SEQUENCE LISTING

<110> Regeneron Pharmaceuticals, Inc.
University of Maryland, Baltimore

<120> B4GALT1 Variants And Uses Thereof

<130> 189238.00202 (3040) (10351-WO01)

<160> 17

<170> PatentIn version 3.5

<210> 1
<211> 56718
<212> DNA
<213> Homo sapien

<220>
<223> wild-type B4GALT1 genomic sequence

<400> 1
gcgcctcggg cggcttctcg ccgctcccag gtctggctgg ctggaggagt 50
ctcagctctc agccgctcgc ccgcccccgc tccgggccct cccctagtcg 100
ccgctgtggg gcagcgcctg gcgggcggcc cgcgggcggg tcgcctcccc 150
tcctgtagcc cacacccttc ttaaagcggc ggcgggaaga tgaggcttcg 200
ggagccgctc ctgagcggca gcgccgcgat gccaggcgcg tccctacagc 250
gggcctgccg cctgctcgtg gccgtctgcg ctctgcacct tggcgtcacc 300
ctcgtttact acctggctgg ccgcgacctg agccgcctgc cccaactggt 350
cggagtctcc acaccgctgc agggcggctc gaacagtgcc gccgccatcg 400
ggcagtcctc cggggagctc cggaccggag gggcccggcc gccgcctcct 450
ctaggcgcct cctcccagcc gcgcccgggt ggcgactcca gcccagtcgt 500
ggattctggc cctggccccg ctagcaactt gacctcggtc ccagtgcccc 550
acaccaccgc actgtcgctg cccgcctgcc ctgaggagtc cccgctgctt 600
ggtaaggact cgggtcggcg ccagtcggag gattgggacc cccccggatt 650
tccccgacag ggtcccccag acattccctc aggctggctc ttctacgaca 700
gccagcctcc ctcttctgga tcagagtttt aaatcccaga cagaggcttg 750
ggactggatg ggagagaagg tttgcgaggt gggtccctgg ggagtcctgt 800
tggaggcgtg gggccgggac cgcacaggga agtcccgagg cccctctagc 850
cccagaacca gagaaggcct tggagacttc cctgctgtgg cccgaggctc 900
aggaagtttt ggagtttggg tctgcttagg gcttcgagca gccttgcact 950
gagaactctg gtagggacct cgagtaatcc actccctttt ggggactgac 1000
gtgaggctcc cggtggggaa ggagactgac ctctcggttc acgtgtcttg 1050
ccatagagcc actctcctga gtgggttttt ctcctgatcg tttgggccaa 1100
gtgacttctc tctgaacctc atatttctct tctgggataa taaatggtca 1150
ccctttcaag gggttgtttt ggaagatatt gtgaacaatg gtaaataagg 1200
gcttaattaa tgagggtaag ccctcagtaa attgtcactg tgtgttcatt 1250
tcttcctctg tgtggatcgt gaccgagagc ccttcccccc agcctcctcc 1300
tggtatgggt acccaaaacc taggtgagca gggatctctc ccaggggcag 1350
agagcttgtg tactctgggt gttagagggc taaaatataa ccagtcaaca 1400

ccacgttgcc catttctggt acttccggta gcagcctgag tctcaattat 1450
cttgcccaga tgatctgaac tctgacctct agcctgtttc agcataggca 1500
gagagcttga gtaggtgagt ttgcattcct catagcagct ggctgagcct 1550
agtctggact tctctttgac ctgtaaccta caggcccaca ggcccaaggc 1600
aaccacaggt tgcttccagg gttaccacac aggtggtttc tcatttctaa 1650
tgctaggttt tagataattg ttgtaagtga ggggccctgg caggcaggat 1700
gacatcctgc caataggagt tttctgtcac tttcccacag agccctggct 1750
actacatact cttgctcaat ttcgccagta attgcgtcaa tgtgttcata 1800
tcaagtttgg gaagaacatc ttggaattgg tcagacgtga actgtggtaa 1850
taatgggggc ttgtttttt aagcagataa ttaaattcct ttgcatttga 1900
tgattattct gggaagcaga ctagtcccat aaaatgaaat ggactctgcc 1950
ttgctgctaa gtgtctgact tgagacatgc tatcgagttt ctcaaaatct 2000
cttccttgtg taaaatgtgg ttgtcgatga ttaccttaca ggggtttttt 2050
taagactaaa tgagatcgtg tacattaaat acaggcactc aggctgggca 2100
tggtggctca cgcctgtaat cctagcactt tgggaggctg aggggagtgg 2150
atcacttgag gttaggagtt tgagaccagc ctggccaata tggtgaaaca 2200
ccatcccatc tctacaaaaa tacaaaaaag ttagccaggg gtggtggcat 2250
cgcagctact caggaggccg aggcaggaga attgcttgaa cctgggaggc 2300
agaggttgca gtgagtcaag attgtgccag tacactccag cctgggcgac 2350
gaagcaagac tgtctaaaaa aaaaaaaaaa aaaaaaaata cgggcactca 2400
atacaccgta taataataat atagtaataa tatttgctta ggatctttaa 2450
aaagtttcat tttttcagac tcccacagaa atggctctgc acagcagagt 2500
gaaggggggag agagactgag tctccaggcc agaaaaaggc caggtttttt 2550
gcttttgttt ttagttgttg cctggatatt gcacagaaag aaaaaataat 2600
tagcaagtta aacaaaagta ccgcaaagtt gattacattg gtatttgagt 2650
atcacatctt ctctcagaag cgtaagagac aaggtcgtga ccatacctct 2700
gcttagtttt gttttgtaat ggtgttgcta gtgatcggct tgtcaccagt 2750
tactggtgtt tctaaatgga ctataattgg ctacttgaaa ggacttcctg 2800
agaaagaaca ttttggagga cgaggagaga gtgccttctc tattttggct 2850
gctttcatgt gacatgcaag agaccatgac gtttaggctg ctgctgaggc 2900
agccccagaa atgggggccg agaggtcttt tcttcatttt aatagggtct 2950
gtaggtttgg gtggttaggt acagttctca gaatggaggt tcctggctat 3000
gaggccttga gaaagctgaa agtctccttg ggagtgtgtg ggtgggggga 3050
gtcgagccca tctgttcatg ggcaggtgtc agccaaagcc cttgcgggtg 3100
gttttgaggt tggtgggaga aagcatccgt ggggtttaga gttgtggcct 3150
tttcactact tgcagttcct ttccccgact tggctttact ttctggtgtc 3200
caggggtctg ggccagatgc tgagattcct ctcagctgac aggtgtgggt 3250
tatgggcaaa cccttccctg gaggacataa ggcaccggat tggactgctg 3300
atgggttgct gttggagttg tcagggcctt ggaatagtct tcagatagac 3350
ttgggttagt gtgacctggg gcaggctgca ggtttggagc catagtaccc 3400
cccgccccca caccgggcac cctgctctgg gctaatgtga ggcttgcagg 3450
agtgagtgat gcagtgggaa gggggggcctt tcctgaggat tctacagctt 3500
tctccaggga atcctcccag gtagtttagg cctgcaggtg ctatgctatc 3550
cttctttcct aaccctgtct caggtcctca gcggggccat gcggcatcca 3600
cttataaccc tgcagcgagg ccctcttttc tggccacctg ggtgtttgcc 3650
tgctgagatg ggaggaacag tggccttggg cttcttcccc cgtcatgttt 3700
atctctgctc agattgggca gcagctcaat gggacttgac cagctgtggc 3750
actgccagtc tgaagatgag tagggtgatg gggggaggtg ggcagtacct 3800
gaagctgaac tggtgagaga ggcaggctgg cctgggggct cagctggggc 3850
ctgggatggt tggtacagtc ccctcagggg ggtaggggag tgagtgttag 3900

actgcttaag cctcagaggc cgctcttgcc cacctatgct ttgaggagat 3950
cctcttcatt tgttcaaagg gaagactctg atctagagat gggcacttgg 4000
accagcaaac agcagctaca ggtagccagg gcacccgagg agcacttgct 4050
catgagccgg tttccctggt ttttatgggg gctgttgctg agcgtctgcc 4100
agggtttgtg tcctagcact tgctggtctt tgctgggctc tcagctctca 4150
ggtgtttctc taccagcacg tttccccctc cctcatatgc acacatgtgg 4200
acacaagcag gctgcccagg acagagtgta ctttgaggct tgggaaagga 4250
ctctctctcg ccctttgggg gatgagcctt ggaacctcat caccttccgg 4300
cttggggtgg agcttcatcc tgggggttga agctttaggc tcagataact 4350
agtcttgtaa gccagttttg tcctgttgtt tttttcgtgg aaaataatgt 4400
attgacgtat acacagacat tctttgtcta acagtctgag attgagaaat 4450
accctccatg actatttggt ttgctttcat ggtgaaactt ggtcgctttc 4500
ttagacacag cctatggcaa taagagtgat ccctggctgc tgtaattcat 4550
tccagacttt gagcaaacac aaggcaccgc ctccacctgc agtggagcct 4600
ctgatgaacc aaatggaaac tccttgggga atggggagta agagccaaat 4650
gtgggattgg acttaaactg cagcttctta gaactgtagc attccacgat 4700
gggattgtct agtgctcttc ctggaggtta ctattcaata gttggctagt 4750
gcacaggttc aggggtgacc tgatatgccc tagcgtttca gaagatccct 4800
gcaaggtgtg tcttttggtc catctgaagg gtcttgtatg gtgatcttgt 4850
atggatatcc gtgacggcta aggcatctga taacttcatt ccttcagttc 4900
cagcagtgtt cctgtattat gctgggcact agagctacaa agaagaaaac 4950
aaagtgcctc ctcttcagga actcttaatt taggcagggg aggcataatt 5000
gaacagtgct gaggtcatct aggggaacca aagtgtgtat ttatcccctt 5050
ccctatcact cccctccctc cttcatttct tcctttcttc tttcagaaac 5100
tccaagttca tatcaaaatt ctccagccct ggttttattt ggttgtgtga 5150
aaattttcct ctaatttctg aagctatgca ttagttctgc tgagtaatct 5200
ttaacttgct gctttataat gattataatg agatatcact gggtattatg 5250
gtctttgggt agcagcaggg tagggatttc caggctggga ctaagctaat 5300
ttatgggttg ggaattatgg ggcagttaat agcaaggcag tccaagcttt 5350
ccacagattc caccctaggg accatccaga cttaaggaac agggccggca 5400
ggctcatccc ctttgcactc agctgggcta tgggtgtgtg tttgtgaaag 5450
aggtttattc agtagtcata cctgctgatt tccctgctat ctgtttaccc 5500
agtgcctcct gtaccttgtt tcttactctt tgttctctgc tcttactatg 5550
aagaagcaga gactggaatt ctgcttgaac ccacatctac ctggaaattc 5600
cagtttttct tgtccagtgg agcagcaatc cagttgtttt aggacaaatg 5650
gtctgccctt gaagcttaaa tcctttgagg gcctggcatg gtgacagttt 5700
tacatttggc tttggtatag actggtgtgg tccctgggca gtgaggtcac 5750
tgtaaggcca gccagccaga ccctggctcc taggggaatt aacaaggcat 5800
gggattagac tcacagggtc cctcctgtcc ctaaacttgg taggggttcc 5850
tgggagccag actgcgatta agattgtaga gacctgagac ctgagttgta 5900
ggggcctctg tgttgatctg ggccattgcc gggtgagctg aggcggtcac 5950
tagctcaagg agtgatctca ggatattgtt ctgtaagtca gagacctcca 6000
ggttggagag tggggcttgg gggtgggga cagggtttag tggggagctg 6050
gttctgggtg aatgtggcct aaagggattt gtccttagaa gacagagggg 6100
tgagtcacac actcagtgct tcaggttcca ctttgcggct tggcctcagc 6150
ccgccccttc cctgcacaaa tgaaggccag gggctatata attggctgtt 6200
gctgaattct ttggcagtga ttttaaagtc tggtctgggt gtgttatgta 6250
gctgcttctc tatccactcc ccacacccgc tgcttctcca gagcccctca 6300
caaagcccag gcagagagag agagagagag agagagaatg acttgcctca 6350
cagagatgtt ggggataggg ataggggtat gggtctttgc ttttgccttt 6400

