a g a t c c t t g a g a g t t t o c c c c g a a g a a c g t t t c c a a
t g a t g a g u a c t t t t a a g g t t c t a t g t g g c g c g g t a t t a c c c g t g t a g c c c g g g c a a g a g c a a c t c g t c g c c g a t a c a c
t a t c i c a g a a t g a c t t g g t g a g t a c t c a c c a g t c a c a g a a a g c a l c t a c g n t g g c a t g a c a g t a g a g a a t t a t g c a g t g c t
g c c a t a a c c a t g a g t g a t a a c a c t g c g g c c a a c t a t t c t g a n a a g a t c g g a g g a c c g a a g g a g c t a a c c g e t t t t g c a c a
a c a t g g g g a t c a t g t a a c t c g c c t t g a t c g t g g g a a c c g g a g c l g n a t g a a g c u l a c c a a a c g a c g a g c g t g a c a c c a c g
a t g c t t g t a g c a a t g g c a a c a a c g t t g c g c a a c a t t a a a c t g g c g a a c t a c t a c t a g c t t c c c g g c a a c a t t a a t a g a c t g
g a t g g a g g c g g a t a a a g t g c a g g a c c a c t t c t g c g c t c g g c c t c c g g c t g g t g t t a t t g t g a t a a a t c t g g a g c g g t
g a g c g t g g g t c t g c g g t a t c a t g c a g c a c t g g g c c a g a t g g t a a g c c c c c c g t a t c g t a g t a t c t a c a c g a c g g g g a g t
c a g g c a a c t a t g g a t g a a c g a a a t a g a c a g a t c g c t g a g a t a g g t g c c t a c t g u t a a g c a t t g g t a a c t g t c a g a c c a a g t t
a c t c a t a t a t a c t t a g a t t g a t t a a a a c t i c a t t t u a t t a a a a g a t c l a g g t g a a g a t c c t t t t g a t a a t c f a t g a c c a a a t c c
c t a a c g t g a g t t t c g t t c c a c t g a g e g t c a g a c c c c g t a g a a a g a t c a a a g g a t c t t c t g a t c c t t t t t c t g c g c g t a a t c f
c g t c t t g c a a a c a a a a a a c c a c c g c l a c c a g c g g t g g t t g t t g c c g g a t c a a g a g c t a c c a a c t c t t t t c c g a a g g t a a c t
g g c t c a g c a g a g c g c a g a t a c c a a t a c t g t c t t c t a g t g t a g c c g l a g t a g g c c a c c a c t t c a a g a a c t c t g t a c c c g c
c t a c a t a c t c g t c t g c t a a c c t g t t a c c a g t g g c t g c l g c c a g t g g c g a t a a g t c g t g t o t a c c g g g t t g g a c t a a g a c g a l
a g t t a c c g g a t a a g g c g a c g c g g t c g g g c t g a a c g g g g g t t c g l g c a c a c a g c c c a g c l t g g a g c g a a c g a c c t a a c c g
a a c t g a g a t a c c t a c a g c g t g a g c t u t g a a a g c g c c a c g c t c c g a a g g g a g a a a g g c g g a c a g g t a t c o g g t a a g c g
g c a g g g t c g g a a c a g g a g a g c g c a c g a g g g a g c t t c a g g g g g a a a c c c t g g t a t c t t a l a g t c c l g t c g g g t t t c g c a c
c t c t g a c t g a g c g t g a t t t t g t a g t c t o g t c a g g g g g c g g a g c c t a t g a a a a c g c c a g c a a c g c g g c c t t t a c g g t t
c c t g g c c t t t g c t g g c c t t t t g t c a a t g t t c t t c g c t a l c c c c l a g a t t c t g g g a a c c g t a t t a c c g c c t t g a g t g a g c t
g a t a c c g c t o g c c g c a g c c g a a c g a c c g a g c g a g c g a g t c a g t g a g c g a g g a a g c g g a a g a g c g c c t g a t g c g g t a t t t
c t c c t t a c g a t c t g t g c g g t a t t c a c a c c g c a t a t g g t g c a c t c t a g l a c a a t o t g c t g t a t c c g c a t a g t t a a g c c a g l a t u
c a c t c g c t a t c g t a c g t g a c t g g g t a t g c t g c g c c c g a c a c c o g c c a a c a c c c g c t g a c g c g c c t g a c g g g c t t g t c
t g c t c c c g g c a t c c g c t t a c a g u a a g c l g t g a c c g t c t c o g g g a g c t g c a f g t g l c a g a g g t t t c a c c g t c a t c a c c g a a a c g
c g c g a g g c a g a g a t c a a t t c g c g c g a a g g c g a a g c g g c a t g c a t t a c g t t g a c a c a t c g a a t g g t g c a a a c c t t c g
c g g t a t g c a t g a t a g c g c c c g g n a g a g a g t c a a t t c a g g g t g e t g a a t g t g a a a c c a g t a a c g t t a l a c g a t g t c g a g a g t a
t g c c g g t g t c t t a t a c a g a c g t t t c c g c g t g t g a a c c a g g c c a g c c a c g t t t c t g c g a a a c g c g g g a a a a g t g g a a g c
g g c g a t g g c g g a g c t g a a t t a c a t t c c a a c c g c g l g g c a c a a a c t g g c g g g c a a a c a g t o g t t g c t g a t t g g c g t t g c a
c c t c a g t c t g g c c c t g c a c g c g c c t c g c a a a t t g t c g c g g a t a a a t c t c g c c g a l c a a c t g g g t g c c a g c g t g a t g g
t g t c g a t g t a g a a c g a a g c g g c g t c g a a g c c l g t a a a g c g g c g g t g c a a a t c t c t c g c a a c g c g t a g t g g g c t g a t c
a t t a a c t a t c c g c l g g a t g a c c a g g a t c c a t t g c t g t g g a a g c t g c c t g c a a t a t g t t c o g g c g t t a t t c t t g a t g t c t g a c c
a g a c a c c a t c a a c a g t a t t a t t t t c c c a t a a g a c g g t a c g a c t g g g c t g g a g c a t c t g t c g a t t g g g t c a c c a g c a
a a t c g c g c t g t t a g c g g c c a t a a g t t c t g t c g g c g t c g t c g t c g t g g c t g g c a l a a a t a t c a c a c l g c a a t c a a t
l c a g c c g a t a g c g g a a c g g a a g c g a c t g g a g t c c a t t c c g t t t c a a c a a c a t c a a a t c t g a a t g a g g c a t c p

Figure 92C

ttccacitgcgagcttggttgcnaacgatesagatggcgctggggcgcaatgcgcgccattaccgagtcggggctgcgcgttggig
cggatattctcgttagtgggatacgacgataccgaagacagctcatgttatafcccgcogtcaaccaaccatcaaacaggatttgc
cctgctggggcnaaccagcgttgaccgcttgcgcacctctctcagggccaggcgggtgaagggaatcagctgttgcctct
cactggtgaaaagaaaaaccacctggcgcccaatacgcasaaccgctctctcccgcggttggcgattcattaatgcagctg
gcaacgacagggttcccgactggaagcgggcagtgagcgcaacgcaataatgtgagttagcgcgaattgacctg

SEQ ID NO:23

Figure 93

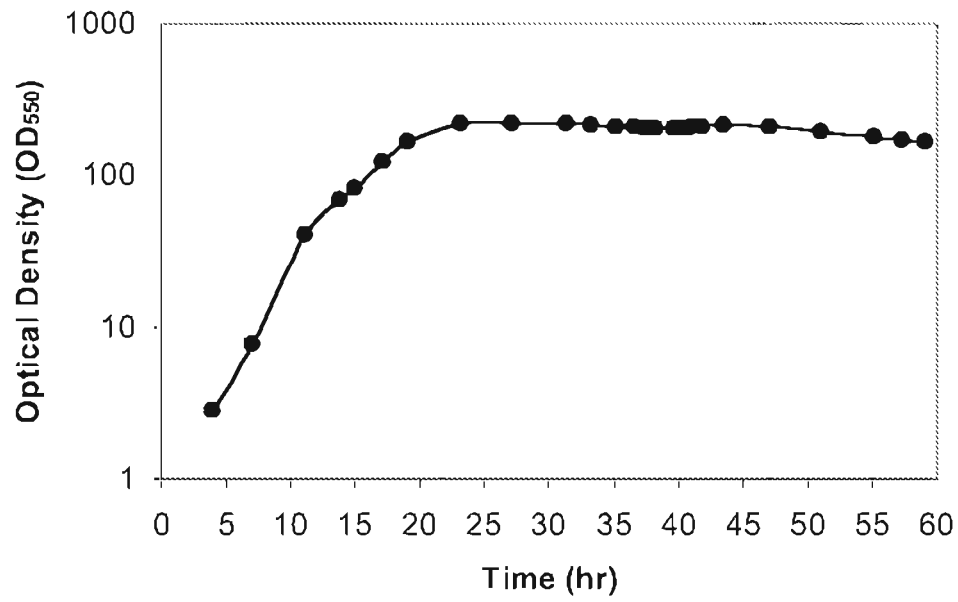


Figure 94

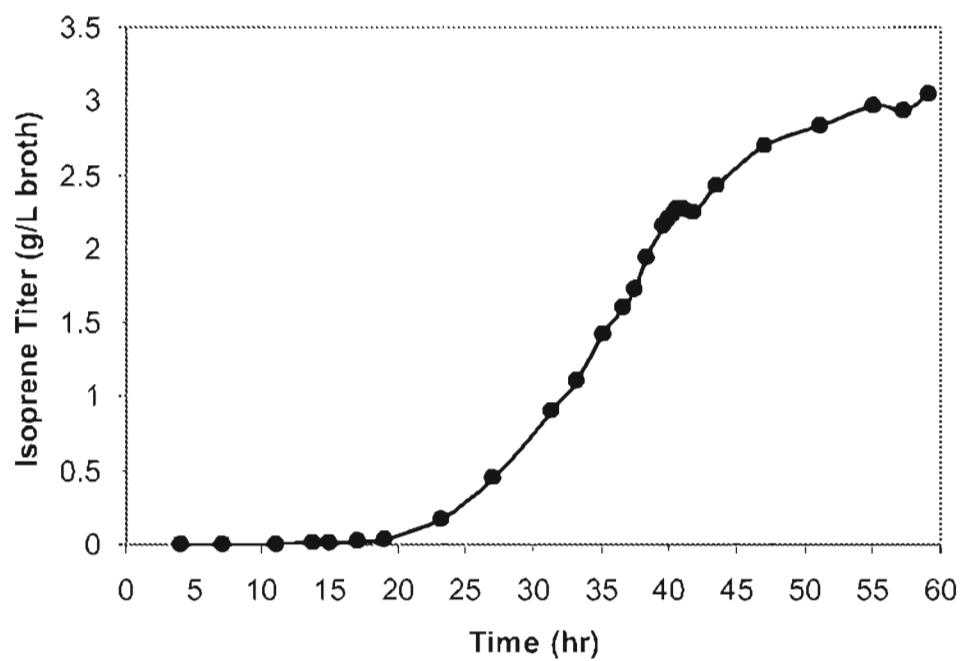


Figure 95

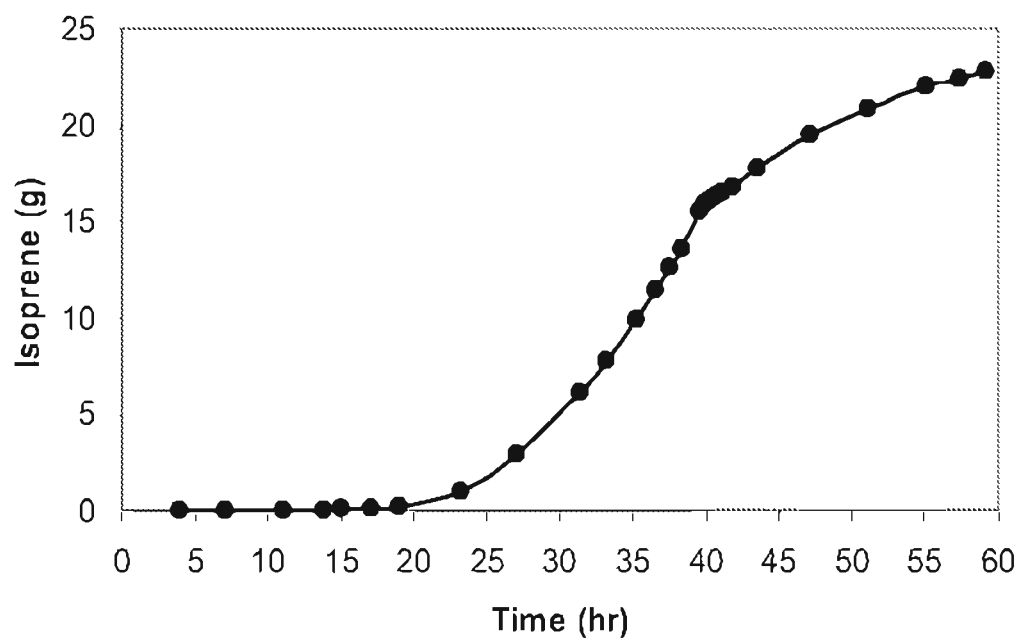


Figure 96

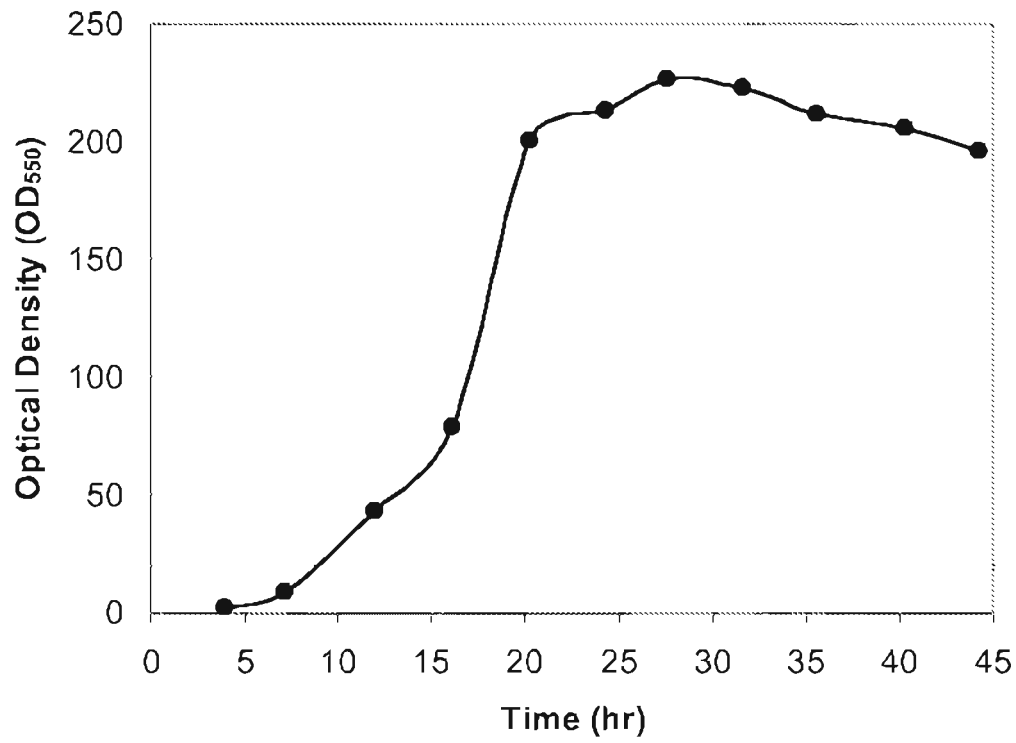


Figure 97

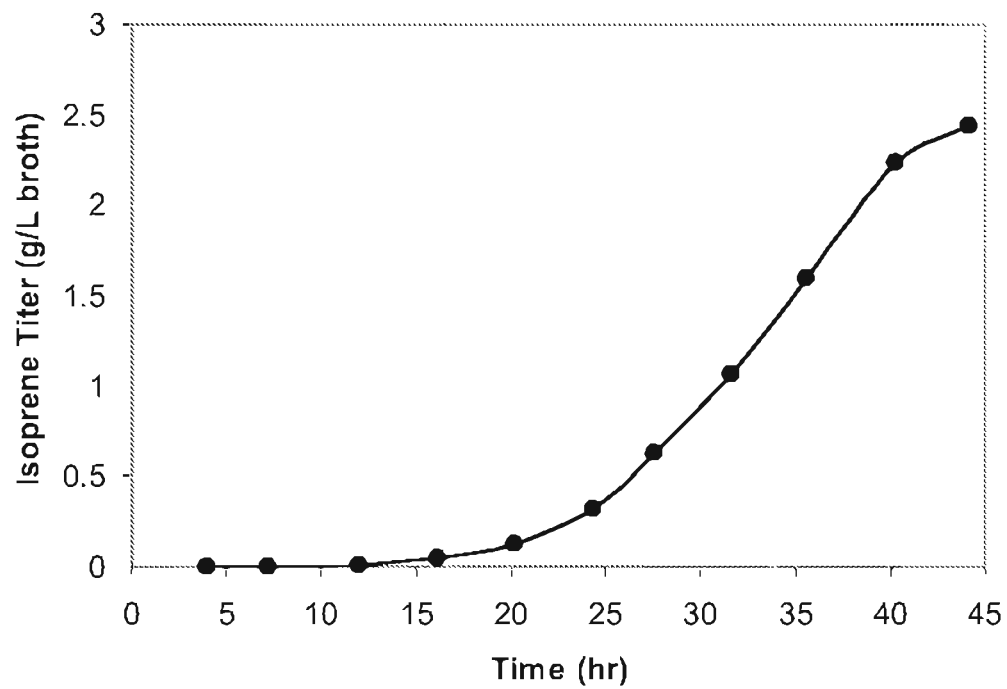


Figure 98

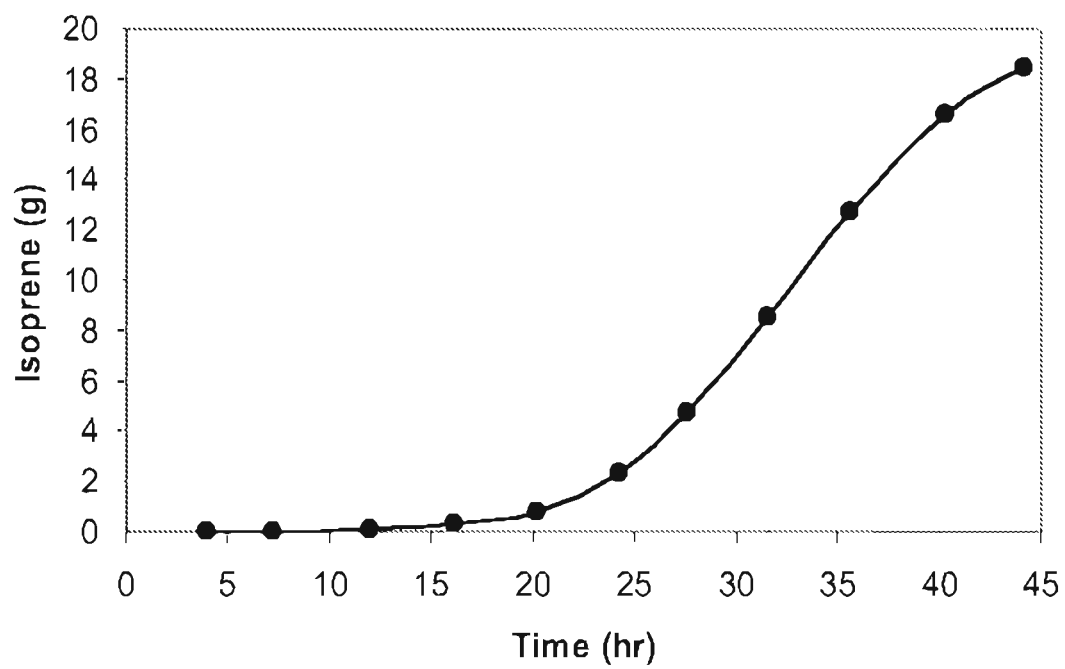


Figure 99

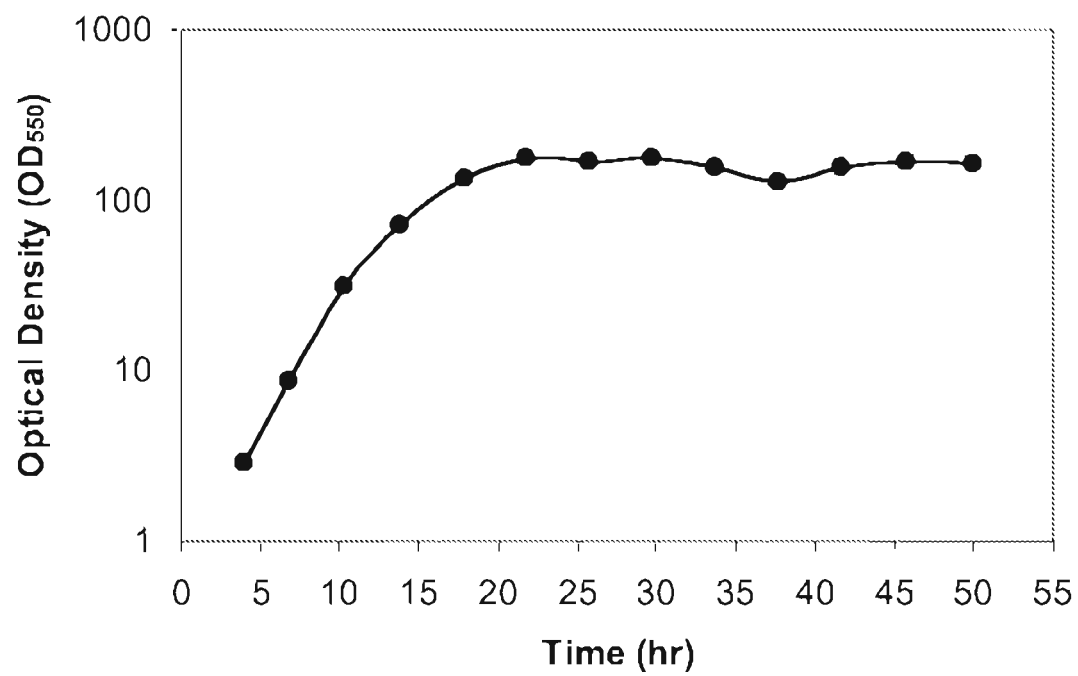


Figure 100

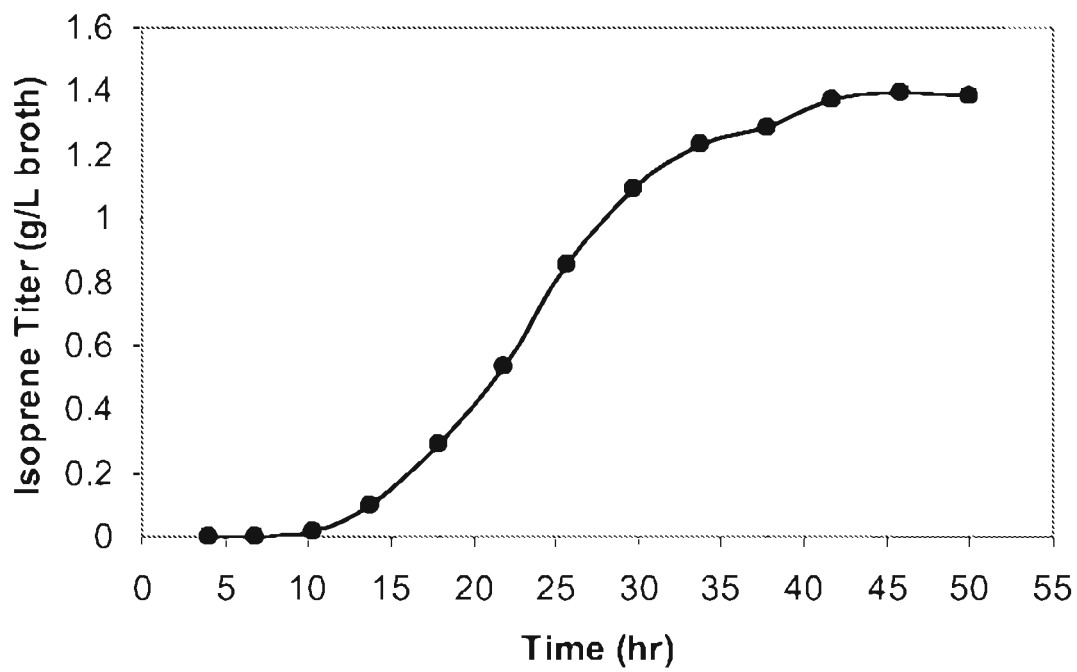


Figure 101

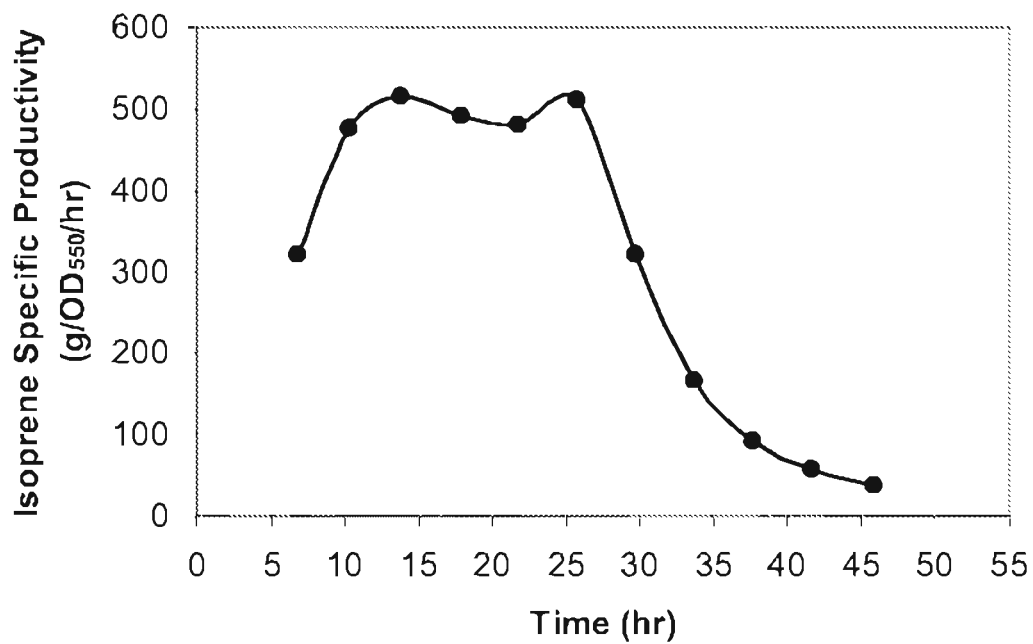


Figure 102

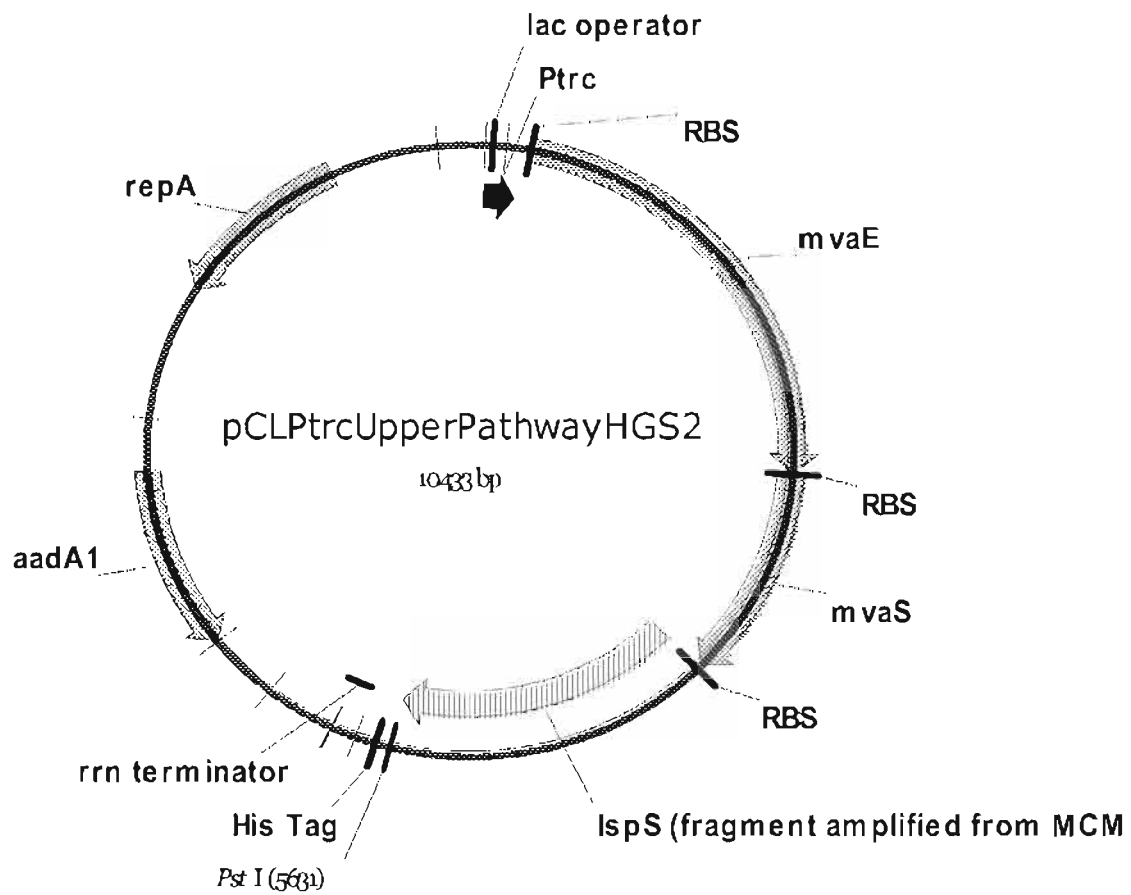


Figure 103A

atcgctctactgtcgggaatcgcgttggccgattcaiaagcagallctgnaatgagctgttgacaatfaatcaiccggcctgata
atctgttggaattgtgagcggataacaatttcacacagggaacagcgcgcgtgagaaaagcggaagcggcacigtctttaacaa
tlatcagacaatctgttgggcactcgaccggaattatcgalttaacttattatnaaantaaagaggtatattatgtatcga
anlnaggaaggaataaacatcgatccgagcicaggaggttaaaaaacatgaaaacagtgatgttattgtatgcattacgaaccc
aatfggaantataaagcgagcttaangtcaagtaagtgcggttagacttaggaacacatgttacaacacacactttaaagaacattc
cactatttctgaagaaatgatcaagtaatcttgggaatgtttacuaagctggaaatggccaaatcccgacgacnaatagcaat
aaacagcgggttgtctcalfgazaatcccgcaatgacgggttaatgaggtctgcggatcaggaaatgaagccggtatttggcgaac
aattgaitcaattagggagaagcggaagttaattgctggcgggattgagaatgtgccaaagcacctaaatfacaacgtttaanta
cgaacagagaagctacgagatgcgccttttctagtatgatgtatgttggattaacggatgccttagtgggtcaggaatgggctaac
tgtctgaaatgttggccgaaaagatcatgtlaactagagaagagcgaatcaatttctgtacattcacaaatnaaaagcagctcaag
cacaaagcagaagggatattcgtctgacgaataagcccatagaaagtatcaggaacgcgttgggaganaagatgaagggtatgc
ccnaticgagcgttggagagctagggaacgcttaaacagttttaaagaagacgggtactgtaacagcaggggaatgcaltcaacca
ttaatgatggggccttctgcttggattatgtctcaagaatattccggaagcacacggcttcttcttattagctatttctgagacagigt
gggaatcgggttattgatccagcttatgtgggaatttcgccgattaaagccattcaaaaacgttagcgcgcaatcaaatctacgg
aagaaatgatactgtatgaatcaacgaagcahtgcagcaacticaatcgttggctcaagagaaactggccttaccagaggaaaa
gggtcaacattatgggtggcggtatttcaatgtatgcgattgggtccacaggtgtcgttatttaacgagtttaagtattcaatnaa
tcaaaaagaaaagaaatattggagtggccttcttattgtatcggcggtgggttaggactgcgtatgctactagagagacctcagcaaa
aaaaaaacagccgatttattcaaatgagtcctgagggaacgcctggcctctcttcttaatgaaggccagatttctgctgatacaaaa
aagaaattgaaaatcggccttaattctcgagattgcacacatattgaaatcaaatcaatcagtgaaacagaagtgccgatgggc
gttggcttaccattacagtgagcgaacacgatttgggtacaaatggcpacagaagagccctcagttatgcggcgtttagtaaat
gggtgcaaaaatagcacaaggatttaaaacagtgaaatcaaacacgcttaatgcgttggacaatcgtttttacgatgtgcagatcc
gagtcantgatgtatnaactucaagtaagagaagcggaagtittcaacaacgagagtttaagttalccaltctatgttaaacgggg
ggcggttaagagatttgcnaatctgactttgnglgaateattgtatctgtcgaacttttagtagatgttaaggatgcaatgggggca
aatatcgttaacgcctatgttggaaaggtgtggccgagttgttccgttgaatgtgttgcggagcaaaagatttattcagattttaagtaat
tatgccacggagtcgggtgttacgaltgaanaacggctattccagtttccagtttaagtaaggggagcaatggccgggaanigtctga
naaantgttttagcttcacgctatgcttccattagatcccttaccggcggtcacgcataacaaaggaatcatgatatgcaatggaagct
gtatgttagctacaggaatgaaacacgcgctgttagcgcttctgtctatgcttgcgggtgaaggaaggtgcctaccaagcgctg
actagtdggagcgcgtgagtcggaacaactaatgttggtaatttcagttccgttgcctttagccacgggttggcggtgtccacaaaagt
cttacctaaatctcaagcagctgtctgatttgttagcagtgacggatgcaaaagaaactaagtcgagtagtagcggtgtgttgggttggc
acaaaatttagcgcgttaccggccttagctctgaaggaattcaaaaaggacacatggctctacaagcacgttctttagcgatga
cgggtcggagcttactgttgaaggaagttagggcagtcgctcaacaatfaaaacgtcaaaaacgaltgaaccaagaccgagccatg
gctattttaatgatttaagaanaacaaatgaaggaggttaaaaaacatgacaattgggattgataaaatlagtttttggccccccttat
tataatgatagacgggcacttggctgaagccagaaatgtagaccctgggaatcttatttggatttggcaagaccaaatggcggt
gaacccaatcagccaaatgatttctgacatttgcagccaatggccgagaaagcgatctgaaccaagaagataaagagccatlgat
tatgtgtattgtcgggactgagtcaggtatogattagtcnaaagcggcccgagttgtcttaccatgcttaattggggattcaacattc
gctcgccttctogaanaacaggaagcgtttagcggagcaacagcaggtctacagttagcttaagnatcacgttagccttaccatcaga
naaaaangctctggctgtagcggcagataatgcnaaatalggcttaaatctggcggtgagccctacacaaggagctggggcggt
gcaatgttagttgtctgtgaacccgctatttggcctttaaagaggaataatgtgatgtgtgacgcaagatctatgacttttggcgtc
caacagggccaccgctatcctatggtgatgtgtccttctgcaaacgaaacctacatccaatcttcttggccaaagtctgggtgaacata
naaaacgaaccggcttgaatttgcagattatgatgtttagcggttccattctctacacnaaafgggcaaaaagcccttattagc
naaaatctccgaccaaaactgaagcngaacaggguacgaattttagccgttatgaagaaagtatcgtctatagtcgtcgcgttagga
aactgtatcgggttactttatctgggactcaatccctttagaaaatgcaacgactttaaoccgaggcaatcaaatgtgttattc
agttatggttctgtgtgtgtgtgaatttcaactgttgaatttagctgtgttatacaaatcaatcaaaaagaaatcatttagca
ctgcgggaatccgencagaacttctatcgtgaatatgaagccatgttgcagaaactttagacacagacattgaacaaactga

Figure 103B

gaagatgaatnaatatagatttctgclattaaataacccgcttcttctatcgaacatnaagatctgcattcctgcattcgccecttag
gaggtaaaaanaacatgctgctgacactcttctcaattactcagattaccgagcataatctccgctgcttccgcaaciatcagccaaa
ccctgttggaatttctgaatttctgcaatccctggaggaacgacctgaaagtggaaaagctggaggagaaaagcgcaccaactggagg
naagaaatctgctgcatgafcaaccgctgtagacaccagccgctgctgctgagagctgacgacgatgtgagcgccttgggtg
tgaccatacaaattpaanaagacatcattaaagccctggaaaacatcgtactgctgagcgaanaacaaaaagaacanaatctgacct
gtacgcaaccgctctgcttccgctgctgctgctgacgacccgttctgaggtttctcaggatgtttttagcgtttcaaggataaagaa
gggtggtttcagcgggtgaactgaaaggtgaactgaacggcctgctgagctgtatgaagcgttctaccttgggttctgagggtgaga
acctgctggaggagggcgcgtaccttttccatcccccctgaaagaacacctgaagaaggcattaaatccagggttgcagaac
aagttagccacgcccctggaaactgccataccaccagcgtgcaaccgtctggaggacgcttgggttctggataaatacgaaccga
aagaaaccgcatccagcgtctgctgctgaggttggcgaagctggatttaacatggtacagaccctgcaccagaagaagctgca
gatctgctcccgctgggtggaaccgagatgggctggctagcaactggatttctacgctaccgctgatggaagttattctgggc
actgggtatggcgcagaccgcagttgggtgaatgtcgaagctgttactaanaatgtttggtctggtgacgaicacgatgacg
tgtatgacgtttatggcactctggaggaacigcaactgttccagctgtgtagagcgttggagcgttaacgctattaacacctg
ccggacttatgaaactgtgttccctggcactgtacaaaccgttaacgacacgtccttctcttctgaaaagagaaggtcatalaac
aacctgtcctatctgacgaanaagcgtggcgtgaactgtcaaaagccttctgcaagaggcgaaatggtccaaacaaanaatcc
cggcttctccaagtacctggaaaagccagcgttctccctccgggtgtagcgtgctgctggcgccttactttccgtargccagc
agcagggaagacatctccgaccacgcgtctgcttccctgaccgacttccatggtctgggtgctgtctagctgctgtatctccgctg
tgcacagctatctggtccacctctgctggcggagcttgaacgttggcgagactaccaattctatcatlagctacatgcccgaanaacgat
gggtaccagcggaggaacagggcccggaagaactcgctaaactgtatgacgccgaatggaaaagatgaatcgtggaacgcgtta
ggcactccacctgctgctcnaagcgttccatggaatcgcaggttaacatggcagctgttctccactgcaactaccagtatggcgt
gggtctgggtgcccagactacgcgactgaanaaccgcatcaaatctgtgtgaltgaacctttcccgattaacagctgatgtatgt
ctaacgtgacgtgtgtaccatagggaaatcgaagcttgggcccgaacaaaaatcctcagaaagaggtatctgaatagccgtg
cgacacacatcctcctcctcattgagttaaacggctcctcagcttgggtgtttggcggatgagagaagatttcagcctgatacaga
ttaaatcagaacgcagaagcggctctgataaaaacagaatttgcctggcggaagtagccgggtggtccacctgacctccatgcg
aactcaggaagtgaanaagccgttagccggtatgttaggttgggtctcccatgccaagagtagggaaactgccaggtcacaatna
aacgaaaaggctcagctgaagacgtggccttctgtttatctgttgttctgctgaacgtctcctgagtaggacaaaatccgcgg
gagcgggttgaagcttgcgaagcaaccggccggagggttggcgggcaggacgcgcgcataaactgccaaggcatcaaatna
agcagaagggccatctgaaggaatggccttttgcgtttacnaaactcttltgtttatttctaaatcattcaaatatgtatccgtca
tgagacaataaaccctgataaatgtttcaataatctggcgtaatatagcgaagaggcccgacccgatcccttcccaacagtggcgc
agcctgaatggcgaatggcgccgtgctggtattttctctacgcatctgtgctggtattctacacccgcatatgggtgcaactcagta
caatctgctctgtagccgcatagttaaagccagcccgacaccgccaaacacccgctgucgagccttagtaaaagccctgcctagat
ttlatgtcggatgttgcgtattcttgccaactcttggatnaacuaaaaaagccagccttccatgatatactcccaatttgttagg
gcttattatgcagccttaaaaaataaaaagcagactgacctgatatgttggctgtgagcaattatgtgcttagtgcattacgctt
gagttaaagccgcgcgcgaagcggcgtctggcttgaacgaattgttagacattatttgcgactacchtgtgactcgccttccac
gtatgtggacaattcttccaactgtatctgctgctgagggcgaagcgaactctctcttcttccaaagataagcctgtctagcttcaagtai
gacgggctgalactggcgccggcaggcgcctccattggccagcttggcagcgcacatcttgcgcgcgttttgcggcttactgcgt
gtaccaaatgcccggacaacgttaagcactacatttgcctacgcgcagccagctggggcggcgaagtccatagcgttaagggttca
tttagggcctcaaatagatcctgttccaggaacccggaacaaagatttccctccgcttggaccttccaaaggaacgctatgttctt
gctttgtcageaagatagccagatcaatgtcgaftgtgcttggcttggatgataccttgcnaagaatgtcattgctgctgccattctcca
aatgtcagttgcgcttagcttgaatgaacgccacgggaatgatgtctgtgtgcacaacaaatggtgacttctacagcgcggagantct
cgtctctccagggggaagccgaagtgtccaaaaggctgttgaacaaagctccgcgcgttgttctacaaagccttaccggktaaccgla
accagcaaatcaatctacactgtgtgtctcagggccgccatccactgcggagccgtlacaatgtacggccagcaacgtcgttgc
agatggcgctgctgagcgcacactacctctgattgtgagtcgatacttggcgatcacccgttccctcatgatgttlaactgtt
aggcggaactgccctgctgctgaacatctgtgtgtctccataacatacaacatcgacccacggcgttaacgcgttgcgttggat

Figure 103C

[illegible]

SEQ ID NO:24

Figure 104

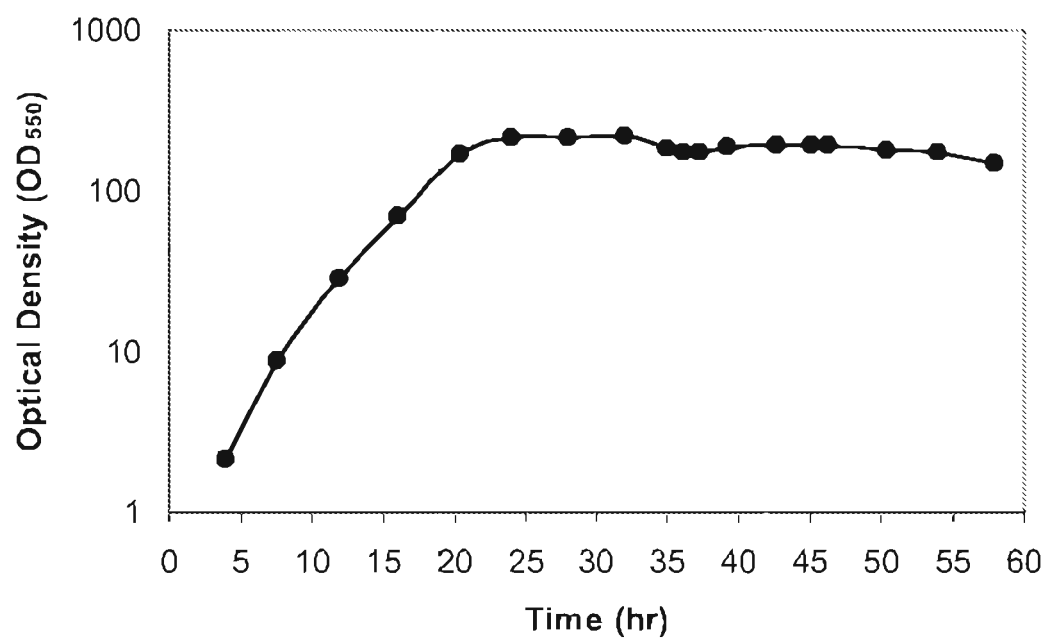


Figure 105

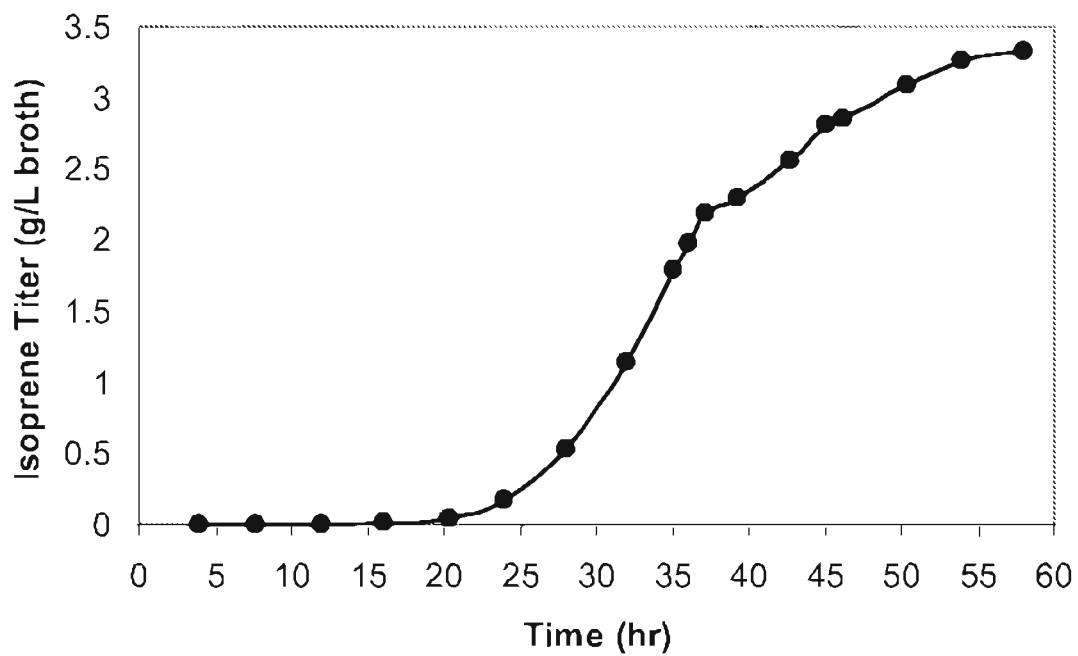


Figure 106

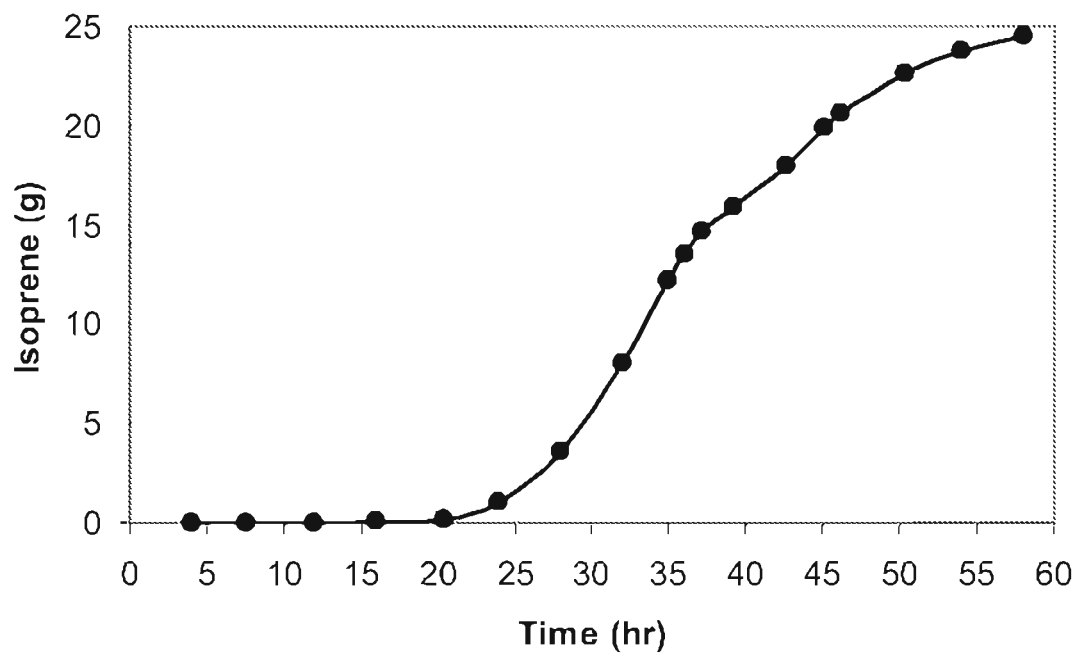
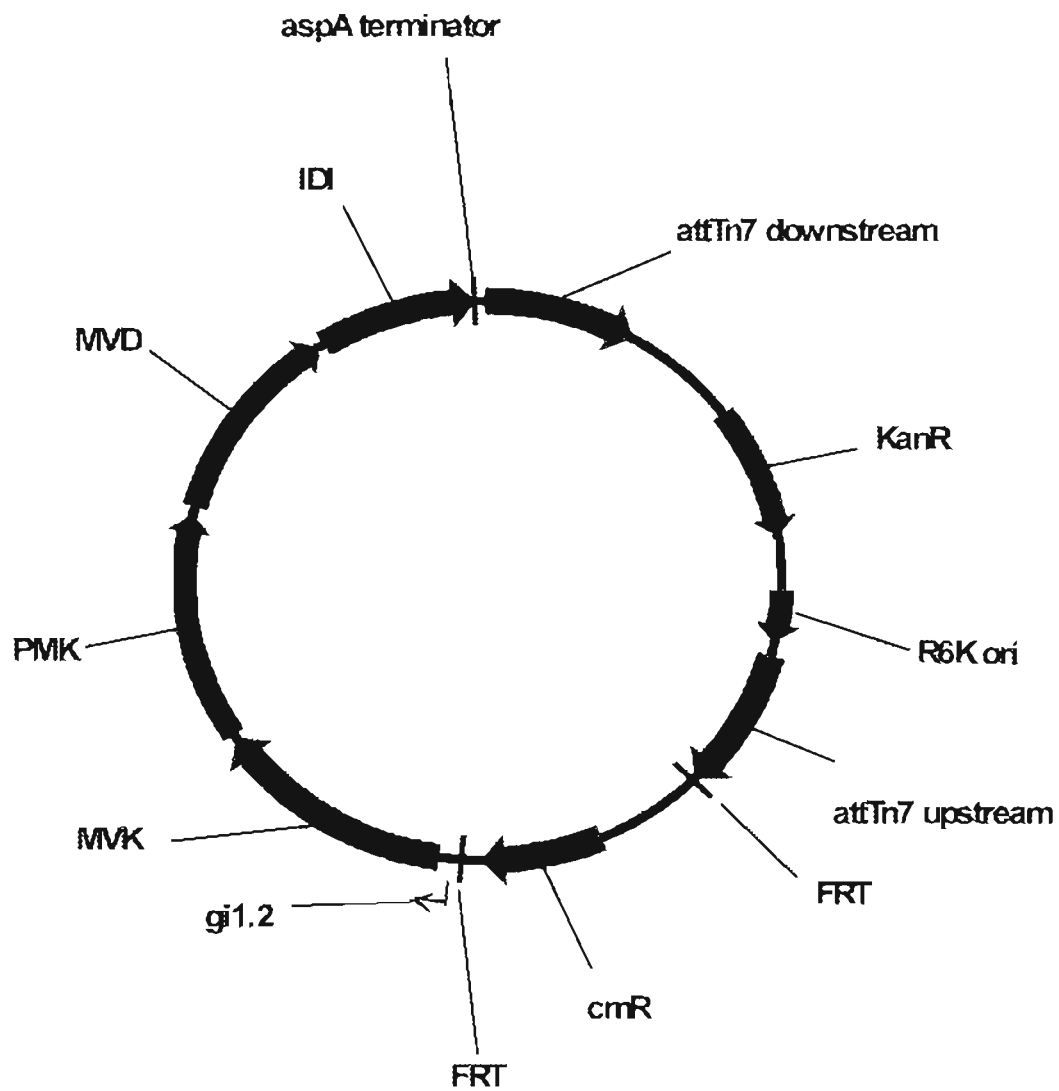


Figure 107



MCM330 - FRT-cm-FRT-gi1.2-KKDyI at attTn7

10,556 bp

Figure 108A

1-

caagaaaaatgccccgcttacgcaggggcattcatttactcaaccgtaaccgatttgcaggttacgcggcgtggtcascglog
 gtgcctttagatcagcggcagatggtgaagccagcagctgcagcgggancgggtgtagaagatcgggtgaaacaccttccacatgc
 ggcattcgaatggtgcatgttatcgtacttacaaccccgatccggtatcggcgaagacatacaactgacggccacgcggcgc
 gaacttctcaatgttggattcagtttccagcaaticgtgttcgggtgcascacaaataaccggcatacggcgcataatagcggc
 agcggagccgtgtttcagttcggcagcagcgtaggcttcagcgtgaaatgaagagatcttccaactcaatgcgccttcagcgc
 gattgggtacigatgcccagggccaggaacagcgcgtgattgttgcagagaaatcttccagcgcctcaatgcgttgcct
 gagacagcatctgctcaatagcggctcggcagcgccttcagacatgcagatgtcatgttcaatggaggccatccagaccttca
 ggccgagacagcttcgccaccagcatcaacagcacagttaactgagtggtgaatgctttagtggtatgccacgccgattctgtacc
 cggcttggctatagcggcagatcggattcggcaccaggaagancocggaaactgtacagattgccagtgaaaccaaggtaac
 cagctcttgcacagcggcagggccagggatccggcgttgcggcagactgtgacacgacgccccttcccaacagttgcg
 cagcctatagctacggcaggttlaagggttacacctataaagagagagcgttalcgtctgttggatgtacagagtgatattt
 gacacgccggggcgacggatggtgacccctggccagtgccgctgtctgcagataaagtctccgtgaacttaccgggtg
 gtgcatactcggggtgaagcggcgcgtgacacccgatatggccagtggtccggctccgttatcgggggaagagtggt
 gatctcagccaccggcgaatgacatcaamaagccattaacctgatgttctgggggaatataaagtccaggcatgagattatcaaa
 aaggatcttaccctagatcctttcacgtagaagccagtcocgagaacgggtgtgaccccggatgaatgtcagctactgggt
 atctggacaagggaacccgcaagcgaagagaaagcaggttagcttgcagtgggcttacatggcgatagtactggggc
 gtttatggacagcaagcgaaccggatggcagcctggggcggcctcgtgtaagggtgggaagccctgcaaaagtaacgtgat
 ggcttctcggcccaaggaatctgatggcggggatcaagccttgcataagagacaggtgaggtatggttgcagatgga
 acaagatggattgcacgcaggttctccggcgttggggggagggctatcggctatgactgggcacaacagacaalcggct
 gctcgtatgccggcgtgttccggcgtgcagcgcagggggggccgggttcttggtaagaccgacctgtccgggtccctgaatga
 actgcaggaagcggggcagcggcggctatcgtggctggccacgagggggcgttcttgcgcagctgtgtcgcaggtgtcactgaag
 cggggaagggaactgtgtctatgggggaagtccggggcaggtatcctgtcatctcaccctgtctcgtccgagaagtatcca
 tcatggctgatcaatggcggcgctgcatacgttgcgtacatcggccatcggaccaccaagcgaacatcgcacgcagc
 gageacgtactcggatggaaagccggtctgtcgtatcaggtatgctggacgaagagcatcaggggctcgcgcgcagccgaact
 gtgcgcagggctcaaggcgaagcagccgacggcgaggtatctgtcgtgacccatggcgatgcctgcttgcgaatctatgggt
 ggaaatggccgttcttgggattcatcactgttggcggcgtgggtgttggcggnccgctatcaggaatagcgttggctacccgt
 gataitgtggaagagcttggcgggaatgggtgacccgttccctgtgcttaccggtatccgcctccgattcgcagcgcacgc
 ccttctatgccttcttgcagaggttctcgaattatcaacgcttacaatttccctgatgcgggtatttctccttaccgactctgtgcggtattt
 cacaccgcatacaggtggcacttcttggggaatgtgtgcgggaacccctatttcttatttctaaatacattcaaatatgtatccgc
 tcatgagacaataacccgtataantgcttcaataatagcacgtgagggaggccaccatggcgaagtggaccagtgcggttccgggt
 gctcaccgcgcgcgacgtcgcgggagcgggtcaggtctggacccggcctcgggttctccctagtaacggcggcaggtgt
 gctggaaatcaggcagttcaactgttgaatagctactaaagctctcatgttccagttactuaagctctcatgtttaaogtactaagct
 ctcatgtttaaogtaactaaccctcatggttaacgtactaagctctcatgttccagttactaagctctcatgtttaaogtactaagct
 tcatgttgaacaataaataatataaatacgaacttaataagcctctaaagggtttaaagtttataagaataaataaataaagg
 cttttaagcttttaagggttaacgggtgtgtgacaaacaaagccagggtatgaacgcacttgaagcccttgaagccctcaaaagcaa
 tticagtgacacagggaacacttaacggctgaacgcctgaattctgcagatatctgttttccactcttgccttccacttgcaggttag
 ctgttgagagcgaagggaagtccggggccatctgcggcggtactacagcaatgttttgaaggcagtttcagaccgggattc
 agtttggcgatggcttccatccacttctgatttgcggcaggtagatgcggagggttttaccatccagcaccaggttgcgcag
 acttcagcccctggaaatgttaaccggcagcaccacggcccaalcaggtcgggaacttgggaacagaccttccctgagccaggtttc
 gtcagacagcggcgctcagagggcaccaaaataacgggtatagcgataactgttttaccgacccgggaagaaacgtatccctg
 gtatgttaacttattaccggttcttctgttaagtgtcagccatttggcatacaccggcgaggggaaggttcacctgcacctgtc
 aggtctgtcttctgcaaacacaggaagcactcactgalaaggtcggcgacaacagttgcgacgggtgtgtacgcataacttcc
 ataattgtctcctgggaggttctataaagcattgttgttggctacaggaagcaaaataggacaacagggtgacagttatgttaag
 gsaatgacagtttattgacagagagataaagcttcagctcgtttaaataagcgttgaatcagtcacttacaacattaataacg

Figure 108B

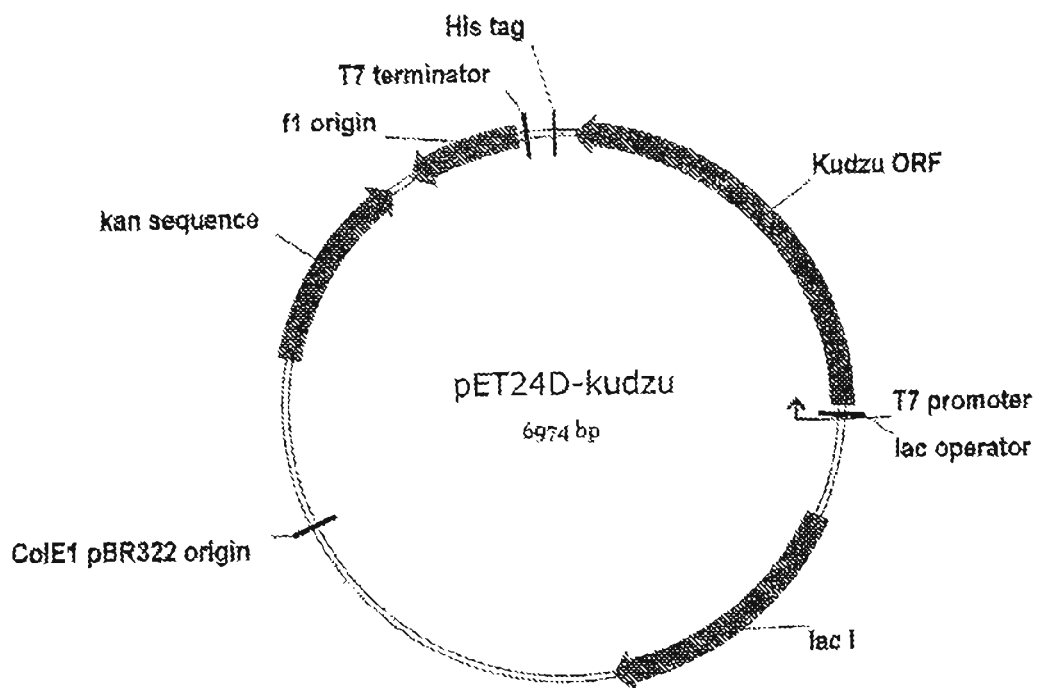
[illegible]

Figure 108C

gggattaacttiatggatgggcgatataaagaaatggcttcagaaacagtaaacctggctccagaaggtaaaaattggatgaticgc
atatgccaganaagcttgaanaatatatacagaacatgatacgaacattctagattatggatgagactatcfaacttagatgccttaca
cgagactatgacgattacagcgatcagatattgagctcttgagaggaatgactgtacctgtcaaaaglatcctgaaatcacag
aaattagagatgacgattgccacaattagacgttcccttagnaaaantaactaangaatctgggtgccgatatcgaacctccgtlcaa
actagcttattggatgattgccagacctaanaaggagttcttactgtcttaacctgggtgctgggtgattagacgccattgcagtgat
tactaaggcaagatgtagatcttaggggtcnaaccgctaatgacaaaagattttctaaggttcaalggcctggatgtactcaggctga
ctgggggttaggaaagaaaagatccgggaaccttattctgataaataacttaaggatgctgcagtcagaaattcccttaagggg
gaaaaaaaatgacctttacacagcatccgttaccgcacccgtcaacatcgaaccccttaagtattgggggaaaaaggacacg
aangtgaacttgcacacattcgtccatatacagtgactttatcgcaagatgacctcagaacgttgacctctgcggctatcgcacct
gagtttgaagcgacacattgtggttaaatgggagaaaccacacagcatcgacaatgaanaagaaactcaaaatgtctgcgcgacctac
gccatttaagaaaggaaatggaaatcgaaggacgcctcattgccacattatctcaatggaactccacattgtctcggaaataa
ctttccacagcagcttggtttagcttctcgcgtctgctgttgcctgctgcatgggtctctgcaattgctaaghtataccaattacacagtc
aacttcagaaataatcagaaatgcaagaaagggtctgtgttcagctttagatcgtgtgttggcgatacgtggcctgggaaatgg
gaaaagctgaaatggtcatgattccatggcngtacaaatcgacagacagctctgactggccctcagatgaaagctgtgtcttaggt
gtcagcgatatataaaaaggatgtgagttccactcagggatgcaattgacggggcaacctccgaactatttaagaaagaattgu
acatgtcgtaccnaagagatttgaagtcagcgtaagacctgttgaanaagatttgcacaccttgcgaaggaaacaaatgatgg
atccaactcttccatgccacatglttggactcttccctcaatatctacatgaatgacacttccaaagcgatctatcaglttgggtgc
acacattatcagtttaccgggaaacaaatcgttgcatacacgtttagtgacgggtccaaatgctgtgttactacttagctgaanaat
gagtcgaacctcttgcattatctataaattgtttggctcgttcttgatgggacaaagaaatttactactgagcagcttgaagcttc
aaccatcnaattgaatctataacttactgcaactgaaatggatcttgatgtgcaaaaggatgttgcagagtgattttaactcaagt
cgggtcagggccacaaagaaacaaacgaatctttagtgacgcaaaagacttggctaccnaaggaaataagatcaattcgetgcateg
cccttagggaggtaaaaaaaatgactgtccgacaaacatagtatgcccatgggtgcagtatctagttacgcaaatagtgcaaaa
cnaaacacctgaagacatttggaaagatttccgaanaattccattacaacaaagacctataccccgactagtgtgacgtcaaa
tgacgaaagcgggaaacaigtttttctgtcatgatgaggagcaaaataagttaatgaatgaanaattgatgttttggattgggac
gataatgctattgggtccgggtaccaagaaagtgttcatttaatzgnaaataatgaanaagggttactacatcgtgcattctccgtctt
atttcaatgaacaaagggtgaattacttttacaacaaagagccactgaaaaataaacttccctgacttttggactaacacatgtctgtc
tcatccactatgtattgatgacgaattagggttgaagggttaagcttagcgtatgaagattaaaggcgctattactgtcgcgggtgagaa
aactagatcatgaattagggtattccgaagatgaactaaagcaagggttaaggtttactttttaaacagaatccattacatggcac
caagcaatgaacctgtgggtgaacatgaattgattacatccattttataagatcaacgctaaagaaacattgactgtcaacccaa
acgtcaatgaattagagacttcaaatgggttaccnaatgalltgaanaactatgttgcgtgacccaaagttaacaggtttacgcttg
gttgaagattattgcgagaattacttattcaactgtgtgggagcaattgagatgaccttctgaagtggaaaaatgacaggcgaattcata
gaatgctataacaacgcgtctacanaataaaaaggcacgtcagatgacgtgcctttttcttggggcc

SEO ID NO:25

Figure 109



[illegible]

Figure 110B

[illegible]

SEQ ID NO:26

Figure 111A

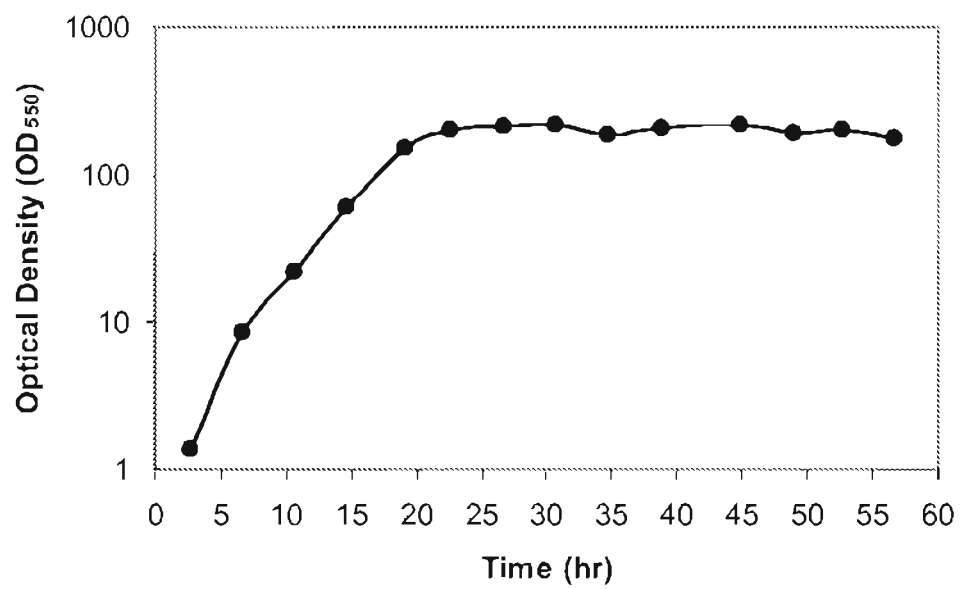


Figure 111B

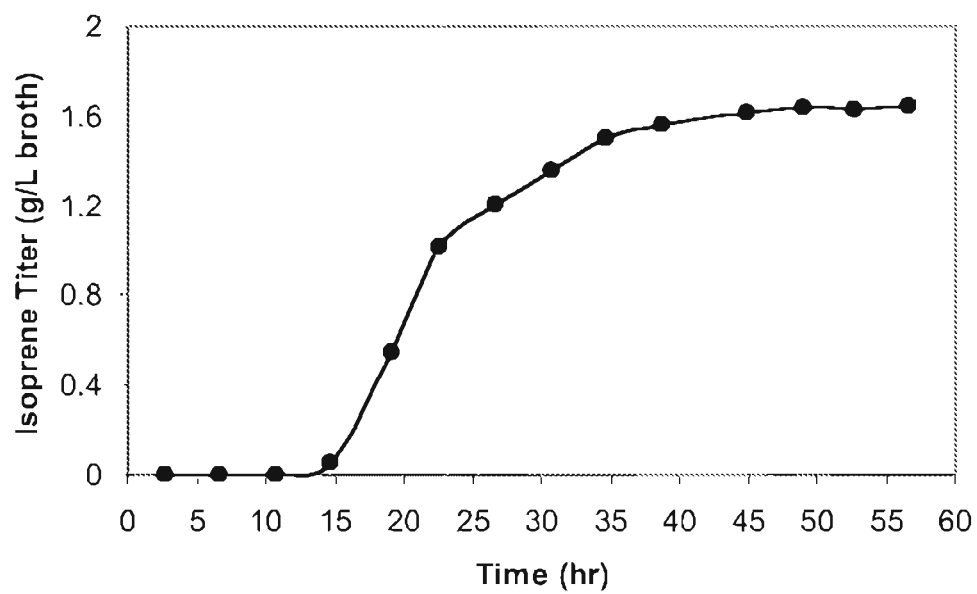


Figure 111C

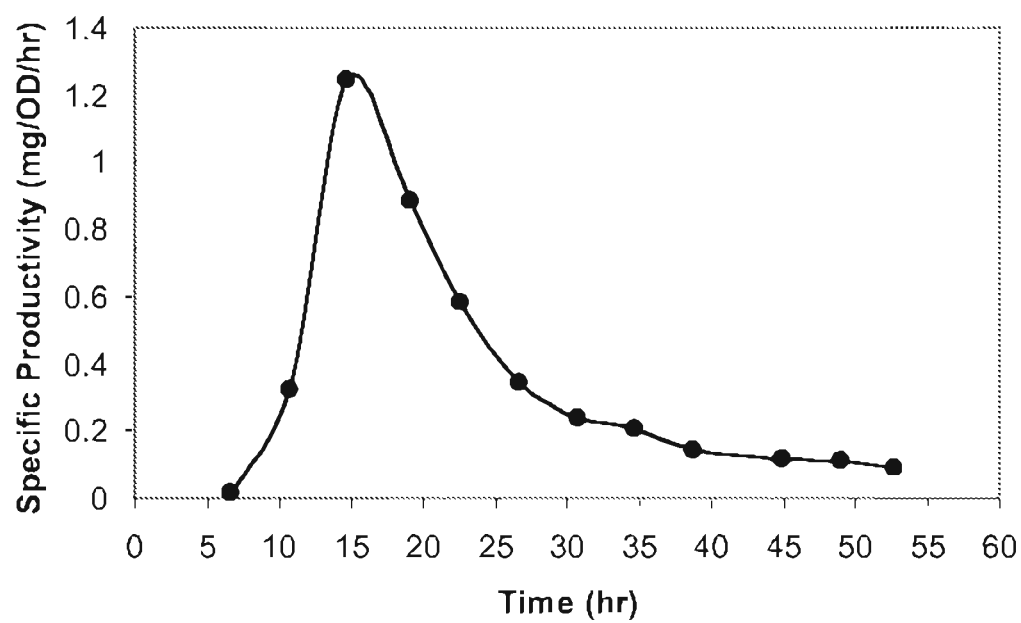


Figure 112A

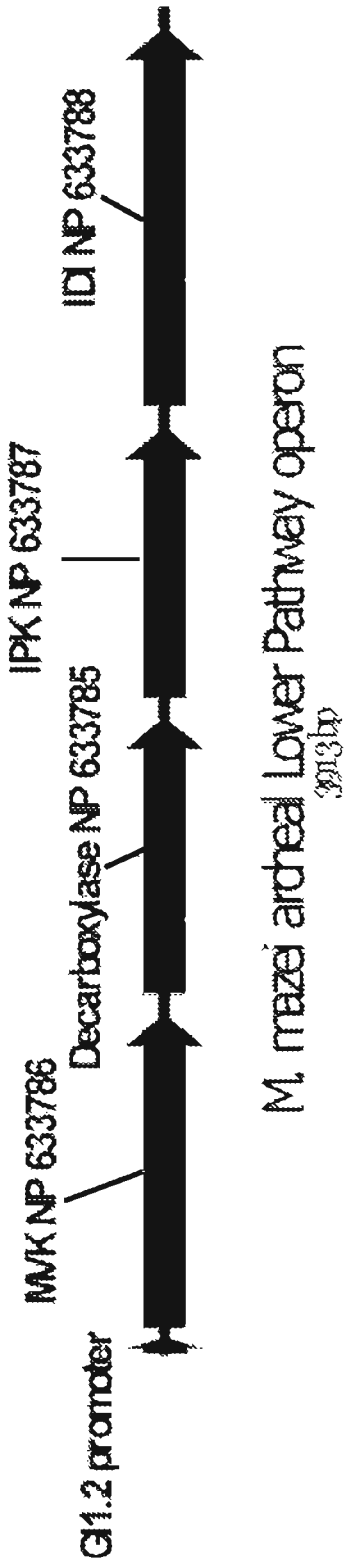


Figure 112B

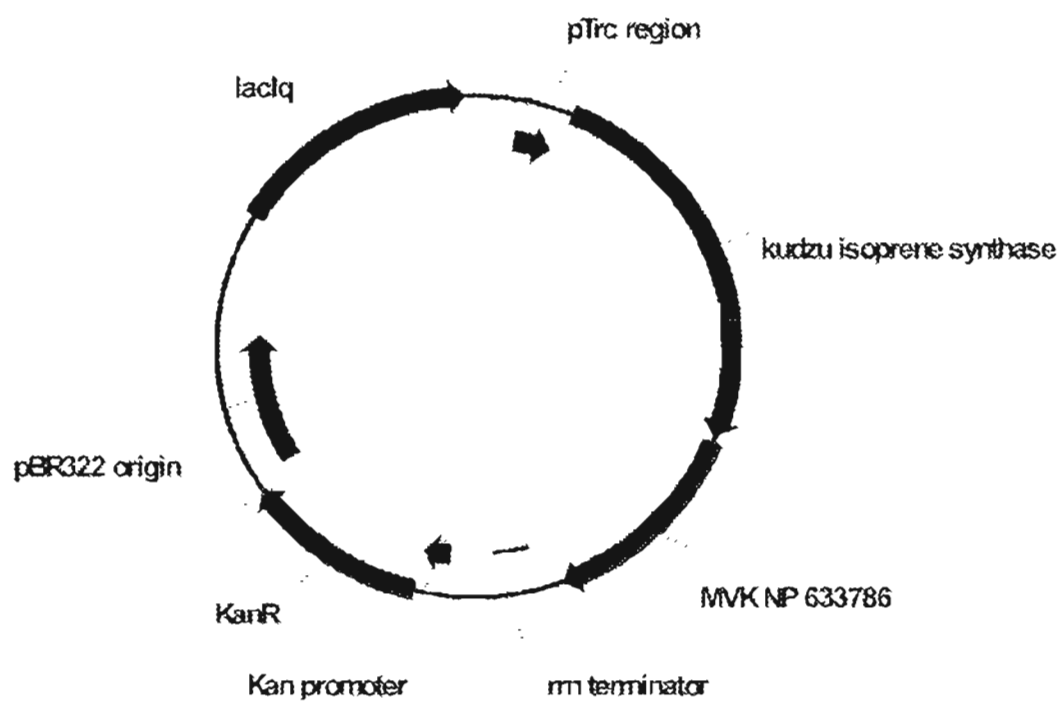
[illegible]

Figure 112C

cctgcacaaactctccagtagtggttaactgggtggacccggcgaatacctggagcagcggggtttaacgtaaggacctctccctg
ccggggcaacgcctctgtaagcttcaacgcgtctacaataaaaaaggcacgtcagatgacgtgcctttttctgtctaga

SEQ ID NO:27

Figure 113A



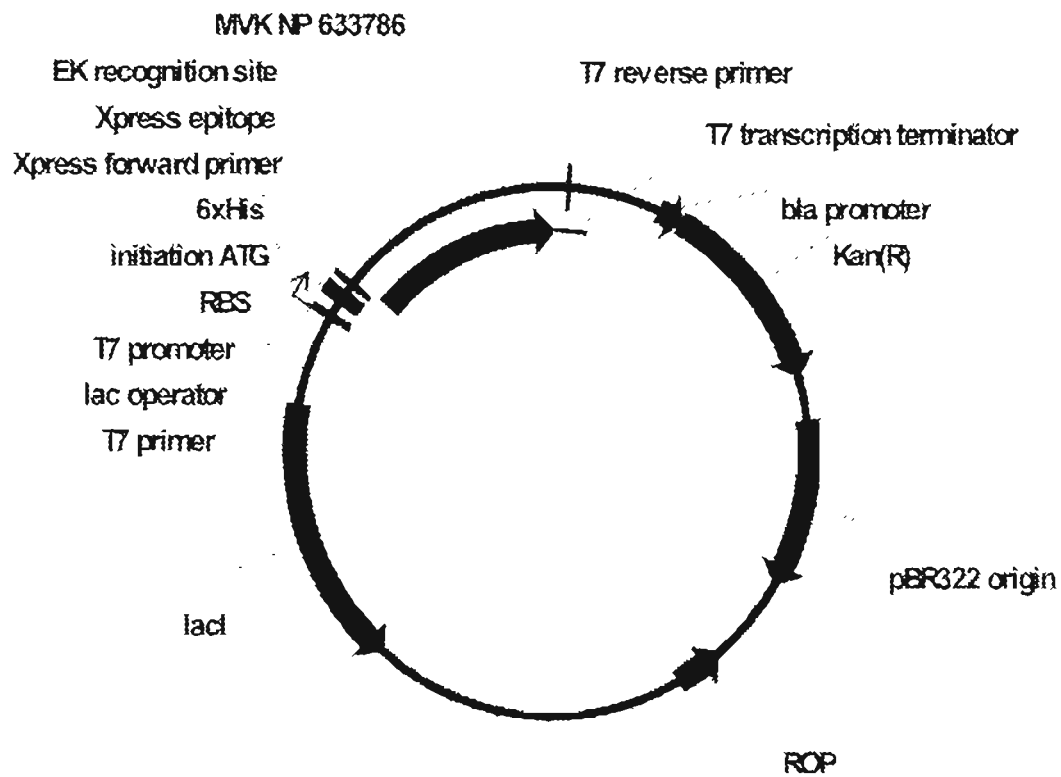
MCM382 - pTtrKudzuMMK(mazei)
6848bp

Figure 113C

[illegible]

SEO ID NO:28

Figure 114A



MQMB76 - MK from *M. mazei* archeal Lowerin pET200D
6647 bp

Figure 114B

aaggggcagctcaacgacccggctgctaacaagcccgaaaggagctgagttggctgctgccaccgctgagcaataactag
cataacccttggggcctctaaacgggctcaggaggagtttctgctgaaaggaggaactatccggatacccgcaaggagccccc
ggcagtagccggcatalaaccagccctatgctacagcatocaggggtagcggtagccgaggaagacgatgagccgcatigttagatttc
atcacacggtagccctgacgtcgttagcaattlaactgtgataaactaccggcaltaaagcttctatgataaagctgtcaaacatgagaa
ttaattcttgagagcagaaaggccctcgtgtaglacccctatttlataggltantgtcatgataataatggtttcttagacgtcagggtgga
cttttggggaaaagtgcggggaaacccctatttcttattttctaaatacatlcaaatatgtalcggctcatgagacaataaccctgat
aaatgcttcaataatattgaaaaagggaagagtagatgagaaacagatggattgcacgcagggttctccggccgcttgggtggagag
gctattcggctatgactgggcaaacagacaaatcggctgctgctgagccggcgttccggctgtcaggcagggggcccccgt
lcttttgcagagccgaccgttccgggtgcttgaatgaactgcaggagggcagcggcggctatcgttggctggccacggcagg
ggcgttcttgcggcagctgtgctgacgttgcactgaaagcgggaaaggagactggcgttcttggggcgaagtgcggggcaggat
ctcctgtctctcaccgtgctcgtcggagaaagtatccatcagtcgtgagcaatgcggcggctgcatacgttgaicggcgtac
ctgcccattcgacvaccaagcgaaacalcgcacgggctggggcagctacccggatgggaagccggcttctgtagcaggatgatct
ggagcgaagagcalfcaggggctcggcggcagccgaactgttcccgagctcagggcgcgcagcagcccgagggcagggatctcgt
cgtgacacalggcgatgctgttgcggaatcaggttggaaaatggccgttttctggatcagcagctgtgagccggcgtgggtg
tggcgggccgctatcaggacatagcgttggctacccgtgatatgtcgaagagctgtggcgaatgggctgacccgttctcgt
gctttagggatcgcgcgtcccgaltcgcagcggcctcgccttctacgccttctgacgagttcttctgagcgggacgttgggttc
gaaatgacccgacaaagcgagccctaaatgtcagaccaaagttactcatatlaacttttagattgatttaaaactatittlaaana
ggatctagggtgaaatccttttgaataatcctatgaacaaacccctaacgtgagtttctgtccactgagcgctcagaccccgtaga
aaagatcaaaaggatctctttagatcccttttcttgcggtaatctgctgttggcaacaaanaaacaccgctaccagcggltggt
tgttggccggatcagagctaccacaccttttctggaaggtaactgtggttcagcagagcgcagataccaaatcgttcttctaggt
agccgtagttaggcccacacatcaagaactcgttagcaccgccctacatccctcgtctgclaatcctgttaccagtggtgctgccc
agtggcggtatagctgtgtcttaccgggtggactcaagacgataagttaccggataaggccgacgggtcgggctgaacggggg
gttctgtgacacagccagcttggagcgaacgacacacacgaactgagatactacagcgtgagctatgagaaagcccccw
gcttccgaaaggagaaaggcgguacggatccggtaaggcggcagggctgggaacagagagcgcagcaggggagcttca
gggggaaacggcgtgtatctttagtctgtcgggttccggacccctgacttagcgtgctgattttgtgatgtcgtcagggggg
cggagccataggaanaacgccagcaacgcggccttttaoggttccgtggcccttggctgtgcttttctcacalgttcttctgctt
atccccgatctgttgataaccgtaaccgcttggagtgagctgataccgctcggcagccgaacgaccgagcgagcgga
gtcagtgagcggagaaaggcgaagagcggcgtgagcgttatcttctctacgcactgtgoggtatttcacaccgcaatgggtgca
ctctcagiacactcgtctgagtcggcatagtttaagccagtatacaacccgctatcgtacgtlgaetgggtcatgtgtgcggccc
gacacccggccaacccgctgacggccctgacgggctgtgtctccggcaccgcttacagacaagctgtgacctctcc
gggagctgcatgtgtcagagggttttaccgctacccgaaacgcgcgagggcagctgggtaagctcaccagcgtgtgtgtg
aaggcgttacagagtgctgctgtgtacccggctcagctcgtgagtttctccagaaagcgttaatgtctggcttctgataaagcgg
gccaatgtaaggcggttttctcgttgggtcactgagctcctcggttaagggggatttctgttcatggggtaatgataccgatga
aacgagagaggatgctcagatcagggtaactgagatgaacatgccgggtactggaacgtttaggggtaaacactggcg
gtatggatgctggcggggacagagaaanaactcagggtaactgagcagcgttctgtaaacagatgtagggttccacagggt
agccagcagatcctgctgtagcagatcgggaacataatgggtcagggcgctgacttccggcttccagacttargaacacgg
aaaccgaagaccatctatgttgtgtcagggctcagagcgttttgcagcagcagctgcttcaogtccctcgtctcgttctggtgattca
ttctgttaaccagtaaggcaccaccggcagcctagccgggtcctaacgacaggagcagatcgttgcaccccggtggcagg
aoccaacgctgcccagagtgccggcggctgctgctgctgagatggcgagcagcagatgataatgttctgccaagggttgggttgc
genttcacagttctccgtaagattgattggttccaaatcttggagtggtgaatccgttagcggaggtgcccggcgttccattcagg
tcagggttggccgggtccatgacccggcagcgaacgcggggagggcagacaaggatagggcggcgttccaaatccatgoc
aacccgttccatgtgtcggcggggcagcgaataatcggcgtgacgatcagvggtccaatgatacgaaptagcgtgtaagagc
cggcagcagatcgtgaagctgttccctgaggtgtgtatcttaccgttggacagatggcctgcaacggcgggcatccggaatgoc
ggcggaagcagagaagaatcataatggggaaggccatccagcctcgtcgtcggaaagccagcagacgaagcagcagcagcgt