tgaggggga taatctcttc cttcatttta aaagtaaaaa gtaatgcagg 6450
ctcattgaaa ataatttgaa aagttgaaag agatataaaa gcacacccaa 6500
attcctatca cccaaaagaa acataccggc atatttccta ctagtctttt 6550
tcatgtttaa gaatatagct gatatatttt tttttctttt tctttttgag 6600
acagggtttt tgctctgtca cccaggctgg agtgcagtga tcacggctca 6650
ctgcagcctc gacctctcgg gctaagcgat tctcccactt cagtctcccg 6700
agttgctggg accacaggtg cacaccgcca tgcctgacta atttttgtat 6750
tttttgtaga gatggggttt tgccatgttg cctaggctgg tctcgaactc 6800
cagagctcaa gtgattcacc tgccttggcc tcccaaagcg ctgggattat 6850
aggtgtcagt caccacaccc agtgttatag ctgttgtctt tatagatgaa 6900
cagatagatt gacatagatt catgtagata gcctggtgtt cagcattttt 6950
catttaagat tctgtcacag acttgaccct atacctttaa aaatcacaaa 7000
ggcagtatca tagtctgtca gctgaatatg ccataactta aaaaaatcat 7050
tcaactgttg ctgaacacac acatatacat atatagtttt tgtttttttct 7100
tagtgatgta gtgatgcttg tgcagaaagc tttatgtact ttttggatgg 7150
tttctgtagg agagctttct aaaaaaggaa aaaaagtgtt gaatgttttt 7200
tgagaagggc tagattttca agccagtctt acaaaaggat agactcattg 7250
gaaattccag atttgcttag tgctggcaga tgagtatcac ttattgctga 7300
acaatgtgtc tagaattctg attaaaaaag aaactaggtc caggaagtgc 7350
ctgggggcag gggcaaaggg ccaggctgca ggataggctc ttaggatctg 7400
gctgagcaga aatctgctgt gaacagaatc ggtgggggtg atgctttctc 7450
agtaacttct ccatttgttt ctttagcagc taagtccctg tgctggactt 7500
ctgtggacta ctgtggctct ggggctgtgg ttgtgggtga acaacagcta 7550
gctaaaccag tgctgttgac atcattgaga tgtgacgcac aggaaggtgg 7600
gagcaagctt gcaaatcaga ttctgaaaca tatagcacag ctctcccacc 7650
tccaggtggt cctgagatct agggaggagc catagtgaga aactttaggt 7700
ttctaggaat tctcttaggg agaagctctc ttagggagag gcagaacctg 7750
gttctcagtt ggggctgatt caggtgggtt agatcaataa agcctcaggc 7800
cagtgtgcca ggctattccc aaggagtata ctttgaagtt actcccttta 7850
gaatgtcctc agtggagata aattctctct gaggagcagt tttgtctgcc 7900
ggggtcattt ggcacaaagc ctggagtgct agggcgaggt tgcactgagg 7950
gaaggggcag gattatgtca gcagtgtgac ggatacagtg tgaggtcagg 8000
ctccttcctg ccccaccacg ggggcctaga ggtcatgggg agggtccctg 8050
gcaggggatt caatcattgc ttggccccat gacagagtat attctaaaaa 8100
tgccttaagt ttttttcttt caaagtttct tcctgttttg cataatggcc 8150
ttttgccttt gacatcctga aaccgcagag ctgtcattgg tgttgcagga 8200
cactgccagc ttgaaaaaaa tcaacaacaa aaaaagaaac aggaaaggat 8250
gtggagttca gggtgcggcc tagggaagct ggtatttgcg ttatgggatt 8300
gtggggatgt ggtattaagg tgttgggtag cgcctgacat ttagaggagt 8350
actctgggca gagtccctgc ctgcccaaga ataggtagaa ttgagtcttc 8400
acaccaaagt caggagagac cccctccccc caggaagaga atgaacaggg 8450
actcatttcc tcattcagca aacttttatt ggtaactaca ctatatgaag 8500
tgtgagagat agacatgaac aagagaggcc cccactcttg ggcagtccct 8550
tagtagtagt agatagactc tggcaatatg gtgtggtcag agagaggaag 8600
cctgggtgct ttgagggtac tgaggaggtg cagggagcca aatgggtggt 8650
ctgggccagg gccagagtca gaatgaagga cctctcttcc agacgttgat 8700
tttagcatct ctgtctctca gtatgtttga acagtctccc ttattggaag 8750
ggcaggagtc tactgctaaa agtaacctgc gatttcctct acttgctgtc 8800
atgtggaaag aatactaaag ctgaaattcc aaaagttgca cacctttacc 8850
agcagggcag gagaggaaag gaaatggagg cagagtgagc tgaagatgat 8900

aaaagaaaga gaaggtggtg cagtttggac tgttatggac agaggaagtc 8950
tgagggtagc tggactgagg gatcaaaggg aggcagttga aagggaagag 9000
agctgcagag agggatttct tggtctgcag agggtaggag caagccttga 9050
aggctgctgg agtgaggatt ccgagccctg gtctttattc tttttctaat 9100
tcattacatc attttaggca agtcctaact cctttggtct ctgttgtctt 9150
tctgaaattt gagtgggctg ggcctgctgg tctttagcct ctgtctttct 9200
ctacctccta gattccagtt tggcgagtgg gggggaaaac ctggttgtat 9250
atgcaacgtg aaaggcctct ggaattcctt ttgaagctca ctacccatga 9300
ggcttctgct aaggatttca tcatgtctgt ctaagcagac ataaaaattt 9350
tagcaggtgg atgacccgta gaaatggcac aaggaatgtt tctttctgtc 9400
acactgtggt atttgattta agaaagttgt tatcctctct gtgcctcagt 9450
gttctcactt gtaaaatggc aataacagta tccacctcat agatgttatg 9500
aaatacaggt agtagccacg aaagggctta aaacagtgcc taacacagaa 9550
taagttgtga atatatgtta tttattattg gtagtataat gcttatttgt 9600
gaagattttg gcttttgctt tataggacct ttttttttt tagttgaaaa 9650
tacaatgtta ccatgttaaa tgttaaaaaa aattctactt accattgtaa 9700
cagaacatgc tcccacttct gtaacagagc ttgctattac ttttcaaatg 9750
catacatatt ccaatgcata tattccaatg cagttgtaga gtgaaactgt 9800
ttgcatgcag ccatttttat ccaacattat cttataaaat gttatgttgt 9850
ttatgattat cctaattatc ttttgttgct gtctagtatc cttatagata 9900
ttccattagc atacactatt ccaggtttca ctatcgtcga taatctagat 9950
atgaacattt ttgtagtgtg tagctctttg cttcagttga attactttcc 10000
tgggataaat tcctggggaa gaatttctag gccagaggat atggtcatct 10050
tgacaatact gattcacatt gctgcattgc tttccaagag gtttggaatc 10100
attcacaggt tctaaattgg aaaatcctgg cttttgaagt atgtggattc 10150
taagggcgat ttggatctag ctggagcctc acactgacac ttccagccag 10200
tgtgtgtgtg tgtgtgtgtg tgtgtgtgtg tgtgtgtagt tccctatgct 10250
ggacaccgtg tgtgtgtgtg tgtgtgtgtg tgtgtgtgtg tgtgtagttc 10300
cctatgctgg acaccatgtg gcctttctgg acattagggt tttcctgtga 10350
ttgcctcaga gcagttcctg ttgaattcac tctgtgtcca caaaaggagc 10400
cttactgtgg ctctttcaac acccacctac ctttgccaag ttggtttaca 10450
gaaagtaaga acattctttc cttcttcctt gatatgtggc gctaaaccta 10500
tagcatgggg caggctctgg ctttaaaaac ctgacttaaa aataatggtg 10550
ttgatcaaaa agtttgtgga tcagtttttg gaaacactgc atgtagccat 10600
ccatagaaac ttatattctg ttgggctagc ctgggcgcct gatcatttaa 10650
ctcatgtgga tgaacttcta tgtaatagcc ctggtgtatg ggatccagaa 10700
acagggccct aatgaagaaa ggcttttaaa ttatgttgga taaaaataag 10750
ttgttacaat agcccaaagt ctgcaaatat gaattgccag ttctgtcctt 10800
gtagtcatcc accatgtgcc tgcatctttt gtagactctt gtagattcag 10850
aagcccactg aattgcataa atgatggaat gattttagac ttagtgattt 10900
cagtgactaa aagtttacag atcctggccg ggcacagtgg ctcacacccg 10950
tattcccagc actttgggag gccgaggtgg gtggatcacc tgaggtcagg 11000
agtttgagac cagcctggcc aacatggtga aaccttgtct ctactaaaaa 11050
tacaaaaatt agccgggtgt ggtggcatgc acctgttgtc ccagctactt 11100
gggaggctga ggtgggagaa tggcttgaac ctgggaggcg gaggttgcag 11150
tgagcccaca tcaggccact gcactccagc ctgggtgaca gagtgagact 11200
ctgtctccac ctcccccgcc ccccgaaaaa aaaaaaagtt tacagatcca 11250
gcagatgggg catattcaat ttgtgacagc cactcccttc accttatagc 11300
tatgtcatat gtcttcttct cctttgactg cattctgcag cagtcagttg 11350
tgacttaata tggcactctg ggcccactga attaggtcag agctgctagt 11400

```
agtatattgt tcctagagac ctagggcaag attttcttac tacataaaat 11450
gagggagata atttcttacc tcaagatgtt ggtaagagga gtgaatgagg 11500
ttagttatat ggtaatatca gtactctgaa tgtcttttga tcaatgccta 11550
actcatcttc ttgggcacaa aaggcataca gtcagcaccc ttaggccaca 11600
tataaaattc ctccaaatgc aggttttcat ctgccttggg gcagagtcaa 11650
gagaaagaag aggaagaggc gtgaggctct gaccacaact tagggacaga 11700
atatagccca aagcgagtac cccaggccac aaggagaagg ccgctatctt 11750
gttgaatcca cagcactgga aacttggagt gtgtgttccc ctgtgtcagt 11800
tacactggaa ttttatggct gctcacattc ttcccttcag gtggacgttg 11850
ttcatcagta tcctgggcaa gaggccatca taaaccacag acagctgagt 11900
gattaggaag aggagctgaa gagggagcat tagatgtttg attgagtctt 11950
aggtgagaaa gtatatcatt aaaacaaaaa gatagatgta ggcgggctca 12000
gtcttgtgtg cctggtgtgt tggtagaaaa actaaagcac aagcctgtag 12050
ataacctgct ttattctacc tcggggctgg tgttggaatc caggatgcca 12100
gaccctaaag tccagctctc tttccaacct actgaataat ccgagagaaa 12150
tcatgttctc tctctgggcc tcagtttgcc catgtataaa atgagatgaa 12200
ggattggctg ggatgctctc cagagtctct tcctgcctgg agttctgacg 12250
tagccatgta ctcctgctca gcatcgctaa atggctttgt ggtaggacca 12300
ttgagtgctg cctccattag ggccagctat gtaatgctgg ggtggctgtc 12350
actgggccct aagagccagg attggtctta ctggagaaat ccacatccac 12400
ctaaacttaa gacccagggg tgtccaatct tttggcttcc ccaggccaca 12450
ctggaagaag aattgtcttg gaccgcatat aaaatacact aattatagcc 12500
gatgaggtta aaaaaaaaaa actcaatatt ttaagagagt tcatgaattt 12550
gtgttgagct gcattcaaag ccatcctggc cgcatgtggc ccatgggcca 12600
tcggttggac atgcttgctt tagacctccc agcaattcta gtctctaaac 12650
aggaaatcaa aagtcaagat gaatagataa gttggtcagt gtgaaaaagt 12700
aattggtggg agccactgta gatgcagggt tctaggctcc atcaacaacc 12750
acctacatca ctgaacgaaa gataatgctt gttcagcact tattacatgc 12800
caaccatggt aaaaatactt cagatgcatt gttttcatga actctcacag 12850
cagctctttt tcttgcctaa atgccccgtt agaacctcca gtacaatgtt 12900
aaatagatat gctaagagac aacatatgtg tcttgttagg gggaaaatat 12950
ccagtctttg actattaaga atggtgttag cagtgggttt ttcctaggtg 13000
ccctttatca ggttgaggaa gttcctttct attcctggtt tgttgagtat 13050
ttttatcatg aaaaggtgat gggttttgtc aaatgctttt ctgtgtctgt 13100
tgagatgatc atgtttttt gtcatttatt ctattgatat ggtatattat 13150
acattgattt ttcagatatt aatcttgcat acctgggata aatcccactt 13200
ggtcatggtg tataattctt tttatttgtt gctggattga gtttgctagt 13250
attttgttga tttgtattca taacagatag tggtctgtag tctttccctc 13300
cctccctccc tccctccctc cctcccttcc ttccttcctc tctctctctc 13350
tctctccccc cccctccctt cttttcccct cctctcccct ccccttccct 13400
ttcttctctt tcatagttgt ttaccactgt cagaaaaggt ctgttcgttt 13450
tctttcgtcg tgagatcttt gtttggtttt ggtatcaggg taatactgcc 13500
tcaaaaaatg agtagggaag tgttccttcc tcttctgtat tttgagagag 13550
tttgtggtcg gtttttatta attcttcttt aaatatctgg tagcgttcac 13600
cagtaaagcc atctgggcct gatgttttct ttgtggaaaa ctttttgatt 13650
cctaattcag tttctggtta taggtctatt cagaccttct atttttttctt 13700
aagtcagttt tgatagtttg tgtcttccaa ggagtttgct tcatctaagt 13750
catctaattt gttggcatac atttcatagt gattccttat gatccttttt 13800
atttccgtta aagttggtgt agggatagtc cctctttcat tactgattat 13850
aataatttga attttctttt tttcttagtc ttgccaaaag cttgtcattt 13900
```

```
ttattgatct tttcagagga ccaactttga gttcattatt tgttctcttt 13950
gttcttattt ttctgcttca ttaacttctc taatctttat tctttcattc 14000
tgcttgcttt tggttaagtt tgctttttct ggtgtcttaa ggtagaaggt 14050
taggttactg atttgagatt taaagatcat gctctttaaa cgttttgata 14100
gatactgtca gtttgccctc tggctttttc tcattaacag tgtataggag 14150
tgcttattcc tcacactcat accagccctg ggtgttacta acctttatat 14200
atttgccagt atcatattca gacatagtat cttgttttaa tatgtttctc 14250
tgattactga tgaagttaag caaattttca cgtgtttatt ggccatctgt 14300
ctttcttttt tcatcctttc tttcaagatg ggagtctttg ccatgttgcc 14350
caggctggac tcgaactcct gggctcaaat gatcttcctg cctcagcctc 14400
ctgagtagct gggactatag gcgtgagcca ccatggctgg cttgcccatt 14450
tgtatttctt atgtgagtat tttttctttt tttttgaagt ggagtctcac 14500
tccatccccc agagtggagt gcagttgtcc gatcttggct cactgcaacc 14550
accgcctccc aggttcaagt gattctcaca ccttagcctc ccaagtatct 14600
gggactatag gtgtgtgcca ccacacctgg ctaatatttg tatttttagc 14650
agagatgggg tttcaccatg ttggccaggc tggtttcaaa ctggcctcaa 14700
gtgattcacc tgcctcggcc tcccaaagtg ctgggattac aggtgtgagc 14750
cactgtgccc agctgacttt ttttttcttt tttttaaccc ttttttttgt 14800
ttacccttgt tttggcccat ttttttttac ccttttttctt ttaacccatt 14850
tttctattag ttttaaaaat atgtttgcag gagctttta tattgtggat 14900
ttttcttgtt tattacatat catttgtaaa tatggtctct ccatctgtca 14950
ctcttcttta tctctggttt ctttagctat gtagaagttg ttatgttatg 15000
ttatgttatg ttatgttatg ttatgttatg ttatgttatg ttatgttatt 15050
ttttggagag ggagtcttgc tctgtcgccc aggctggagt gcagtggtga 15100
aatctcggct cactgcaacc tctgcctcct gggttcaagc gattctcctg 15150
cctcagcttc ccgagaagct gtgattacag gcacccgcca ccacacccag 15200
ctaatttttg tgttttagta gagacggggt ttcactatgt aggtcaagct 15250
gatctcaaac tcctgatctc aaatgatcct cccaaagtgc tggggttaca 15300
ggcgtgagcc actgcactcg gccagaagtt ttgaattttt atgtgtttaa 15350
atctatgttt tcctttatga cttcaggttg ctttcatact taagcaggtc 15400
ttcaccatcc caaaatgata aaatttttct cctgagtttt cttctaagtt 15450
ggttctttag aagccaccaa cttggcttcg acagcaaaag atgaacagaa 15500
tttctgttca actctcatgc tgcaagaagc tttatgtaat actccaggga 15550
ccctttaagg tcccagagtt ttcctccaaa tctatcagtg attctagtgg 15600
ctaagagtag aaatgtgaaa atttagccat gtgtgctgat agagctgtag 15650
taatttgtaa gctctgaagt tctaaggagt caggggagaa gggaaagtaa 15700
catttattga acatctatta gctcaataag aacatgcgat aagtatgtat 15750
atgtattatt tcacttacat ctgaaaggaa ggcataatta tccccactcc 15800
ttagagaagg aaattggagc tggctacatt taaagtagtc ctgacaccag 15850
agagatattg ccaggagtac ttggctggct gagtgcccag atggcccata 15900
ggagtagtgg gccctccaca gtccaaggtc tggttctagg tggagagaga 15950
aggatgtgct cgtagtcagc accgcagctc cagaaaatct gctggggctc 16000
caaaactgat tagaggggca gctgactcag taataaaact cccaggagac 16050
ttacttacat actggaatgc aaagttgcag ctttactggg aagattagaa 16100
ctgttattga gtagcttaga aatctctggc tgaattcact gcaagggaag 16150
ccgcaggata agctaactgc tggtgagtca gcagtcagag cagggaagtg 16200
aatttaacat tagatgggtc agtctctcgt ggctgatgaa ttcatcccca 16250
caatactgta cacctgcctt agggaccttt gtctggacta ggggttgggg 16300
tccccctcct ttgtacagcc ctggaaggac acatccagct ccatccgcca 16350
tctctccctt acttatttcc ttccttcctt ccttctttcc atccagccat 16400
```