Figure 114C

cggcgccatgccggcgafaatggccgtgcttcgcggaaacglttggtggcaggaccagtgacgaaggcttgagcgagggc
 gtgcaagaltccgaataccgcaagcgacaggccgacatcgctgcgcgcagcgaaagcggtctcgccgaaatgaccag
 agcgctgcggccacctgtctacgagttgcaifataaagaagacagtcataagtcggcgacgatagtcatgcccgcgccc
 ccggaaaggagctgactgggttgaaggctctcaaggccatcggtcgagatcccggtgcctaagtgagtgagtaacttacatnaft
 gcttggcgctcactgcccgtttccagtcgggaaacctgtcgtgagcgctgcatfaatgaatggccaaacgcgcggggagagg
 cgggttgcgtatgtggcgccagggtgggtttctttaccagtgagacggggcaacagctgattgccccttcaccgcccggccctga
 gagagttgcagcaagcggtccacgcgtgggttgcggcagggcgaaatcctgttgatgggtggttaacggcgggatataacat
 gagctgtcttgggtatcgctgataccactaccgagatataccgcaccaacgcgcagcccggactcggtaatggcgcgatigcg
 ccagcgccatcgatggttggcaaccagcaltgcagtgggaaacgatgcctcattcagcatttgcaggttgggtgaaacccgg
 acatggcactccagtcgcttccggttccgctatcggtgaatttgatggcgagtgagatattatgcccagccagccagcgcaga
 cggcgccgagacagaaatttggggcccgctaacagcgcgatttgcgtggtaaccaatggcgaccagatgctccacgcccagtcg
 cgtaccgtctcatgggagaaataatactgttgatgggtgtctggctcagagacatcaagaaataacggcggaacattagtgag
 gcagcttccacagcaatggcaltcctgtcatccagcggtatgttaatgatcagcccactgacgcgttgccgagaaagtgtgtc
 accgcccgtttacaggcttcgacgcggcttcgtctacacacgacaccaccgctggcaccagtgatcgccgagatttaa
 tcggcgcgacaatttgcgacggcggtgcaggggccagactggaggttggaacgcgaateagcaacgactgtttgcccggcag
 ttgttggccacgcgggttgggaatgtaattcagctccgccatcgccgcttccacttttccgcttcttcagaaacgttggctggc
 ctgtgtcaccacgcgggaaacgggtctgataagagacacggcaltctctgcacatcgataacgttactgggttcacattacca
 cccgtgaattgactctctccggcgctatcatgccataccgcgaaagggttgcgcctatcgatgggtgctcggtatctogacgctct
 cccctatgcgactctctgcataggaagcagcccagtagtaggttgaggccgttgagcaccgcgcggcgaaggnaigtgtcatg
 caaggagatggcgcccaacagtcccccggccacggggcctgccaccataccacgcgcgaacaacgcgcctatgagcccgga
 agtggcgagcccgatctcccatcggtgtgtcggcgatataaggcgccagcaaccgcacctgtggcgccgggtgtgtgcggc
 cagcatgctgcggcgtagaggtatcgagatctcgatcccgcaaatataacgactacataggggaattgtgagcggataac
 aattccccctagaaatatttggtttaacttaagaaggagatatacatatgcgggggtctcattcattcattcattcattggtatggcta
 gcatgactgggtggacagcaaatgggtcggggtctgtacgacgatgacgataaggatcatcccttcaccatgggtatccgtgtcgc
 gccgggtaaagtattaccgtgtcgggtgaacacgcgtagtttatggcgaaactgcanttgcgtgtgcgggtgguaactgcgtaccgt
 gttcgccgggaactcaatgactctatcactattcagagccagatcgccgcaccgggtctgtgatttcgaaagcaccctatgtgtc
 tggggtaatgagaaaatgcgcgaatctattctattaacgggtgttcttgcaccgtcgatccgacatcccggttgggtcctccggtctg
 ggtagcagcgagccgttactatcgctgtatgggtgcgctgaacgagctgttcggccttggccctcagcctgcaagaaatcgcta
 aactggggccacgaaatgaaatlaaagtacagggtgcgcgtlccccaaacgatacgtatgittctaccttcggcggtgtgttac
 catcccggaacgtcgcaaaactgaaactcggactgcggcaltgtgtatggcgataccggcggtttctctccaccaaagagtta
 gtatgctaacgtacgtcagctgcgcgaaagclacccggatttgatcgaaacgcgtgatgacctctattggcaaatctctcgtatcgg
 cgaacaactggtctgtctggcgactacgcaltccatcgccgcctgatgaacgtcaaccagggtctcctggacgccctggggcgt
 taacatcttagaactgagccagctgactatccgcctgtgcggcaggttgcgttggcgclaaaatcacggcgctggcgggcgt
 ggctgtatgttgcgtgacgcctccggaaaaatgcaaccaagtggcgaggaagcggttagcggcgctggcggtaaaagtactat
 cactaaaccgaccgagcaagggtcgaagtagatana