caagcttcct ttcatggcca ataatcatca ttggggtcta ctcatggact 16450
ctcttgcctc atgtatttgt tttattttgt cctcattccc acttctattt 16500
cccaggtata tcacaggcaa ctattctaac gtatttatag tttgtgtatc 16550
tgtttttgct cttgccaaaa tggaagccac tgctttatac atagatgtat 16600
tcttaacttt aaaaaaaatt tttttagatt aacctacaat aaaattggct 16650
ttttggcata tagtctataa attttaacac atacatattt ttgtgtatct 16700
accaccacaa tcaggataca gaacagttcc atcaccccaa aaaaatccct 16750
cttgtagtca cattctcctc ccacccttaa tcccaggcaa ccactgatct 16800
attcttcatt actattgttt tgtctttttg aggatgtcac ataaatggag 16850
tcacacagta tatatacatt tttttaaaca tatgtaaatg gcattttata 16900
gctcattttg attatatgtt tttcatccag ttctgttttt ttttttatt 16950
tttaaaaagt ttgacataac ttcagactta cagaaaagtt gttagactaa 17000
tacaaagaat tcctggatat cctttggagt ccctaaatgt taacatttta 17050
ctatatttac tttttccttc tctctctctc tctctctcgc tctgtgtgtg 17100
tgtgtgtgtg tgtgtgtgtg tgtgtatcta cctgtagata gatagatatt 17150
aatataattt tagatagatg tatctagatc tctctctctc atatatatgt 17200
gtgtgtgtat atatctatat ctatatctat atatatctcc ttttaccctt 17250
aaatattcag tgtatatttc ctaacaacaa ggtgatttaa aaatatatat 17300
ataaacatag tataattaac aatcaggaca tcaacattga aacatttctg 17350
ctatgtcatc tacaggcctt aggaagactt tgtcaggtgc cccaataata 17400
gccttgatgg tagaagaaaa ccatgtgttg tattcagttg tcatgtctct 17450
tagtgtcttg taatctgaaa taattcccaa gccctttgga tttcatgaca 17500
gtgacattgt tgaagagtac aggccagtta ttttgtagaa ggtctctcag 17550
tttaggtctg tctgatgttt cctcctgatc agattcaggt tattcacttt 17600
tgacaggaat accactgaaa tgatgctgag ttcttctcag tgtaacgaga 17650
tctagagaca cacactgtca gtttgttcct tattggcagt gtgaaccttg 17700
aggatttcat tgtagtggca tttggcatta ctccattata gttactattt 17750
taccatttta aattaaaact atctggccgg gcgtagtagc tcatgtctgt 17800
aatcccagca ctttaggagg ctgaggcggg caaattgctt gaggtcagaa 17850
gtttgaaacc atcctagcca acataacatg gtgaaacgcc atctctataa 17900
aaaatacaaa aaattagcct ggcgtggtgg cgcatttgta gttccagcta 17950
ctcaggaggc tgaggcacaa ggcttgcttg agcctgggag gcggaggttg 18000
cagtgagctg aaatcacgcc actgcactct agccagggtg acagagtgag 18050
actctgtctc aaaaaaaaaa agtaaataaa taaaaaaatt ttttaagtat 18100
cttatgggca tatacttgtc ctgttactcc tcaaactttc atccactttt 18150
tttttttaa attttttttc ttacctttca tcgttttctt gatatccact 18200
gggttttagc atctacaaat gattcttgcc tgaatcagtt attatggtag 18250
ttgatggttt tctaattcca ttattccttc tatgtttgtt aattttggca 18300
ttcttctata aggaagagct tacccttttt ccctattaat taattcatat 18350
attaatgcag acctatgcat tcttacttca ttaaatcata atcctttact 18400
atcattatgt attctgatgt tcagactatc ccagatttag ccaataagat 18450
ccccttcagg ggaatggtct ttgggattcc tctttagagg ttcctggttc 18500
ctgttttctt ttgacatatc ctattactct ttgagcattt ttttttttt 18550
ttttactttt aggcacagca agaagttcca tggtcctctt gttctttccc 18600
caactcagcc ctagagtcag tcacttctcc aatgagctct agttcctttt 18650
agtagagaat cataattaga aaacaagaat cagtgccaag tgtgcacctt 18700
tgtttttaag gtccatccac gttgccgtgt atatgtccag catgttgatt 18750
ctaactgctg aataatacct catgattgtc atccatccca gtgtttcttt 18800
ttcccttctg taatgaggga ctcctggact gcctccagca ttaccttcac 18850
aaatattgct gtgaggaaaa tccttaaacg tttccttttat gggcaacgtg 18900

```
tgagcatgtt tatgttgatt caggggtgcc agacacagct ccagaatggc 18950
tgcctcagtt tacatttcca ccagcagagc atgacaggct ctgtgtctcc 19000
gtgaataatc agcattaacc agcttcctat tttttgccaa actaatagat 19050
gtgctaggat aactctttgt tttaacttgt ttttctctga ttaccaatga 19100
gctggagcat ttcttcatat gcctgatggt ctttgggatt cctcttaggt 19150
aaattgctta ttcattataa tcctttgcct gtttttcact ggagttctta 19200
tatttttctt gaagatatgc aggaattcct tatacatcct agatattaat 19250
cccttcctgg tctcagacat tgcagatatc ttctgaatct gttatttact 19300
tatttattta caatttttt tttaagagtt ggggttttgc tctgtcaccc 19350
agactggagt gcagtggtat gatcatgact cattgtggcc tcgcaatcct 19400
gggcttaagc gatcctccca cctcagcctc ctgagtagtt gggactacag 19450
gtatgcacca ccagacttgg ctaattttat tttatttttt agagatggaa 19500
gtcttaatat gttgctcagg ccaatcttga actcctggcc tcaagcaatc 19550
tttccacctc agcctcctgc atctattata tatatgttca ctttgctcat 19600
gctgtatttt gttgcaacat aaaactattt ttcccattgt tttgtgcagt 19650
ctctcaccag cactcttctt tttctgtaac tgtgttaatg ccctttgttc 19700
ttccatatgt taggtatgct ggtatagttg aactctgctg actctcctca 19750
gtaaacagtc tcttttatg acaccttatc ctctactgaa ttctctctat 19800
caagaatgac ttggccgggc atgggggctc atgcctgtaa tcccagcatt 19850
ctgggaggcc gaggtgggca gatcacccga ggtcagaagt tcaagaccag 19900
cccggccaac acggtgaaac cctgtctcta tgaaaataca aaaatcagct 19950
gggcgtggtg gcaggtgcct gtaatcccag ctacttggga ggctgaggcg 20000
ggagaatcac ttgaacctga gggggaggtt gcagtaagcc gggatggcac 20050
attgcactcc agactgggtg atggagaaac tccatctcag ggggaaaaaa 20100
aaaaaaaaaa aaagaatgac ttgtcttcct cttagagtgt gaggtctaca 20150
tacaaatatt attcttgtat tcagcaaatg tatgtcatag gcctagtgtg 20200
tgttaggaac tgtgctgtca ccaacaaagt ttagagaggt tataaaactt 20250
gactgtagct ttttagaggt ggaggagtga tttgaaacct aggctgtaat 20300
tccttcctcc tgtgattcct tcctactgtg ttgccttccc ttgaaaattg 20350
catttggggg ccaggtgtgg tggctctcgc ctgtaatccc agcactttgg 20400
gaggctgagg cgggtggatc acctgaggtc aggagttcaa gaccagcctg 20450
gccaacatgg cgaaaccccg tctttactaa aaatacaaaa attagctgga 20500
tgtggtgtgt ggtgacatgc acctatattc ccaggtactc agtaggctga 20550
ggcaagagaa tcacttgaac ccaggaggca gaggctgcag tgagctgaaa 20600
ttgcaccact gcactccagc ctgagtgaca gagtgagact ctgtctcaaa 20650
aaaaaaaaaa agaaaagaaa gaaaattgca tttagttcct gtagactgtg 20700
tgtcaaatgt ctaaatctct tctaacaaat ggcctaagga ggtgcaaagc 20750
gaagcatcct caccagcatc ctgacttggc agtgaggcat gggaccctgg 20800
agggagtagt ggtaagtgtg actctggaat tcttcctggg ctacttgtca 20850
gtgactggct ccagattgag aggagagccc agaggacaca ggtggctgcc 20900
ccagcctgga ggtgaaagtc ttaaaataaa atgccagatg cctagaccat 20950
tctaaacctt tctgagaagc tgaaatcatc ccttctggaa gcgctctagt 21000
tctaaaagga cagatataca gcaagatctt cctggggcta atatggagtt 21050
tataggcaag taggcctcag aacctttccc tggtagtgat atctgtgggc 21100
aggcacagtt tccacacttt ccagaaattc cagcggaagg agtgagaagg 21150
aggaatctgc ccttgagtga ggaccaaaga aagcagaaat tcctcttggg 21200
aatttttcct ccagagacca aacactactt gggagcttgt ttactgggct 21250
ttaaaagctt gtgaccccca gtcactcttt cttgacccca aggctttgca 21300
tttctgtggc ttccccactg gacagaagtg gaactgtcat gctgcctgtt 21350
ctggggtctc ccagaggttt ccccatgtcc tctccttgct tctactgccc 21400
```

cacagaattg gggatctgtg accacatatg gtatagaatt aatgcttgag 21450
aatggtttag ttcagtgatg tcaaataaga ttcactttta tgccacctcc 21500
atcagttgaa ggccccccctg gcccctaaat tggaaaagat tctgagacag 21550
aatccccgtg ggtacagcgc agggacagta aaggcacgtg tgctgtgatt 21600
tgctatccac tgtgtggatg catccaggaa tatcagaacc ctggaagatt 21650
atttaagggg aagttaggac agctttttg ccaatccaag ggtgttcttg 21700
aggaagtctg tcttcctgta tggccttcag tttctttcct gtgtaaccat 21750
ggggccaaca cataattccc acagctctat tggcccttgt ctgccaggat 21800
tctctagggt ctgattcgag gtggatcctg gccctttgag gtggcagaat 21850
ctgatcatgg tgctgtttcc ttagatttag gccttgatac ccttggcgag 21900
agcatcctgg gctgagtgac cacctgaggt ttttctggtg attttgtgac 21950
ccatgtaaaa ctttgagctt tgggattatt ctctcaagga aatagtgaca 22000
tttggtgaag agcctgtttg gtgtggctat gtgaggctta gccaagaaaa 22050
tgcaccattt ttattaggag gttaggccat ccgttgccac aaagtgtcag 22100
atgctaggcc tagagcctgg agaaaactta ttttaaaatt gatggggtgc 22150
tggaggggtt ggggggtggt ggctgtagct catgaatcag gtgctaaacc 22200
tagaaacaaa aggcctcatg tggcagactg tttctgagca cagatgaatg 22250
gatgagcaac tggcgcaact ttgcccagtt ggtccagctt cccacttggc 22300
cacctaggct tgctgtgaag acctcgtctg gcagaaatga gagtgttttt 22350
gccccatctt gatcttaact gtaatttaag actaaaatct tagattctaa 22400
aacatcaaag gcaagatggc tcccagctct gtgagctcag cttctcacct 22450
cttagttgaa caagtgcagt gtgggtcaat acatgattgc tgctcttgct 22500
gccaggaact gtcccagcat agaaaggaat gggacacaat ccctgccgtc 22550
aagattctaa gggaggaagc aggcaggtcg actggtgcct catctctgca 22600
gggctccagc caaggtttgt gaaggatttt gcaggcatat ggagtgggga 22650
ctgattgatc ccgagagggg actggggaaa gctctgaaga ggggatgaca 22700
tttggtttga actccaaaaa atggttgctt tacctgtttc ctgaagtttt 22750
tgaggtggct tataagaaca tataccataa aaaggaccaa tataaattta 22800
aaatcagaaa aagagaaaat gggctgggca tggtggctca tgcctgtaat 22850
cccagcactt tgggaggcca aggtgggtgg atcgtgaggt caggagatcg 22900
agaccatcct gcctggccaa catggtgaaa ccccggctct actaaaaata 22950
caaaaaatta gctgggtgtg gtggcacatg cctgtagtcc cacctacttg 23000
ggaggctgag gcaggagaat cgcttgaaac ctgggaggcg gaggttgcag 23050
tgagctgaga tcgcaccact gcactccagc ctgggcgaca gagtgagact 23100
cctcctcaaa aataaataaa taaagagaaa atggaactta gaaaattaag 23150
aggaagagtg aaaaggtaga tatttagtca ggcacagtgg ctcatgcctg 23200
taatcccaac actttgggag gccaagacag gaaaatctct tgagaccagg 23250
agcttgagac ttgcctggca acatctcagg tgagacctta tctctacaaa 23300
aaatttaaaa attagctgag ctgtgtggct cgtgactgtg atcccagcta 23350
ctcaggaggc cgagaccaca gcccaggagg atcgcttggg cccagcagtt 23400
tgaggctgca gtgagctggc accactgcaa ttcagcctgg gctacagagc 23450
aagacccagt ttaaaaaaaa aaaaaaagat attcaaacca tgggtcccaa 23500
cgtagttatt atatttgacc atttgcaaaa gctgaaagca aaacatgtta 23550
cacattttca gagaggaaaa tacacagtag ttcctgagtg taagttgttt 23600
ttcttgacct cattcttaaa ttgcttcatg agggtgggag ggaagtggta 23650
gttaataagt gaacctgtaa accagcgttt ctcaaaatgt agtccaggga 23700
attgcatcaa aattgcagtt acctacagtg cttgttaaaa tgcagattcc 23750
tgggcccctg ccccaggctt atcaaatcaa tctggtgagt aggactcaag 23800
aacctgtaaa ttcacatact tctgcagatg attcttcttg cactgcacag 23850
catgaaagcc tctgcaatag acagaaagct accagcattg cgaaagcaac 23900

ttgagtgctt ggcctttgaa ggttgagtgg gactttaatg agggagagag 23950
taaggcatga gaaatggcag ttccactgag gtcagtcagt ggttcattgc 24000
tgacgaagtc acttttaagt catgttttag aagaactacc aagtgtggca 24050
ggtcaggcat gtggcaggac tgtttctgag cacagatgaa tggatgagca 24100
cctggcccca ctgtgcccag ttggtctagc ttcccacttg gccacctacg 24150
gtctgctgtg tggaccttgt ctggcagtct cctttaattt atttttatt 24200
atttttttct ttttgagatg gagtcttgct ttgttgccca ggctagagtg 24250
cagtggcatg atctcggctc actgcagcct ccacttccca ggttccagcg 24300
attctcctgc ctcagcctcc caggtagctg ggatcacagg caagtgccac 24350
cacgcccagc taatttttgt attttaata gagacatggt tttaccatgt 24400
tggccaggct ggtctcgaac tcctgacctc aggtgatcca cccatctcag 24450
cctcccaaaa tgctggaatt acaggtgtga gccaccgcac ctggcctatt 24500
ttttttcagc aaattctttg tttttctctc tgttcccaaa tgcagggtac 24550
tgagaccaca gatgtattct gtttcctgtt gaaaaaatgt ttctcactta 24600
gctgggtgtg gtagcatgca ctgcagtccc acgggaggct gaggcgagag 24650
gattgcttga gcccaggagt tcgataatca tgccattgca ctctggtctg 24700
ggtaacagag cgagaaactg tctcttaaaa aaaagaaaaa gaaaaagagg 24750
tcctagggaa agaaacaaat agtggcttgg atggtgagtt ggtggaaaga 24800
acagtgggtg ttgggggtgt tgaacttgtg tttgtgtgtg gtgtacccaa 24850
gacatatcat gtcagcatta agaatagact attcctgttt tctggtcact 24900
gagttgtatg ttttgacatc cttattttgg aagatacttc cttactagga 24950
atgggatagg gagggggtca cctttcccat ctgtgggtca tattttaaaa 25000
tatttattgt tcaagtttaa agatataacc aaaggtataa agaaaaatac 25050
cacaaacatc tgatttaaga aacaaaccag ccgagcgcgg tggctcgtgc 25100
ctgtaatccc agcactgtgg gaggccgagg caggcagatc atgaggtcaa 25150
gagatcgaga ccatcctggc caacatggtg aaaccccgtc tctactgaaa 25200
atacaaaaat taactggtca tggtggtgtg tgcctgtagt cccagctact 25250
cgggaggctg tggcaggaga atcgcttgaa cccaggaggc ggaggttgta 25300
gtgagccaag attgtgccac tgcattctag cctggcgaca gagtgagact 25350
ccgtctcaaa aagaaaaaaa aaagaaagaa atcatttcct acaccttcga 25400
agccttcatg agttagattt tgaaacagtg caaaatgctt cacgtgagaa 25450
tcgagagtcc cttctggtgg ctctccatcc cctgctcttc tgtcaggttt 25500
tcttgtaggt ttatggaaac ctttgttact tgtgcaggtg gcagagaagc 25550
agagaggata gctgcgcgcc acccacacag ctaggattta ttggcgtact 25600
cccacgtgca tggcagccaa gtggacacaa ctctgtgatg aatcctccca 25650
agagaactga ggggccctga tggaggagct gcttctttgc aaagctttcc 25700
ttgactctct tcctgtcccc tagttgattc cccttctgtg ctagttttag 25750
cttattgttt gttacctgtc acacttagca gtactgttgg ctttgctggt 25800
ctccttgact actgggggta aagacctttt gttgttgttg ttgagacaga 25850
gtcttgctct gtcgcccagg ctggagtgca atggcgtgat ttcggctcac 25900
tgcaaccttc acctcccagg ttcaagagat tctcctgcct cagcctccta 25950
agtagctggg attacagcta caccacaccc ggttaatttt tgtatttta 26000
atagagatgg ggtttagtag agatggggtt tcaccatgtt ggccaggctg 26050
gtctcaagcc cctgacctca aggtgacctg cctgtctcag cctcccaaag 26100
tgctgggatt acagacatga gccaccatgc ccagcctcaa agacctcttc 26150
tttacttgct caccctgccg cccactcccc taccaacccc tgcatgccct 26200
ataccacctg gcacatgata catactaact gggtacatgt ttgaatatga 26250
atggatgtgg tgctgtgaat gcttagggga agtgggtgaa atgcttaaga 26300
accaaccttg agtggtctgg gaaggcttcc tgggagggtg gtgtttgagc 26350
taaggccagg cagctgttag atttgttaga ctgaagccct tgcagactta 26400

gagagcttgt gctcttccca gaatgacggg tgagccacgt acagtaaatg 26450
gtgcttctca tttctagccc aaggggcctc aaggggcacc gtgatttcac 26500
gagaatgctg caagcaaatc ttttctcaag ctggggaatt tggtggtaat 26550
gcctggctca gcttgcggtg cgcacctggc ctttggaaga ttggtacaga 26600
gagaagcggc ccatccacat gagcctgtgg aacagcactg gtgggggagc 26650
tgatttgtga agaggggctg tgcagtgtac tgtcaggtct gagacccagg 26700
aagaaattcc agtatcccag ctctcagaat cacagagttc taggcactgc 26750
ctagttccac gtgttcccaa atgtttcctg aatacttgga tttcctgtcc 26800
agagaatttt caaaacaaac ttagaggcct gacccatggc tgccaaggaa 26850
ggatttttt tttaaattaa attttaaaaa tcagtccagc atgaaaatct 26900
atgatgattt cataagagaa aggacatttt aatattcaaa gagtaagaag 26950
cacttaatct tggaagaaag ggcattccta tactttgatt acctttagtt 27000
taattaaaaa acacctacat ggtctttact tctgtgattt cattcctggg 27050
ctagtgaaac attgtcacaa taaagcatca ggccaacgct tctttcgacc 27100
cactggccaa tcagttgaca aacagtgact agatgtttca gcctattttg 27150
ctgaggctaa aggattgaac tagtgcttca gccagcatga aaaccagtca 27200
ggagtccgtg ctggtgttgg cttagattag cagggccttt gatggagggg 27250
catgtatgtg tttgggtttg ctgtgccagg caggggagca gtggaatttg 27300
tctgaattga gctcacacat tgaagttatt gagcgactta catgcaaggc 27350
catgacctgg actcccagcc gagaggccca cgtggcgggg cttgagctgg 27400
gggagccgag gacagcttac atctgctcat ctgcttacgt aaccctgcct 27450
cccagcttcc agagccaaga aaacacacaa gccagcccag cggggccgag 27500
agcctgtggt agcacacgcc atgcgccgca cagcaagggc gccttggctc 27550
ggcttgaggc ctgtcatgaa gccctcagcc ctctgcctcc tcccagagct 27600
tctccccacc accccaggca gtggctctga aacctggtcg caggtctgca 27650
tgattctgaa cagaggtagt cgttgccttc ctggagtctg agctctctgg 27700
agtttctcac tgggacagag ccaggtgtgt agcagagcat ggtccctgca 27750
gtatggcagg aggtgtgcag ggcattcagg aggcctcctg gctggcactc 27800
gacccaatta gtcattcaac gccaggtctg gggctgctgt ctgttgtctc 27850
aaaggtgtga gctgcaagat ccttagagtt gtggagaaaa aattgccaga 27900
ttggcaagaa gggcaggatt gggggtcaag gtgtctcagt gtgttggaag 27950
catgatgggg gttgtgcaag gggcacagcg agttcagaag ggagcaggag 28000
agtgagaaga ggctgttcag tgataaagct ctgcacagag ccattggagg 28050
agcaagctcc ttgaccatcc ttaaaccagg gtaattttca tttaggttct 28100
gccacacgct cagcagggaa ctcctggaag gcaggatttg tcttgtccat 28150
cctccctccc tacctcaacc cactcctcct tgggctggca cacagtaggt 28200
acccagaaag tatcaattga aacaaattga aagtggtctt gatacatatc 28250
acagggcaag tttgcagtta acagacattt cagagtaaag actctctggc 28300
ttggtgctcg atcggcttct gtgggttgtc agcatgctgt ggacagcccc 28350
ggcatgggag cgagtgggcg tgtgtgtgtg tgtatgtgag ggtgagagag 28400
cgttagtgtg tgtgttgggg ttggggagag aggaggggga atagaagatg 28450
gaccacccgg gtatcagctt ctgccctggg gagatggtgg tgtcagttgc 28500
tgagggaatc ctgagaagca ggtctggctg taggtggtga tggtggtggg 28550
gttgcatgag aatccatttg gggcaggttg aatttgaggt gcccatgaca 28600
tatggctagc catgttctgt tggctgtgag gtcaggagag agacatgaga 28650
tggaaacaga ggtttgggaa ctgtcatgtg cttaaaccaa agacctgggt 28700
atagggagag tgagaagaga agggggcaaa gatggacatc caagaaagaa 28750
gctgagaaag cctaggaatt tgaggtaaga ggagacgtag gtaaatgtga 28800
cgcttggtga tcaaggcttc tttccacctc tcctatgctg gacactcacg 28850
tctcctgtct gcttggaaat tcatgctgag ggcagggaag gtgggagcaa 28900