SEQ ID NO:29

Figure 115A-B

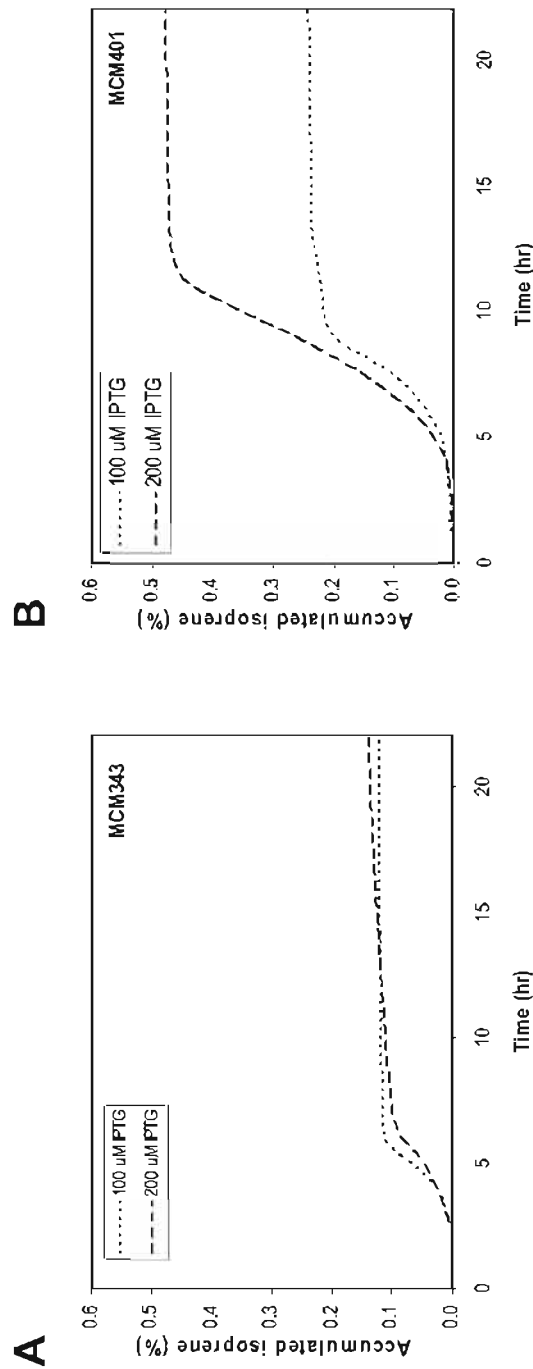


Figure 115C-D

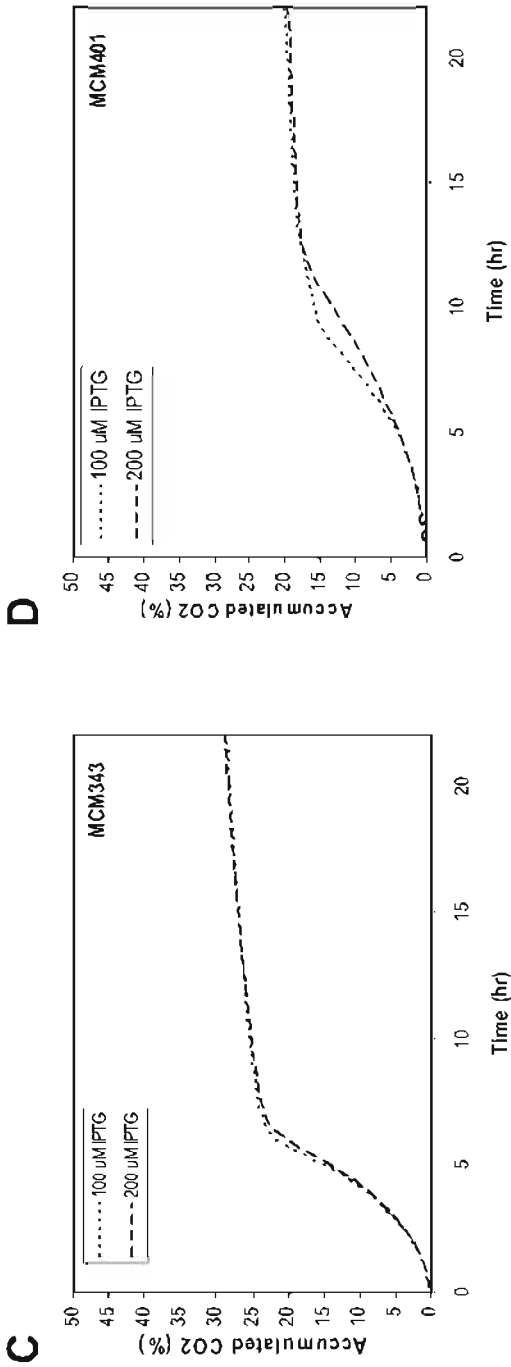


Figure 116

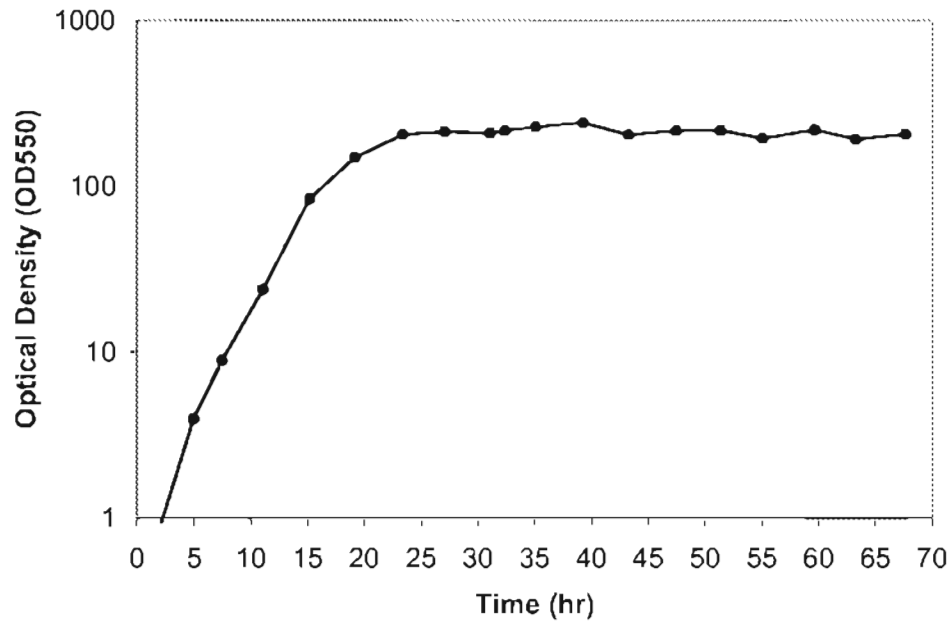


Figure 117

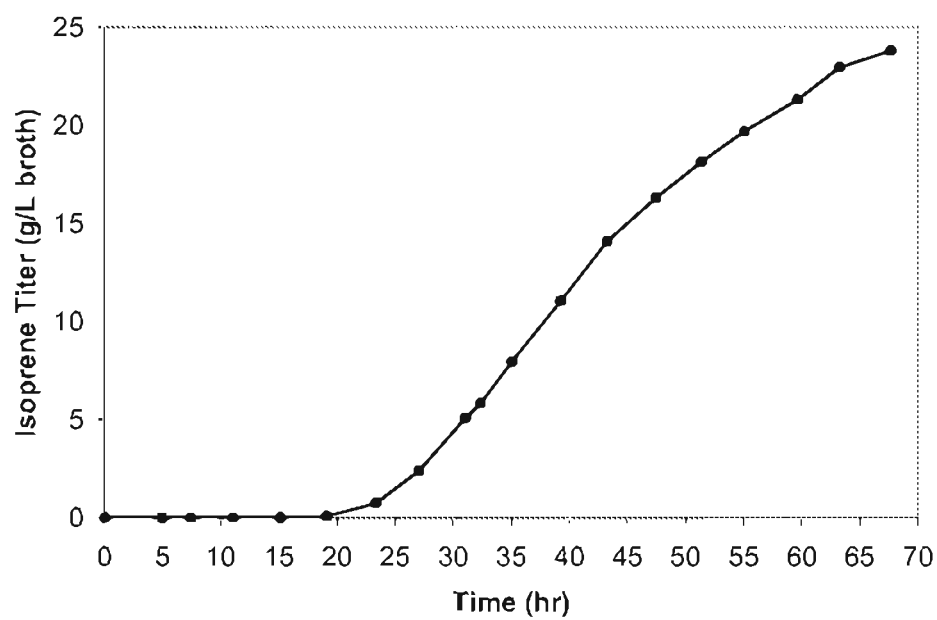


Figure 118

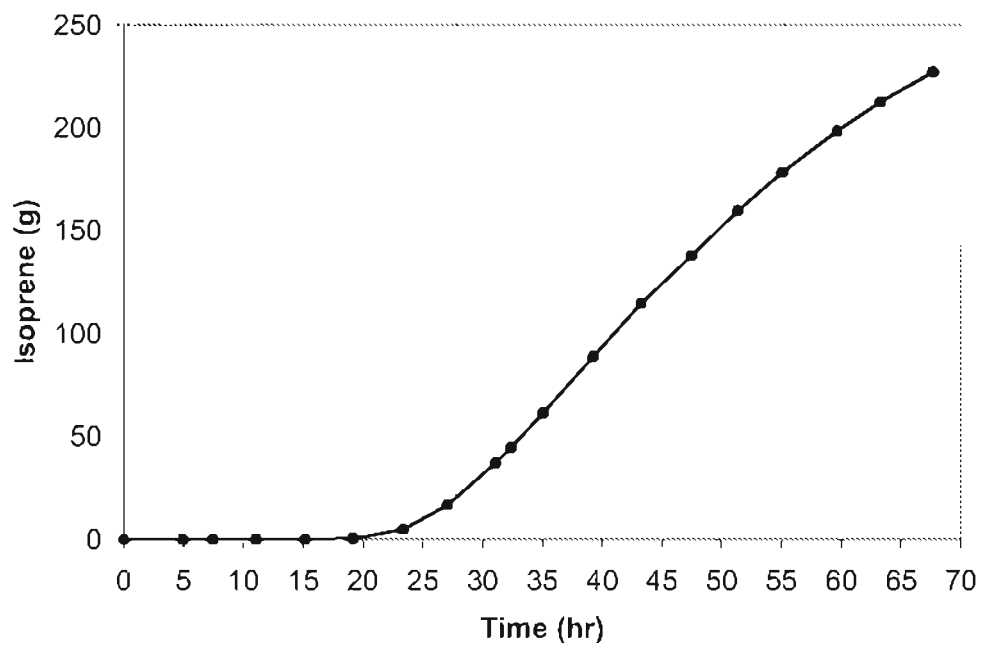


Figure 119

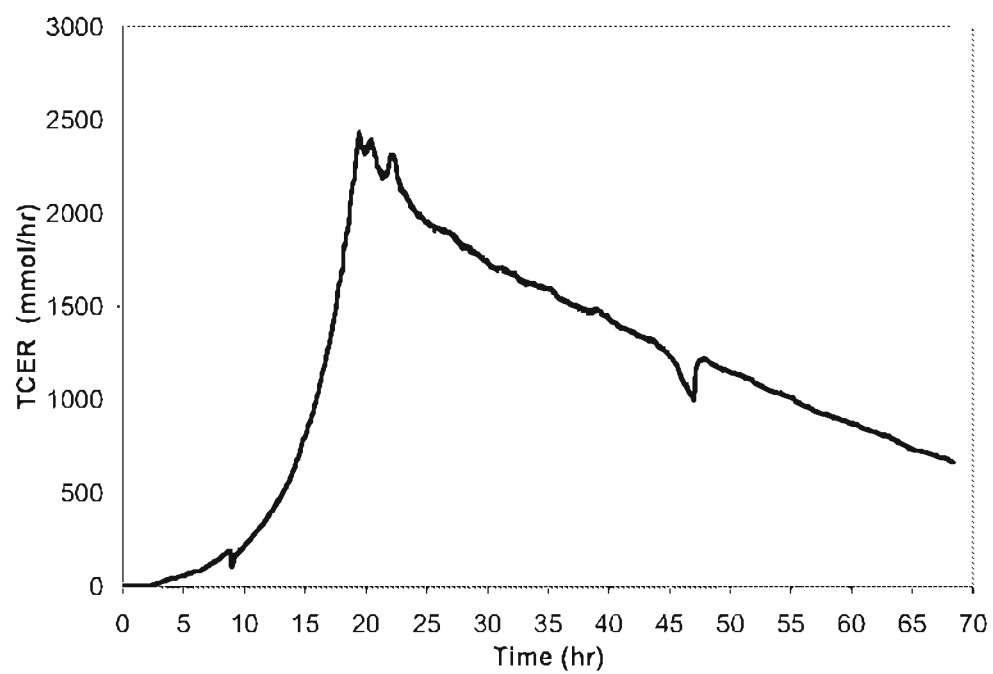


Figure 120

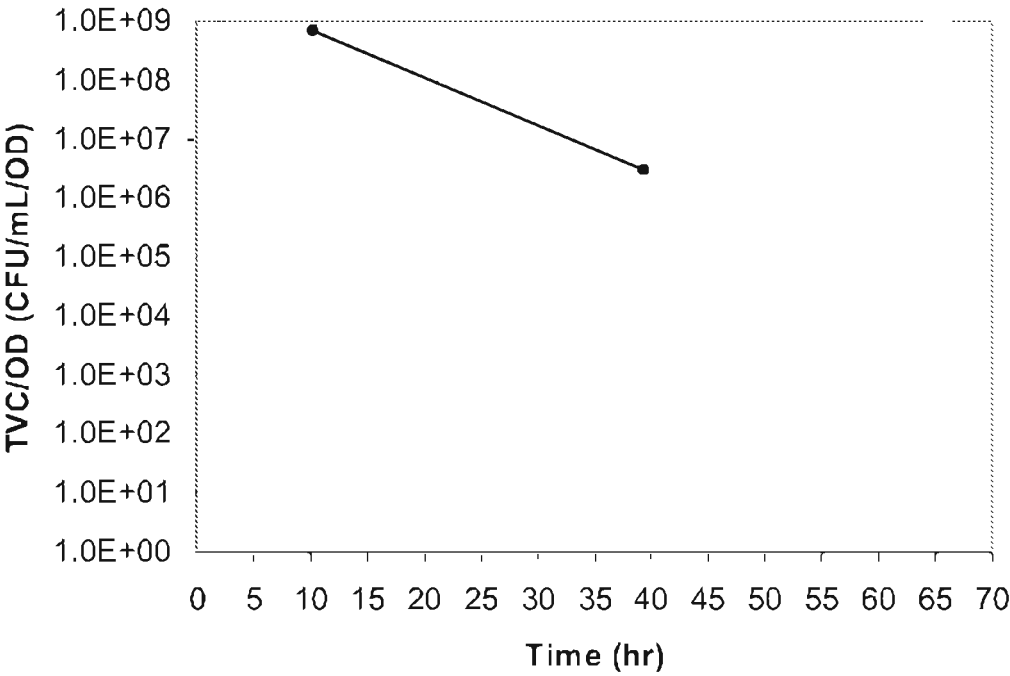


Figure 121

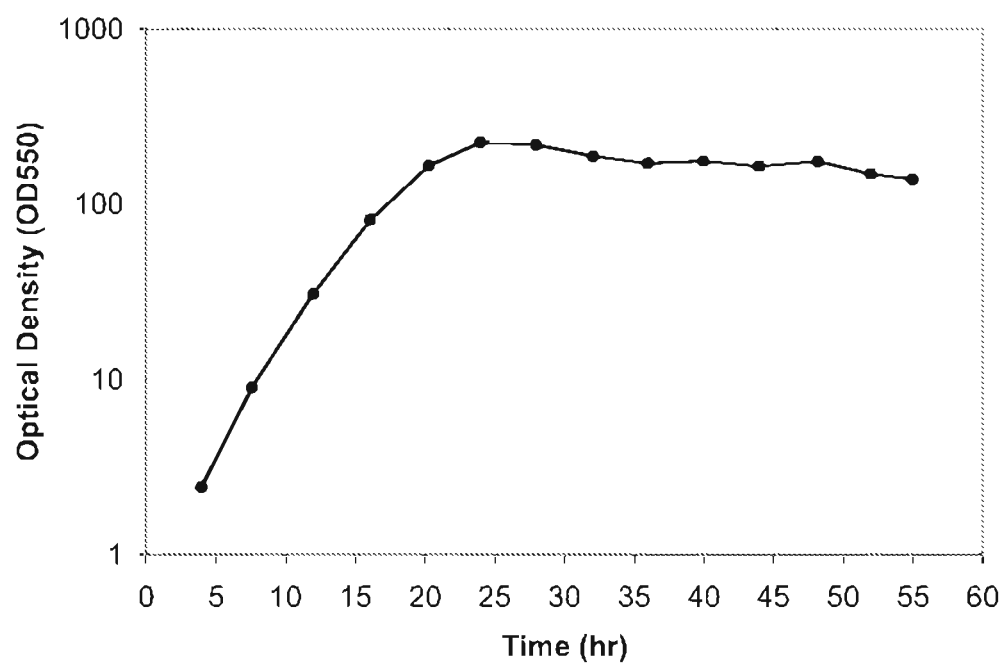


Figure 122

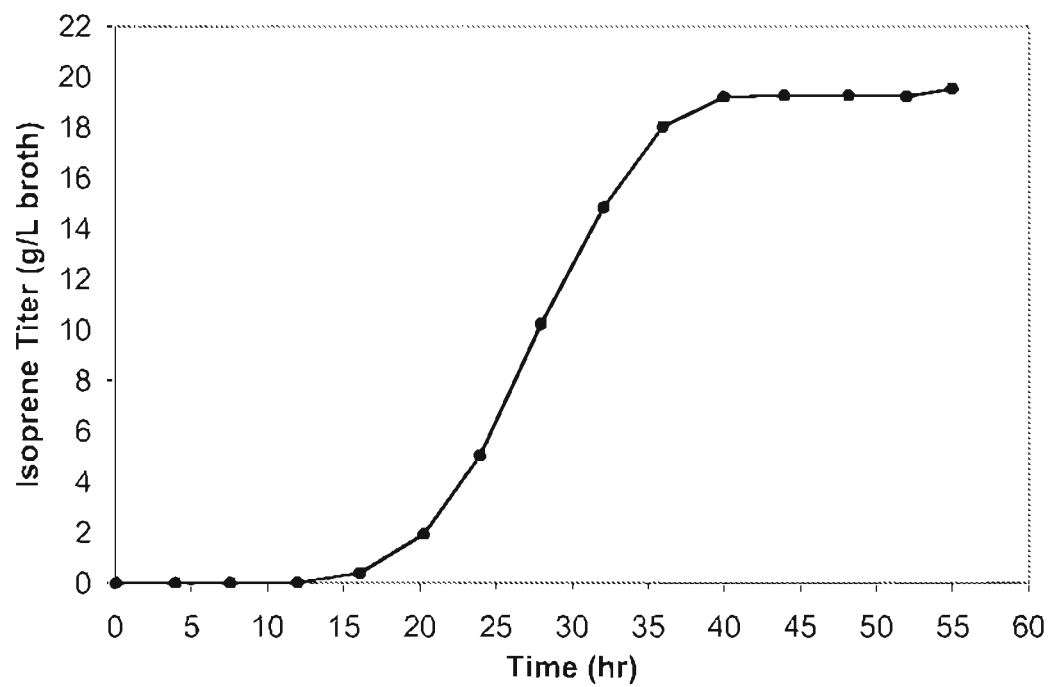


Figure 123

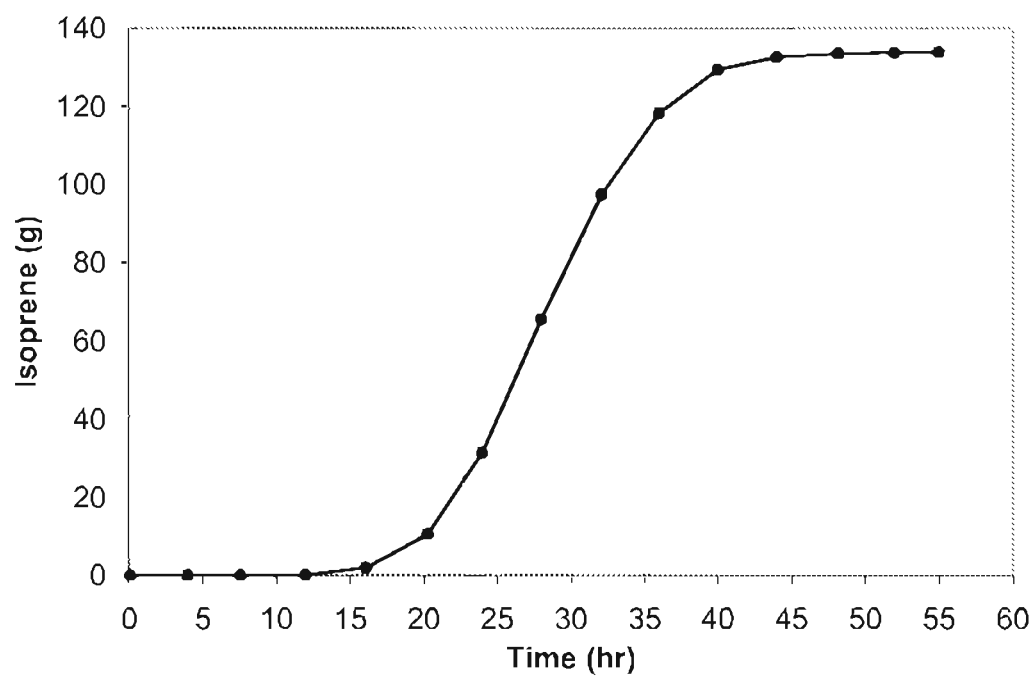


Figure 124

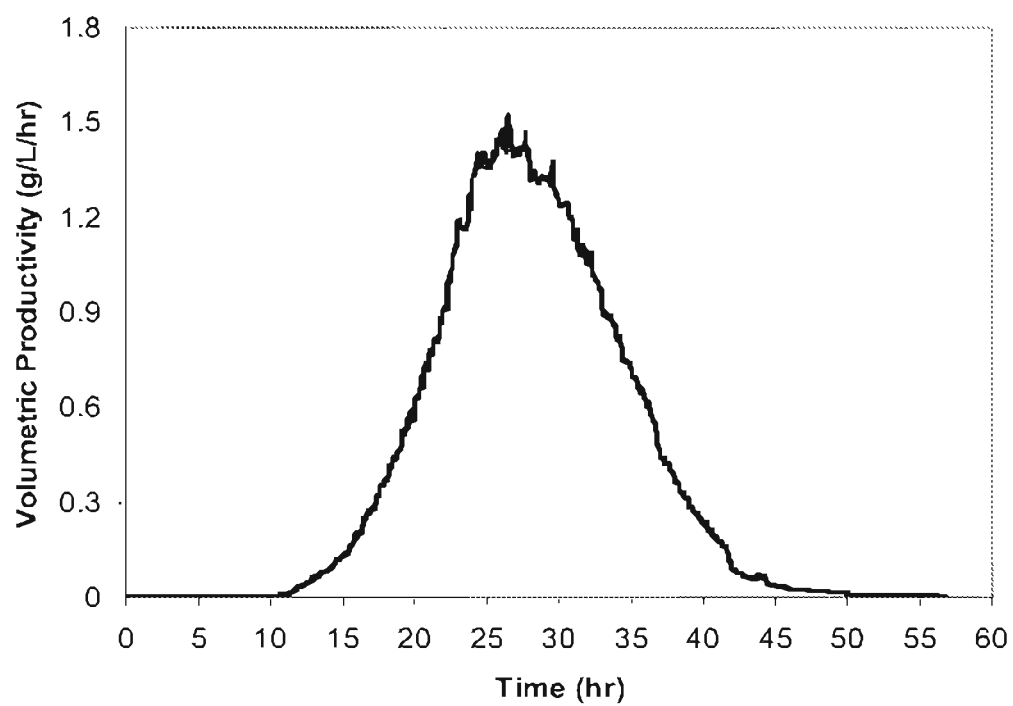


Figure 125

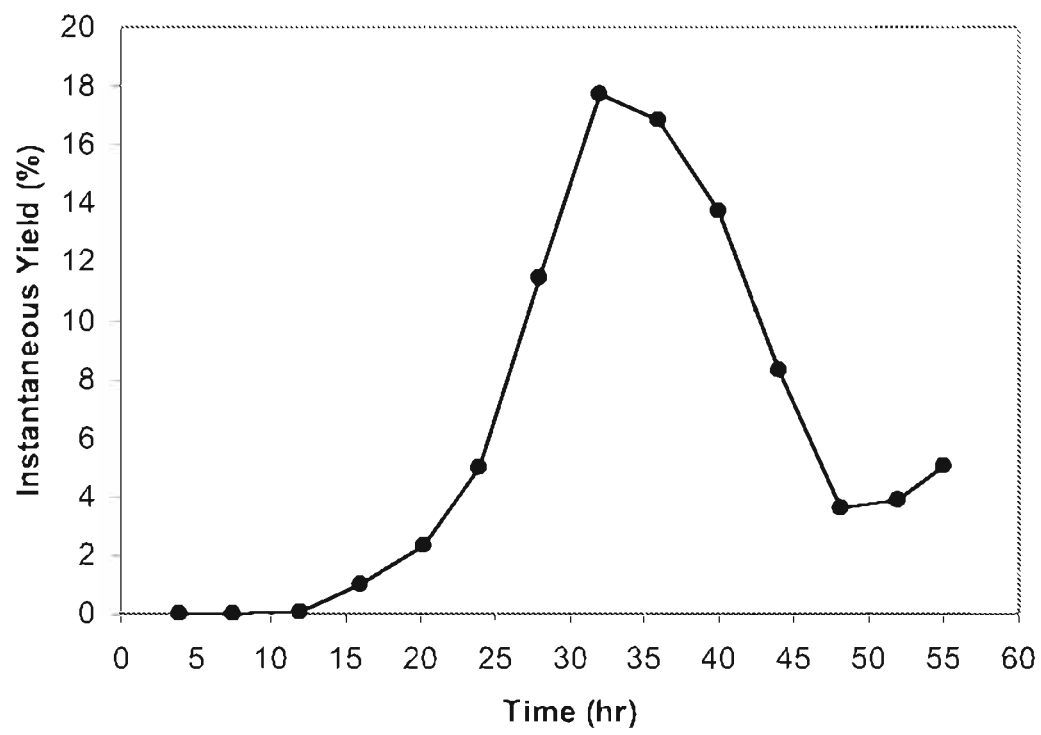


Figure 126

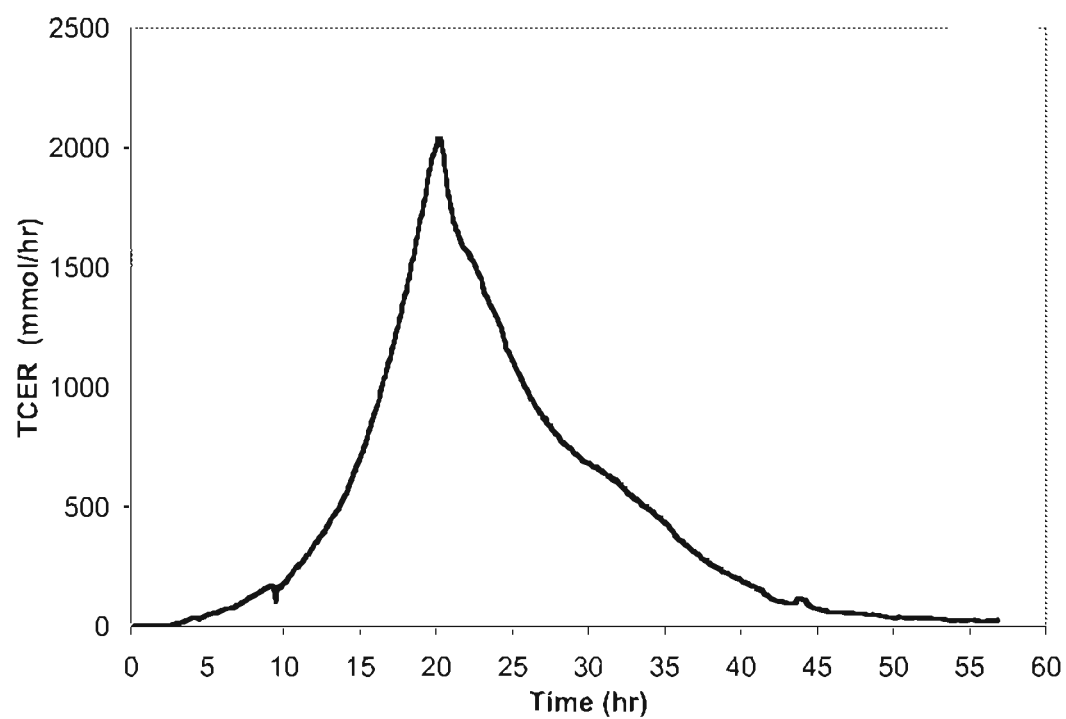


Figure 127

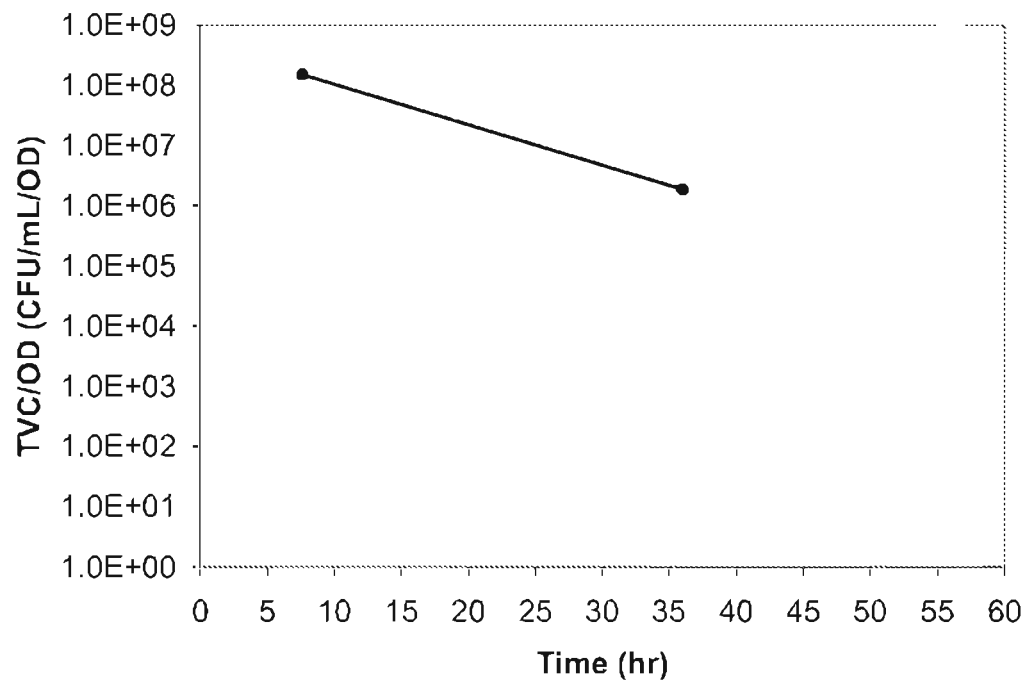


Figure 128

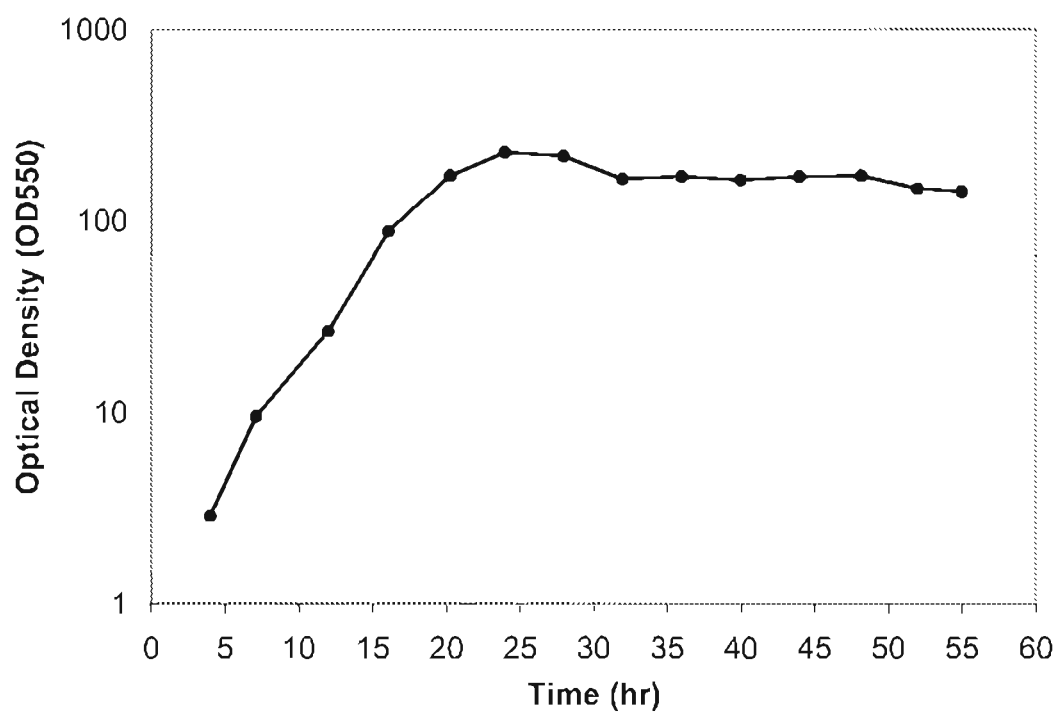


Figure 129

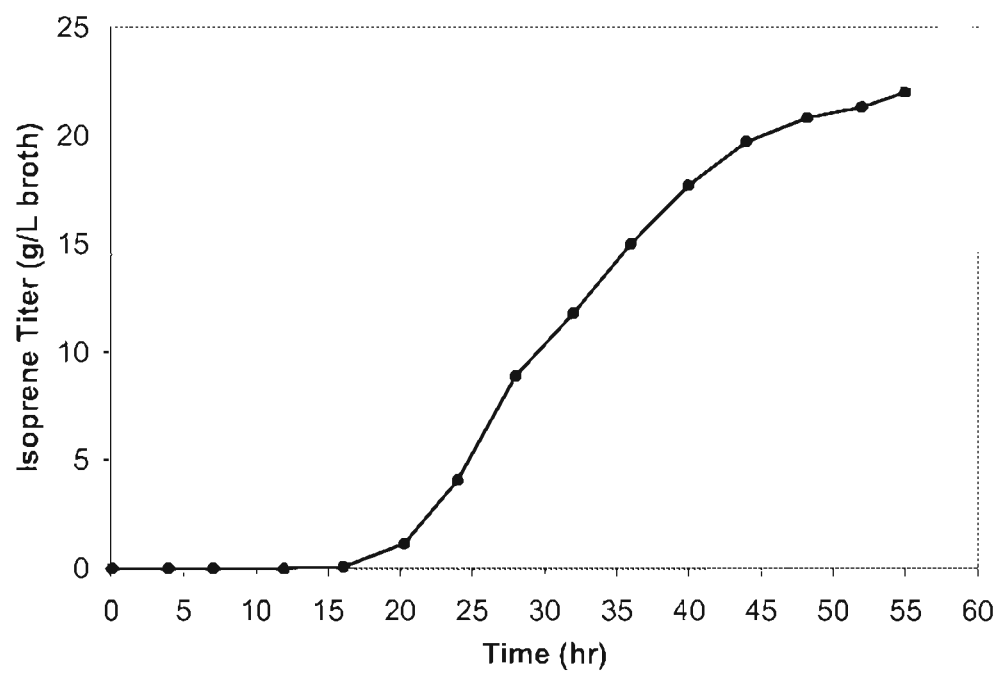


Figure 130

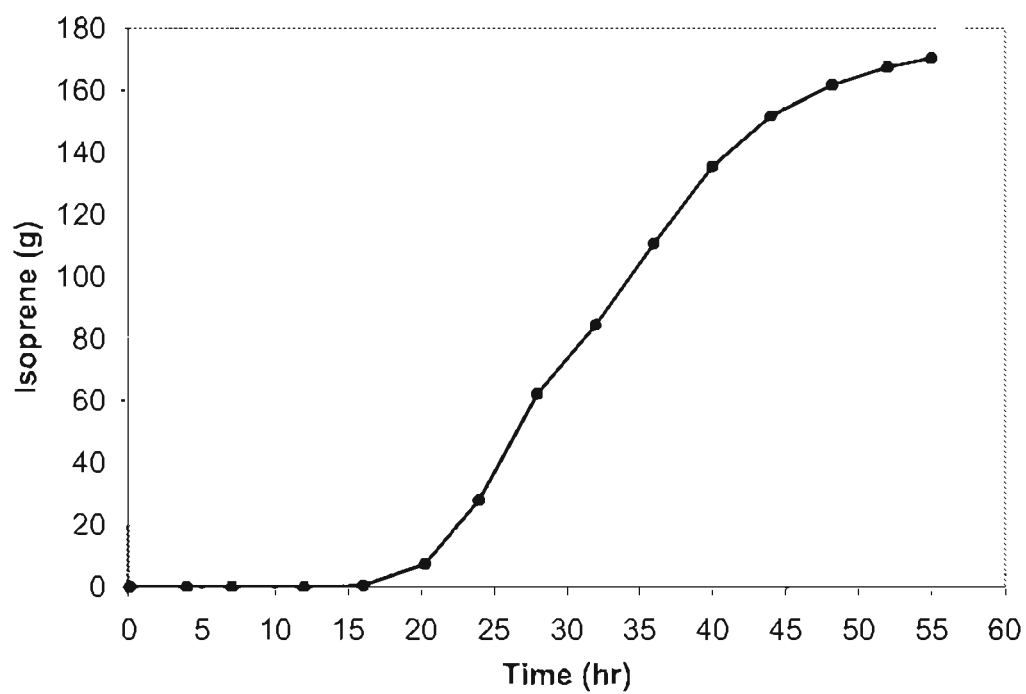


Figure 131

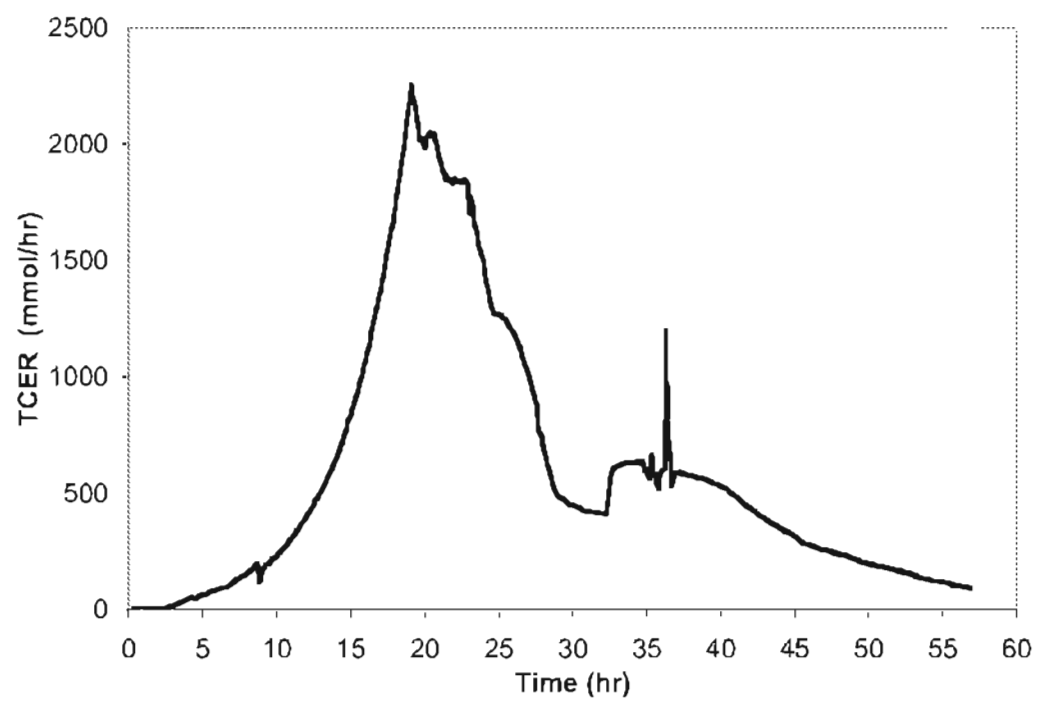


Figure 132

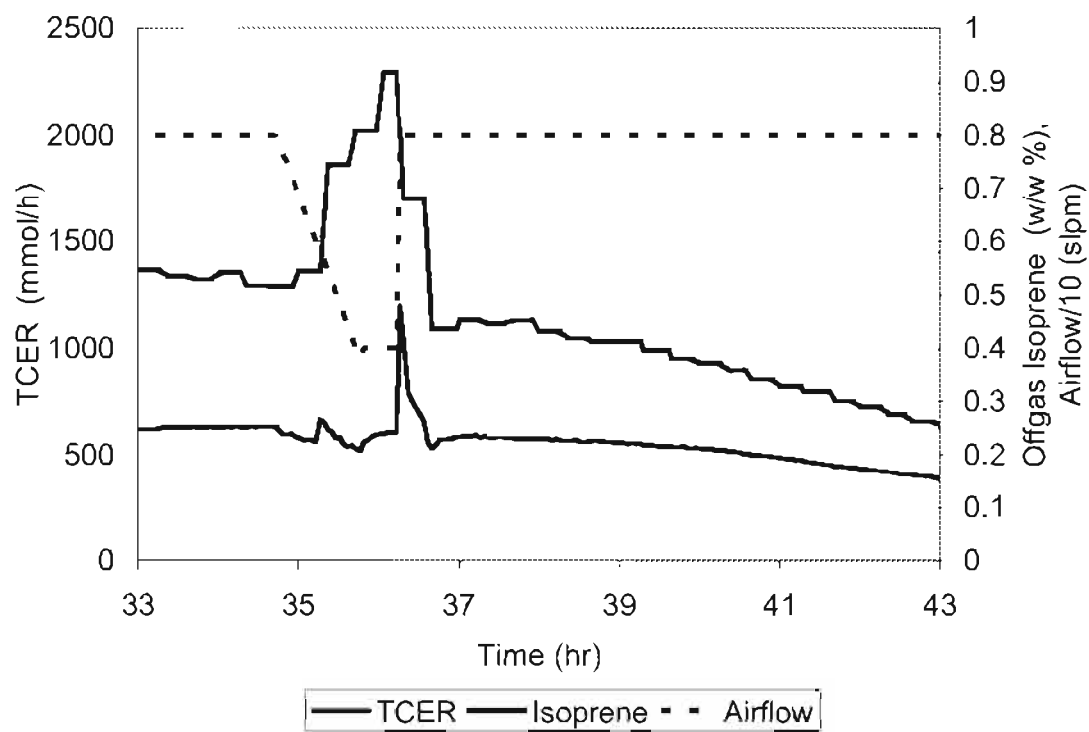


Figure 133

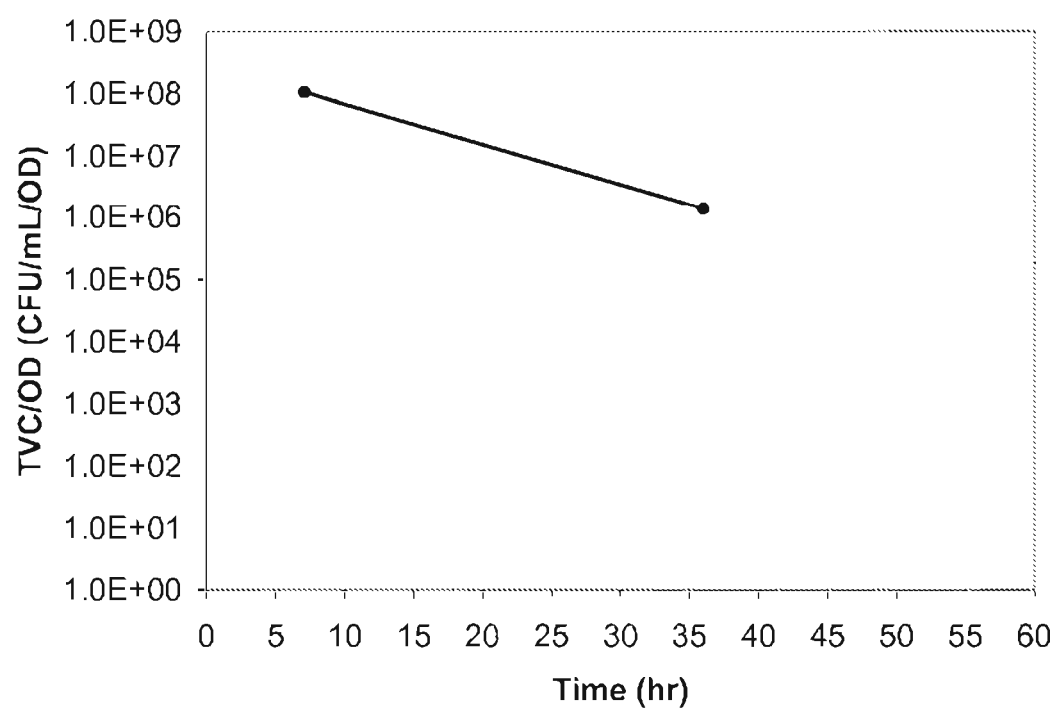


Figure 134

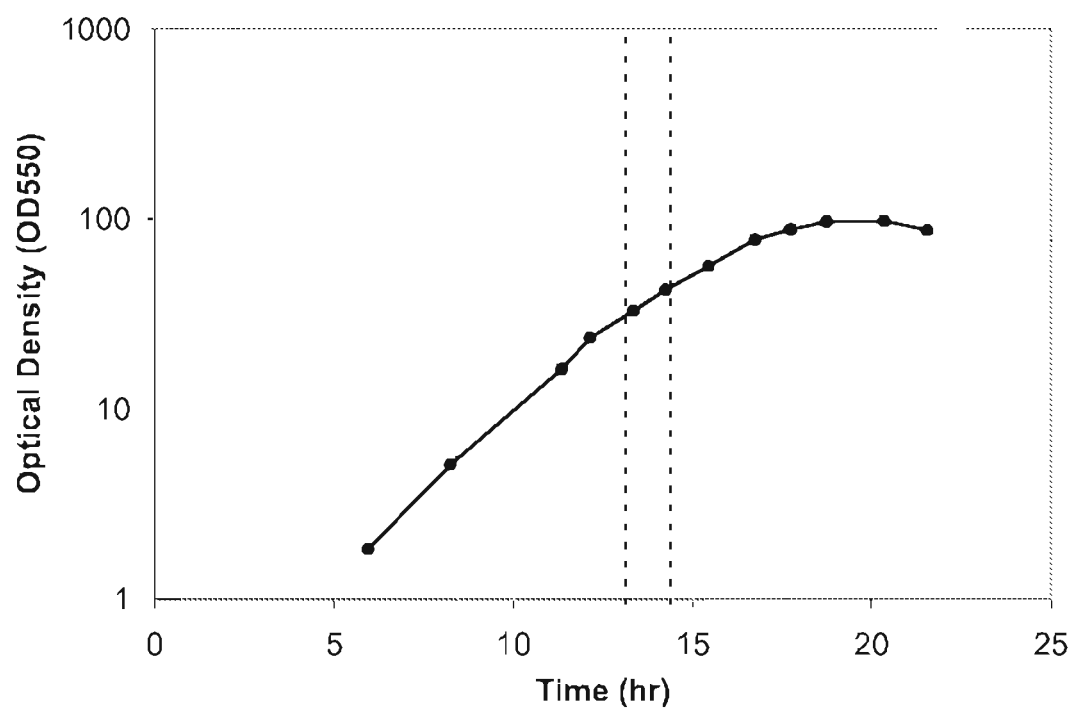


Figure 135

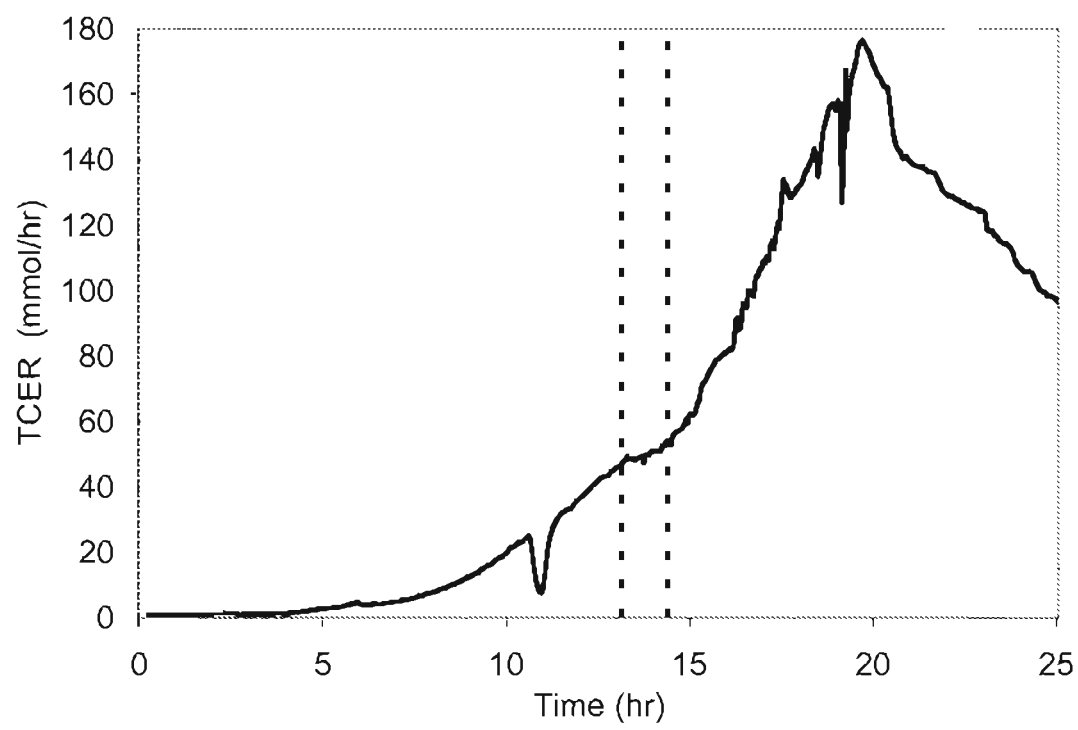


Figure 136

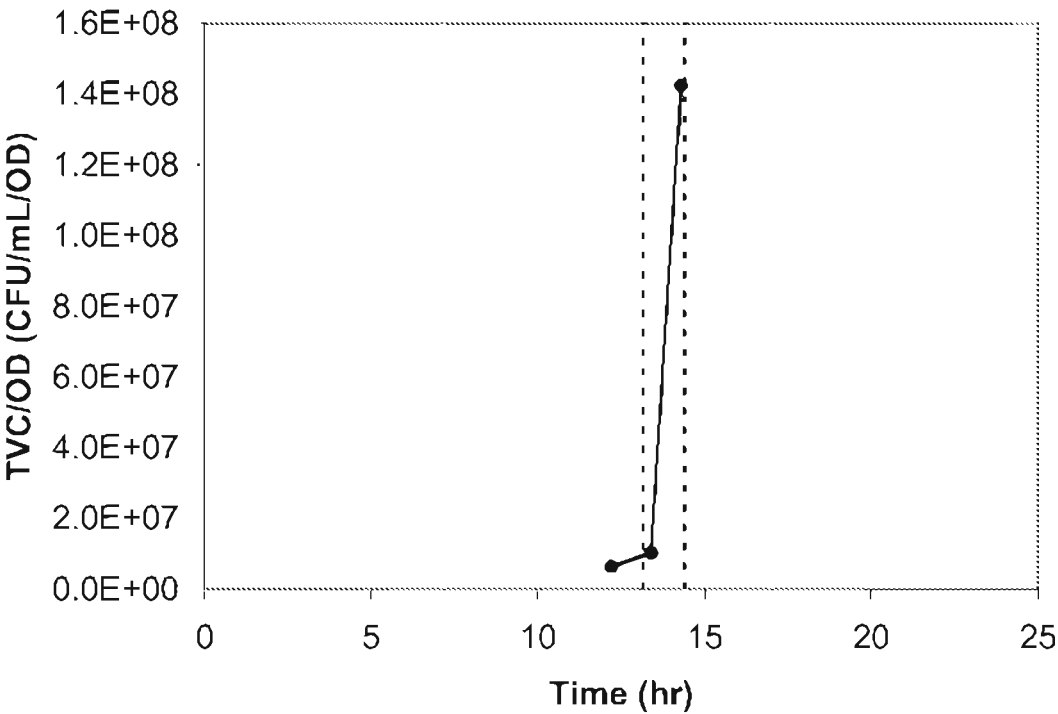


Figure 137A

tgcgcgaatgggagcgcgccctgtagcgccgcatlaacgcgcggggtgtgtgtgtacgcgcagcgtgacgcctacacttgc
 agcccccctagcgcgccctcttctgccttcttcccttctcttctccacgttgcgcggcttccccgcacagctctaaatcggggc
 tccccctaggggtccgaatlagtgtttagcgcacccgcaccccaaaaacttgatagggtgtagtggttgcacgtagtggtccatgc
 cctgtagacgggttttctgccttgcacgttggaggtccacgttcttctatagtggaacttgggttccaaactgggaacaacactcaacct
 atctcgttctattcttgattataaagggtatttgcggalttggcctattgtgttaaaaaagagctgatttacaanaaatttaacgcga
 atttaacanaaatatacgttataaattcaggttgcacatttccgggnaatgttgcgcggacccccattgtttatttctaaatacat
 tcaaatatgtatccgcctatgaatlaattcttagaaaactcaatcagacatacaatgaaactgcatttattcatatcaggattatacaat
 accaatatttgaanaagccgttctgtaataaagggtggaanaacccacccagggcaggttccataggatggcagagatccgtgtatcgggt
 ctgcgatttccgacctgcacacatcaacacacccatttaatttccccctgcacaaataaagggttatacaagggtggaatcaccatgag
 gacgacgtgaatccgggtgagaatggcacaagggttatgcatcttctccagactgttcaacaggccagccattacgcctgtcatcaaa
 atactcgcatacaacccacccgttattcattcgtgatttgcgcctgagcgagacgaaatcgcgcgtcgtttaaaggacaattac
 aacagggaatcgtatgcaaccggcgaggaacatctgccagcgacacacaaatatttccatccgtgaatcaggatttcttctaatac
 ctgggaatgtctgttccccggggatcgcagtggttgtagtaaccatgcatcatcaggagtagcgtataaatactgttagtggtcgggaagga
 ggcatataatccgtcagccaggtttagtctgacacatcctatctgtaacatcattggcaacgcctaccttggccatgtttagaanaacatc
 tggcgcatcggcgctccccctcaaatcgtatgattgtcgcacctgatttcccgacatttalcgcgagcccatctacccatataaatc
 agcctccatgttggaatttaaatcgcggccttagagcaagacgttcccggtgaaataggtcctataacacccccctgtattactgttaagt
 aagcagacagtttattgttcatgacanaatccccctaacgttgagtttccgttccactgagcgttcagacccccgtagaaaagatcaaa
 ggatcttctgagatccttcttctgcgcgttaattctgtctgtcgaacacaaaaaacaccgcctaccagcgggtgtgtgtgttgcggga
 tcaaggagctacacactcttctccgaaggtaactggcttcagcagagcgagataccaaatactgtcttctgttagtgccgtgtgt
 agggccaccacttcaagaactctgttagcaccgcctacataaccctgcctgtctaatccgtttaccagtgtgctgtgtccagtgtgcgtata
 agtctgtcttaccgggttggactcnaagacgtatgttaccgggtataggcgagcggttcggcgtagaacgggggtgtctgtgcaca
 cagcccaagcttgggagcaagacattacacgaacgtagatuccatcagcgttaggtctgtggaagaagcgccacgcttccgaag
 ggtggaagggcgagacaggttatccgggttaagcgcgaggtgtcgggaacaggngagcgccagagggagcttccagggggzaacg
 cctgtgtatcttatagtcctgttgggttttgcacacctctgacttgagcgtcgtatttgtgtgtgtcgtcagggggggcgaggccatg
 gaaaacggccagcaacgcggccttttaccggttctcgtgcttcttgcgtgccttctgtcacaatgttcttccctgttaccctgtatc
 tgtgtgataaccgtattacccgtttaggttgaggtgtatuccgtctgcgcagccggaacgaccaggcgagcgagctcagctgagcgt
 agggaaaggcggaagagcgcctgattcgtgtatttctcttaccgcatctgtgcgtgtatttcaacccgcataatagtgtcactctcgtatc
 aatctgtctgtgtgcgcgtatgtttagagccagatacactcgcctatcgtatcgtactgtgtatcgtgtgcgtcccgacaccgc
 caacacccgcctgaacgcgcctgacagggttctgtctcctccggcatccgctracagacaaagctgtgaccgttccgggtgagctgc
 atgtgtcagaggttttaccgtcatcaccgaaacgcgcgagagcagctgcgggttaaagctcaacgcgtgtgtcgtgaagcgattca
 cagatgtctgtcgtgttcatcgcgttcagctcgtgtgagtttctccagaaagcgttaaatgtctgcttctgtataaagcggtccatgttaa
 gggcggtgttttctgtttagtcaatcgtatccctcgttgaagggtgtatttctgttcatgtgggttaataataccgtatgaanaagagagga
 ggtatgtctatgatacgggttactgtatgtgaacatgccgggttactgtgaacgttgttgagggttaacaaactgtgcgtgtatgtgtgc
 ggcggggaccagaganaaatcactcagggttcaatgccagcgcctcgttaatacagatgttaggtgttccacagggtagccagcag
 cactcctgcgagtgcagatccggaaataatgtgtgtagggcgctgtacttccgcgttccagacttaccgaaacacgggaacccggaag
 accattcatgttgtgtctcaggttcgacagacgttctcagcagcagctgcctcactgcctcgcctgctatcgtgtattcattctgtatc
 cngtaagggcaaccccgccugcctagccgggtctctaacgacaggagccacgtatctgcgaacccgttggggccgccatgtccg
 gcgtataatgtccgtcttctcgcgaacgttgtgtggcggggaaccgtgacgaaggctttagcaggggcgctgcaagaltccgaa
 taccgcaagcgacaggccgtatctgtctgcgcctcagcgaagagcggtctcgcggaaatgacccagagcgtcgcgggcac
 ctgtcttaccgtgtgcatgataaagagacgttcatagtgtcggcgacgtatgtatgcccgcgcgccacccgggaaggagctgtga
 ctgggttgaaggctctcaggggtatcgtctgagatcccggtgtccatagatgagcgaacttataatgtcgttgcgtcactgt
 cccgttccagcttgggaacccgtcgtgtccagctgtcallaatgaatcggccaacgcgcgggggaaggcggttctgtgttggg
 cgcacagggttgggttttcttcttccaggtgagacgggcacacagctgtatcccttaccgcctgtggcctgtgagaggtgtcagcaag
 cgttccacgcctgttcttcccgagcagcgcaaaaactcgtttagatgtgtttaaagcggtgtatataacatagagcttcttctgtat

Figure 137B

gtctgtatccactaccgagatataccgacccaacgcgcagcccggacteggtatggcgcgcattgcccagegccalcgat
 cgttggcaaccagcatcgcagtggaacgatgcctcattcagcatttgcattgttgaacacggacatggcactccagtc
 gcttcccggttccgctalcggcgaatttgatgagtgagatattatgccagccagccagacgcagacgcgcgagacaga
 actaatgggcccgcataacagcgcggaatttgatgggacccaatgcgaccagatgcicccagcccagtcgcgtaccgttcatgg
 gagaaaataaactgttgatgggtgtcgtcagagacatcaagaaataacgcgcgaacattagtcagggcagcttcacagca
 atggcatccgtgcatccagcggatagtaatgatcagccacatgacgcgttgcgcgagaagatttgcacgcgcgttaccagg
 ctccgacgcgcgttcgttaccatcgacacccacacgcgtggcaccagtgatcggcgcgagatitaatcgccgcgacaatttg
 cgacggcgcgttcagggccagactggaggtggcaacgccaatcagcaacgactgtttgcccccagttgttgcacgcgg
 ttgggaatgtaatcagctccgcctacgcgcgttccacttltccgcgttttcgcagaaacgtggctggctgttaccacgcgg
 gaaacggctgtgataagagacacccggcacaactcgcgacatcgtataacgltactgttgcacattcaccacccgtgaattgactctct
 ccgggcgcctatcatgccataccgcgaagggttttgcgcctatcgatgggtgcggactcgcgcgttcccttatgcgactcctg
 catagggaagcagccagtaggttggggcgttgagcaccgcgcgcgcgaagggaattgtgcatgcaaggatggagtcgc
 caacagtcccccggccacggggcgttgcacacataccacgcgcgaacaaagcgcctatgagcccgaagtggcagcccgatc
 tccccalcgggtgatgtcggcgatataggcgccagcaaccgcacccgttggcgccgggtgatgcggccacgatgcgtccggcgt
 agaggatcgagatcctgatcccgcaaatataacgactcactatagggaattgtgagcggataacaaatccctctagaanta
 atttgttaacttaagaaggagatatacatatgcgttgtgagcgtgtccaccgaaatgtgttcttaccgaaacgtgaaacgga
 agctcgtcgttctgcgaactacgaaacataacagctgggactatgattacgtgtgtctccgacacggacgagtcacgc
 aagtatacaaaagacaagcgaaaaagctgggaagcgaagtgcgtcgcgagattaaataacgaaanagcgaatttctg
 accctgtcggaaatgattgacaacgtcagcgcctgggcctgggttaccgtttcagatctgatatecgttgggtgcgtggat
 cgttctgttctccgcgcgttcgatgcggtaaccaagacttccctgcacggtaacggcactgtcttctcgtctcgtcgtc
 aacacgggtttgaggttctcaggaagcgttcagcggcttcuaangacaaanacgggcaacttccctggagancctgaaggga
 agatatacaaaagctatctcgtgagcctgtacgagggcagcttccgtcgtcgttgaaggcgaanacatcctggacgagggcga
 gggttctcgaatctctcatctgaaagaaactgtctgaagaaaagatcggtaagagctggcagaaacaggtgaacatgca
 ctggaaactgeaatgcategcgtactcagcgtcgtggaagcagtatgggtctatcgaggcctacgttaaaaaggaggacg
 cgaatcagggtctcgtcgtgagctggcaattcgtgattacnaatgatccagctctgtataccagcgtgatctcgtgaaacgt
 cccgttgggtggcgtcgttgggtctggcgacaaactgcacatttgcgtgacgcctgattgagagcttctactgggcgcg
 tgggtgtgacattcgaaacgcataactcgcgactgcgttaactcgttcgcaaaaatggttcttctgtaaccattatcgacga
 tatctacgatgtatagcgcacccctggacgaactggagctgttactgtatgcagltgagcgttgggacgttaaacgccatca
 acgaactgcgcgattacatgaacgtgttcttctggtctgtatnaacataatfancgnaategcctacgacnaactgnaag
 afaaagggtgagaacatctcgtcgtatcagcaaaagcctgggtgacgtgtgcaacgcgttctcgtcgaagaagcgaagt
 gctgtacaacaatctactcgcaccttgcagactacttgcgcaacgcgatggaaatctcttctggcccgtcgaactgtgt
 gttcgttacttctcgtctgtgagaaacattaaaaaggaagagatcgnaaacctgcacaaataccatgacaccatctctc
 gtccttcccatatctcgtctgtgcaatgaactggctagcggctgtgcggaatttgcgcgttgggaaacgcgaatagcg
 tttcttgttatacgcgcactaaagggtatctcgaagaactggctacggaagcgtgatgaatctgalegatgaacactgg
 unaaagatgaacaaagggaanaactgggtggfagcctgttgcggaacccgttcgtggaaacccgatcaactgtggcagct
 caatctcactgcacitacataacggcgacgcgcataactctcgggtgagctgacccgcnaacgcgttctgtctgtatc
 aefgaaccgattctgcgttgaacgctaaaggatccgaactgagctcgtcgcacaagcttgcggccgactcagcaccac
 caccaccacacatgagatccggctgtacaaagcccgaagggaagctgagttggctgttgcaccgcgtgagcaataactagc
 ataacccttggggcctctaaacgggctgtgaggggttttctgtgaaggagggaactataatccggat

SEQ ID NO:30

Figure 137C

[illegible]

Figure 137D

gltcgtatccacactacagagatattccgacccaacgcgcagcccggaactcggtaatggcgcgacattggcgccagcgccatcigtat
cgttggcuaaccagcatcgcagtgggaaacgagtgccctcattcagcatttgcaigtgttggtaaaacccggacatggcacccagtc
gcccttcccgthcccgctatcggctgaatttgattgcgagtgagatattatgcagccagccagacgcagacgcgcgcagagacaga
acttaattgggcccgcgtaacagcgcgcatttgcgtgtgacccaalgcgaccagatgctccacgccagtcgcgtaccgttclcatgg
gagaaaataatactggttgatgggtgtcgtgggtcagagacatcaagaaataacgccgggaacattagtgcagggcagcttccacagca
atggcctctcgttccagcgggatagtgtaattgacagccactgacgcgttgcgcgagaagatgtgaccggccgcttaccagg
cttcgacgcgcgttcttaccatcgcacccacgcgttggcaccagtgatcggcgcgagatttaatcgcgcgacaatttg
cgacggcgcgctgcaggggccagactggaggtggcaacgccaatcagcaacgactgtttgcccgccagtggtgtgcccacgcgcg
tgggaatgtaattcagctccgcctcgcgcgttcccttcttccgcgttllcgacagaaacgttgcttggccttggttaccacgcgcg
gaaacgggtctgataagagacacccggcatactctgcgacatcgtataacgttactggtttcacattaccacccctgaatlgactctt
ccgggcgcgtatcatgcacataccgcgaaagggttgcgcctatcgtatgggtctcggggtatcgcagcgtctcccttattgcgactctg
cattaggaaagcagccagtagtaggttgaggccgttgagcaccgcgcgcgaaggaaatgggtgcatgcaaggagatggcgcc
caacagtcccccggccacgggggcctgcacccataccacgcgcgaacaagcgtctcatgagcccggaatggcgagcccgatc
tccccntcgggtgagtgccggatatalaggcgccagcaaccgcacctgtggcgccgggtgafgcggccacagatgcgtccggcg
agaggatcgcagatctcgatccgcgaaatlaatacgaactcactataggggaattgtgagcggatnaacaaatccctctagaata
atttgtttaacttaagaaggagatatacatalgcgttgtagcgtgtccacggaaaaatgtgtcttctcaecgaaactgaazccga
aacgcgtcgttcttggaactnagaacctaacagctgggactatgattfaactcgtgtctcccgacaacggacgagtcctatcg
aagtatacaaaagacaaageganaaaagctgggaagccgaagtctcgtcgcgagatttaataacgaaaaagecagaatttctg
accttgcgggaactgattgacaaacgtccagcgcctgggcctggggttaccgttccagttctgatactcgtctgtgcgtggat
cgttctgttctctcggggcggttgcagtgagggtlaaccaagacttccctgcacggagcggcaactgtcttctcgtctgtgcgtc
aacacgggttggagggttctcagggaagcgttcagcgggttaaaagacccaaaacgggcaacttctgaaaaaccfgaaggga
agatafcaaaagctatcctgagcctgtacgagggcagcttctcgtcctcgggaaggcgaaaacatccttggaacgagggcgaa
gggttctgcgaatctctcatctganaagaaactgtctgaagaaagatcggttaagatctgggcagaaacaggtgnaaccatgca
ctgggaactgccactgcatacgcgtactcagcgtctggaagcagtatgggtctatctgaggccctaccgtaaaaaaggaggagc
gggatacaggttctgtctggagctggcaattctgggattacaacatgatcagctctgtataccagcgtgactcgcgtgaanaact
cccggttgggtggcgtcgtgtgggtctggcgaccaaaactgcaacttctgtcgtgacccgctgattgagagcttctatctgggcg
tgggtgtgacattcgaaacgcgaatactcgaactcgcgtgaaactcgcgtcgcaaaaatgttcttctgtaacctatttcgacga
tatctncaatgataacggcaacctgggaagaaactggagctgttactgacgcagttgagcgttgggncgtaaacgccatcgc
acgactcgcgggattacatgaaactgtgcttctgggtctgtataacactattacgnaactcgccctacgnaacctgnaag
ataaagggtgagaaactctcgcgtatctgaaccaaaagcctgggctgacctgtgcaacgttctcgcgaagcgaagctg
gtctgtaacaaactctactcgcaccttgcaggaatactcggcaacgcagtggaatcctctcttggccccgtgcaactggt
gttgccttaactcgtctgtctgacgaacattaaanaagggaagagatcgataacctgcaaaaataccatgacatactctct
gtcttcccaatafcttccgtctgtgcaatgacctgtgtagcgcgtctgcggaatttgcgtgtgggtgaaaacggcaaatagcg
ttcttgttaactgagcaactaaagggtatctccgaagaactgggtaccgnaagcgttgatgaatctgatacgatgaaacctgg
aaaaagatgaacaagggaanaactgggtgggttagcctgttcgcgaaacccgttctgtggaaacccgcgatacaacttggcaact
caatctcaactgcaactatacauaggcgacgcgcatacctctccggatgagcctgacccgcgaacccgcttctgtctgtaac
actgaacccgattctgcgcgttgaacgctaaaggatccgaattcgagctccgtcgacaagccttgcggcgccagctcgcacccac
caccaccaccacactgagatccggcgtctacaanaagcccgaagggaagcctgagttggctgtcgtccaccgctgagcaataactagc
ataaaccccttggggcctctanaacgggtctgaggggttthtctgaaggaggaactatataccggaal

SEQ ID NO:31

Figure 137E

lggcgantggagcgcgcclgtagcggcgcaatnagcggcgcggtgtgtgtgttacggcgagcgtgaccgctacacttgc
 agcgccctagcggcgctccttgccttctccttctctctcgcacgttgcggcgcttcccgctcaagctctaaacggggg
 tcccttaggggtccgalttaggtcttacggcaccctgaccccaaaaacttgattaggggtgatgttcacgtatgggccaatgc
 cctgatugacgggttttgcgccttgacgttggagctcagcttcttaatagtggactctgttccaaactgguaacaaacacccaacct
 atctcggctctatctttagttataagggttttgcggttgcgccttttgggttaaaaaatgagctgatttaaaaaaatttaacggga
 atttaacaaaaafatnagcttacaattcaggtggcacttctgggggaatgtgcgcgggaacctctattgtttattttctaaatcacat
 tcaaatatgtaaccgctcagaaatattctagaanaactctcagacatcaaatgaactgcaatttattcatatcaggatttcaant
 accatattttgaaaaagccgttctgtatgaaggagaaaactcaccggcggttccataggttggcgaagctcttggatcgggt
 ctgcgattccgactcgtccacatcaatacaacctatctatccctcgtcaaaaataagggtatcagtgagaaatcccatgaggt
 gacgactgaatccgggtgagaaggcaaaagtattatgcatcttcttccagactgttcaacaggccagccatctcgtctcatcaaa
 atcactcgtcctaaccaaccgttatctctgtgttgcgccttgcgcggagacgaatacgcgactcgtgttaaaaggacaaatc
 aaacagggaatcgaatgaaccggcgaggaacacgtccagcgcacacaaatattcaccgtgaatcaggatattctctatctac
 ctggaaatgctgtttccggggatcgcagtggtgagtaaccatgcacacagggagtaaggataaaatgcttgatggtcggga
 ggcataaatcctcagccaggtttgtgtgacacatcactgttaacatcttggcaacgctaccttggcaatgttcagaaacaactc
 tggcgcatcgggcttcccatcaacatgatagttgcgcctcgtgttgcgcggacatttgcgcggccactttatcccatataaalc
 agcatccatgttggaaatlaucgcgccttagagcaagacgttccgttgantttggctcataccaccttgttattctgttattgt
 aagcagacagttttatgttcatgacaaaatccctaacgttgagtttctgtccactgagcgtcagaccccttagaaagatcaaa
 ggatctcttgagatccttttttctgcgcglaatcgtctgttgcaaaacaaaaaaccccgctaccagcgggtgtgtgttgcggga
 tcaagagctaccacactcttctcgaaggtaactggcttcagcagagcgcaatacaaatctgtctcttagttagccgtgtgt
 agggccacatcaagaacictgttagcaccgctacatccctcgtctgtctaatccgttaccagtggctgtgtccagtggcgata
 agtctgtgtctaccgggttggactcaagacgatagttaccgggataagggcgagcggctcgggtcgaacgggggggttcgtgcaca
 cagcccgctgtgagcgcgaacgacacacacgaactgagatacctacagcgtgagctatgagaagcgcacgcttccggaag
 ggagaaaggcggacaggtatccgtgaagcggcaggtctggaacaggagagcgcacgagggaggttccaggggggaacg
 cctgggtatcttatagtctgtcgggttgcacccctgactgagcgtcgtatttgtgatcgtcgtcagggggggcgagcgtatg
 gaaaacgcccagcaacgcgcgttttaccgttcttggcctttgtgcctttgtcctacatgttcttctcgttaccctgtatc
 tctggataaccgtattaccgctttagtgagctgataccctcgcgcagccgaacgaccgagcgcagcagtgatcagcgc
 aggaagcgggaagcgcgcctgagcgggtatttctctacacacacgtcgtggtatctacacccgataatgttgcactctcagtac
 auctgtctctgagtcgcatagttaagccagataacacccgtatcgtacgtcactgggtcgtatggcgtcccgacacccgc
 caacacccgtgacgcgcctgacgggctgtgtctcgcgcgcacccgttaccagacaagcgttgaccgtctccgggagctgc
 atgtgtcagaggttttaccgctacacggcaacgcgcgagggcagctgcggtaaaagctcaccagcgttggtcgtgaagcgatca
 cagatgtctgocgttccacgcgcagctcgttgaggttctccagaagcgttaatgcttggcttctgataaagcgggcatgttaa
 ggccgggttttctcgttgggtcactgagctcctcgttaagggggatcttctgtatgggggttaataaccggtgaagcgaagga
 ggatgtctcagcgtacgggttactgagtgatgaacatgcccggttactgggaacgttgtgagggtaaaacacggcggtatggatgc
 ggcgggaccagagaaaaatcaatcagggtcaatgccagcgtctcgttaatacagatgtaggtgttccacagggtagccagcag
 catctcgcagatgcagatccggaacataatgttgagggcgcgtgactcgcgcgttccagacttaccgaaacacgggaacgggaag
 accattcatgttgtgtcaggtcgcagacgtttgcagcagcagctcgttccgctcgtcgcgtatccgggtatcttctgtctaac
 caglaaggcaacccccgcagcctagccgggtctcacaacagcagggagcacgatactcgcacccgttggggccgcatgccc
 ggcataatggcctgctctcgcgcgaacgtttgggtggcgagccagtgacgaaggcttgagcagggcggtgcagatccgga
 taccgcaagcgcagggccgcatcgtcgcgcctcagcgaagggctcgcgcgaatgacccagagcgcgtcggcgac
 ctgtctacagagtgatgataaagagacagtcataagtgccggcgaogagtgatgcctcccgccacccgggaagggagctga
 ctgggtgaaggctcacaagggtcctcggctcagatccgggtgcctaaatgagtgagcctacatcaatgaatgtcgtcgtcactg
 cccgcttccagctcgggaacacctgtcgtccagctgcatatgaatcggccaacgcgcggggagagggcggttgcgtattggg
 cggcaggggtgggtttcttaccagtgagcgggcaacagctgattgccttaccgctcggcctgagagaggtgacgacag
 cggctcacgctgggttgcggcagcggcaaatcctgttgaatgggtgaacggcgggatataacatgagctgtctcgggtac