ggatttgtct aaagatcttg ctttggatcc ctgcactcct cctggtttac 28950
caagtgtcac tggacacgtc agggcgttct gagaccttag agagcatcca 29000
gtcctgtccc tgcagtttac aaatgaggaa accagtaccc tgagagtggc 29050
tgtactatcc actctcagga taccaaagat catctggaaa gtcactggtg 29100
gagctggacc ggggcccagg catctcttct cctgtccggg gctcttgact 29150
tcaggaccac ctttctgaaa cccatgatgg ggcaacacca ggacactttc 29200
cagcctgcag gtgtctgtcc cgcggaagcg agccaggcca catgtgaatt 29250
cctgttttct gggtgggttt cagaaggtac gagcaagtcg gcagggtgac 29300
agcccaggtg cttcttgggt tccccaaaac gcggttatgt ttagcagcat 29350
cctcagaacc aaaggtgggg tgggggctgc agatgttgtg ggggccctct 29400
gaagtgaaaa gagccctgtg acagatcttt tcttcatgtt tttcacaagt 29450
tcactgtgca gcagggcccc cccagtagcc tttgcccagg gttgggtgtt 29500
gggcagccca ggcctggctg accttgtggg gaagggtgtg aatggtggga 29550
atccccgagg gccctctttg cccgaaagcc ctaagccttg acatcagatg 29600
cccatcagat ggtccatcgg agccctacta cccagcttgc ccagtgagaa 29650
tcatctgggc tccttgttag gtagccattt aggtccttcc caaaatccac 29700
agactctcta agggaagggc ccgagatgct gtacttgtac taacttcctc 29750
aagcaattct tgtgataggt ttgggaaaaa cttgtccagg gtgaccactg 29800
actgagtcct ggtcttctct gaagagcaca gtgcctgctc actttagggc 29850
accctgggag gtgggagctg gctcagcagg cagtcttata agggactgag 29900
cttcaaggcc tctgtccctc caggagggag gtgcatgacc agagagggag 29950
gcctgaggat cttcttccct gccccagagg gtctgctgcc tgagctctgt 30000
gatagcgcag agagtaaaag gatcaagctt gattgaggcc tatctctcaa 30050
tgcgaaagtt tgctagttaa gaggagagtg ggaagggcat ttctggcaaa 30100
gagaaaagtg tggacaggca tggcttaagg gatggggagg gagacagaca 30150
gagctgaggg tgaagggcct tttgctcagc tgtgggcctt ggccttccct 30200
tgtgcaggga cacacagcct tagagccact ggaggtttta gtgggaaagt 30250
aatatggtcg gggctgtatc tcagaagaaa acaaactaat gggaacaggt 30300
cctgtgatgg tggacctggg tcagctacgg agggagggaa gatgtgagat 30350
gtgtactggg gaaggggtg gaagtggcag ctatctggtg agaggaagca 30400
ggcccacagc ttttttctc aagctgttga attcagaagg gcgagtgatt 30450
ccgggagtag ggggtgcttg gagagccacg cgttattgat aaacagggca 30500
ggctgaagcc tgctcactgg ccctgggcgg gttctcacca gcatgtttca 30550
ggttttgatc tgtgcttgtg gttggtgttc ctacctgttc tctaggttcc 30600
ttcctttgtt cttgtggctc atttgcttca caggtgaagc tggttacact 30650
agagtaacag ttcccaaagt gtgttccctg gaaaaatggt tctgtagcca 30700
aataagcttg ggaaatggtg ggttaaatat aacgaagggg gtttttcgac 30750
tgcacaactt ctcagagcct ttggtgtgtg tcgtgacttt gcagaagcag 30800
gatttaatac gcagcattcc cgttcttatt tgaccacgag acatgttttt 30850
ccattaagca tcttgctggg tctgatgttt tctggaaccc attttgaggc 30900
ggtctggtct gcagagagta tggggagcct gggttcaagc cttggctctt 30950
gactctcagc agagccttga ttccctgtgt tgcctggact gcaccacgtg 31000
taccacatac ccggtatgtg acgttttcct catccctctt cccacctgcc 31050
gttacctcac aatccacaat ctgcacctca tccatttttc ttctgaggca 31100
agcactctct tactaactta cttatctcat ctgcatccat gttcttctag 31150
gccagaaact tgggagtcat ccctccctct ttgttacttc ttcttcctct 31200
ttgttacttt atcccctctg ttactaaaca ttcttctgtg tttccagcta 31250
tttcttttat tttccctcgg tctcctttgg ggtttctttg cctccatctc 31300
tcccagacct tggttcacct tccatcgagt cccttcctgg gacatgggca 31350
ctcatgccac tcctgctacc ttccacttcg aagctaactc cctccacact 31400

gacgtcccca acatgcatgc atacacacac acacacacac acacacatac 31450
acacacacac acacacactt ccccagttag gctagaatca gagagatgat 31500
gtcagccatt tgtccaaggc cacgcagctg ggaggtcaca gagctaagtc 31550
tcaacctcag gggttttgag aaattgcctt ctcatccgtg atcactgatt 31600
tctacaacag cctgtcagga agtctgggta gaaattactt ccattttaca 31650
gtggagtcag agcggggagg gtcctgggca ggcgagtgct tcacagagtg 31700
accaaccatc taggtttgcc ccacactgaa gggggtttct ggggatggtt 31750
ggtcacccta atgctggatg tggtgcctga tgctgggcag gagggccctc 31800
tccgtggcca cgttgcctcc caggaggaga catttcctct gcagctgcag 31850
ctgcagcctg gccatctgat gcagcctgtg gagcggtggc gagtcctgtg 31900
gcctgctaac ttctccctcc ctccacctct ctagtgggcc ccatgctgat 31950
tgagtttaac atgcctgtgg acctggagct cgtggcaaag cagaacccaa 32000
atgtgaagat gggcggccgc tatgccccca gggactgcgt ctctcctcac 32050
aaggtggcca tcatcattcc attccgcaac cggcaggagc acctcaagta 32100
ctggctatat tatttgcacc cagtcctgca gcgccagcag ctggactatg 32150
gcatctatgt tatcaaccag gtgaggcctg ggaaggtgga atgagagagg 32200
gtgtgtgtgc atgcagatgt gtatcagatg tgtgtgtaat gagggcaggg 32250
gaaggggagt gatttcacag acacctggca cttacagcga ggaaccagcc 32300
ccccagccac caccagtgca gatgaggtaa acgccaaaca gtgtgcttgc 32350
ctattgctgt caactctata gccaagggaa atgctggagt gttttcgttg 32400
ttctgttttt gttttctgga agtagccttc cagcaagatt gggaaaaaag 32450
acaaccctaa ttattccaaa gtacacactg attattccct ggctttgtgt 32500
agctgtgtat tttcctttta aaaataaaac caccatttag atgtcagact 32550
tttaggtaac ttcaaagttt atccagtcag tcagagcgtg tctcctgggg 32600
cacctggaga cagtgccctt agttcaggtc acatgcctac atgccagccc 32650
ctggtgaaat atctggagaa gtctgattcg tgggccatct gagagttatg 32700
tggactgggc cgagtctgag aaaaagtttc tcactgctcg tctgatccat 32750
atgtgttggg ctttagccct gcttaggaaa gtaatgctaa ggataggtca 32800
actttcatca ccatggcatg gagaatcaga ttgatctaag aggcatcttt 32850
attgaaataa atttttcagt ttatttgagg agcattattt tcccaagagt 32900
ataactttga tatttcaaga ttacccctaa cacttaaatt catgttttta 32950
gactataacc tcctaggtgc aatgacacat ctaacttatc taagcaccca 33000
gtttcattga aattcatttg aagagtctga gtacgcccat ttctacaagg 33050
cccaatgtcc atttcatttc gagataaact ctgctttagg taggaggatt 33100
gttggcagtt tacggcttcc atcaaggtca aggaactctg tgcaccttcc 33150
ctatgacccc aggggaagca ctcgaggact gctgtggcat tgtgctgcat 33200
cacttgctgc agggagattc tgaagaagtg taaggtctca gtcctgccct 33250
gtcccgaagc ctccaaccca cttctggcaa gtgggacctt cccagggaac 33300
aatttgttaa cagacccaaa tatcctgtga ttggatggtg gctgccaaat 33350
gctttggaag ctcagaggaa ggagagagag caatggcttg gaagaaccag 33400
gatataaact aggttctaaa gtctgcaggg agatgggctt ctcagctggg 33450
gccagtgagc agggacctta aggcagaaag gagccttgca tgttcctgga 33500
aattgagatg cccactgggg taggaaagca ccagaagctc tgggaccagg 33550
tgtcagagtt aagcctgtga ggcaggagag agcagaacaa gccctgttac 33600
aaggaaactg aagcaggaga gcaggtggtg ggcaaacccc ttgaggctgt 33650
ttgaattctt cggccaagtg aggtacagac cagggcccta tgaacacctg 33700
caagcaagac agccacgcag ttgtgggtca ccttggaaga atattggaga 33750
atgcaagaga gaacaggtaa atgtcctgca aaatgcgggt cactttaacc 33800
caacacatat tcatttaaga aaagctctgt gattgagaaa catttgtctg 33850
atgccagtta gcacatacca atgacggcaa gattcaggag cctgttatta 33900

aagcagtggc agcgagcacc tggaagaggc ggccaccatc accaggagcc 33950
agcagggatg actaataagc cgtgccagct gcatctcgtt tctctcttga 34000
cagttgctat gccagtagat gagggatgta ctgtggatac aatgctgtca 34050
tatcttattc agcagggcat ctgatagcat cccacaaatc tgcctgagta 34100
gaagacagac agctgtggtc tgggtgccat ataggtaggt taaaatatat 34150
atttgggcct aggcgcagtg gctcatgcct gtaatcccag cactttggga 34200
ggccaaggca ggcggatcac ttgaagtcag gagttcaaga ccagcctggc 34250
caacatggcg aaaccccgtc tctactaaaa atacaaaaat tagctggaca 34300
tagtggtggg cggctgtaat cccagctact cgggaggctg aggcaggaga 34350
atctcttgaa cccaggaggc agaggttgca gtgagccgag atcatgccac 34400
tgcactccag cctgggcaac agagtgagac tctgtctcaa aaaaataaaa 34450
taaataaata aataaataaa atatatactt gggtaaagag gataaaagag 34500
ttagcgatga tgctgaattt ttgaactgag gtggctgttt tcaaggaaga 34550
ctggagggtg ggatgctacg tctagatatg ttgcagttta ggtgaatgtg 34600
agacttccct gttttgaagt caaatattgg accagtaaaa tctagccatc 34650
agcttaaatt cctatgatac aatttacata ctccccaggc tcaacacagt 34700
agatttctga atgtcctctg ccagctacat gctcctgccc acctcaatcc 34750
gagtagatgg aacaactaac caagccagct cagaccggtg gcacagctgt 34800
gctggctaac actgggcacc acctaagaga gtgcttctcc aaaagtgtgc 34850
ttccccaaat ggagcgaaat acgcttgagg aatgttgggt tgaaccatgt 34900
aaagcaggtc tcattcccgc agagcctttg gtaccccggt gtacactgta 34950
accccagaag tgtttcctga gcttgcctga cgagacaact tttccaagaa 35000
ccgtctcaag tgatgagtgt tttgtgagtc acactttggg gaaagcgggc 35050
ctaagttagc atctcctccc agctgcctcc ctgctttccc tggaacacta 35100
ggaactgccc gtcctccctc cctccctcct cttcccactt cacaacttag 35150
catcaggaat attttagttt tggtttttca aacatatata cctccttttt 35200
tcttatcttg tcaatatcat ctttttttct tctttgcttt tcctcatact 35250
ttttttctc ttcatccttt ccttctccaa gggttaactt tccaccttag 35300
gagaatcttt tctgcttttt ctcccacttc cccagctact ctcttatcat 35350
ctgctccaat ctcaccctaa ttgatcattt tgggaaaata tggtcagagt 35400
ccagataact aagttgagaa atgcttaaac tctgccatac ctttccagta 35450
aagaatatta cctaataaat aataaaatgg taatgggaaa cctgaaccct 35500
gaaaaaaaag aggtggaagg agaaacattt ggagcacatc ctgtctacaa 35550
attaggaact gcctgtgtta tctgttttat ggttatattc tagaagaaga 35600
aagggatttt gtagcacctg gttttgacct ttctgcactg tttgttgagc 35650
aaataaacct tatgggctgt tagccctctt tatagcctct cagcttatcc 35700
ctggcccaga caccctgctg tcattttgac ttttcattcc cacacacaca 35750
tacacatgca cacacatgta cacacacaca cataccattt aagattagac 35800
agaagtaatg ctcaaaatgg agtggcttct gagacattta gtccaagggt 35850
tcccaaacag gcttttcagt atcagatttc tttctgcccc attgaaatgc 35900
tacacaacct tccgcttaca gcaggtcaca agggtttcat tctacttgaa 35950
gtaggggcca tgtcccattt ccacttcctt ggcttcccat tcagtcactg 36000
ctaggatttg cctagacccc tgaggccaga caatgtagaa acttctgctc 36050
catgtcacag gtgaggaaac aggctcagag agggacaggc tccgaaagtc 36100
acatagacaa cagtagggct gcggctcaaa ccccagcgtc tgactccagg 36150
tttagtgcct tctcagggca tcagtgacac tcctcatggc cagggtgccc 36200
ccagtgttgc tcacagtctg gtatccaggg ctgagagtgt gctgtgtgct 36250
cagactgcct gggttcagtc ctggcactgc cactttacag tcagtgacct 36300
caggcaggtt acttaagctc tgcaggcctc agtttcctcc ttggtgggga 36350
gggttatgag gcatccttct catggtaaac cttcagtaaa taccagccgt 36400