Figure 137F

gtcgtatcccactaccgagatatccgcaccaacggcgagcccggactcggtaatggcgcgcatcgcgccagcgccatc|gat
 cgttggcaaccagcatcgcagtggggaacgatgccctcaltcagcaatgcatgggttggtaaaaccggacatggcactccagtc
 gccctcccgticcgatccggtgaattgaitgcgagtgagatatnatccagccagccagacgcagacgcgcggagacaga
 actaatggggccgctaacagcgcgaattgcgtggtaaccatgcgaccagatgctccacgccagtcgcgtaccgttctcatgg
 gagaataataatcgttgatgggtgtctggcagagacatcaagaataacgcgggaacatagtgaggcagcgttccacagca
 atggcatcctgggtcattccagcggatagtaattgatacagccactgacgcgttgcggagagaagattgtgcaccgcgcgttacagg
 ctccagcgcgcgttcgttctacatcgacaccaccacgcgtggcaccagttgatccgcggagatttaacgcgcgcgacaattg
 cgacggcgcgctgcagggccagactggagggtggcaacgccaatcagcaacgactgttgcgccagttgtgtgcccacgcgg
 ttgggaatgtaatcagctccgcctacgcgcgttccacttttccgcgttgcagaaacgtggctggcctgggttccacacgcgg
 gaaacggctgtataagagacaccggcatalctcgcgacatcgtataacgttactgggttccacatccaccctgaatgactctct
 ccggcgctatcatcgcataaccgcgaagggttgcgcctacgcgtgggtgcgcggatctgcagctctcccttatgcgactcctg
 cattaggaagcagcccagtagtaggttgaggccgttgagcaccgcgcgcgaaggaaatggtagcatgaaggagatggcgcc
 eaacagtcccccggccacggggccgtgccaccatacccacgcgcgaacacagcgcctatgagcccgaagtggcgagcccgatc
 tccccatcgggtgatctggcgafataggcgccagcaaccgcacctgtggcgccgggtgatccggccacgatgcgtccggcggt
 agaggatcgagatctcgatcccgcaaatlaaacgactcactatagggggaattgtgagcggataacaattccctctagaata
 atttggtaactttasgaaggagatatacatatgcgtttagcgtgtccacgcgaatatgtgtcttctcigaactgaacccgaacg
 cgtcgtctgcgaactacgaacctaacagctgggactatgattacctgcgttccctccgacacggacgagtgccatcgaagtacaca
 aagacaaagcgaaanaagctggaaagccgaagctgcgcgcgagattantacgaanaagcagaattctgacctgctggaactg
 attgacaacgtccagcgcctgggctgggttaaccgttccaggtctgataccgtctgctgcgtggatcgcctgttctccggcg
 ctccgatggcgtaaccaagacttccctgcacggtaacggcactgcttccgtctgtgcgtcaacacgggttggagggttctcaggga
 agcgttcagcggcttcaaaagacaaaacggcacttccctggngaaccigaaaggaaatcatcaaaagctatccctgagcctgtacga
 ggccagcttccctggctctggaaaggcgaaaacatccggacgagggcgaagggtttcgaatctctcatctgaagaactgtctgaa
 gaaaagatcggtaagagctggcagaaacaggtgtccatgcactggaaactgccactgcacgcgcgttactacgcgtctggaaagc
 agtatggctatcagagccctaccgttaaaaggaggagcggaaaccagggtctgtcggagctggcaattctggattacaacatgac
 cagctctataccagcgtgatctgcgtgaacgtccgttgggtggcgtctgtgggtctggcgaccaaaactgcacthgtcgtgga
 ccgcctgattgagagcttctactgggcccgtgggtgtagcattcgaaccgcatactccgactgcctgaactccgtctgaaaaatg
 ntcttctctgaaccattatcgacgatctctacgatgtatagggcaccctggacgaactggagctgttactgatgcagttgagcgttg
 ggagctaaacgccatcaacgacctggcgattacatgaaactgtgcttctggctctgtataacactatlaacgaaatcgccctacg
 acaacctgaaagataaagggtgagaacatccggccgtatctgaccaaaagccctggcgtgacctgtgcaacgcttctctgcaagaag
 ccaagtggctgtacaacaaatctactccgacctttgacgactacttccggcaacgcctggaatccctctcttggcccgcctgcaactg
 alcttccgttacttgcgtgctgcgagaacallaaaaagggaagagatcgaaaacctgcaaaaataccatgacatcatctctgctcc
 tcccatatcttccgtctgtgcaatgatctggctagcggctgtgcggaaattgcgcgttgggtgaaccgcgaatagcgttctgttact
 atgcgcactnaagggtatctccgaagaactggcctaccgaaagcggtgatgaatctgatcgatgaacctggaaaaagatgaacaag
 gaaaaactgggtggtagccgttgcgaaaccgttgcgtggaaaccgcgatcnaacctggoncgtautctcactgcacttatcata
 accggcgacgcgcataacctctccggtgagctgacccgcgaacgcgttctgtctgtatcactgaaccgattctccgttgaacg
 ctiaaggatccgaattcgagctccgcgcgaagcttgcggccgcactcggagcaccaccaccaccaccactgagatccggctgct
 aacaaagcccgaaaggaaagctgagttggctgtgccaccgtgagcaataactagcataaacccttggggcctctaaacgggt
 cttaggggggttttggctgaaggagggaactatccggat

SEQ ID NO:32

Figure 137G

MRCSTENVSFSETETETRRSANYEPNSWDYDYLLSSDTDESIEVHKDKAKKLE
AEVRREINNEKAEFLTLELIDNVQRLGLGYRFESDIRRALDRFVSSGGFDGVTKT
SLHGTALSFRLLRQHGFEEVSQEAPSGFKDQNGNFLENLKEDIKAILSLYEASFLAL
EGENILDEAKVFAISHLKELSEEKIGKELAEQVSHALELPLHRRTQRLEAVWSIEA
YRKKEANQVLLELAILDYNMIQSVYQRDLRETSRWRRRVGLATKLHFARDRL
IESFYWAVGVAFEPQYSDCRNSVAKMFSPVTIIDDYDVYGTLDLELELFTDAVER
WDVNAINDLPDYMKLCFLALYNTINEIAYDNLKDKGENILPYLTKAWADLCNAF
LQEAKWLYNKSTPTFDDYFGNAWKSSSGPLQLIFAYFAVVQNIKKEEIENLQKY
HDIISRPSHIFRLCNDLASASAEIARGETANSVSCYMRKGISEELATESVMNLIDE
TWKKMNKEKLGGSLFAKPFVETAINLARQSHCTYHNGDAHTSPDELTRKRVLS
VITEPILPFER

SEQ ID NO:33

Figure 137H

[illegible]

Figure 137I

gtcgtatccactacagagatccgcaccaacggcgagcccggactcggtaatggcggcattgcgcccagcccatctgal
 cgttggcaaccagcatcgcagtgggaacgatgccctcattcagcatttgcaggttggtaaaacggacatggcactccagtc
 gccctccogttccgctatccggctgaattgattggagtgagataatgcccagccagccagacgcagacggccggagacaga
 acttaattgggcccgcataacagcggcatttgcgtggtgaccnaatgcgaaccagatgctccacggccagtcggtaccgtctcagg
 gagaaataatactgttgaatgggtgtctggtcagagacatcaagaaataacggccgaacattagtcaggcagctccacagca
 atggcatccctggteatccagcggatagttaatgatcagcccactgacgcgttgcgcgagaagatitgicaccgcccgttiacagg
 cticgacggccgttcgttctaccatcgacaccaccacgcttggcaccacagttgatcgccggcgagatttaacgcgcgacaatttg
 cgacggcgccgttcagggccagactggaggtggcaacggcaatcagcaacgacigtitggcccgctagttgttggccacggcg
 ttgggaatgtaatcagctccgcacatcgccgttccactttcccggtttccgcagaaacgttggctggcctgggttccacacggcg
 gaaacggctcgataagagacacggcactacttgcgacatcgataacgttaactggtttcacatcaaccacccgaattgactctct
 ccggggcgtctatcatgccalaccgggaagggttttgcgccatcagatgggtgtccggatctcgacgctctccatagcgactcctg
 cattagggaagcagcccagtagtaggttagggccgttagcaccggccggccgaaggaaatgggtcatgcaaggagatggcgcc
 caacagtccccccggccacggggcctggccaccataccacggccgaacaaaggcctcatgagcccgaaagtggcgagcccgatc
 tccccatcgggtgaigtggcgatagggcgccagcaaccgcacctgtggcgccgggtgatccggccacgatcgctccggcg
 agaggatcgagatctcgatcccggaatttaacgactcactataggggaatttggagcgggataacaattccctctagaaata
 atttcttaacttaagaaggagatatacatatgcattttagcgttgcacccganaattgtgtctttcccgaaactgaa
 accgaaaacggctcggttcigcgaactacgaacctaacagctgggactatgattaccigtgtctctccgacacgggaegagtc
 catcgaagtatacaagacaaaggcgaanaagctggaagccgaagttcgtcgcgagatttaataacgaanaagcagaat
 ttctgaaccttgcgtgaactgattgacaaegteragcgcctgggctgggttaacgttctgagttgatatccgtcgttgcgt
 ggatcgcttcttctccggcggttctgatgggttaaccaagaatccctgcaacgggaacggcactgtcttccgtctgtctg
 cgtcaaacgggttttaggtttctcaggaagggttcagggcctcaasgacaaaaacggcaactctctggagaaccttga
 aggaagafatacaaaactatccctgagcctgaacgagggcagcttcttggctctggaaggcgaaaaacatcttggacgagg
 cgaagggttttcgcaatctctcatctgaagaacttctgaagaaaagatcggtaangacttggcagaacagggtgaacca
 tgaactggaaactgcactgcacatcgccgtactcagcgttgggaagcagtaetgtctatcgaggcctaaccgtaanaaggag
 gaacgggatacaggttctgtggagctggcaattctggattacaacatgatccagttctgtataccagcgtgatctgcgtgaa
 acgtcccggttgggtggcgtctgttgggttctggcgnccaaactgcacttctgtcgttgcacccgtgattgagagcttctactgg
 gccgtgggtgtgagatctgaacccgaatactccgactgcgttaactccgttcgnaaaaigtcttcttctgtaaccattatcg
 acgatactcagatgtatcggcaacctggacgaactggagcgtttactaaacgagttgagcgttgggacgttaaacgccc
 atcgaagatctgcgggattacatgaacactgtcttctggctctgtataacactatlaacgaalcgcciacgacaaectg
 aaagaaaaagggtgagaaactctgcgtatctgacnaaggcctgggtgacctgtgcnaacgttctctgcaagaagcga
 agtggctgtacacnaattctactccgacctttgacgaatacttctggcaacgcatggaaatccctcttctggcccgctgcaac
 tgggttctgcttaacttctgtctgtcgcagaaacttaaaaagggaagagatcgaaaaacgtgaaaaatacattgacatcatc
 tctgtcttctccataacttctcgtctgtgcaatgacctggctagcggctgtcggaatctgcccgttgggtgaaacggcaata
 gccgttcttcttactgcgcactaaagggtatctccgaagaacttggctaccgaanagcgttgaatgaatcgtatgaaact
 gguaaagatgaacnaagggaanaactgggttggtagccttcttgggaanacgttctgtggaaacccgcatcaacctggca
 cgtcaatctcactgcacttatacataaeggcgacggcgaatactctccggatgagctgacccgcaaacgggttctgtgtgta
 ataactgaacggattctgcccgttgaacgctnaaggatccgaattcgagctcgtcgacaagcttggggccgcatcgagcac
 caccaccaccacactgagatccggcgttgaacaaaggccgaaagggaagctgagttggctgtctgcccacggctgagcaataact
 agcataaccccttggggccctcnaaacgggttcttgggggttttctgtaaggaggaactatccggat

SEQ ID NO.34

[illegible]

Figure 137K

gtcgtatccactaccgagatataccgaccaacgcgcagcccggactcggtaalgccgcgcattgcgcccagcgccatcigai
cgttggcaaccagcatcgagtggganccgatgccctcaticagcatttgcattggtttgtaaaaccggacatggcactccagtc
gccitcccgttccgctatcggtgaattgattgcgagtgagatattatgccagccagccagacgcagacgcgcggagacaga
acttaattggcccgcgtaacagcgcgatttgcctggtagcccaatgcgaccagatgcicccagcccagtcgcgtaccgtcttcattgg
gagaaaataatactgttgatgggtgtctggcagagacatcaagaaataacgccggaacattagtcagggcagctccacagca
atggcaticctggctatccagcggatagitaatgacagcccactgacgcgttgcgcgagaagatgtgcaccgccgcttacagg
cttcgacggccgcttcttaccatcgacaccaccagcctggcaccagttgatcggcgcgagattiantcgcgcgacaatttg
cgaecggcgcggtgcagggccagactggagggtggcaacgcccaatcagcaacgactgttgcgccagttgttgcaccgcgg
ttgggaatgtaattcagctccgccatcgccgcttccacttttcccgcttgcagaaacgttggtgtggtgtgttaccacgcgg
gaaacggctcgataagagacaccggcactctgcgacatcgataacgttactgtgttccattcaccacccctgaattgactctct
ccggggcgtatcatgccataccgggaagggttgcgccattcgatggtgtccgggtatctgcgcgtctctcccttatgcgactctg
cattaggaagcagcccagtagtaggttagggcgttgcagccgccggcgaaggaaatggtgcattgcaaggagatggcgcc
caacagtcgcccgccgcacggggcctgccaccataccacgcgcgaacaagcgtcatgagccgaagtggcgagcccgatc
ttcccatcgggtgaltcggcgatataggcgccagcaaccgcacctgttggcgccgggtgaltgcggccacgatgcgtccggcgt
agaggatcgagatctcgatcccgccgaantaaalacgaclicactatagggaattgtgagcggataacaattccctctagaaata
atttgtttaaacttaagaaggagatatacatatgtctctgtttctaccgagaacgttttcttcaactgagacggaaaaccgagge
acgtgttagcgcgaactacgagccgaatagctgggactacgaatttctgtcttcttccgntactgaagaatctattgaggt
gtacaaagacaaagcaagaaactggagggtgaagtcgcgcgcggaattacaacgagaagctgaattcttgaete
tgcgtgagctgatcgataacgtacagcgcctgggtctgggttaccgcttcgaatctgatalccgtcgcgcactggatcgtt
cgtaaagcagcggcggtttcgatggcgtagcaaaaacgagccgtgcacgtaccgcgtcttccgtctgtgtgcgtcage
acggcttccgaagtcttcagggaagcattctccggtttcaaatcaaaaacggtaacttcttggaanaaccctgaanaagac
actaaggcgatcctgagccgttatgaggcnaagcttctggccctggagggtgagaacatcctggatgaggcgccgctatf
ctecatctcccatctgaagagctgtctgaagagaaaatcggtaaggaaactggcagagcaggttaactcaegcactggan
ctgcgcgtgcacgtctgtaaccagcgtctggaggcgggttgggtccatcgaagcgtaccgcaaaaaggaggatgtaacc
aggcttctgtggaaactggccatctggactaenaatgatacagtcctgttaccagcgtgactgtgtgaaacctccgtt
gggtggcgccgtgtggcctggcgacnaaactgcacttcgctaaggacccgctgattgagtttttactgggcagtcggc
gttgcgttcgaacctcagtaattctgactgcgtaacagcgttgcgaanaatgttcagcttcttacttatacgacgacatct
acgacgtttacggtaactctggacgagctggaaactgttaccgaacgtctgtgaacgttgggatgttaacgccatcaacgat
ctgcctgaactacatgaanaactgtgttcttggcactgtataacacgaacgaatgtcacaacgacaacctgaagacaa
agggtgaanaaatacttgcgtacactgaactaaagcgtggggcggatctgtgttaacgcttttctgcaagaagcgaaatggcgt
ataacaaatecaactccgaccttgcgattatttcggcaatgcctggaaatccagctcggcccgctgcaactgatcttcg
cttatttttgggtgttccaaaacatcaaaaaggagggaattgaaaacctgcaaaaatacccgatatcattagccgtct
tcteaatcttttgcctgtgcacgaactggcnaagcgcgtccgcagagatgcacgtggcgaaaaccgtaactctgttcc
tgctaactgcgcaccaagggcatttccgaagagctggcnaacggagagrgtaatgtgatcgagaaacctgttag
aaaatgaacaaagaaaaactgggtggctccctgttcgcaaacggttcgtagagactgctattaaactggcaegtcaga
gccactgcaacctcaacaaatgggtgaegcaactatagccggatgaactgactgtaaacgtgactgtctgttatacc
gaacggattctgcgttgcgaactgaactgcagctggtaggactcgaattcagctcgtcgcagaagcttgcggccgcaactg
agcaccaccaccaccaccactgagatccggctgttaacaaagcccgaaaggagctgagttggctgtctgcaccgcgtgagca
ataactagcataaccccttggggcctctaaacgggtctgagggtgttttgcgtgaagggagggaactatataccggat

SEQ ID NO:35

Figure 137L

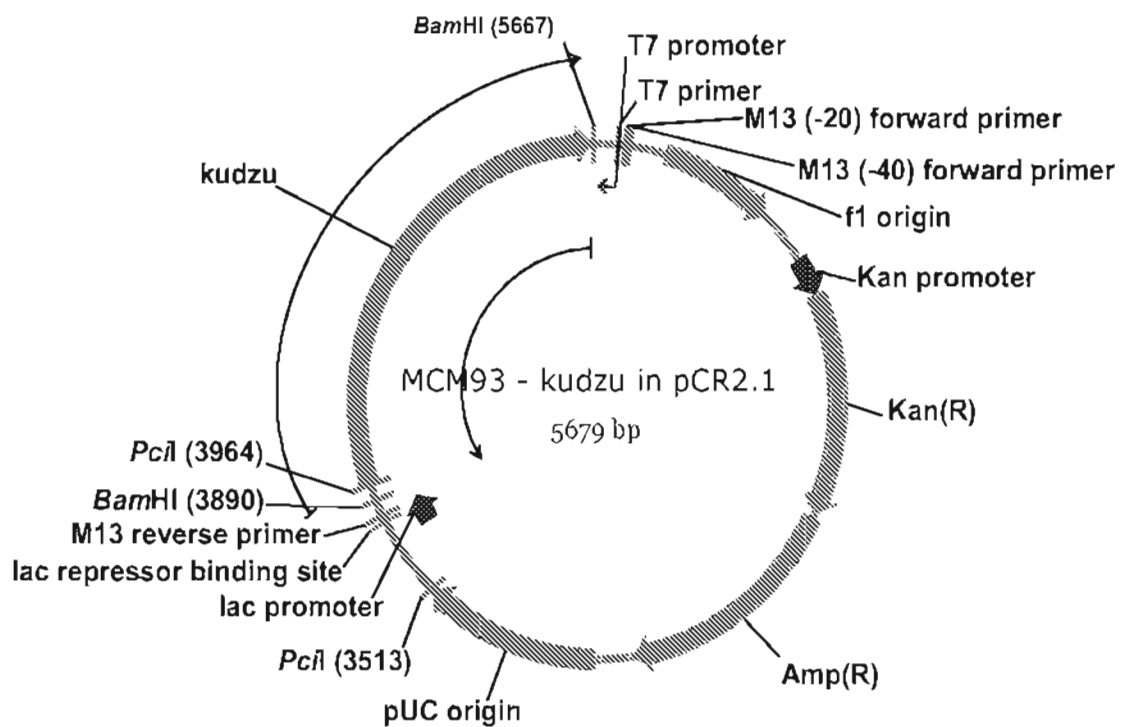


Figure 137M

plasmid HCM93 = gCR2.1-Kudzu

[illegible]

Figure 137N

aaagtggaaaagctggaggagaaagcgaaccaactggagggaagaaagcttcgctggcatgatcaaccgtgttagacaccca
gocgctgtcccttgctggagctgatcgaagatgtgacgcgcctgggtcttgacctacaaacttgaaaaagacatcatt
aagccctggaaaacatcgtactgctggagcgaacaaagaaacaaactctgacctggacggaaacggctctgtcttc
cgtctgctgctgctcagcacgggttcgaggttctctcaggtatgttcttgagcgtctcaaggatataagaggtgttctcag
cgggtgaactgaaggtgacgtccaaggcctgctgagcctgtatgaagcgtcttacctgggtttcggagggtgagaaac
tgctggaggaggcgggtacctcttccatcacctacctgaagaaacacctgaaagaaaggcatataatagcaagggtgca
gaacaaagtggagccacgcctcggaaactgcaatatacaccagcgtctgcaacgctctggaggcagcttggttctctggataa
atacgaacccgaaagaaacggcatcaccaagctgctgctggagctggtgaaagctgggtctttaaactgggtatagacccctgc
accagaaagagctgcaagatctgtcccgctggtggacccgagatgggcctggctagcaaacctggattctgtacgcgac
cgcttgatggaaagcttcttctggtgactggttatggcgccagacccgcagcttgggtgaatgtcgcaaaagctgttc
taaaatgttctggtctggtgacgataatcgatgacgtgtatgacgttctatggcactctggaagaaactgcaactgttca
ccgatgctgttagagcgtggtgacgttaacgctataaaccctgcgggactatagcaaacctgtgttctctggtgactg
tacaacacccgttaacgacacgtctctattcttcttgaaagagaaaggctataaacaacctgtctctctgacgaaag
ctggcgtgaaactgttgcaaaagccttctctgcaagagggcgaactgtgttcaacaaacaaacttatcccggtcttctccaagt
acctggaaaacccgcagcgttctctctctcgggtgtagcgtctgctggcgcgtcttacttctccgtatgcacgcagcag
gaagacatctccgacacgcgcgtgctgcttccctgaaacgaacttccatgggtctggtgngtctctagctgcttatcttccg
cctgtgcaaggaacttggtgcaactctgctggcggagctggaaagctggcgagactacdaattcttatcatatagctacatgc
acgaacacgatggtaccagcggaggaacaggcccgcaagaaactgctaaactgatcgacgcgaatggaaaaagatg
aatcgtgaaagcgttagcgaacttcaacccctgctgcttaaaagcgttctatggaaatcgcagctaaacatggcagcngtctc
ccacggcacctaacagctatggcagatggtctgggtcgcgcagactacgcgactgaaaaacgcacataaactgctgctga
ctgaccttctccgattaaaccagctgctgtatgtctaaactgcagggtatcgtcgacgc

SEQ ID NO:36

Figure 137O

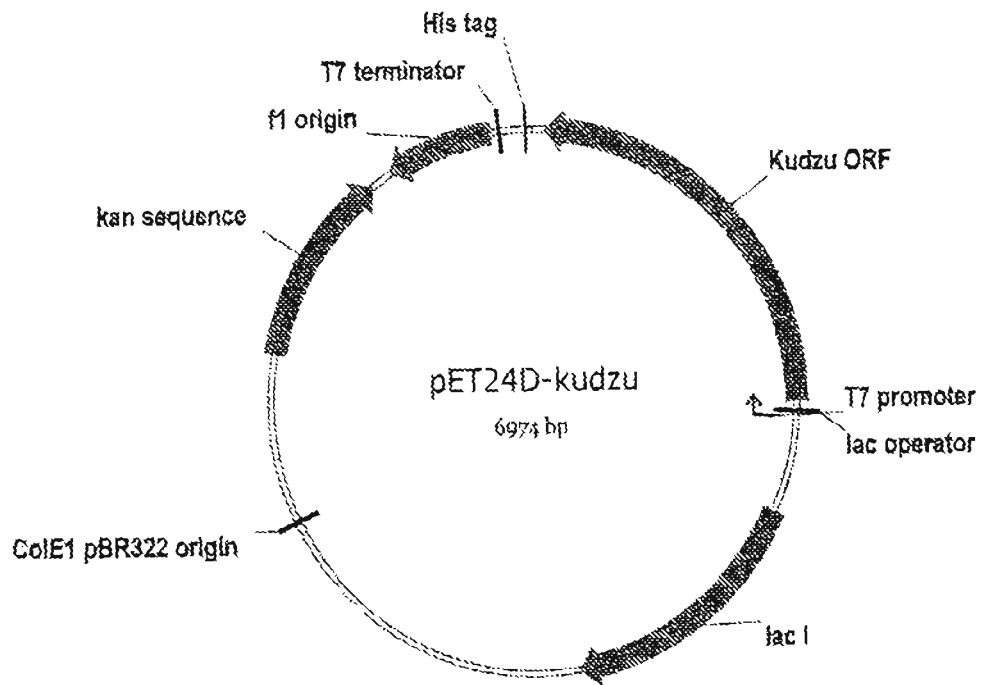


Figure 138P

ptE724D-Kadzuu Kudzru IapS ORF 48-1742 (complementary)

Figure 137Q

aaatcccccttaccagggaggcaatcagtcgacaaacaggaataaacccgcccctaacacggcccgcttaccagagagcc
 agacatctaacggcttctggagaaactcaaacgagctggagcgggatgaacgggcagacatcttggaatcgctcccgac
 cagctgagtgagcttaccggcagctgctcgctggcttctggctgagtgacggctgaataacctctgacacatgacgctccg
 ggagacggctcacagcttctgctgtaagcggatggcggggagcagcaagcccgctcagggcgcgctcagcgggtgcttgggcg
 ggctgtcggggcgagccatgaacagctcagctagcgatagcggagctgtatctggcttaactatggcgcatcagagc
 agatctgtagtgagagtggaacctatctggcgctgctgaataacggcagagctggctgaaggagaaataacggcctcagggc
 gctcttccgcttccctcgctcagctgacctcgctggctcggctcggcttctggctcggcgcgagcggtatcagctcagctcaag
 gcggttaatacggcttaccacagaaatcaggggataaacggcaggaagaaacatgtgagcnaaaggccagcnaaaggccag
 gaacgctaaagggcgcgcttctggcgcttcttccataggctccgcccctgacgagcctcagcaaaatcgacgct
 caagcagagggctggcgaaacccggacaggaatataagatacgaaggcttctcccgctggagagctccctcgctggcgct
 cctgctcggcagccctggcgcttaccgggatacctgctcgcttcttccctcgggagagcgctggcgcttctcctatagctc
 acgctgtaggtatctcagctcggtgttaggtcgtcggctcgaagctggcgctgtgtgacgaaccccgcttccgccc
 acgctgtaggtcttaccggttaactatcgcttggagccacccggctaaagacaggaacttaccgctcagcgagcagcc
 actggttaacaggatctagcagagcgaggtatgtaggcggtgctcagagcttctggaagcggtggcttaactacggcta
 cactagaaggaagcttctggctatctggcgctcgttgaagcgagctacctcgggaagagagctggctagcttctgat
 cggcgaaacacaccccgctggctggctggcttcttctgttctgcaagcagcagatcagcgcgagaaagggctc
 caagagagatccttggatcttctcaggggtctgaagctcagtggaacgaacacacagcttaagggtatcttggctcat
 gaacacataaaactgctcgttaccataaacagtaatacaagggtgtgttatgagccatctcgaagggaacgctctg
 ctcaaggcgcgcttataatctccacatggatgctgatttatatgggttatatggcgctcggctatgaatggcggaatc
 aggtgagcaaatctatcgattgtatgggaagcccgatggcgacaggttgttctggaacatggcgaaggtagcgttq
 ccaatgctgttaccagatgagatggctcagacaaactggcggaaggaatttatcgctctcggacacacagcattt
 atcgctactcctgctgctgcttggcttactcaccactggatcccggggaacacagcactccaggttatctgaagaaata
 tccctgattcaggtgaaatatttggctgctggctggcgagcttctcggcgcggttggcttggatctcctgttctgaatt
 gctctcttaacagcgatcgcttctcgtctcggctcagggcgcaatcaggaatgaataacggcttggctgctgaggt
 gcttcttgaagcgaggtgaatggctggcttggctgaacaggtctgggaagaaatgcatataacttctggcattctcagc
 ggatctcagctcgtcactcaggtgatttctcacttgaataacccctattctgagcaggggaatcaataggtctgtatg
 atgttggagaggtcggaatcggcagacggatccagggatcttggcactcctatggactgctcggctgaggttcttctc
 ctatctacaggaacggcttcttcaaaaatctggcttggatattctgactatgaatgaataaaatggcaggttctcatttga
 ctgaggttcttctcaggaatcttctcagcagggatctcactatctgaaatgcttcttgaagaaatcaaaccaatcggggct
 ccggcgacatcttcccggaaggtgctcagccgaatctggaacgcttaactatcttcttgaatctcggcttcaatttctg
 ctcaactcagctcatttctcagcnaatggcggaatcggcgaaatccctctataatcaaaaggaatagacagagatag
 ggctgaggttcttctcagcttctggaacagaggtccacatctaaagacgctggatcccaacgtcgaaggcgaaacac
 gctctcagggcgatcggccactacgtgaacacatccctaatcaggttcttctggggctcagaggtgctcgttaagcact
 naacgggaaccccaagggagcctccgatttagagcttgaagggaagcggcggaacgtggcgaggaaggaaggga
 agaaagcgaaggaagggcgctggggcgctggcgaaggttagcggtcagcttggcggttaacccacacaccccgctg
 cttaatggcgcttaccagggcgctcccatcggcctcgggtatagttctcctcttccagcaaaaacccctcag
 accgctcagagggcccaagggttatgctagttatctgctcagcggtggagcagcgaactcagcttccctctcgggc
 ctctgctagcagcggatctcagtggtggctggctggctgctga

SEQ ID NO:37

Figure 138

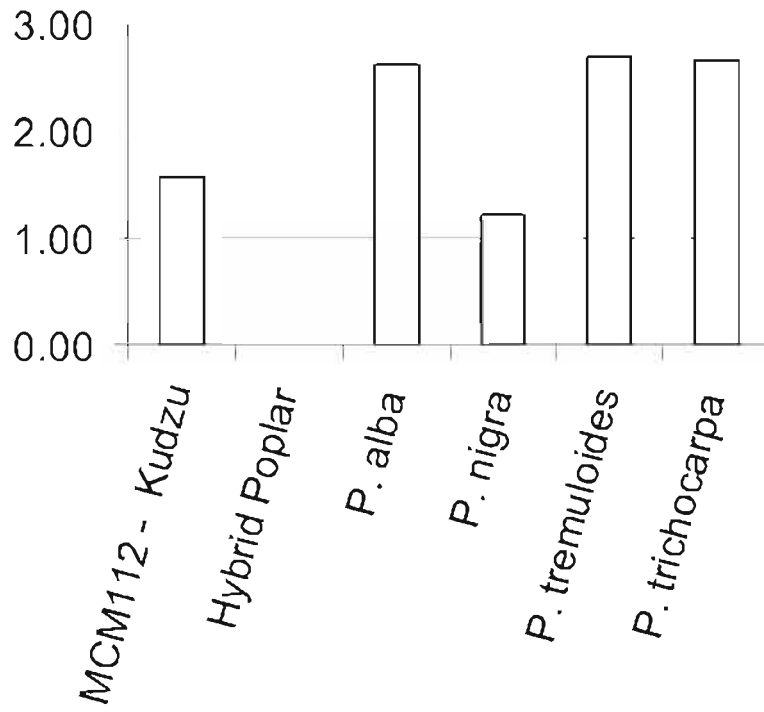


Figure 139

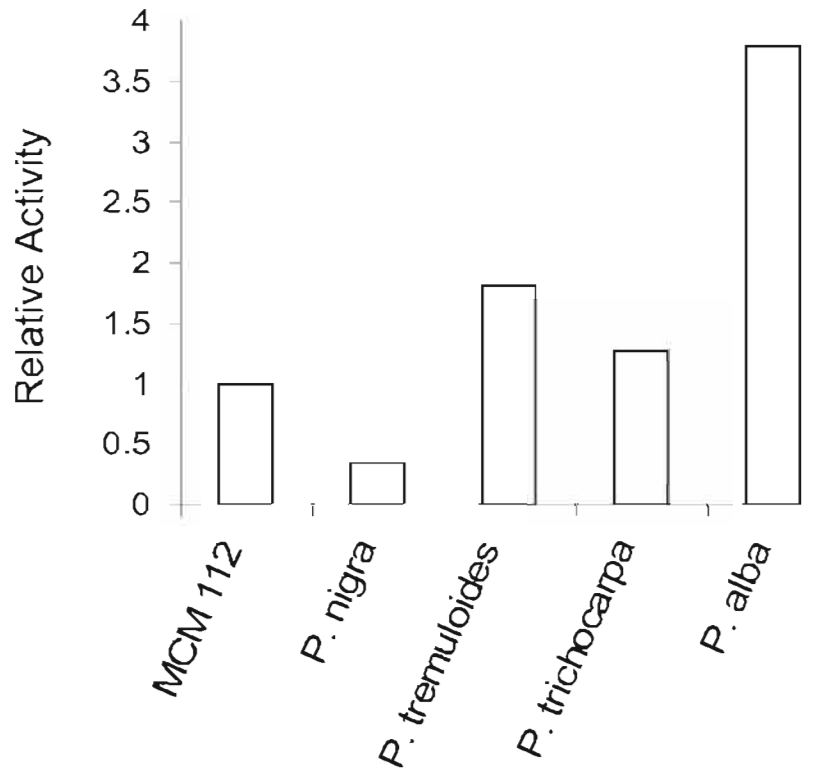


Figure 141

gaattcaaaagtgtgcaacttcacccaattcactcaaatcacagagcatalaattctagacgttcagctaactaccaaccaaatctgt
 ggaattttgaatttctcaatcccttgaanaatgatttgaagtggaanaagttggagggaanaagccacaaactagagggaagaagt
 agatgtatgataaacagagtagatcacaaacctctgicactactagaattgatlgacgatgtccagaggctgggtttaacatataag
 ttcgaaaaggatataatcaagccttagaanaacatagtccttctagatgaaaacaagaagaataagtcgacttgcacgcaaccg
 ctctgagtttagaattgctgagacaacatggtttgaagtaagtcaagatgtgttgaagggttcaaaagacaagaggaggagatct
 caggagaattaaaggagagatgtgcagggtctgttgcattgtacgaggccagttatttgggggttgaagggggaaaatctactaga
 ggaggccagaaaccttctctataacccatctgaagaataacttgaagaaggccatcaatacaaaagtggctgaacaaagttcacat
 gcatagggaattgccctaccaccaagacttcagacttgaagccagatggtttggacaagtatgaaaccaaggagccctacc
 atcaactttattggaaatagcaaaactggatttaacatgggtcagacattacaccagaagaagattgcaggacctatcaagatgggtg
 gacggagatgggttagccagcaagttagatttcgttagagatagattgatggaagttacttttgggcactgggaatggcaccag
 atcccaatttgggtgaatgtagaaaggcagttacaagatgtttgggtctagtaacaatcatigatgatgttatgatgtgtacggaactt
 tggatgaattacaactatcacccgacgcagttgaacgttgggatgttaacgcaataaacacagttgcctgattatataagctgtgtt
 tctggcattgtacaacacagtcattgacacttctactccatttaaggagaaaggccatacaaatctatectatttgacaaaatcat
 ggaggggagttatgcaaaagcattccctcaagaaagctaaagtggctcaacaataagataatccagcatttccaagtatcttgaanaac
 gcttccgtatcctctcgggtgtggccctactagcuccatcatattttccgtctgccagcagcaggaagatatctctgatcatgttt
 gagatccttaacagatttcatgggtctagtcagatcctcttgggtgatttcagattgtgcaatgatllggctacttcagccgagagtt
 agagaggggtgaaccaacgaactcaattattagttatatgcacgagaatgatgggaacatccgaagaacaagcccgtgaagaati
 aaganaactgaicgatgtctgaatggnaagaagatgaatagagaagaagagttccgacagcacititgctgctlaaggcaattcatgga
 gatagctgttaacatggctagggtttcacactgtlacataccaataccggggacgggtcttgggaaggcccgactacgccactgaaat
 agaattaaactgctactgattgaccttcccccataaccagttaatgtacgtgtaatagggatccgaattc

SEQ ID NO:38

Figure 142A

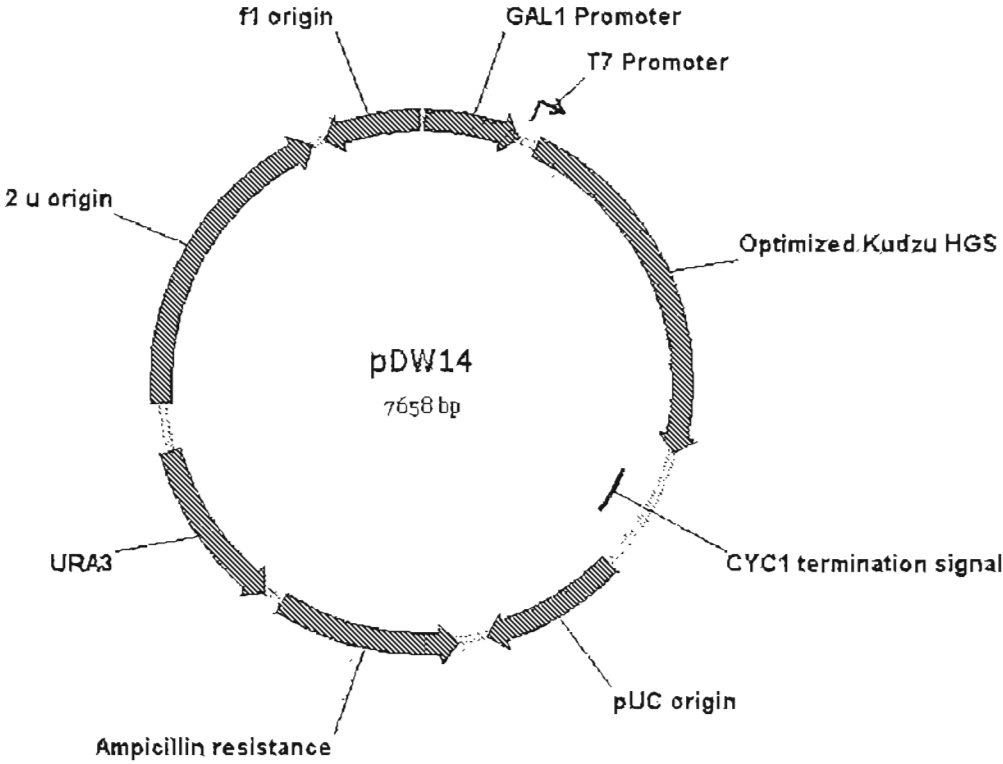


Figure 142C

taccgcaataaaccagccagccgggagggccgagcgcagagagtggtccgcaacsttaccgcccacccagctctattaattg
 ttgcggggaagctagagtaagtagttccaggttaattgttgcgcaacgttggcattgclacaggccatcgttgggtacccic
 gtcgttgggtatgggtcattcagctccgggttcccaacgatacaggcaggttaccatgatccccatgttggcaaaaaggcggttag
 ctcctcgggtccctccgacgttgcagaaagtaagttggccgcaggttatacaccatggttatggcagcactgcataatctctactg
 tcatgccatccglaagatgctttctgtgactgggtgagtaacccaagtcattctgagaalagtgatggcgccgaccgagttgcic
 ttgcggcgccgtaacaggggataatagtgatcacatagcagaaacttaaaagtgcctacattggaaaacgttcttcggggcgaa
 aactctcaaggatctacccgttggagatccagttcgatgtaacccactcgtgcacccaactgatcttcagcatctttactctacc
 agcgttctcgggtgagcaaaacagggaaaggcassaalgccgcaaaaagggaataaggggcgacacggasatgttgaafactca
 tactcttcccttttcaatgggttaatactgatalaanttaattgaaagctctaatitgtgugtttagtatcatgcatcttataatagtr
 tttagtttgggtggcgtctctcaaatatgcttccagcctgtgcttctgtaacgttcccttacccttagcatctctctcttgc
 aatagtcctctcccaataataatgtagatctgttagagaccacatccacgggtctctactgttgaccacatggcgtctccct
 gtcctcaaacccacacccgggtgtcatatcaaccaatcgttaacccatctctccacccatgctctgagcaataaaggccgata
 acaaaacttltgctgtcttccgaatgtcaacagtaaccttagtatattccagtagataaggcgcccttgcattgacaattcgtctau
 catcaaaaaggccctctagggttcccttctactcttctgcggcgtgtctcaaacccgttaacaatacctggggccacacacccgtgtgc
 attcgtaatgtctgcccattctgtctactctgtatcaccccgagagttactgcaattgactgtattaccaatgtcagcaaatitctgtctt
 cgaagxgttaaaaaatgtacttggcggtatagcccttagcggttaacgtggtccctccatggaaaaatcagtaagatatccat
 gttgttttagtaaaaaatitgggacctaattgttcaactaactccagtaattcttgggttagcaacatccaatgaagcacaca
 gttgtttgtcttctgtcattgatatataatagcttggcagcaacaggactaggtatgtagtagcagcacttcttatgttagcttcc
 acatgattatcttctgttccgtcaggttttgtctgtcagttgggttaagaatactgggcaattcattgttcttcaactacatagc
 gtatataaccuatctaaagtctgtgtctcttctcgttctcttctgttctgtgagattacgaaatcaaaaaatitcaaguacccgaa
 atcaaaaaaagaaataaaaaaataatgtagaattgaattgaaaagctagcttaccgtatgalaagcgtcaaaagatgagaattatc
 caaggactatagactatagatactcgtctactgtacgatacacttccgtcaggtctcttcttaccgagggccttaccactat
 ttgttactctatgtatccagctcagcaaaaggcagttgtgataagattctatctcgtgagtagtaaaactagcttagaccgagaaa
 gagactagaaatgcanaaggcacttctacaatggctgcctcatatattacgagttgacgtgtcagcgttcaatgtatctgaat
 acgcttggaggagatacagcctaattccgacaactgtttacagatttacgatcgtactgttaccatcatgttaatttgaacatcc
 gaacctgggagtttccctgaaacagatagatataatgaacctgtataataatataagcttagcgttaccggaagacastgtatgta
 ttccgggtctcggagaaactattgcatctattgcalaggttaacgttcacgtcgcaccccggtcatttctcgttccacttgcactt
 caatagcatatcttgttaacgaaagcatctgtgttctattttagaaacaaaatgcacggcgagagcgctaatitctcaaacaaaga
 atctgagctgcatttaccagaacagaaatgcacggcgaaagcgctatttaccacagaaagaaatctgtgttctatttgaatacaa
 aaatgcacggcgagagcgctaaatttcaaacaaagaatctgagctgcatttaccagaacagaaatgcacggcgagagcg
 ctatttaccacaaagaatctatcttcttcttctacaaaagtcacccgagagcgctatttctaacaaagcatcttgaattac
 ttcttctccttggcgcctataatgcagctcttgcataacttttgcactgtagggtccgttaagggttagaagaaggctacttgggtgc
 tatttctctccataaaaaaggccgtacccacttccggcttactgaattactagcgaagctgcgggtgcatttttcaagataaag
 gcatcccgattatattctataccgatgttggatggcctacttggtaacagaaagtgatagcgttggatgattctctcatttggcagaa
 aattatgaacgggttctctatttgtctctatatactacgtataggaatgtttacatttctgtatgttcttccattcactctatgaatgttct
 lacfacaatttttgtctbaagagtaatactagagataaacataaaaatgttagaggtcaggttagatgcaagttcaaggagcgaa
 aggttggatgggttaggttatatagggatatagcacagagatataagcaaaagagafacttttagcaatgttgggtgaagcggtatc
 gcaatgggaaggtccaccccggttgataatcagaaaaagcccaaaaacaggaagattgtataagcaaatatnaaatgttaacg
 taataatttgttaaaatcggcgttaaaatttgttaaacgcctatttttaacgtaagcccgnaatcggcaaaatcccttataaatca
 aaagaatagcccgagatagggttgggtgttgggttccagtttccuacaaagagttccactttaaagaacgttggactccaacgtctaaag
 ggcgaaaanagggtctatcaggggcagggccacttactgtacccatcccttaataagtttttgggggtcaggttgcgtgaag
 cagtanaatcggaagggttaaacggatgccccatttagagcttgcaggggaaagccggcgaaacgttggcggaagaggaaaggga
 agaaagcgaaaggagcgggggctagggcggttgggaagttaggggtcagcgtggcgtaaccacacaccccgcggtt
 aatggggcgctacagggcggttgggttgaattcactagt

SEQ ID NO:19

Figure 143

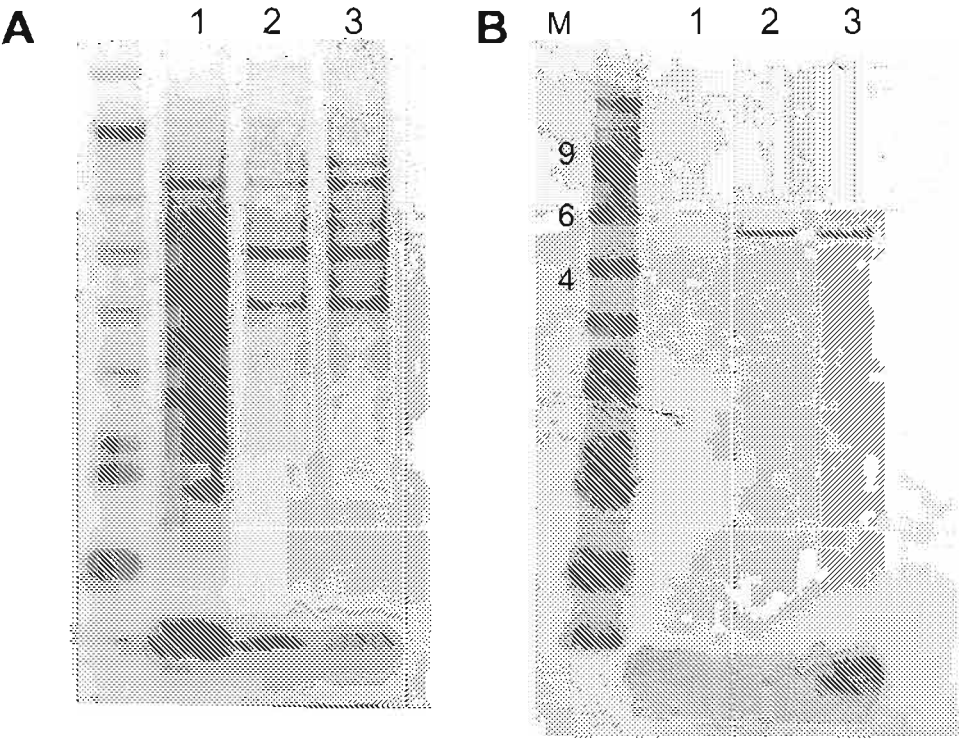


Figure 144A

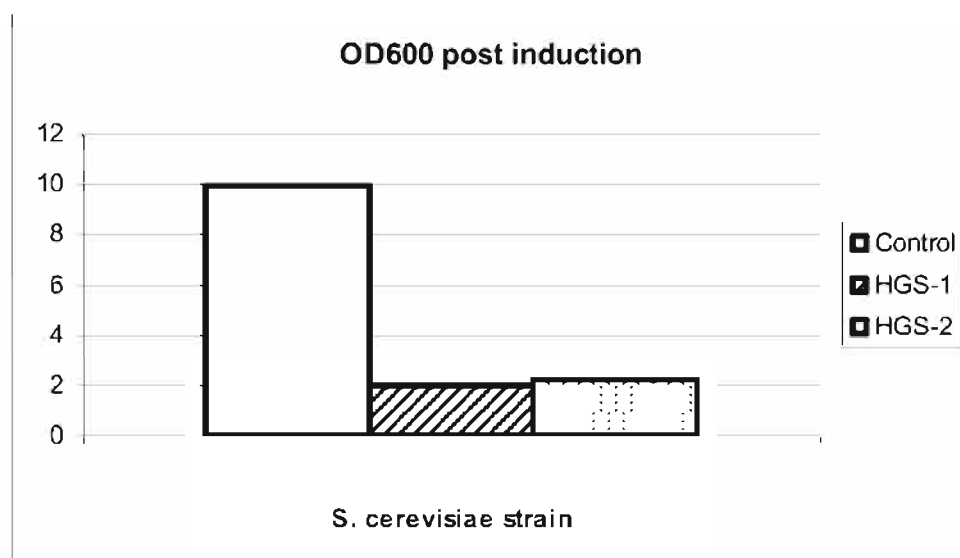


Figure 144 B

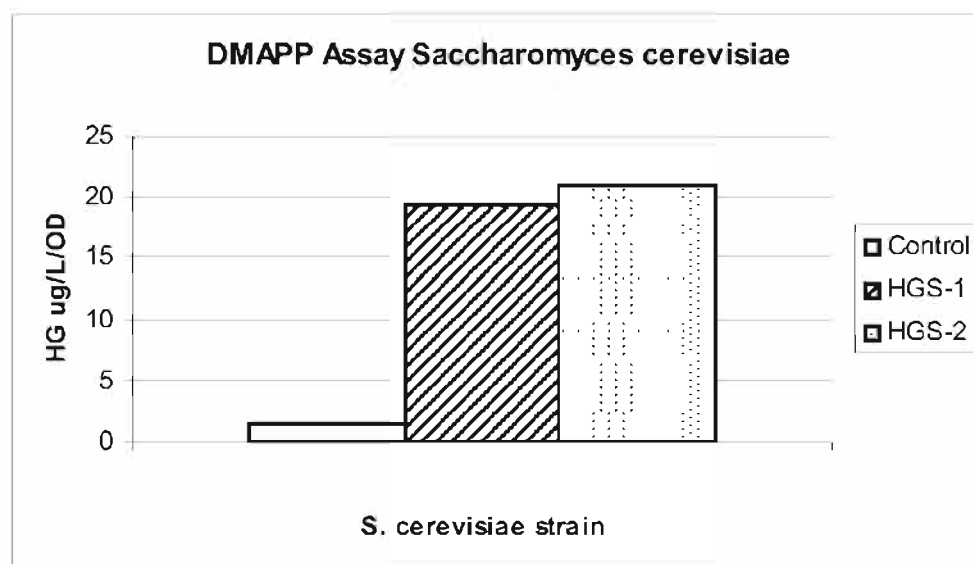


Figure 145A

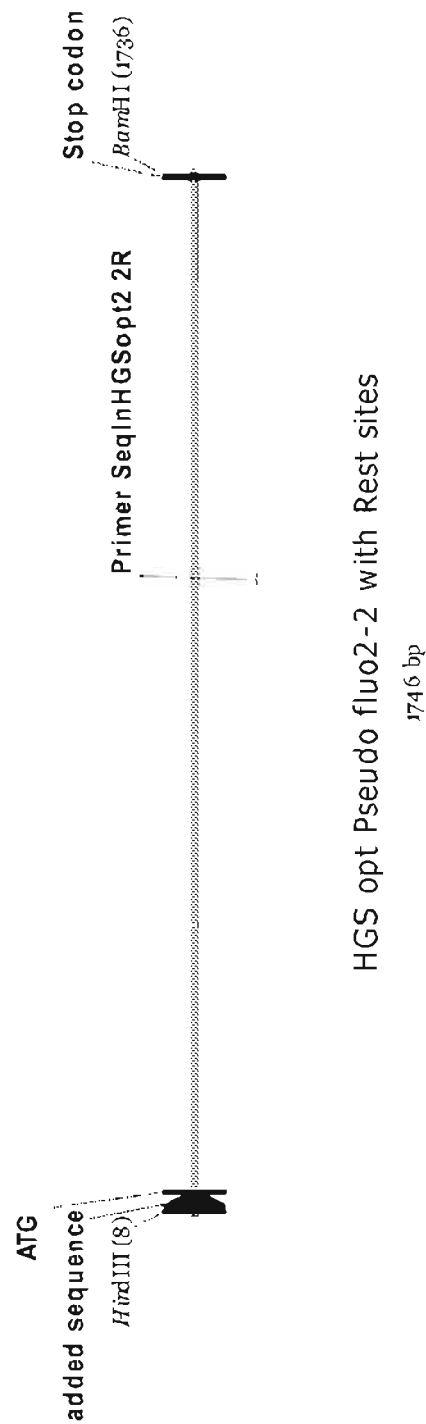


Figure 145B

cafttlaagcttggttaactttaagaaggagatatacatatgtgcgccaccagcagccagttcaccagatcaccgagcataatag
ccgtcgggtccgcgaactaccagcccaaccigtggaacttcgagttcctgcagagccctggaaaacgacctgaaggiggagaaag
ctcgaagagaaggccaccaagctggaggaggagggtgcgttgcatgatcaaccgggtggacaccagccctctgagcctgctg
gagctcaicgacgacgicagcgcctgggcccagctacaaagttagaagaagatatacaaggcgcctggagaacatcgtcctg
ctggacggaataaagaagaacaaaagcgaatctgcacgcgaccgcccctgagcttcgcctgctgaggcagcatggcttgagggt
gagccaggagcgtgttcgagcgcctcaaggacaaaggaagggggcttctccggggaactgaagggtgacgtgcaggggcctgct
gagccgtgacgaggccagctatctcgggttcgaaggcgaaaatctgctggaggaggccgtaccttcagcatcaccatctgaa
gaacnaacctcaaggaggggatcaaacggaagggtggccgagcagggtgtccacgcgcctggagctgccgtatcataaacgcct
gcaccgcctggaggcgcggtggttctggacaagtacgaaccaaggagccgcataccagctgctgctggaactggccaaa
ctcgattcaacatgggtccagacortgcaccaaaaagaggtgcaggacctgagccgggtggggaacgagatgggctcgcga
gcaagctggatttcgtgcgggaccgcccgatggaggtgacttctgggcgcctgggcatggcgccggaccgcagttcggcgaa
tgccgcaaggccgtcaccagatgttcggctgtggcaccaattatcgaagacgtctatgacgtgtacggtacccctggacgaactgc
agctcttcaccgacgcpggtggaaagctgggacgtgaacgccatcaaacgcctgcgcgactatatagaagctgtgcttccggccc
tgtacnacaccgtgaacgacacgtccactccatccgaaggaggaaggccacaataaactgagctatctgacaaaagctggc
gcgaactgtgcaaggccttctgcnaagaagccaagtggagcaataacaagatcaccgccttcagcaaglacctggggaac
gccagcgtgtctccagcgggggtgcgcgtgtggcgccgagctacttctgggtctgccaagcagcagggaagatctcggacca
cgccctccgctccctgaccgacttccacggccctgggtgcgctcgtctgcgtgacttctgggtgtgcaacgactgtgcgacctc
gcggcggaactegaacgcggcggaaccaccaacagcactatcagctacatgcacgagaaacgacggcagcagcaggaaca
ggcccgcgaaagctgcgcnaagctgatcgaacgcgaggtggangaaatgaaccgcgagcgcgtgtcggacagcacccctgc
tgccgaaggcgttcagggagatgcgcgtgaacatggccgcgtgagccactgcacctaccaatatgggggaacgggctgggccc
ccgggattacgcgcacgcgagaaccgcataagctgctgctcatcgaccgcgttcccatcaaccagctgagttaeclgtgaggatc
ccgtaac

SEQ ID NO:40

Figure 146A

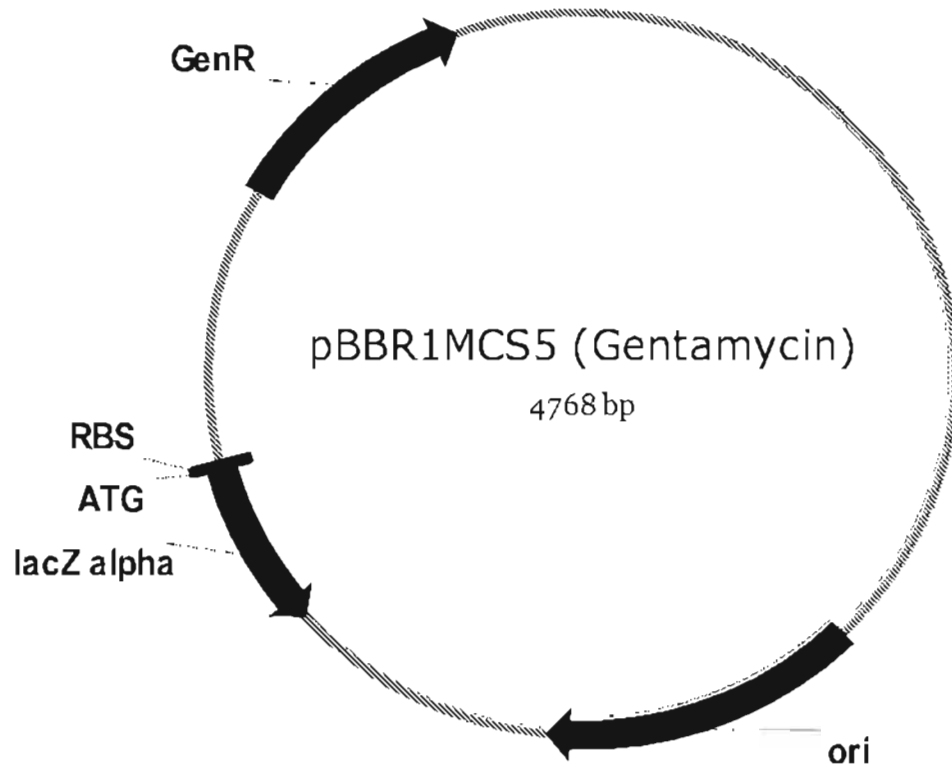


Figure 146B

ccggagccgcctctctgggctctgacggccctctctgcccacacacgcctccctccggcgccctctgagggcgagggctctacacccctg
ccggaacccgcttctgacagccggctccacggcttccggcgctcacaacgccttgagatccagcttctgggccaatccctggc
gtgcatagaggccgcgtggctccgaccgcttgcgggctgattggtgacgttggccctcctggctggccgctccagggtctcgtlagaacgc
ctgaatggcgctggtgacgtgcttgcctgcccctgattggcccggttgcagccctagatcggccacagcgggccgcaaacgttggctg
gtcgcggggtcactcggccttggctccgattgaactccttggccgacagccttgcctgctgcctgacgcaggaccacggaacggcgt
catgttgcgggctggttctgctacggctggagctggccgctacgattggatccggcccgctactgtctccgacgacacttggctgcgc
ttctcgaaagaaacggcgcctgctgcttctggcctggccgacttccaccatctccggctggccgctcatgacgtatctgcaccggccaaca
caggcttcttgcggccgcttctctggcagcaaacctccggcagtgccgcatccgcttctcaggggtgctgagggccaggttgccttct
ctctggcgtctctgctggcgctcagcgttgggggctctgcgcctcggcgtaggcgttctgagactggccggccaggttgccttct
ggcagcttcttgcagctgcatgctggcttgcgcgcatgcttcccttcccttcttggctgctcaaacggcctcgcagggggcagcgc
aaggcgggtgcttccggcgggccactcaatgcttggatlaactactagacttgccttgcgaagtcgtgacccgctacggcggt
gctggcgcccttccggttgccttccgggcttgccttgcgcggctcgccttgcgcctcccttgcagcccgctggtatgttggacgattg
gcccgcagcggccaccggcggtgcttgccttgcgcggcccggtggacaacccctgctggacaagctgattggacaggctgcgcct
gcccacgagcttgaccacagggttggccacggcctacccagccttgcagccacataccacggccttccacttgcgcggccttgc
cgcccttgcgccatcaaatttttaaatttctcttgggguaaaagcttccggccttgcggccctgcgcgcttgccttgcgggttgcacac
aagtggaagggcggttcaaggctcgcgcagcgaccgcgcagcggcttggcccttgcagcggccgttgggaacgacccaaagcctatgc
gagtgaggggcagctcgaaggcgaagcccgccgccttgcggcccgagcctacggcgcgagtgccgggggttcaaggggg
cagcgccaccttggggcaagggccgaaggcgcgcagctcgaalcaaacagcccggaaggggccacttcttgcggagggggag
ccgcgcggaaggcgttgggggaaccccgaggggttgccttcttggggcaaaaagaactagataggcggaatgcgaa
gactttaaataaacacacataaaaagggggtacgcaaacagctcattgcggcaccgcccgcaatgctcattgcgtagggttaa
agaaaatctgaattgactgccaatttaacgaacgcataatgttctggcgtgcggaaggttgcagctgattgcgcatgttgc
gcaacgttgcggcaccctaccgcaltggagataagcaltggccacgcagctcagagaaatcggcattcaagccaagaaacagc
ccggtcacttgggtgcgaacgggaacgcaagcgcatgaggcgttggccggcgcttattgcagggaacccacggcggaatgc
tgtctgcatcaccctgttggcgagatggggccaccagaacgcgttgggttgcagccgaagacacttcaagctcattggagctt
cttggggagcggctcaafacgcagtcgaaggacttggcgcgagcgttggatctccgtcgtgaaactcaacggcccgccgcac
gttctggccttacgttgctcaatgacgcgttggcgttggggccagcccgcgacacagtttgcgcttgcgttgcagctcggcgt
gttgtgttgcacgacgacagggacgaatgcgttgggggaatggcgacctgcgcggcctccggaccccttattccggcgga
cgttcaatccacgacggcccgcgagggagcccgcccgccagcccgccgacttccggcgatggaaacagaccttgcagccct
gacggaaacggaggaatgggaacggcgcggggcagcagcgccctgcgacccgatgagccgttcttgcgacgattgcga
gcccgttggagccgcccacacgggttaccgttgcgcggcggttgcagcttgcgacccgtaagtgcgtgttcca
gactatcggttctagccgctcgcgcgccctatccttgccttgcctcccggttgcgttgcgggtgcattggagccggggccacctc
gacctgaatggaaagccggcggcacctgcctaacggattaccgttcttaccaggtcttgggaaggcagaaataatgactatctg
caatattaccctccacggggagagccttgagcaaacgtgcctcagggcatttgaagacacacgggtcacacgttccggtagtca
ataaacgggtaaacacagcaatagacataagccggcalttaacgaccttgccttgaaccgacgacccgggtcgaatttgccttccgaa
ttcttgccttaccgcttattatcactatcaggcgtagccacaggcgcttgaaggccacccaataactgccttaaaaaattaccgc
ccggcccttgcactatcgcagctcggcccttattggtaaaaatgagctgattataacaaaatttaacgcgaattataacaaaattataa
cgcctacaatttccattcgccttaccaggttgcgaaccttgggaaggggcgaatccgttccggcccttctgccttaccgccagctgg
cgaaaggggggtggttgcgtgaaggcggttgaatgggttaacggcggttctccagtcacgacgttgaataacgacggccagt
gagcgcgcgttaatacagacttactataggcggaattggagctccaccggcggttggcgccgctcagaaactagtgtgattccccg
gggttcggaagaattcgaatcaagcttaccgataacgttgcacctcggggggggccgggtaaccagcttcttgcctttagttagg
gttaatttgcgcgttggcgtaaatcgtgcatagctgttctgttgaatgttaccgctcaaatccacacacatacagagcc
ggaagcctaaagttaaggccttgggtgctaatgagtgaatcaatcacttaatttgcgttgccttgccttgccttgccttgccttgc
gggaacacctgttgcggcagcttcaataatgaatccggaacgcgcggggagagggcggttgcgttatttggcgcatgataaaa
acttcttgaattcaataagcatttgcggacatggaagcctacacaaacggcattgacttcaatccagcggccttgcacac

Figure 146C

cttgctgcecttgctataatattgccatggacgcacaccgttggsaacggatgaaggacagaaaccagttgacataaagcotgtt
cggttcgttaactgttaatgcaagtagcgtatgcgttcacgcgaactggctcagaaccttgaccgaacgcagcggltgtaacggc
gcagltggcgggttttcagtggttattgaactgtttttgtacagictatgcttcgggcatccaagcagcaagcgcgttacgcctgtgg
gtcogatgttttgatgttarggagcagcaacgaltgtacgcagcagcaacgatgttacgcagcaggggcagtcgccctaaaacaaag
ttaggtggctcaagtatgggtatcattcgcacatgttaggtctggccctgaccaaagtc aaatccatgcpggctgtcttlatctttc
ggcgttgagttcggagacgttagccacctactcccaacatcagccggactcogattacctcgggaactgtctcgttagtaagncal
tcategcgccttgctgecttgaccaaagaagcgggttggttgccgtctcgcggcttacgttctgccagggttgagcagccgcgtagt
gagactatctctatgatctcgcagtcctcggcgagcaccggagggcagggcaltgcccacgcgtcatalatctctcaugcatg
aggccaacgcgcctnggtgttattgtgatctacgtgcaagcagattacgggtgacgattccgcagttggctctctatatacaaagttggg
catacgggaaggaagtgtatgcactttagatalegacccaagtaccgccacctaacatttcgttcaagccagatcggcttcccgcc
gcggaggtgttcggfataatgtcacaaacgcgcaggtggcactttcggggaaatgtgcgcgccgcgtctctgtcggcgctg
ggcctgtttctggcgctggacttccgcgtgtccgtcagcagcttttgcacacggccttgatgctgcggcgcccttgccctgca
talccgattcaacggccccagggcgttcagaacgggttcaggcgtctccgaagt

SEQ ID NO:41

Figure 147A

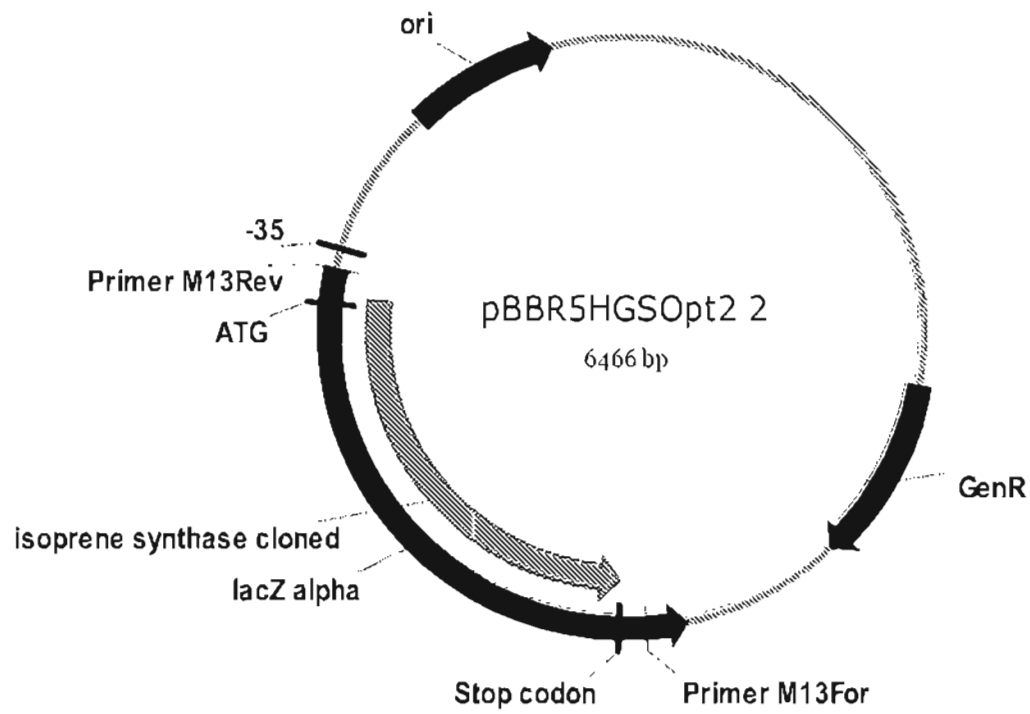


Figure 147C

ctgcctggcagaccgagaagtagctcggcggcagcagcgaccccgctgaggacacgcctggcgtctccaggctacttgcig
aaggcggggatgacitgttatgtctccacttggctcttgcaggaaaggccttgcacagttcggcggcagcttltgttcagatagctc
aggttatgttggcccttctccttcaggatggagtaggacggtgcttgcaggtgtgtgacaggcgccagggaagcacagcttcalata
gtcggggcagcgtgtgtatggcgttcacgtccacagcgttccaccgctcgggtgaagagctgcagttcgtccagggtaccgtiacac
gtcatagacgtcalcgataatggtagaccagaccgaacatcttggtagcggccttgcggcattcggcgaactgcgggtccggcgc
catggccagcggccagaaagtacacttccatcaggcgggtcccgacgaatccagcttgcctggcgaggcccatctcgggtccacc
accggctcagggtcctgcagctcttttgggtcaggggtcggaccatgttgaatcaggttggccagttccagcagcagctgtgtga
tgcggctccttgggttctgtacttgtccagaaaccaccggcgtccagggcgtgcaggcgtgtgtatgatacggcagctccagcggc
tgggacaccctgtcggccacccttctgttgaatccctccttggaggttgttctcagatgggtgtatgtcgaaggtagggcctcctc
agcagatttgccttogaaccagatagctggcctcgtacaggctcagcaggcctgcacgtcacccttcagttccctggag
aagccctcttcttgccttgaagcgtcgaacacgtcctggctcaccctcaaggccatgtcctggcagcaggcgggaagctcagg
gcgttgcgtgcagatcgttgttcttcttcttctcgtccagcaggacaggttctccagcggccttcatgatacttctcaactgt
taggtcaggcccgaggcgtgcacgtcgtcgtatgagctccagcaggctcaggggctgggtgtccaccgggtgacatgtcaacg
cacctcctcctccagcttgggtggccttctcttcaggttctccaccctcagggtcgttccaggctcgtcagggaacacgaagttccac
aggttgggtgtgtagtgcggaccgacggctattatgctcgggtgacttgggtgaactggctgcttgggtggcgcacatatgtatc
tcttcttaagttaaacaagcttatcgataccgtcagccctcaggggggggccggtaeccagcttgttctcctttagtgggggta
attgcggcgttggcgttaatcgtgtcatagctgttccgtgtgaaattgttatccgtcacaattccacacacatacagagccggaa
gcataaagtgttaagcctgggggtgcctaatgagtgagctaacctcacatlaattgcgttgcgtcacttgcggcgttccagctggga
aacctgtcgttccagctgcattaatgaatggccaacgcgcggggagaggcgggttgcgttggggcgtcgtatgataaaactgt
tgtaatcattaaagcattcgtccgacatggaaagccatccacaacggcatgtatgaactgaatgcagcggcattcagcaccctgt
cgcccttgcgtataatatttgcctatggacgcacaccgttgaacgggatgaaggcncgaaccagttgacataagcctgttccgtt
cgtaaacctgtaatgcaagtagcgtatgcgtcaccgcaactggctccagaaccttgaccgaacgcagcgggtggttaacggcgag
ggcgggttctcatggcttctatgactgtttttgtacagctatgctcgggcatccaaagcagcaagcgggttaccgctgggtcga
tgttctgatgtatggagcagcaacgatgttaccgagcagcaacgatgttaccgagcagggcagctcggcctaaacaaagttagg
ggctcnaagttatgggcattcctgcacatgtaggctcggccctgaccnaatccatgcgggtgtctctgtatcttccggctgt
gagttcggagacgttagccacofactcccaacatcagccggacccgattacctcgggaacttgcctcgtatgaagacattcctc
cgttgcgtgccttgcaccaagaagcgggtgttggcgtctcgcggcttaccgttctgtccaggttggagcagccgctgtgtgagat
ctatactatgatctcgcagctccggcggagcaccggaggcagggcatttgcaccgcgtcattcaatctcctcaagcatgaggc
caacgcgttgggtgctatgtgatctacgtgcaagcagattacggtagcatcccgagtggtctctatatacaaaagtgggcatac
gggaagaagtgtatgcacttgaatcgaacaaagtaccgccacctaacaattcgltcaagccgagatcggcttccggcggcgg
agttgtcggtaaatgtacaaacggccaggtggcacttctcggggaaatgtcggcggccgcttctgtgtgagcgtgggct
gttctggcgtcgtggacttccgtcgttccgtcagcagcttctcggccacggccttcatgaleggggggcgttggcctgcataccc
gattcaacggcccgaggcgtccagaacgggttcaggcgtcctccgaagg