tactaggagg gtccactcct gcctctccac tctccattca tcctgcctgt 36450
ttcctctgcc tgcttcctct gcctgcttct gtggtggtga attcttcatg 36500
gctcccaccg cctcctgctg caccccccact cagggcccgc atcaggaccc 36550
ttcctcctat tggtttgaac tccttggagt cagagggtaa tggatagtgg 36600
agtgagccag gtggcagaat ctcagaggcc atcccgggcc tataagcctc 36650
ttcaaaatag ggccacgtat caagctttac acacaggagt gaactttcac 36700
aagttgttat gactcatact ctgtctatag taagctgtta accactccca 36750
tttggcttat gcctctgtaa ttattgtact aacttatatc ttaaaataag 36800
gatattgaag gaatgagccg ggagaggctt tcctggttga gatatagaag 36850
aacaagagtt gctctttttc cttaaggtct ctcctcccac ccctgacctt 36900
agctcaccag catgggagaa tactatttga ctccttgtac tctgagacgt 36950
ggatttcaag atatagcatt ccaacttcaa cggcagcaag aaaagaagca 37000
acagaaggag aagacatcat agcaaacagg gatgcatgct gcatttccta 37050
atactcaaac ccggaaacga gacttcactc aaggtgaagg gagggcaggt 37100
caccacctgg tagcactagc cctaaattaa ggaatgcaga atgtttgtgg 37150
gattgcccat cataaaaatt acaaaatgag taaggaatgc aggcacagct 37200
ggccaggtgg gtttgtcaca accatggcag ccctttgccc cacagccagt 37250
acacagaact ggtctctcca attccgattg catatcttct ggcacctctg 37300
ttcctctccc tcagctgccc aggatttttc tggttctgac catgttactt 37350
cctcttttaa acctgttagc atttcacgac tgcctacagg caacggtcta 37400
aatggtcgga aggcccaagc ttagcatccg agaccctgac ctacctccag 37450
ccacttcctc ctcctctcca cttcactgga ctccccatct ccacccagac 37500
acctctgttc tcccctctgt gtgcctttgc ttatgctgtc ccctgtgttc 37550
ctagtgtgtc tctggctatc ttttaagctt ccctccccaa cctcattagt 37600
tctgtggagc ccctggaata gagctgactt ctccttccct gctgctccca 37650
ggctgctcag aactttctgg aaagggatga ttatctgagt tccagcctca 37700
ccccagcccc cggactctga gtccctcatg tctgcctccc ttctttctct 37750
ctgaccacac agctggtaca tagtcagtac agacgcagtc agtgagtgga 37800
gcacggggct tctctccagg attcctgccc ctttgtttat ccctagtctc 37850
aggactccct actcctggtc ttctgcctaa atctgtgcct cttggaagtg 37900
aagcctccgt tcccagtggg gccaggtcct gacccttggg aacttgcagg 37950
atccctccct tgggcctctc cccgaagctt ccagctcaat gctgaccaga 38000
gcacaggctg cctgtgacag tccttggggt gacctccctt atcaggaaaa 38050
atgcagaaaa cctattaata ccttagcctt gtgattgtta atggtcacaa 38100
aactccttta gggtcctttg gactcagcac ctttatggtc tcactttgaa 38150
ttttgaacct cccacctccc cccatccccc agagtaaggc aaatggtctt 38200
ctgattgttc ctgcagaggg aaggctccac aggtaagcac acgatggcca 38250
ggaagcagag ctggagcctg cctgaaaggc tgtggagaaa tggagggagg 38300
gctgccctga ggactctgtc tggctttgaa gttttctact gtttcctttt 38350
cttctgtgca ctgttttagg atgatggggt gatagttcca ggctggttga 38400
ggatggattt ggagacagtc ctttgtaccc tcagtgagca agagtatctg 38450
tcaccctacc tcagcagttg tctctgtcac tggtccaagc agctggttcc 38500
tacacaaggt caagatcaac tggggagaag cagactcctg ggtctatccc 38550
attagtgagg acagctgcct gggcttatgg cctcattggt ttggtttcta 38600
tcttgatcat ctctaccatc cccccatccc ggccttccat tttctacctc 38650
agctgtcagt gcacagattg atgtgtgtgg gaacggagct tgggaggagt 38700
ggggtagggc tggtcctgtc ctgtagcctc cccttccttc gggcacttgg 38750
acccctttgga gcttgccggg gtggggaatg ggagtgggaa ggccagggag 38800
tgtctctgca ccatcactgt ttgagtgttg ccccctttgct gtgtgcccca 38850
cctagtctat gtgtgtctct gttctctggg gactcaattt gctggtgaat 38900

tgcttccatg gacattgttc tgggaaatgc cattttttct gctcacccat 38950
gactctgtga caaggaatga cagcttatta ggaatttgtt tttgcattgg 39000
aacagtggtc atcagaatgg gccccttttc ccttgcagct ttgacatttg 39050
cctctctttt cctcacctct ctcccttgca tccacccttt tctcttttc 39100
ttctttttg ttttccttct agcaggggcc ttttaccttt acttgttaat 39150
cctgtttgta gcaaagcaag tggaaggagg agttcctctc tgatctgctt 39200
cttattctcc acctaccttc tcttctgtac tttccgcctc ctagagagag 39250
agagagagag aggaatgccg acctaactac cgctgccact gctgctgcca 39300
ccaccgctgc caccaccacc ctggtaatgt tcacatgtcc tcaaatcaac 39350
ccagagccag ggccctgctg gtcaggggga ggctatgtaa ataatcccat 39400
gagtgtgcca tcctcaggcc ctggggtctc ctaggcaaga ccagggcctc 39450
tgtgggctct ctcggaaatg ctgaggttgc tggaagccag cccgtcatac 39500
agggtctgag agtttaactt cttttaaatt aaaccacagt tgagctcatg 39550
ctgtgtgtgt ataaactttt gtatcctgct ttttccttaa attctttatc 39600
atcagcatct tcccatgtta tttcatagtc ttcatcatca tcactttcca 39650
taccttcata gtagttgatc gtagaattcc atcataatta acttgtcttt 39700
tctctcttag aagtccctta ggtaatgtcc aattttccgt gagtgtaagt 39750
aataccataa tgaacatctt ggagtctgaa gtttattctg tgttggtttg 39800
ttccacattt aggatcattt tcccaggcta gattttcaga tgtgggatta 39850
tgggttcaga tatggtttac acatttttat agttcttaat acagatggcc 39900
aaattgcttt ctgaaagaga agcttttctt aagtattttt ctccaacttg 39950
tatcttaaac atcctgaaca tgcttagcac cactgtcttg atatatctgc 40000
ggaaagccac gtctccactt ttcagtgtgt cgggccctgg gagaggcagg 40050
catcctgcgc tggctccttg gagctgggtt taaaattgtc tcctctggct 40100
gggcgtggtg gctcacacct gtaatcccag tactttggga ggccgaggtg 40150
ggcggatcac taggtcagga gatcgagacc atcctggcta acatggtgaa 40200
accccgtctc tactaaaaat acaaaaaatt agccgggcgt ggtggcgggc 40250
acttgaaaag tcccagctac tcgggaggct gaggcaggag aatgatatga 40300
acccgggagg cggagcttgc agtgagccga gatcgcgcca ctgcactcca 40350
gcctgggcga cagagtgaga ctccatttta aaaaaacaaa caaacaaaac 40400
aaaaaaacaa acaaacaaaa actgtctctt ctgtgctcac ttcacccaga 40450
atccctgttg ggctcttcaa ggagctcagt tctctctgaa agcaacttta 40500
tagcctcagt ccagtctgtg ttcctgtgtg gcaggggtca agggtatgct 40550
cactcttgag agtggtgtct ttggttgacc aagaaccact cccatagcct 40600
ggtccctaac ccttgaaggc ccatctctct cactcactgg ggtgaagagt 40650
ttaaatctca gatccaagtt ttgttgagag ctctgagcta ccatattgct 40700
atggttaaca atagttaaca atgttaacaa tggttaacta tggttaacaa 40750
tagttaacaa tgtttaacaa ctagagccca gctgggtgtg gtggcatgtg 40800
ctaacagtcc cagcttctca agaggctgag gtgagaagat tgctggagtc 40850
caggagctca aggccagcct gggcaacatg gcgagaccct gtctcccctg 40900
caaaaaaaca acaacaacaa aagcaaaact agagcccaac tgctgtgaac 40950
tcatggctga gtagatatta ttagccctcc acaaactcag catttgtata 41000
atcccaggct gtttccagta attctctggg gatcatctcc cagcctgtcc 41050
actgttccag gatccacact taggcctata ggaatgcccc gtcagagctt 41100
ctgctgccgc tgatctgtta ctgtttcatg caacccactc ggcctagttc 41150
cttcctctta ctgtctcagt gggcacagaa aagcatacag agggtgtttc 41200
agcaaacatt gccactggct gcagacctgc ccccggatct gtcctgttga 41250
gagcttagtg ctgcgttctt gcatggtggg gaggggtgtg gctctgtgat 41300
gagccagggc atgtgtatag gagcaacagt gtctctctta tcacgtagaa 41350
gttctgactc attgcgagtc ttggctttgg gttaatggtt ccagccatgt 41400