SEQ ID NO:42

Figure 148

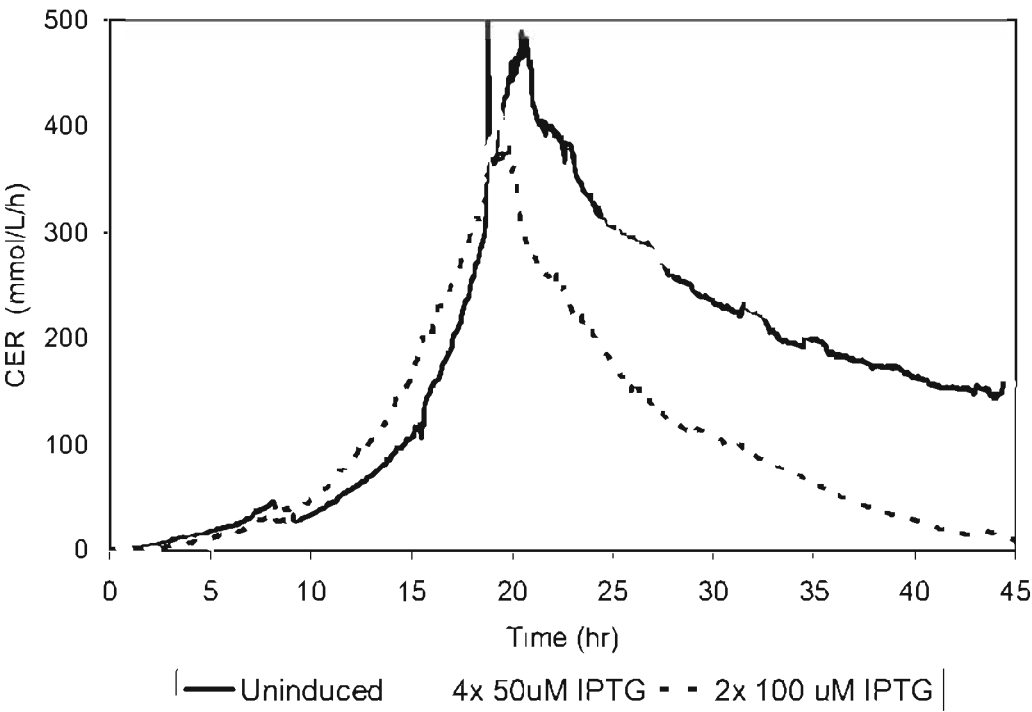


Figure 149

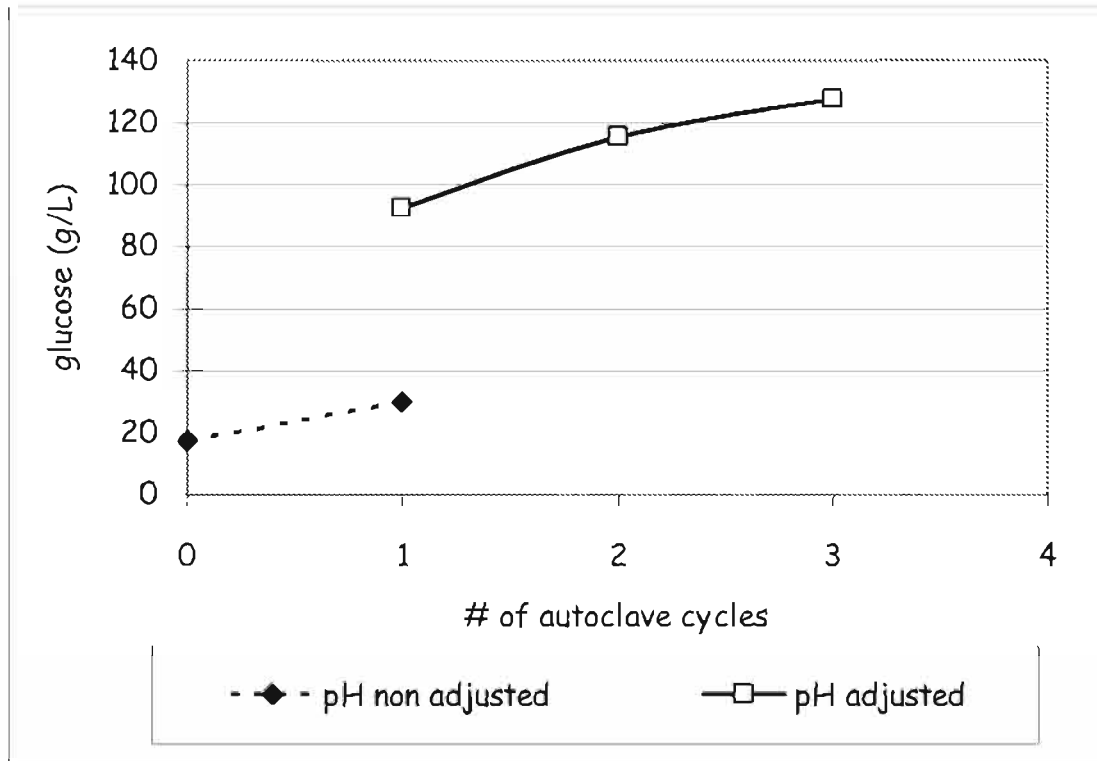


Figure 150

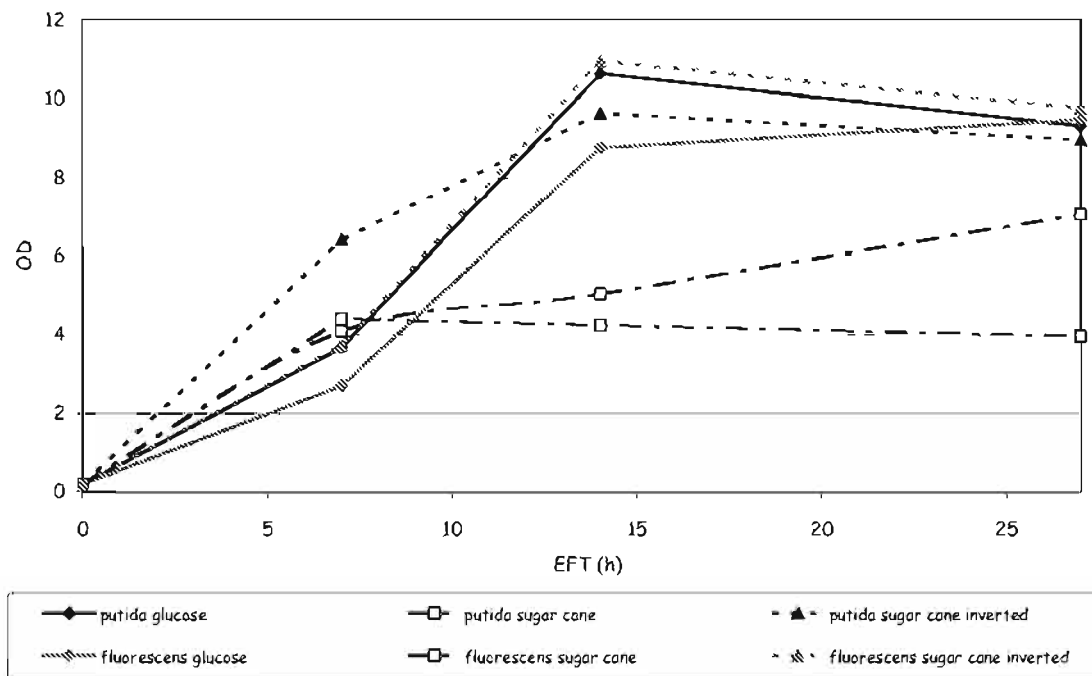


Figure 152

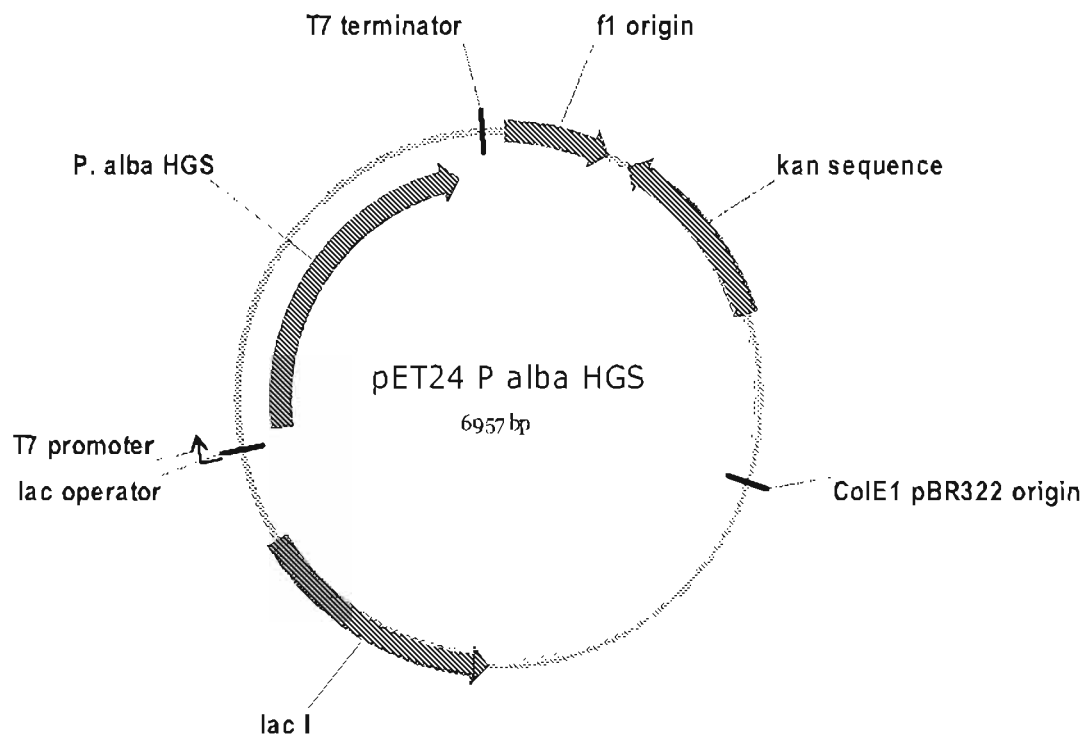


Figure 153A

12

lggggaatgggagcggccctgtagcggcgccastaaagcggggggtgtgltgggllacggcgagcgtgacggctacacttggcagcgccc
 tagcggcccgctccttgcctttcttcccttcttctcggcacgttgcgggtgttcccggtcaagctotaatcgggggctccctttaggggttcc
 gatttagtggctttagcggcaccctgaccccaaaaaacttggatttaggggtgatgggttcaogtagtggggccatcgccctgataagcgggttttgcgcc
 tttagcggttggagttccaggttcttaataatgggacttcttcccaacttgggaacacacttcaacctatctcgggtctattctttagattataagggat
 ttgcccgttttggccctatttgggttaaaaaatgagcgtatttlaacaaaaatftaacgggaatttlaacaaaaatftaacggtttacaaattdcaggtggca
 ctttctgggggaaatgtgcggcggaaccccatttgtttatfttttlaaataacattcaaatatglatccgctcatgaatttatttagnaaaactatog
 agcatcaaatgaaacttgcnaatlaatcatatcagggaatatacataatftttgaaaaaagccgtttctgtlaalgaagggagaaaaactcaocgag
 gcagttccataggaatggcgagatccgggttctcgggttgcggttccgacttgcacacatcaatacaacatftaatttccctogtcaaaaataa
 ggttatcaagtgagaaataccatgagtgagcguetgaaatccgggttagoatggcnaaagttaatgcatitcttccagacttctcaacaggcca
 gccattttagcctgtctatcaaaaactacttgcacacacaaacgggttatctatctgggttggccttagcgagagagaaatacggcgatcgctgla
 aaagggcaatcaaaaacagggaatcgaaatgcacccggcgaggaatcactgccagcgcatcaacaaatftttcacctgnaatcaggatattctt
 taabccctggaaatgctgttttccgggggagtcgagtggttggatmccatgcatcatcaggagtagcgataaaatgctttagtggcggagag
 gcataaattccgtcagccagtttagtctgaccatctcatctgtaacatcatftggcaacggctaccttggccatgittcagaacacacttggcgcat
 cgggcttcccaataacgataagattgttcgacctgatttgcggacatctatccggagcccatitacccatataaafcagcatccatgttggaa
 ttaatacggcgccatagaggaagagcgttcccggtgaatatggctcuaaacaccccgttatctatctttagaagacagatttatttgcattga
 ccaaaatcccttaacogtgagtttcttccatgagcgtcagaccccgttagaaagpatcaaaaggatctctttagatcccttttctgtgcgctaa
 tctgtgtcttgcacaaaaaaaacaccccgctaccagcggttgggttgggttgcgggatrtaagagctaccaacotftttccgaaggtaacttggcti
 cagcagagcgcgagataccaaatctgtcttcttagttagocgttagttagggcaacacacttcaagaactctgttagcaccgectacatacctcgc
 tctgtatctctgttaccagtggtctgtcggcagtggtgataagctgtgttaccgggttggactcaagacgatagttaccgggataaggcgca
 gcgggtcgggctgaacgggggggttctgtcacacagcccgcttggagcgaaucgacctacaccgaaactgagatacctacagcgttagcclat
 gaggaaagcgccacgcttccgaaaggggagaaaggcgagacaggtatccgggtanagcgcgagggttgcgaacaggagagcgccacgagggga
 gcttccaggggggaacgcccgttcttatagttctgtcgggttgcacacctctgactttagcgtcgatttttggatgtctgtcaggggggg
 cggagccclatggaaaaacggcagcaacggcggttctttaggggttccgttggcttggcgttggcgtacatgttcttccgtgttaccctt
 gatttctgttgataacccgataaccgctttagtgtaggtgataaccgctcggcgagccgaacgaccgagcgagcgagtcagtgagcggag
 gaaagcggaagagcgccolnagcgggtatttcttccacgcatctgttgggtatttcaacccgcalatatgtgtgtcactctcagtaacatctgtct
 galgccgcatagtttagccagtalacactccgctatccgtacgtgacttgggttcaatggctgtcggcccgacaccggccaaacccgctgacgc
 gccctgacgggctgtgtcgtccggcctccgcttaccagacaagcgtgtgaccgcttccgggagctgcatgtgtcagaaagttttaccgctac
 accgaaaacggcgagggcagcgtcgggttaaggtctacagcgtgtgtcgtgaaagcgaaltcagatgtctgtccgttccatccgggtccagctcg
 ttggtttctccagaagcggttaatgtctgtgttctgataaagcggttccatgttaaggggcggttttctctgtttggtaactgaltgcctccgtttag
 ggggtattctgttcatgggggaaatgataccgaltgaacgagagagaggtgtcaccgatacgggttactgtatgatgaacatgccgggttactg
 gaacgttgtgagggtaaacacttggcggttggatgtcggcggggacagagaanaatcavtcagggttcaatgccagcgcttctgtaataca
 gatgttaggtgttccacagggtagccagcngatccctgtgtatgcagatccgggaacataaalggttagggggcgctgacttccggttccagac
 ttacgaaacacggaaacggaaagacattcatgttgtgtcgttaggttccagacgttttgcagcagcagtgctgttcaacgttgcctcgtgtatcg
 gtgtatcattctgttaaccagttaaggaaccccggccagcctagccgggtctcaacgacagggagcagatcatgcgcacccgtggggcc
 gccatgcggcggaataatggctgttctcgcgaacglttgggtggcgggacagtgaggaagggttgagcgaggggcgttcagaltccg
 uataccgaaagcgacaggccgcatcatctgtcgtcctcagcgaaagcggtctcgcgggaatgacccagagcgctgcgggcacctgtc
 ctacgggttgcattalanaagagacagtcataagtgccgacgutaatgaccccgccacacccggaaggagctgacttgggttgaag
 gctctcaaggggcactggctcagagatcccggttccatagagtgaggttaactataatftggcgttgcgtctacgtcccggttccagtcggga
 uacclgtcgttgcagcgttcataatgaatcggccaacggcgggggagagggcggttgcgttallggcgccagggttgggttttctttaaaca
 gtagagacgggcaacagctgatttcccttaccgcttggccctgagagaggttgcagcaagggttccagcgttgggttgcgccagagggcgga
 naalccgtttgatgttggttaacggcggggataaacatgagctgtcttgggtatcgtgttccactaccgagataatccgacccaacggcg
 agcccgactcggtaatggcgcgcatitgcgccagcgccatctgtatcgttggcaaccagatcgcagtggggaacgatgctctattcagc
 atttgcattgtttgttgaanaaccggacatggcacctcagtcgcttcccggttccgtatcgggtgaatttgaatggcagtgagattttagccag

Figure 153B

[illegible]

Figure 154

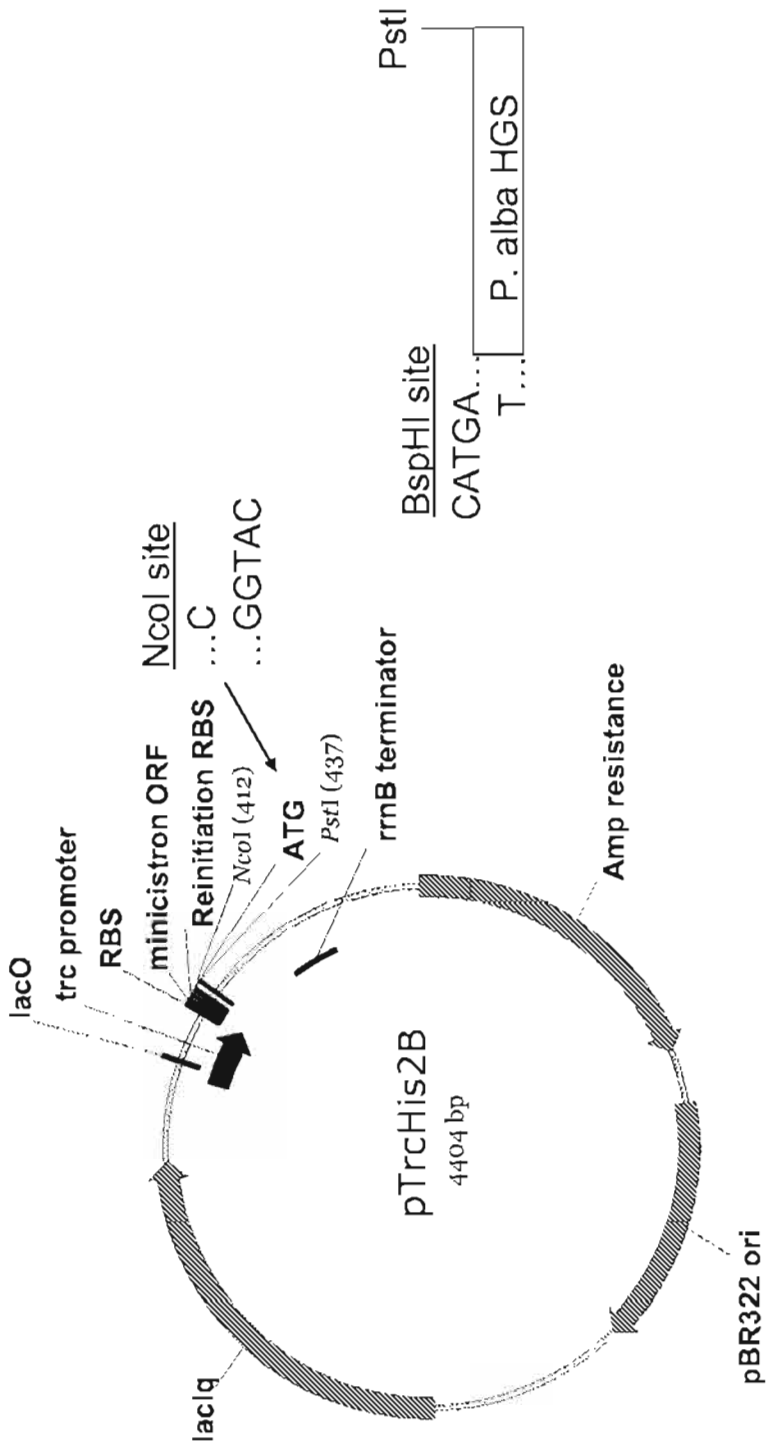


Figure 155

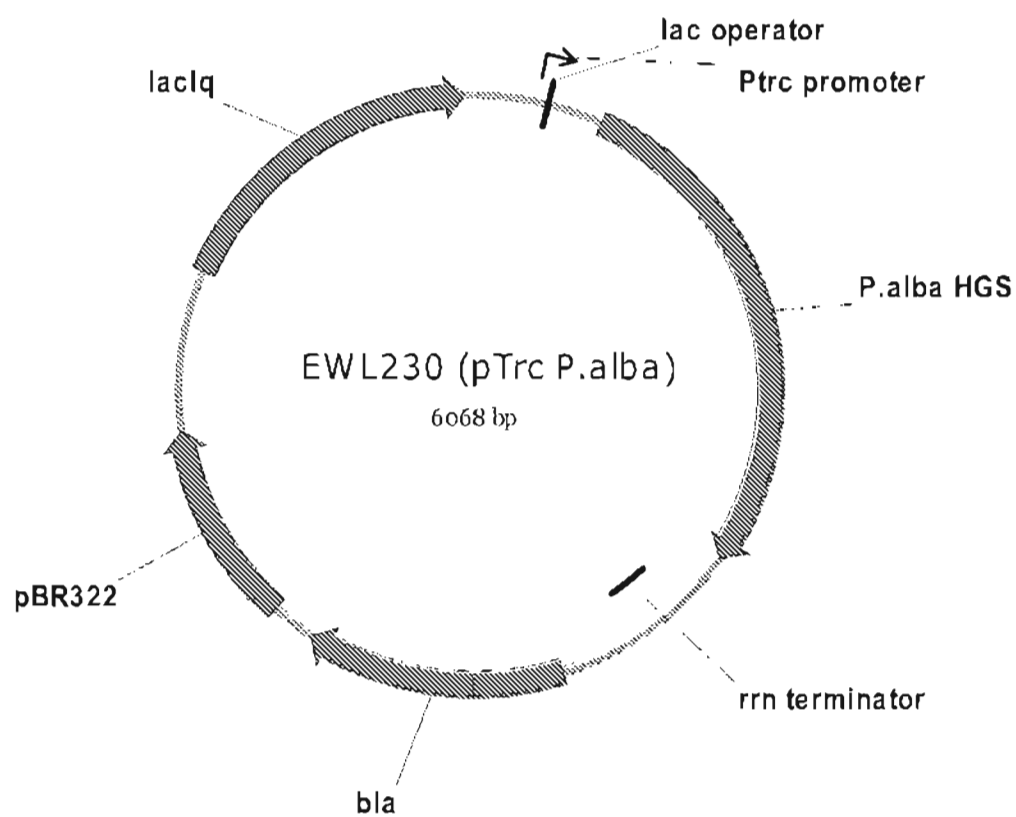


Figure 156A

1.

[illegible]

Figure 156B

tggcagtgccgataagtcgtgttaccgggttggactcaagacgatagttaccggataagggcagcggcggcgtgaacgggggggttc
 gtgcacacagcccagcttggagcgaaacgacctaccgaacgagataccacagcgtgagctatgagaaagcggcagcttcccgaag
 ggagaaaggggacaggtatccggtaagcggcaggggtcggaaacagagagcgcacggaggagctccagggggaaacgcctggat
 ctttatagtcctgtcgggttcggccacctctgactlgagcgtcgattttgtgtgctcgtcagggggcgggagcctatggaaacgccagca
 acgcygccttttacgggttcctggcctttgtcggcctttgtctacatgttcttccgttccgttatccctgattctgtgataaccglataccgcct
 ttgagtgagctgataccgctcggcggcagccgaacgaccgagcgcagcggcagtgagtgagcggguagcgggaagggcgcctgatgggt
 attttctccttacgcactgtgctgggtatttcaacccgcatatgggtgcactctcagtaaatctgctctgacggcagtagtaagccagtatacact
 ccgctatcgttactgactgggtcagggctgcggcccgacacccggccaaaccccgtgacggcggcccgacgggcttgtctgtcctccggca
 tccgcttacagacaagcgtgtgacggctcgggagctgcatgtgtcagaggtttaccgctacacggaaacggcggaggcagcagutca
 attcgcgcgcgaagggcgaagcggcagcatttacgttgacaccatcgaaatgggtgcaaaaccttccgggtatggcatgataggccggaa
 gagagtaattcaggggtggtaagtgaaaccagtaacgttatagtgatgcagagtagcgggtgtctctatcagacgggttcccggtg
 gtgaaaccaggccagccacgtttctgcgaaacgggggaaaggtggaaagcggcgaatggcggagctgaattacattcccaaccgggtgac
 acaaaactggcgggcaaacagtcgtgctgattggcgttgcacccaccagctggtccctgcacgcgcctgctgcaaatgtcggcgatt
 aaatctcggccgatacaactgggtgcccagcgtgggtggtgctgattggtagaaccgaagcggcgtcgaaagcctgtanaagcggcgtgcacaa
 tcttctcgcgaacggcgtcagtggtgctgacttaactatccgctgtagaccaggatgccaatgctgtggaaagctgctgactaatgttccg
 gcgtatattctgtgtctctgaccagacacccatcaacagtaatttttcccatgaagacgggtacggcactggcgtggagcattgtgtc
 attgggtcaccagcaaatcgcgcgttagcgggcccattagttctgtctcggcgtctcgcgtcgtggcgtggcgtatgataatctcactc
 caalcaaaatcagccgataagcggaaacgggaagcgcactggagtgccatgtccggttttaacaaacccatgcaaatgctgaatgagggcac
 gttccactgcgaltgtgttgcacacgatcagatggcgtcggcgcgaatgcgcgcacataccgagtcgggctgcgcgttgggtggal
 atcctggtagtgggatacgcgataccgaagacagctcattatcccgccgtcaaccacacaaacaggattttcgctgtgggca
 aaccagcgttgaccgctgtcgtgaactctctcagggccaggcgggtgaagggaatcagctgttgcgcgtcactgttgaaagaaaauc
 caccctggcggcccaatacgcaaacgcctctcccgccgttggccgattcattaatgcagctggcagcagaggttcccgactgaaagc
 gggcagtgagcgaacgcaattatgtgagtagcggcaattgtctg (SEQ ID NO : 44)

Figure 157

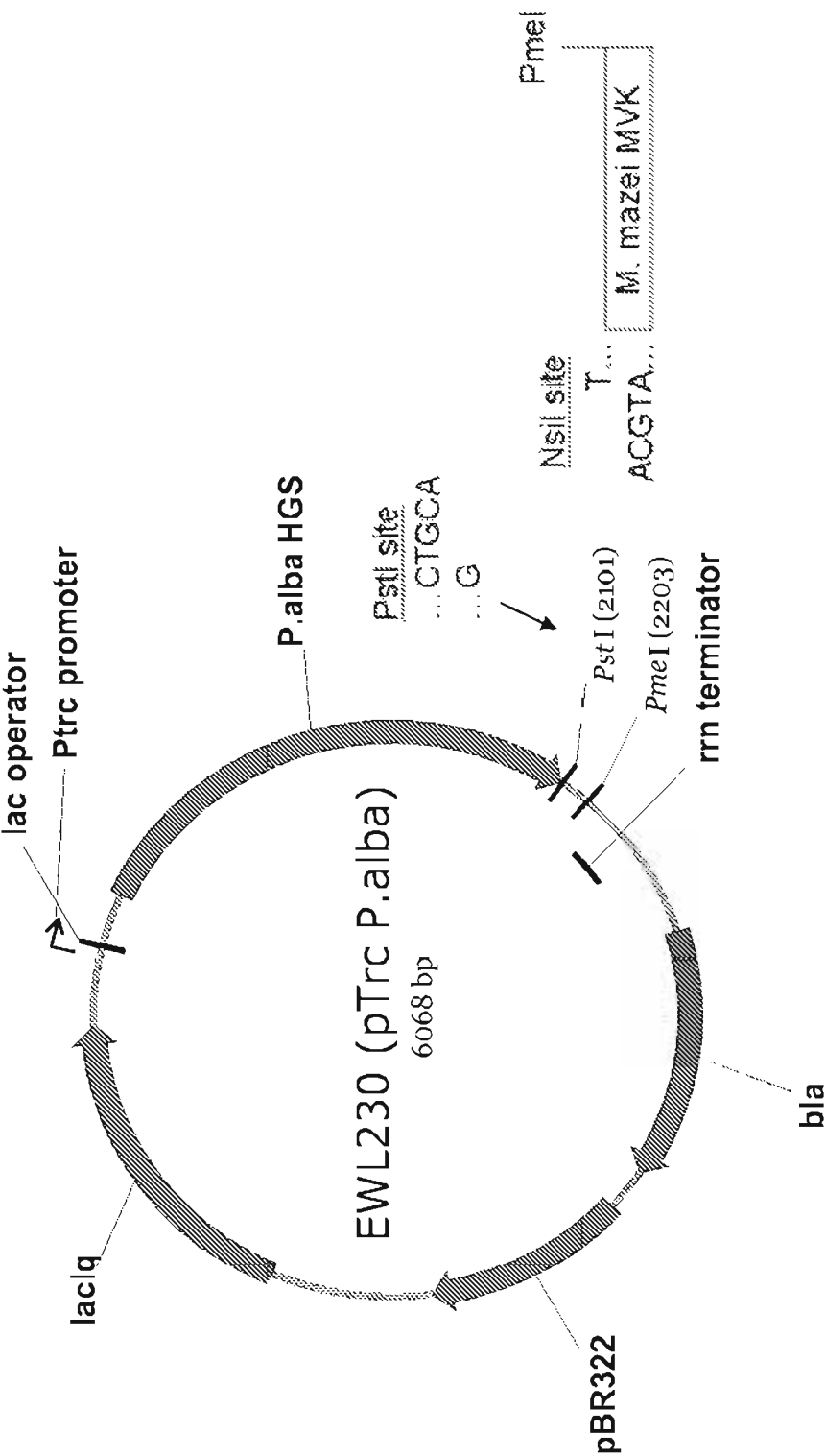


Figure 158

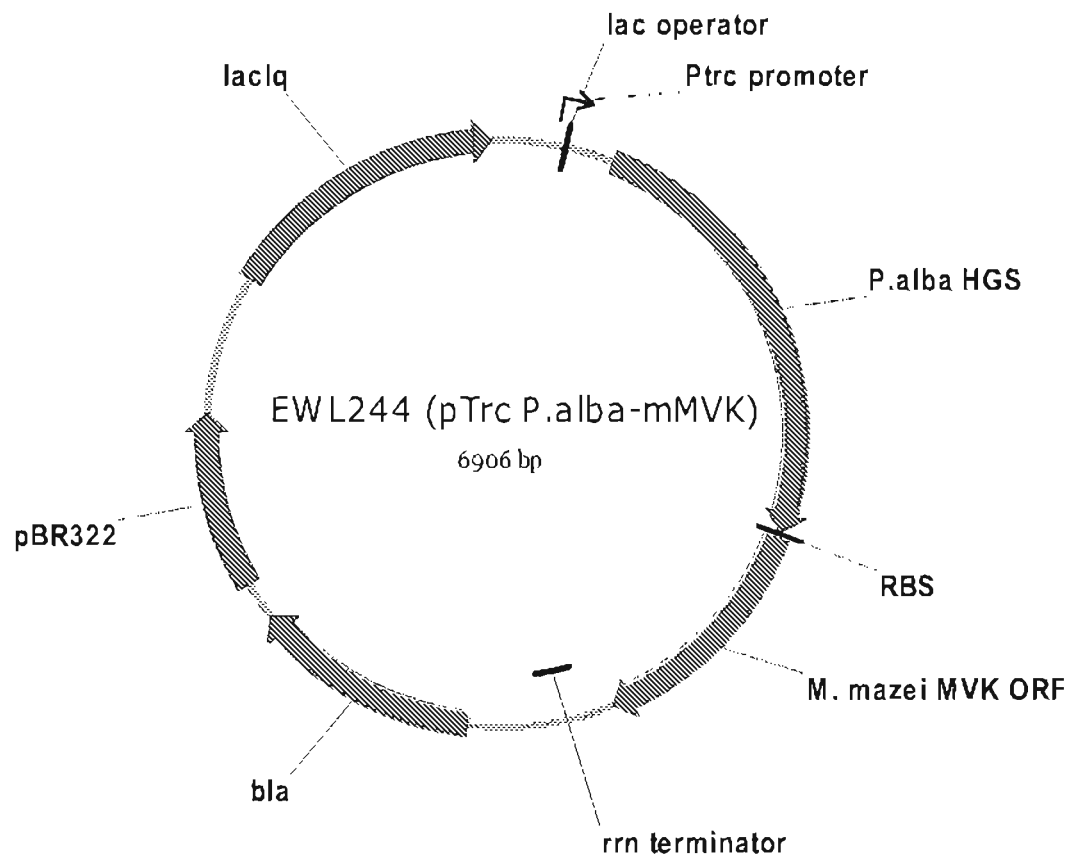


Figure 159A

1

[illegible]

Figure 159B

[illegible]

Figure 160A

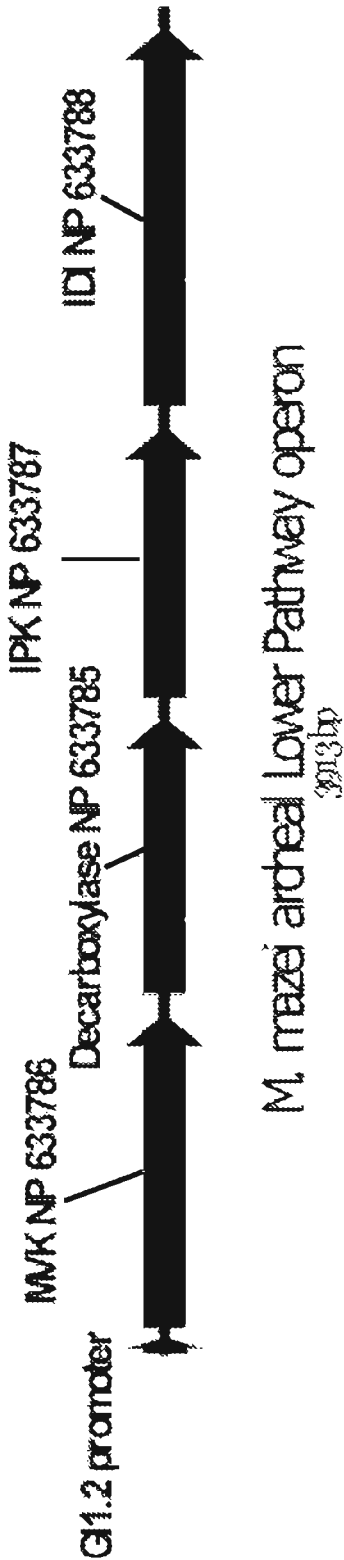


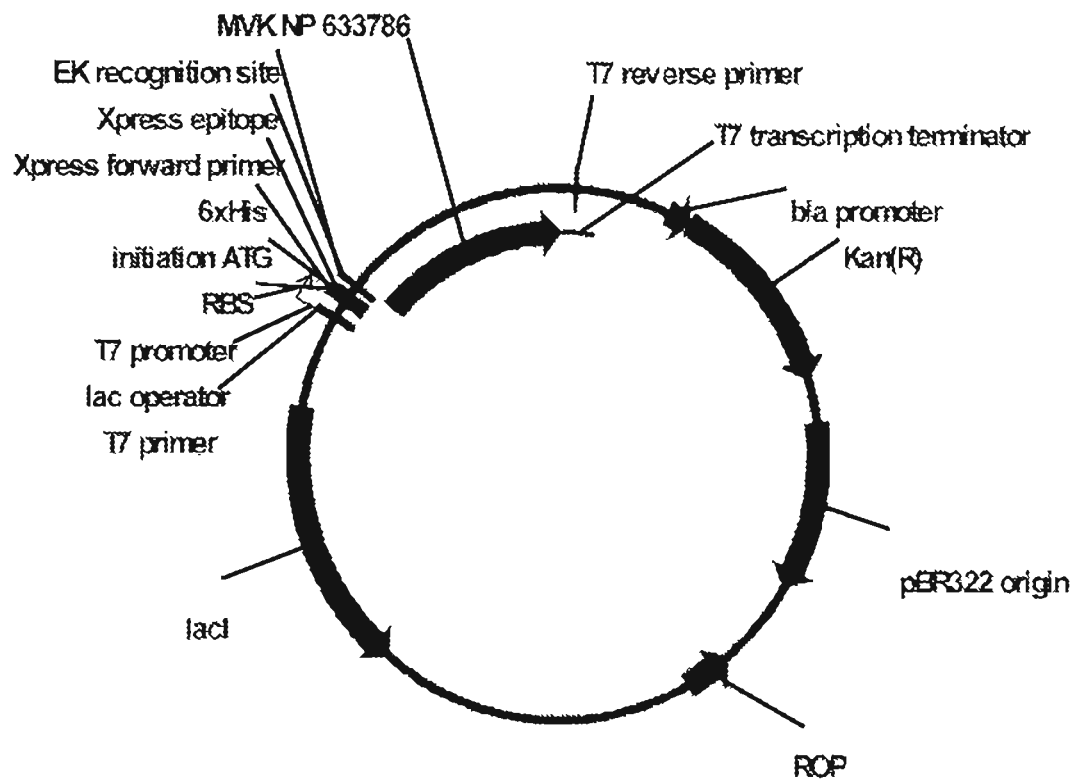
Figure 160B

[illegible]

Figure 160C

ccTgcacaactctccagtagtggttaactgggtggacccgcgaalacctggagcagcgcggttttaacgtaaggacctctccctg
ccgggcaacgcctgtgaagcttcaacgcgtctacaattaaaaaggcacgtcagatgacgtgccttttcttgctaga
(SEQ ID NO: 46)

Figure 161A



MCM376 - MMK from *M. mazei* archeal Lowerin pET200D
6647bp

Figure 161B

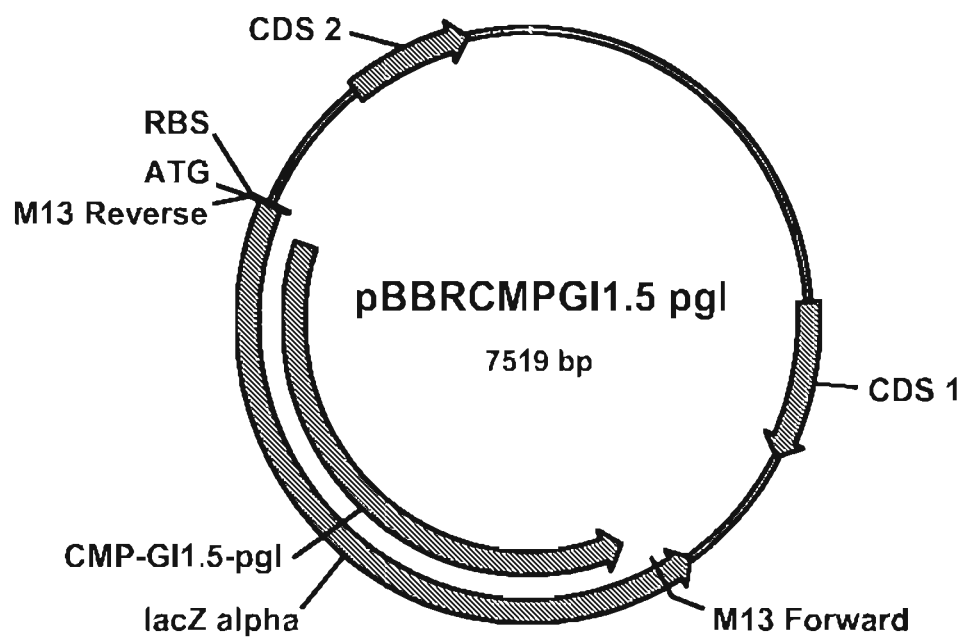
[illegible]

Figure 161C

cggccgcgcacgcggcgcatatggcctgccttcgcgcgaacagcttggctggcgaccagctgacgaagcgttgagcgagggc
gtgcaagatccggaataccgcaagcgacaggccgcatcatogtcgcgcaccagcgaaagcggtccctccgcaaatgacccag
agcgcctgcgggcacctgtctacagagtgcatgataaagaagacagtcataagctgcggcgacgatagtcattgccccgcgccca
ccggaaggagctgactgggttgaagagctctcaaggcgatcgatcccgctgacctaatgagtgagcctaaactacatfaatt
gctgttgcgcctcactgcgcgcctccagtcgggaaacctgctgtgcagctgcattaatgaaatcgccacgcgcggggagaggg
cgggttgcgtatgtggcgccagggtgtttttctttaccagtgagacgggcaacagctgtattgcccttaccgccttggccctga
gagagttgcagcaagcggtccacgcctgggttgcgccagcaggcgcaaatctctgtttgatggttggttaacggcggggataaaca
gngctgtcttcggtatcgtctatccactaccgagatattccgaccaacgcgcgagcccgactggtaattgctgcgcgactgcg
cccagcgccactctgactgttgcaacagcatcgcagtggggaacggatgcccctatcagcatttgcattggttgtgaazaaccgg
acalggcactccagctgcgcctcccgcttcgcctatcgctgaattgattgctgagtgagatatttatgccagccagccagacgcaga
cgcgccgagacagaacttaattggcccgctaacagcgcgattgtgtgtgacccaatgcgaccagatgctccaogccacgtctg
cgtaccgtcttcattgggagaaalaactgttgatgggtgtctgtgcagagacatcaagaaataacgcgggaacattagtgcag
gcagcttccacagcaatggcatccgtgctcatccagcggaatgtaataatgacagccactgacgcgttgcgcgagaaatgtgtc
accgcgcgcttacaggtctgacgcgcctctgtcttaccatcgacacccacacgctggcaccacagttgacggcgcgagallta
tcgccgcgacnaatttgacagggcgctgcagggccagactggagggtggcaacgcgaatcagcaacgactgtttgcccgccag
ttgtgtgcccacgcgggttgggaatgtaatacgcctccgccttccacttttcccgcgcttccgagaaacgfgggctggc
ctgggttaccacgcggggaacggctgtgataagagacaccggcactctgcgcacatcgtataacgttactggtttccattccaca
ccctgaattgactctctccggcgctatctatgccataccgcgaagggttttgcgccttctgatgggtgcggggaatcgcagcctc
cccttatgcgactcctgcattagggaagcagccagtagtaggttagggcgcttgagcaccgcgcgcgcgaaggaaatggtgcatg
caaggagatggcgcccaacagctccccggccacggggcctgccaccataccacgcgcgaacaacggcctcatgagccga
agtggtgcgagccgacttcccatcggctgatgttggcgatattaggcgccagenaaccgcaccctgtggcgccggctgattgcggc
cacgatgcttccggcgttaggagatcgagatctcgatcccggaatataatcgcacttcatatagggggaattgtgagcggaatac
naftccctctagaanaattttgtttaaacttaugaaggugatatcatatcggggttctcatcatcatcatcatgtgtgtgcta
gcatgactgttgagacagcaatgggtcgggactctgacgacgatgacgaiaaaggatcatcccttaccatggatcctgtctgac
gcccgggtaagatttaccgttgcgtgaacacgcggtagttatggcgaaactgcaattgcgtgtgcggtaggaactgcgtaccgt
gtcgcgcggaactcaatgactctatcatctatcagagccagatcgccgcgaaccgctgtgatttgaagaacacccctatgtgtc
tgcggttaattgagaaatgcgcgaactatctatlaacgggttcttgaccgtcgattccgacalcgcgggtgggctccggtgtg
ggtagcagcgacgcggttactatcgctcttgggtgcgtgaacgagctgttcggcttggccctcagcctgtaagaatatgcta
aactggcgcaacgaatcgaattaaatgacagggtgcggctccccaacgatacgtatgttctacccttcggcgggctggttac
catcccggaucgtcgcaactgaaactccgguatgcggcattgtagttggcgataccggcggtttctctccaccanaagagtta
gtagctaacgtacgctgcgtgcggaagcctaccggattgtatcgaaaccgtgtatgacctctatgtgcaaaatctctgtatcgy
cgaaacactggttctgtcgtgcgactacgcctccatcggcggtgatgaacgttaaccagggtctcttggagcccttggcggt
taacatcttagaactgagccagctgactatctccgctcgtgcggcagggtgcgttgcgctaaatcaccggcgctggcgcggt
ggctgtatgtgtgcgtgacccgtccggaaaaatgcaaccaagtggcagaagcggtagcagggcgtggtggglaaagtgactat
cactaaaccgaccgagcagggtctgaaagttagatlaa

(SEQ ID NO: 47)

Figure 162



CDS 2: Gentamycin resistance gene; CDS: 1 *E. coli* replication protein

Figure 163A

1.

[illegible]

Figure 163B

ccggtagalatitggcgaatggcaaccgtccagcccccgcaccacatcgcagagcccaactggcagggccatctccagacggcttacgc
 tcacgttaccgccattgtazgaaactacaaagacaaacgtccctgggtgafcggtggaaatgtcgctggactaccggcagcgagacac
 tggcgcaagggtcagtgcccatcgtccggggcgatagacgacagggacgcgaactcagggcgaaacccaacatagagataacgt
 ttgtccgggctgaccaccalcggctgcacctgccccggcacaacgcagacacctgtgtcagcgctcugtgcccttcagttcagattcagac
 gtgaattgtcggctcagggcgtggcgatataaactgtttgttcagatgaatgcctcttgggttacctccgggaaacggcggttgattgttagtg
 gtgaattattgtctcaggtatggcctatgtcaaggcggtgacggctcgtcctaaatacaactcactatagggtcggaggttctatatttcla
 gagaalaggaaactccggcgccgcacacaaaaaacacacagatcatgaaataaagctcttttgggtaccgaaatccggcaggagct
 ctacgaagtcgcttggctcgttcttctgaaccccagagtcggccttaccggcccccgtccactcagcagttctgttgaattcatlaagc
 attctccgacatgggaagccatcacaacggcatgatgaacctgaatcccgagcgacacaccttgcgcttgcgtataatattgccc
 atggtgaaaaacggggcggaagggtgtccatattggcncgtttaaatacaactgtgtgaactcaccagggatgtgctgagacgaaaa
 acatattctcaataaaccttttagggaaatagggcagggtttaccggtaacacggcacatcttggcaatatagttagaaactgcggaaatc
 gtcgtgtgtacacacagagcgaatgaatgaatgttctgtctgtgaaacgggtgtaacagggtgaacactatccatalcaccagctc
 accgtcttcatlgtccataggaatccggatgagcaatcatcagggcggaagaaatgtgaataaaggccgataaaactgtgtctattttct
 taccggtctttaaaggccgttaattccagctgaacgggtctgttatagggtacattgagcaactgacgaaatgcctcaaaatgttctttacgat
 gccattgggataatacaacgggtgtatataccagtgtttttctccatgtttagttccctcnccttgtctgtatatacttgcgataatattgccc
 atgattaatgtcaacacgtgtctgtcaggtcgaaggcccgagatgaggaagagagagancagcgccggcagacgttgcgctttgaag
 cgtgcagaaatgccgggctccggagggacccctggggcgcccccggccctgagcccgccctgagcccgcccgagcccccggaccccccctt
 cccagccctcagcgcagaaagggaaggagcagaagcgtctatgtggcgctgcccgaaggccclaccgcttccattgctcagcggtgtgtg
 tccatctgcacgagactagtgagcgtgtctacttccattgtcacgctctgcacgacgcgagctgtggggggggggggggaacttccgtacta
 ggggagggagtggaagggtggcggaagggtggcaccuaagaaaggagccgggttggcgccclaccgggtggatgtlgtgaatgtgtcgaggc
 cagaggccacttgtgtagcgcgaagtgcggcggtgtgctaaagcgtatgctccagactgccttgggaaagcgcctccctatcccg
 gtgaatgaagttctatcttctagagaaatggaaatcgcggcgccgctttagtgagggttaattcaactgactgtacagctaaatgtgt
 cgttttggcggttaaggcggaattccagcacactggcgccgttactagtgatccgagctcgggtaccaagctgtatgaggaattcgtat
 cuagctatagataccgtcgcacccgagggggggggccgggtacccagcttgttccctttagtgagggttaattgcgcgttggcgtatcatg
 gtcatalagcttctgtgtgaattgttctacgtcacaattccacacacatcagagccggaaagcataaagtgtaaagcctgggggtgctaa
 tgagttagctaaactcacttcaattgctgtcgtcactgcctccgttccagctgggaaacctgtcgtccagctgcattatgaatgggccaac
 gcgcggggagagggcggttgcgtattggcgcatgataaaaacgtgtgaattcaatgaacattctgcggcatgggaagccatcacaacg
 gcatgatgaacctgaatcgcagcgccatcagcaccgtgtcgtctgtcgtatataatttgcctatggacgcacaccgtggaaacggatga
 ggcaagaaacaggttgacataagcctgttctgggttgaacgtgaatgaatgagctatgctcagcnaactggttcagaaaccttgaccg
 aaacgcagcggtgtgaacggcgagtggtgggttttcatggctgtgtatgactgtttttgtacagctctatgctcggcatcgaagcagcaagc
 gcgttacggcggtgggtcgtgtgtgtatgtgagcagcaacgtatgtacgcagcagcaacgtgtatgcagcagggcagctcggcctaa
 aacaaagtgtgggtgtcgaagtgtggcatcttgcacatgtaggctcggccctgaccaagtcnaatcctgaggcgctgtcttctgtattc
 gggtgtgagttcggagagctagcaccctactcccaacatvaggcgactccgattacccgggaacttgcctgtagtaagacattcatcgc
 gcttgcgtccttgcaccaagaagcgggtgtgtggcgtctcgcggcttactgttccaggtttagcagccgcgtgtgtgagatctatctat
 gatctcgcagctcgcggcgagcaccggaggcagggcattgccaccggctcatcaatctctcaagcataggccaacgcgcttgggtct
 tatgtgtatclacgtgcaagcagattacgggtgacgatccgcagtggtctctatataaagtgtggcataccgggaagagtgatgactttgat
 atcgaccnaagtasccgcaactaacaattctcaagccgagatcggcttccggccggcgaggtgtgtcgttaattgtcacaacggcgcc
 aggtgtgcactttcggggaaatgtgcgcggcggttccgtgtggcggtggcgtgttcttggcgctggacttccggtgttccgtcagcag
 cttttgcggccagggcctgtatgacgcggcgccgttggcctgtatctccgattacacggcccgaggcggtccagaaagggttcaggcg
 tcccgaaagt (SEQ ID NO: 48).

Figure 164A

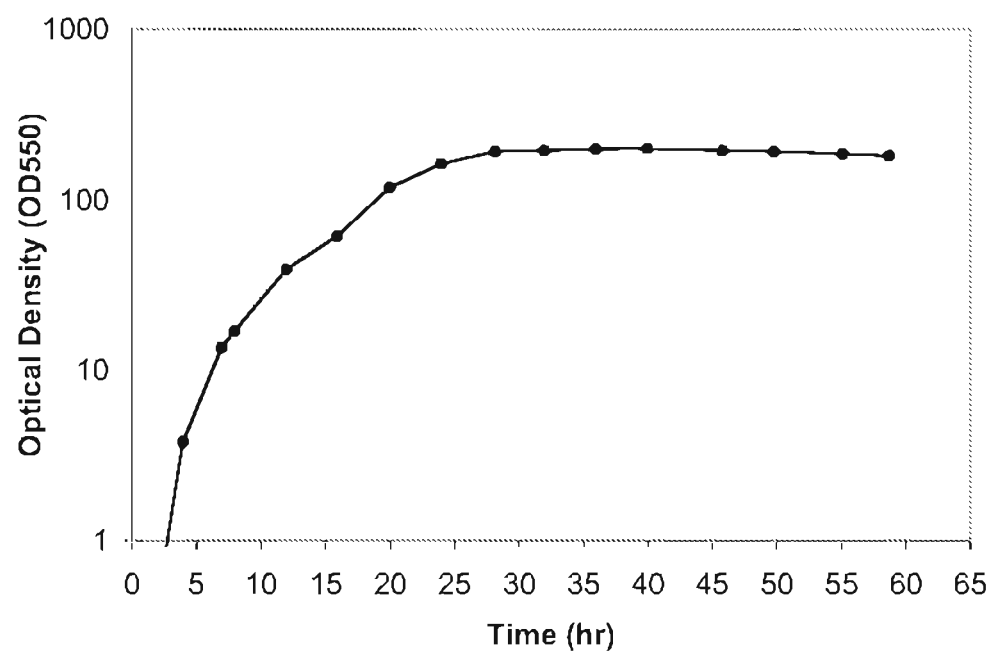


Figure 164B

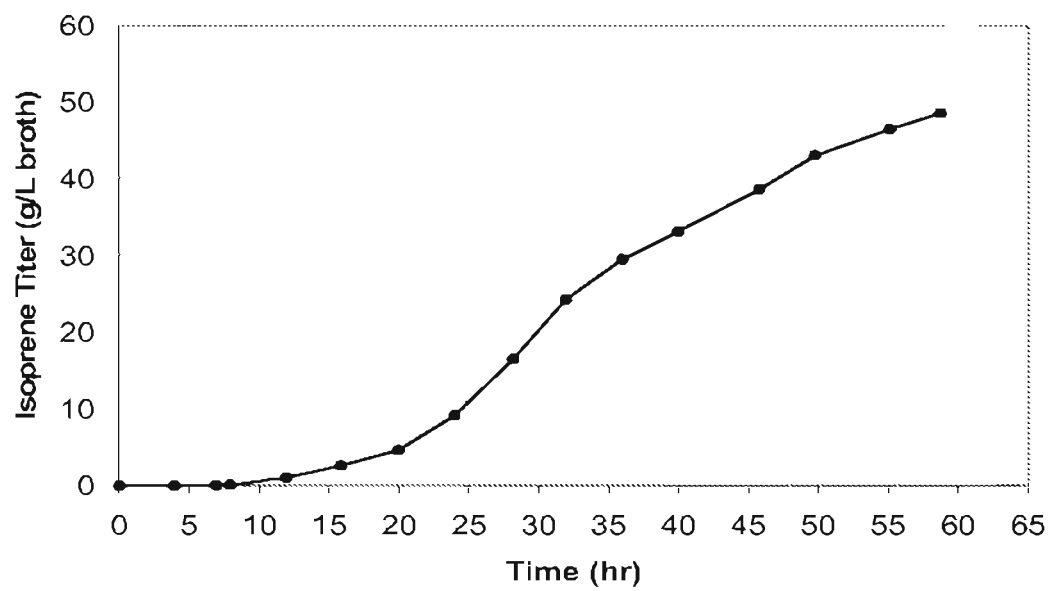


Figure 164C

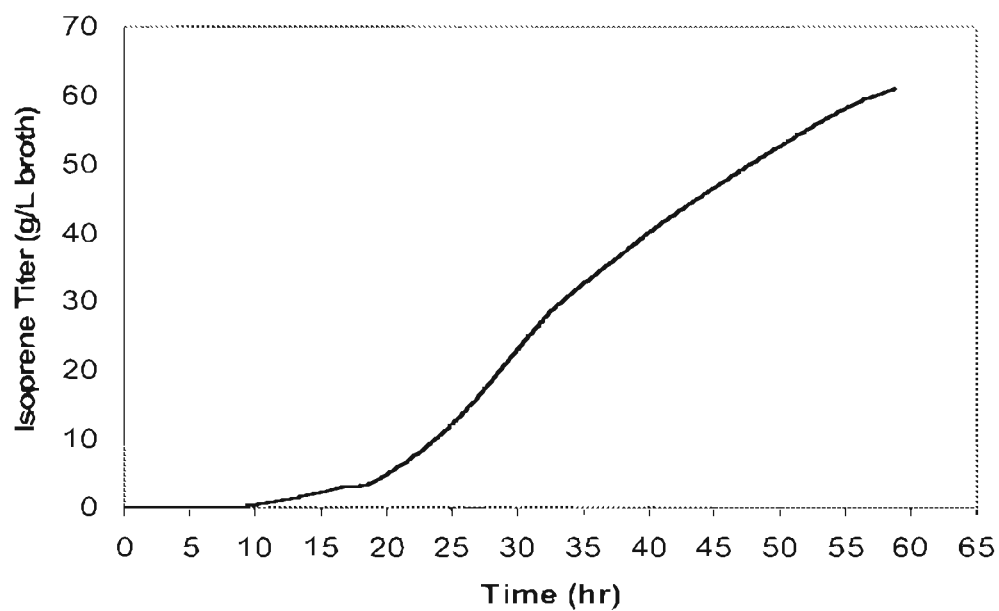
Titer 78C

Figure 164D

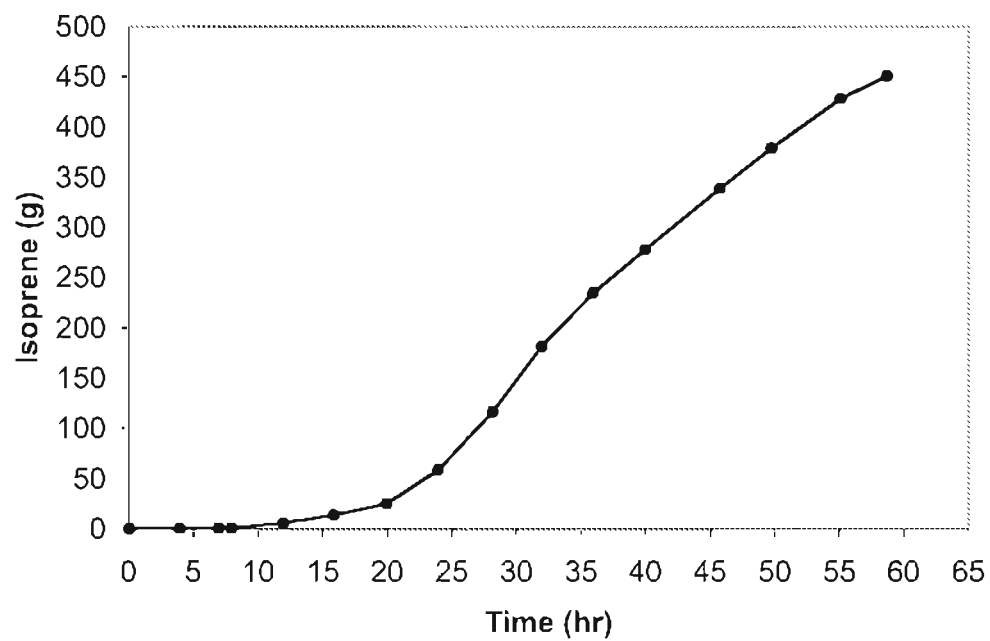


Figure 164E

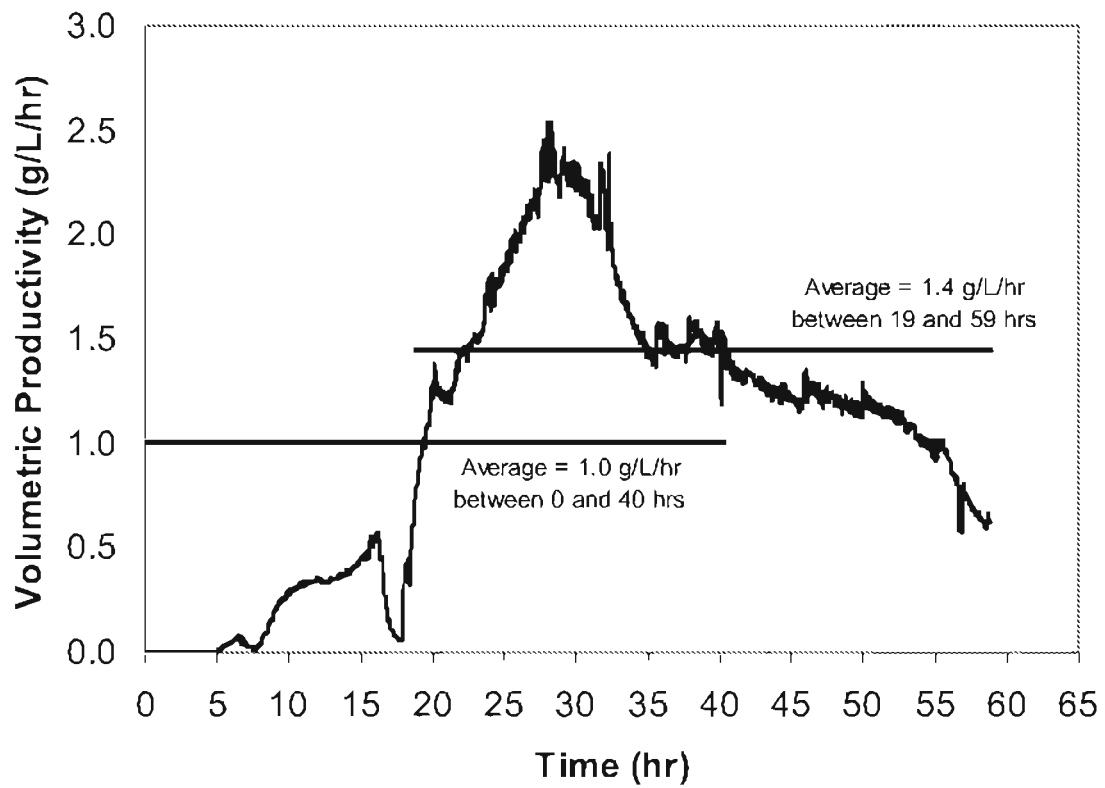


Figure 164F

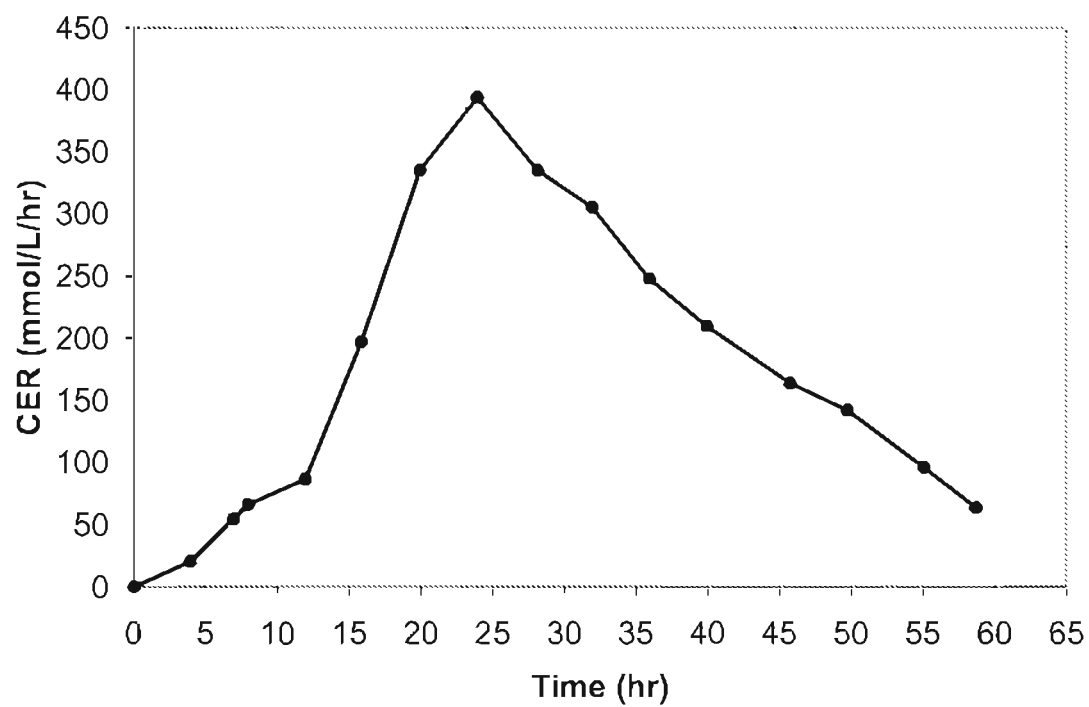


Figure 165A-B

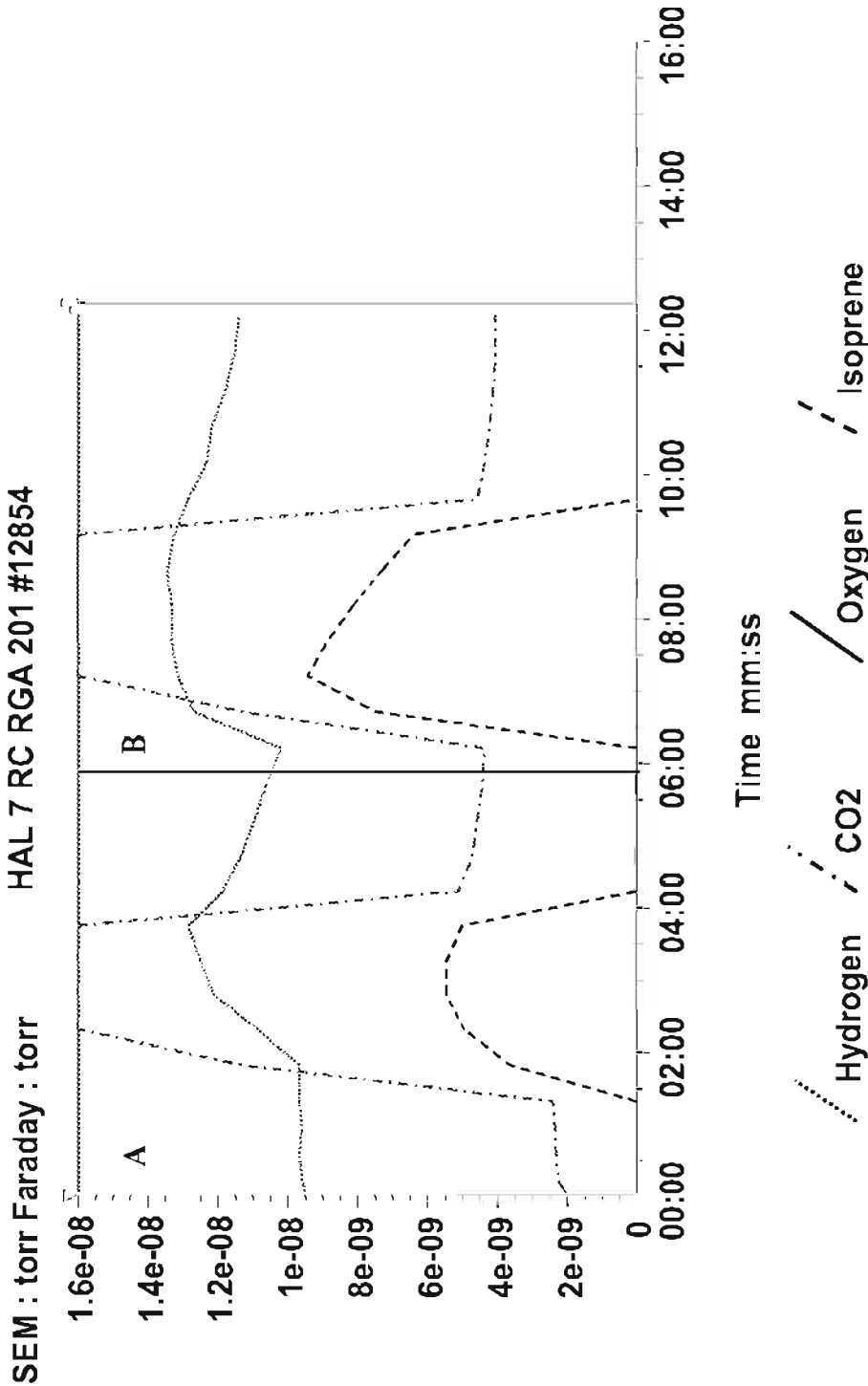


Figure 166A

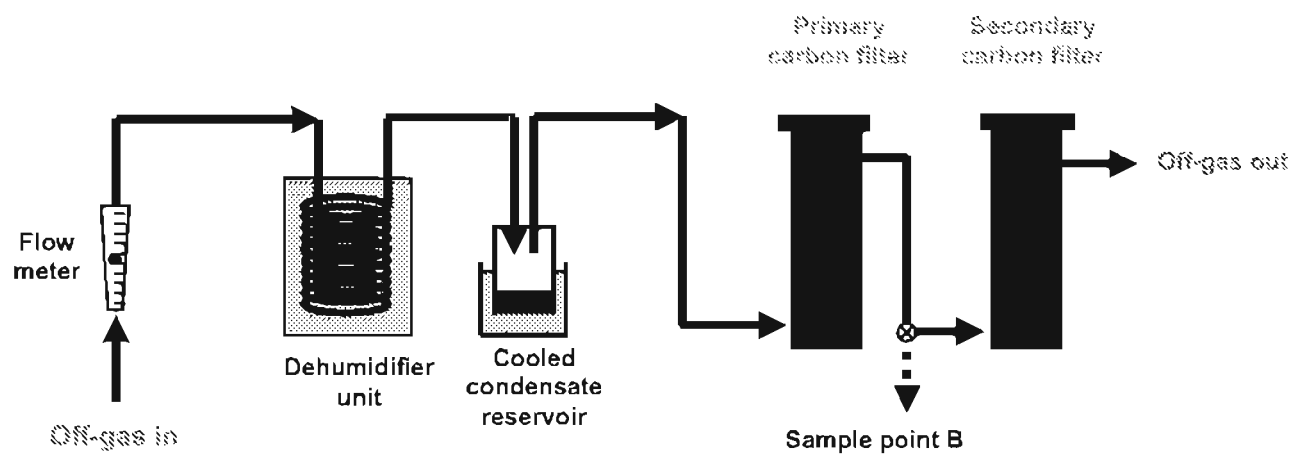


Figure 166B

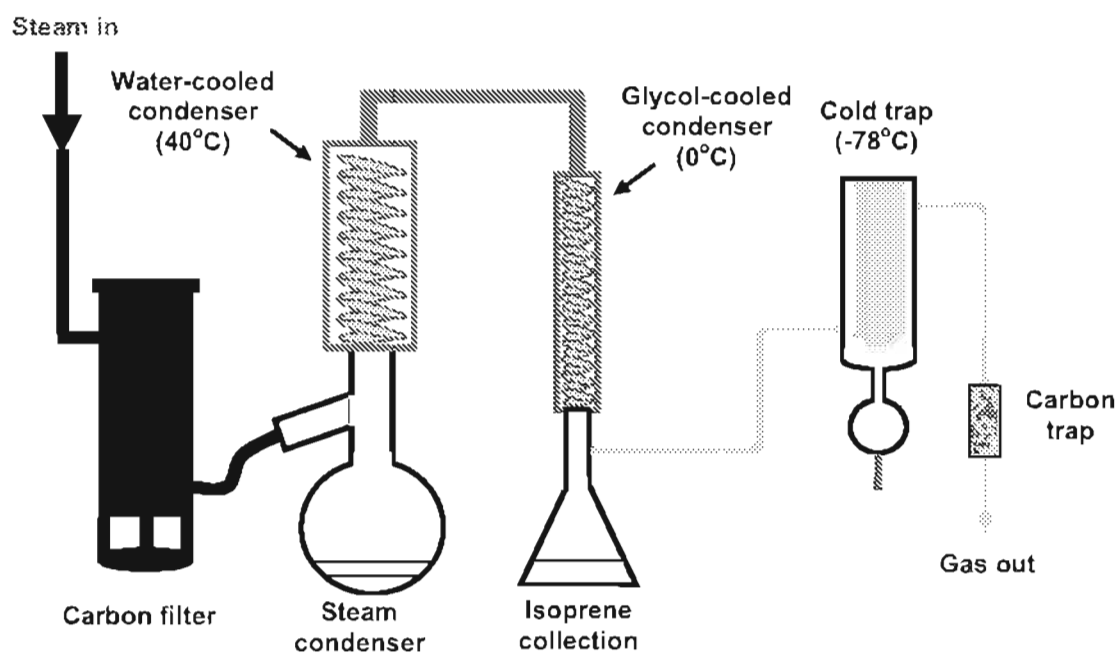


Figure 167

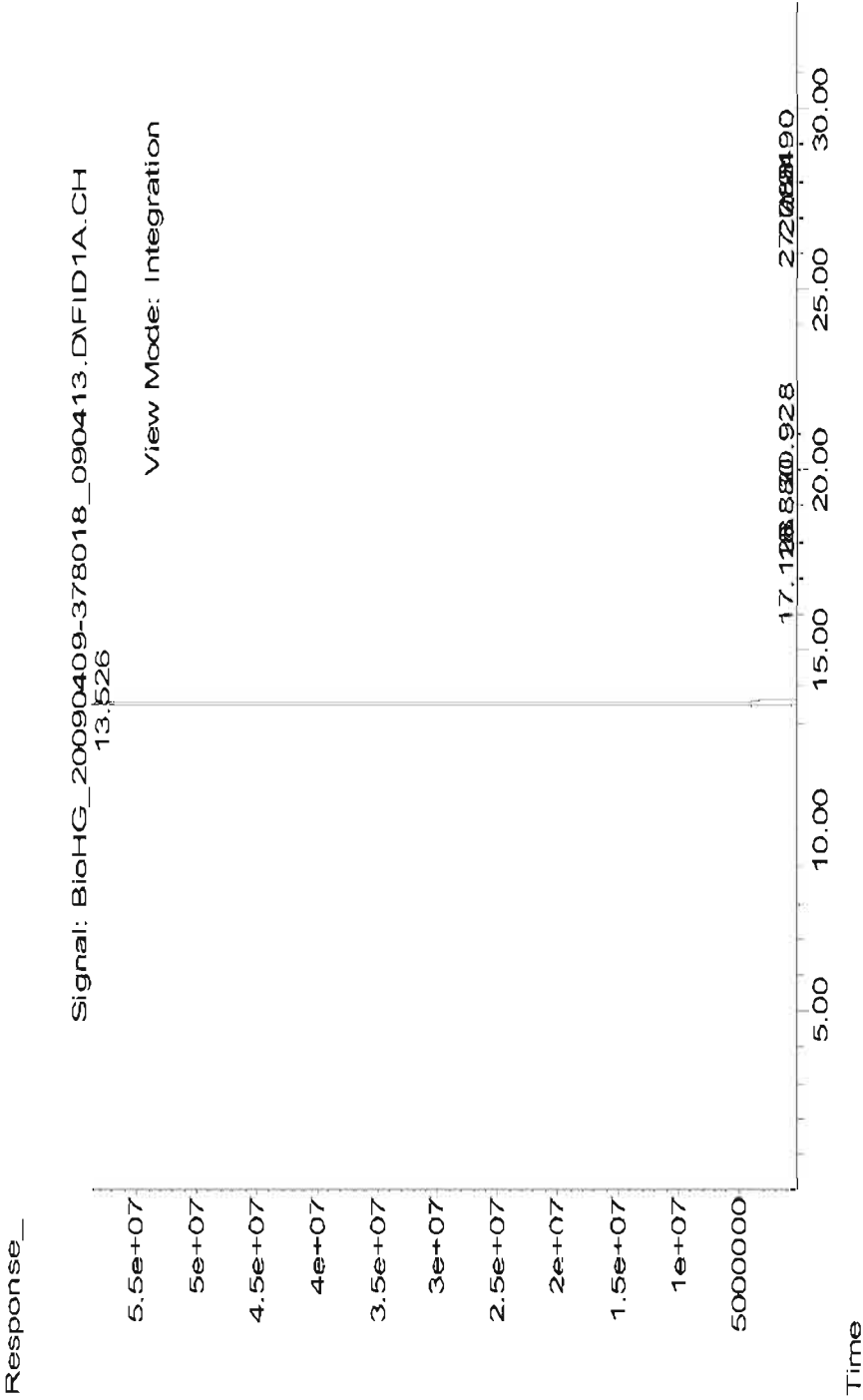


Figure 168A-C

Abundance

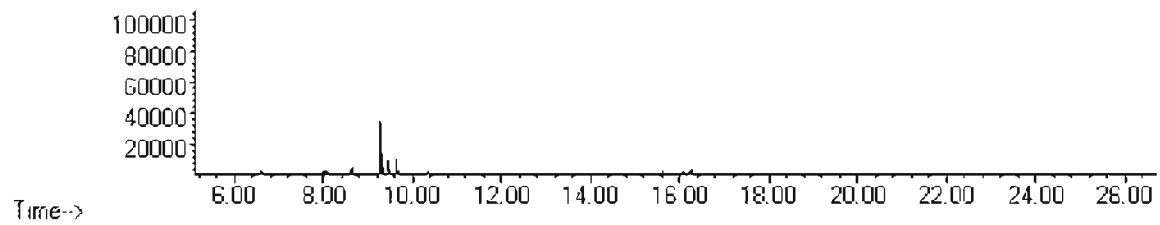
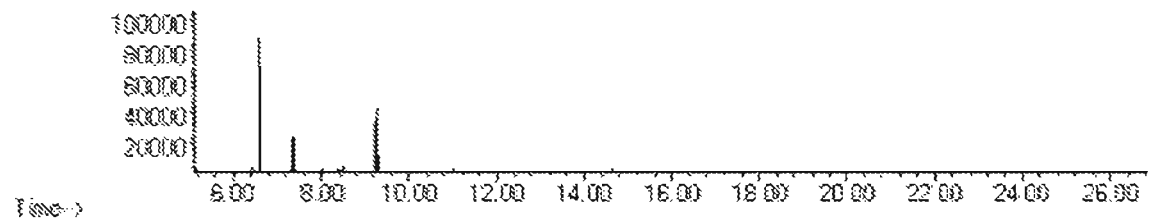
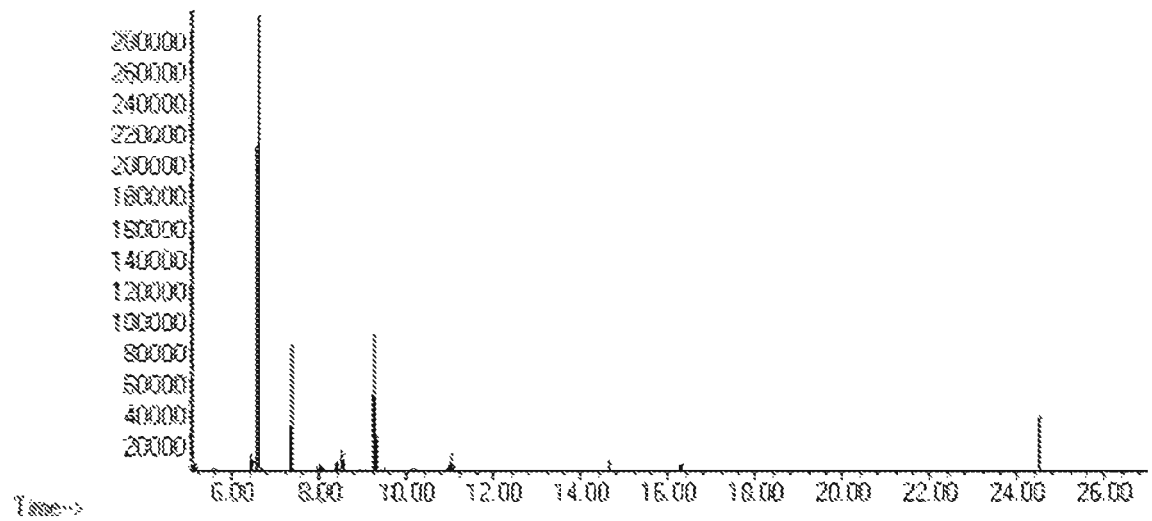


Figure 169

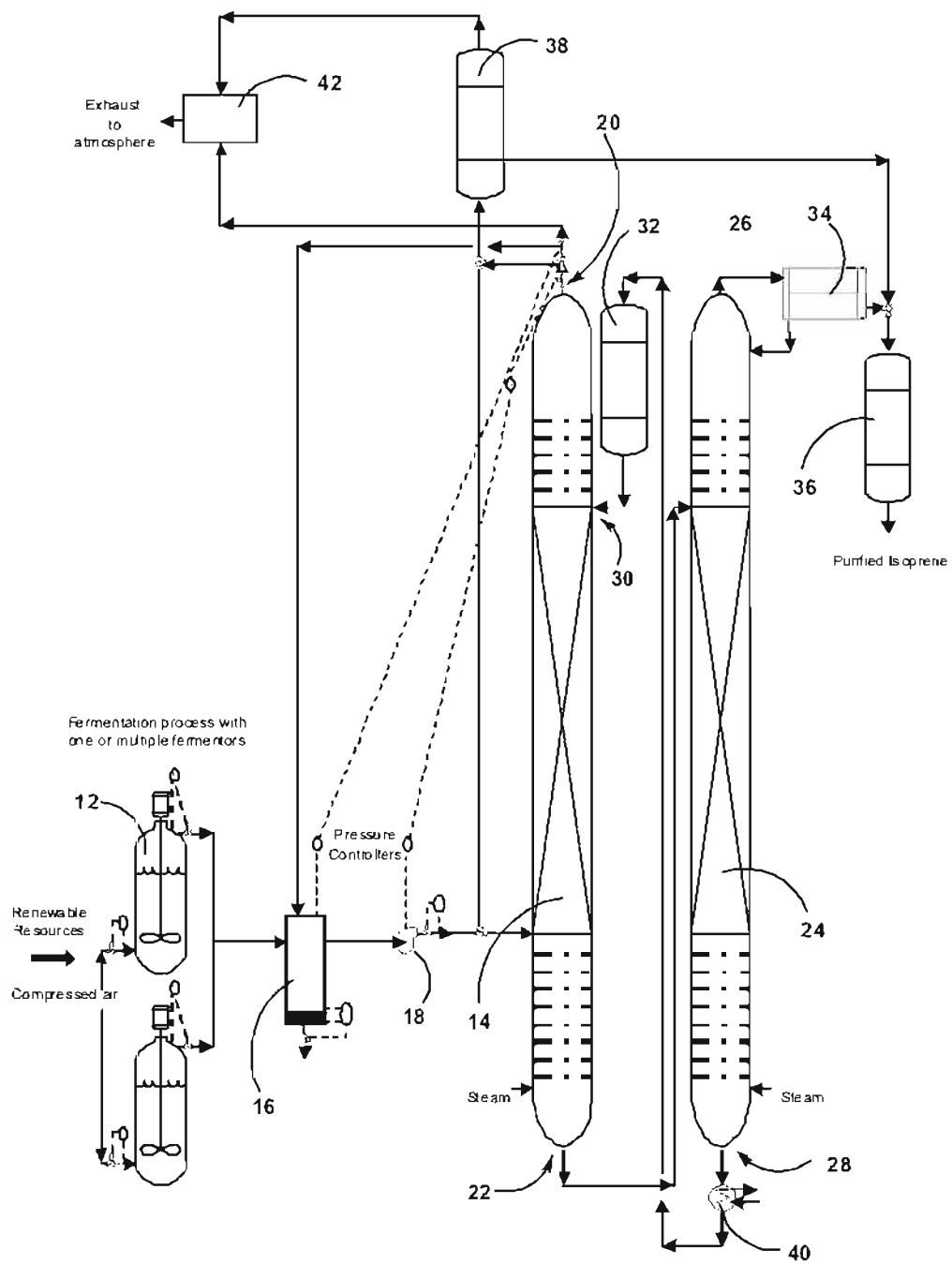


Figure 170

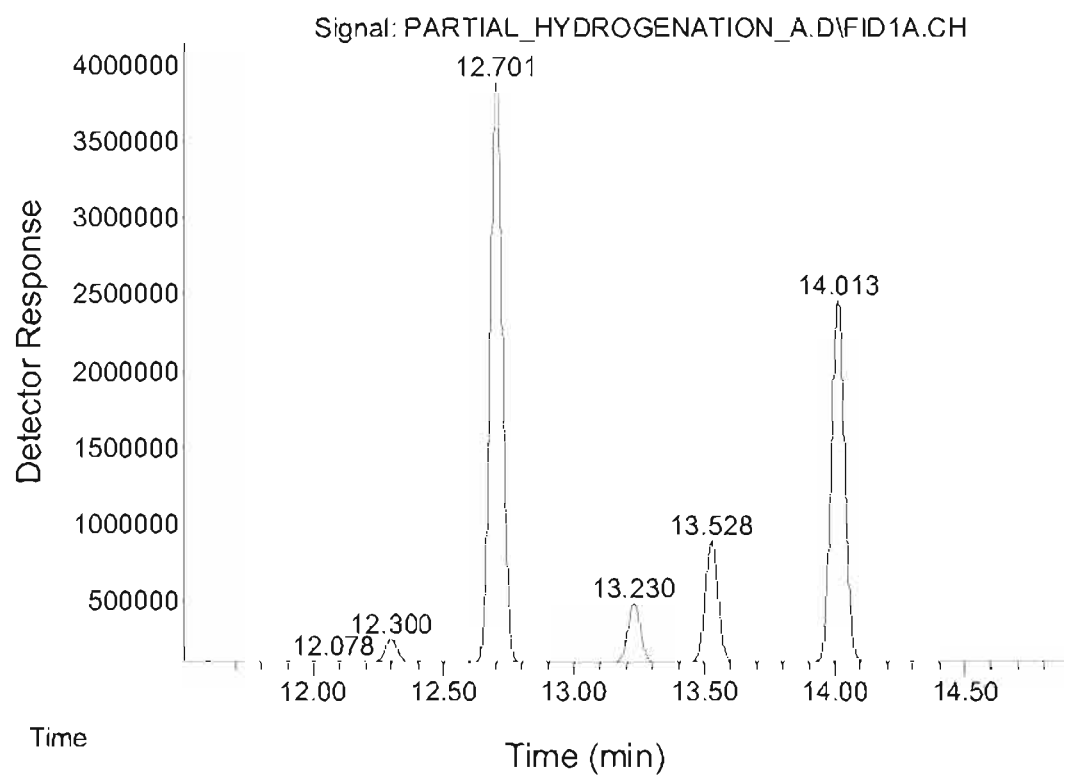


Figure 171

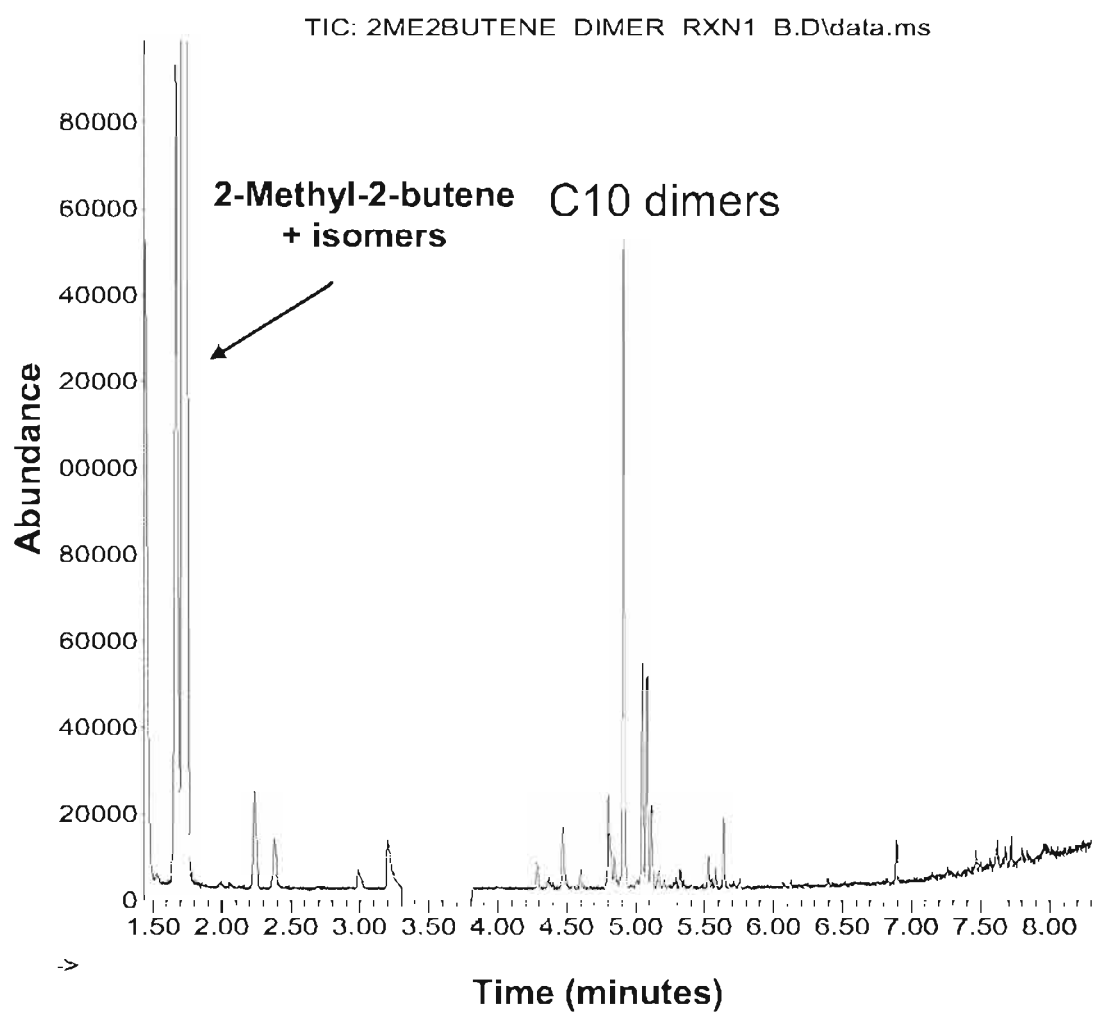


Figure 172

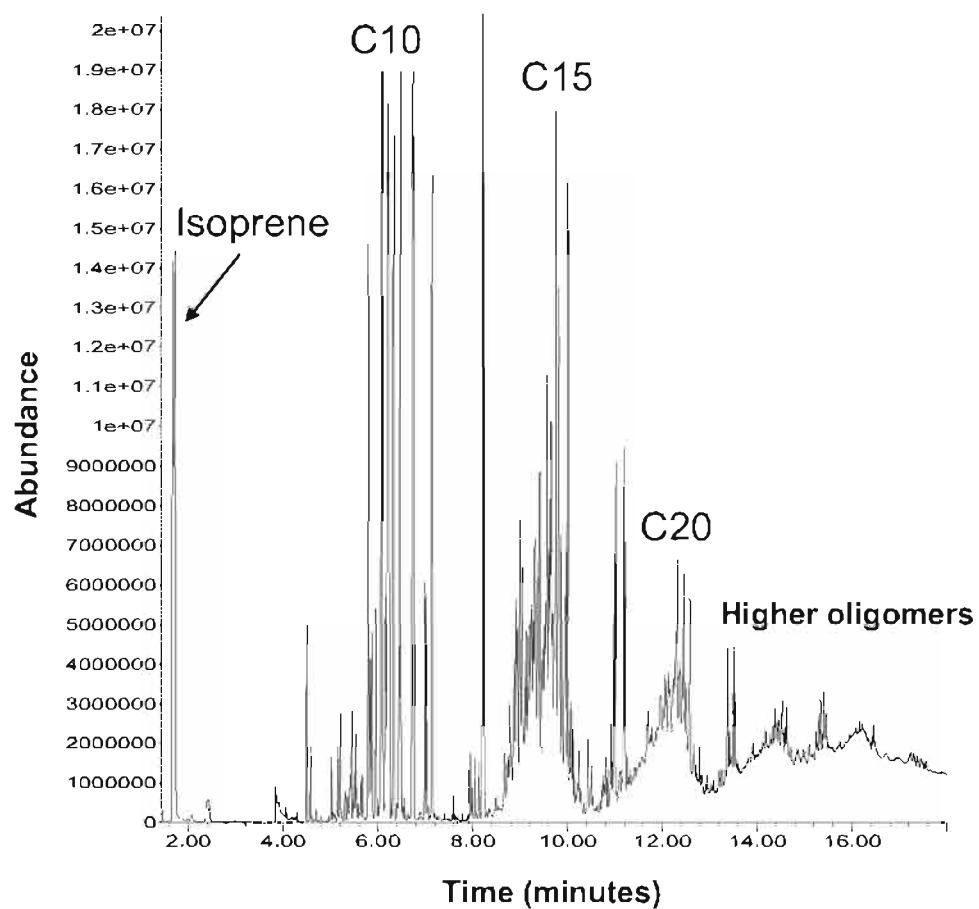


Figure 173