tgctgctgtg tcttttggtg caggagaggc tgggcacagt tggtccctaa 41450
gccattatgg ataagggatg tgtctgctga tatacacaca tggacctgac 41500
atccagggaa ggcagggtga ttggacagaa cagttcttcc agaagctgtt 41550
ggaacttgga caagagtggc ccttggcttt ctgtagttgg tcatctgtcc 41600
cctgttgcaa tcaggggaag gccacacttg ccttccttaa ccacagttag 41650
gattttcttg gggattagac cagattctag cacctgtcct gaacctctcg 41700
ccccgcccct acaaaggctg cttgcaagtg tagtgcacat acacagggag 41750
caggtggggc atggaagtgg aagtggagcc cctgcctttg gcccttgggg 41800
gaggcactgt ctgcttaccc acggttgttg cctcatagga atcatacaac 41850
agcttcctaa ctggtctcct tgccttcagt tggattgggg cacaaatccc 41900
tccttgacat ataaaccatg gtttaaggct ccctgtggcc taaataaaga 41950
taaagcttaa gtatcttaac aagcacctaa cccttctccc cagcctcggt 42000
gatttggctc atcgctgcct tcatgtttca ttctggcttc actcattcgg 42050
aatttcttgt agttccttgg ctgttctctt ttccttaccg cctttacaaa 42100
tgctctcacc atgcatgctt ttctctgctc ctacagatgc cttctctccc 42150
agcaccgcct ccagagtcta tgtctggtcg attctgtctg ctgtctccag 42200
tccccatctt gtggcagtct ctgctcaatc atttggggat tttatatgtt 42250
ttctggcctt tcttttgggg gcctgtcttc tccttctaaa agcagccagt 42300
tgacctagaa ggaagggata actgtaactc ttgtctacca acataagatt 42350
aggcccaccc tttaaaagct gcgtctttga aagggacacc tgcacccagc 42400
atgctggctt ctcttcacca agcgtgactt cctacgcatt tcacaggcct 42450
ccagaggtcc ccctgactct cttctgctgt gagaaactct aatcatgtaa 42500
gccacaggct aattcccttg agccttaaat gtttttagta atttcccatt 42550
catcagagaa gcaggatttg ggaggaattt tgaagcaaac actacagaag 42600
gcagagtctc caggtaggat atctaagaga catttggaat ggtctgactg 42650
ttcaagatgg atgggaaagc ctcttcctgt aatgatagta gccaacattt 42700
gttgtcaggc agtggggccc cattttgag atggggtctc tgtcacccag 42750
gttggagtgc ggtggtgctg tcatggctca ctgcaacctc agcctccccg 42800
ggctgggtct tcttaattct gaaaaaccca gcttttaaag ggtggaccta 42850
atcttatgtt ggtagacaat gttgtctcat ttaatacaat gcacatgctc 42900
tccccataac acaaaagagg gaactgaggc ctggaggtgt gatgtacccc 42950
aagtcacata gctaataaat aaagaagcca gcattcctgg gattaaaaat 43000
gcatgtgtct gtcactgtgg tgtatttggt gcttgatcaa tgtttacttg 43050
agcaaatgga ggggcagagg taccgatgag tgtgctcagt gaggagggca 43100
ggagtgaagc tgggcgtctt cccgcctctt gtgagtggtg gggcttggtg 43150
agcttgccag ggcctgtctt tcttatcaaa gaaggtgtgt gccccagtgt 43200
tacagcattt cacccaaagc agcctagaaa atgcttgact tttctgtcat 43250
tccggggagg acactttcct cctccactgt tctgctggcc tggtgtaccc 43300
acggcccctg atagatgata gcacctgcta aagtgcacca tgcccttccg 43350
tctcactgca tcccacagat gaggccaggc tgggatgagg gagaaaggga 43400
gggatatata gttcaggtta ttttggaaaa ctgcctgacc aattttaagt 43450
ctgggccgga cactggggca tctcaccacg ttgaaagggc cgtggcaccc 43500
cgggcggtga aaggggctgg aaccaggtct gcttcttggg cttctcctcc 43550
agggtgccat tgctcatggg ccttggctgc agaggtgctc attcgtggtt 43600
ccaaaattcc aattcctggg agaggaaaaa tgcttagttc agtctcagtt 43650
aggcctctgc ttagatcaaa cagccaaggc cagtaggccc agtcctatgg 43700
tagagacatg gcctcaaaga gccctctgct gcagttgttg gggagtgtac 43750
caagagaagg gagcattgtc ctgggctggg cagccctggg ggtctagtgc 43800
atagatgtag aaaggctctg ttggtatacc tccctttgct tgttggaaag 43850
tgctcaacgg ggctgaattg tgtttgacag tgtaagtctg ggctggggtg 43900

agggttgtta caagattgtc aagatgatta aatgaaatgc catttgaaac 43950
acttatccat gccttgtgta tggtatcccc accagtgaat attcacagta 44000
tattataata attccaacaa cttcataatt ttcatatgca atttctaaac 44050
tttgaacttt ttttttttt ttttttttt tgagacagtg tctcgctctg 44100
ttgcccaggc tggagtgcag tggcgcaatc ttggctcact gcaacctcca 44150
cctcccggct tcaagtgatt ctcctgcctc agcctcctga gtagctagga 44200
atccaggcgc ccgccaccac acccagctaa tttttgtatt tttagtagag 44250
acgggctttc gccatgttgg ccaggctggt ctcaaactcc tgacctgagg 44300
tgatccaccg ccttggcctt ccaaagtgct aggattacat acgtgagcca 44350
ctgtgcccgg caatttttg tgtttttagt agagatgggg tttcaccatg 44400
ttggccaggc tggtctcgaa ctcctgacct caagtgatct gcccgcctca 44450
gcctccctaa tgctgggatt acaggtgtga gccaccacgc ccagcctaaa 44500
ctttgaattt ctttgaaccc atgacttaca cagaattagc tgaacgcaga 44550
attccaaatc aactcagcct gtgggacagc caaaaaacac agtgtgcctt 44600
tgggctcctt cactcaccac gcggggttag aaaactttgt cagaggcttt 44650
aaaaaaggag ctcttgtgtg taaaatgttt ccttgattct ctttctggtg 44700
cctctctttc tctaagtggt ttgcttcccc aagttcccca cctgagtctg 44750
ggtggctgtg gcacatctgt gcattctgta cgcacacagg cagccttttg 44800
gagtgccagt ttccaggtct tggttttatt tatttattta tttatttttt 44850
tgagatgggg gtctcactct gccgcccagg ctggagtgca gtggtgccgt 44900
catggctcac tgcaacctca acctccctgg gatcagttga gcctcctacc 44950
tcagcctcca gagtactagg gaccaccatg cctggcaaat ttttgtaatt 45000
ttttgtagag gcagagtctc accatgttgc tcaggctggt ctcgagctcc 45050
tagactcaag tgatctgccc accttggcct cccaagtgtt aggattacaa 45100
gtgtgagcca ccatgcccag cccaggtcat cttttgaggg catggagaga 45150
agactttgag catcccactt ttgagattgt gtaccagtcg caagccccta 45200
tgacacactt tttccccaaa gtagagggct ctgactatgt tgatcccaag 45250
agagatggga aagagcattg aatgaggatt ccaaagtatt gggccttagt 45300
tcgtttcctc atgttggtgt tgtgaagatt ctggttagga taacagcatg 45350
tgtgcaggag gctttgtgaa ctgctgagag tgaggcgtgg caatgtcagt 45400
gctaggtttg tccttactaa cctggggcca tgggaattga taagaccaga 45450
ttcccaactc taccccacaa tgtgatccct gtggtgaccc ctcacagggc 45500
tctttggtcg agcttcccag aagggatcac catctgccat tgtatgttga 45550
accccattca ttcattcatt cattcagcca accagcaact atttgttgag 45600
ctcttattgt gtgagaagca gtcttcaagg aactgggtga ataaaaaaaa 45650
caaaacatcc taaccttcat tgagcttaca ttcttactga aagaaaacaa 45700
ataaaacata catgtaatcc tagcactttg ggaggccaag gcaggcggat 45750
cacttgaggt caggaatttg aaaccagcct ggccaacgtg aaacccatct 45800
ctactgaaaa ttaaaaaaaa aaaaaaaaaa aagccgggca tggtggcaca 45850
tgcctgtaat cccagctact cgcgaggcta aggcaggaga atcgcttgaa 45900
tcctggaggc agaggttgca gtgagccaag atcataccat tatactccag 45950
cctcagtgat gaagcaagac tccatctcaa aaataaaaaa taaaaataaa 46000
aatatgcatt ccctttgcac cagcacactt ggtgcctggg gacctcgtgg 46050
ttggcaccct gaagcaggtg tccctcttct gtcttgcaca ccttgcttct 46100
gtcctggtgt gtatggcatg gccttctgcc ctccatggtg agcactgtga 46150
gggcagaggt tgagttgggt ttgctgtatt tctcaggtgc ctaggtttgt 46200
gcttgacagg tagatggaag gcacacaatg tggtcatcaa acctcagtca 46250
accatataag gaaggtagaa gtgaaaagtc ccataggtac ccaactaatg 46300
tcaccagttt cctggatacc tttcctggag tttatttata gtgtgtataa 46350
ataaatgatg tatgtgttta aatgcctttt tcacctttcc ttttagagct 46400

gcctcttttt aacagttcca ttccattgta tggatgtact atgatttatt 46450
gaaccagttc cctactgatt attctgtttt ttgcagtctt ttgttatgat 46500
gaacattcca cagtgacaat gttgttcata gtcattcaca cacatgcaag 46550
tccttctgca ggatatattt ctagagggga attgctgact cagaggtttt 46600
ggtactctgt gttgattgta gagtgacggc agaaaagtga ggcccaagag 46650
tttcctagtg accatgtgta gtggacaagt caccagtccc tgtgagtgtt 46700
tggcccaaag gctttaaggc atttgatatc actgtttttg tttctgcacc 46750
aggcgggaga cactatattc aatcgtgcta agctcctcaa tgttggcttt 46800
caagaagcct tgaaggacta tgactacacc tgctttgtgt ttagtgacgt 46850
ggacctcatt ccaatgaatg accataatgc gtacaggtgt ttttcacagc 46900
cacggcacat ttccgttgca atggataagt ttggattcag gtaagagata 46950
ctcagtcaga atctgtggta aacatgtctc tctcatgtgt tgactaggaa 47000
atgcagtcct ggcagctcaa gagtgcctct ttaagctctg gagcagaatg 47050
cctcctctga gaaatgggtg ctttgtatta gttgagatgg aaagaagaga 47100
ccagaaatgc ctgtagtctc tgcacatcca gacaaaaaca aattttcccc 47150
ccttttttt ttttgtttgt tttttgagac agggtctggc tctgtcaccc 47200
aggctggagt gcagtgccgt gatcttggct caccgcaacc tctgcctccc 47250
gggttcatgc catcctgtca cctcagcctc ctgagtagct gggactacaa 47300
acacttgcca ccatgcgcag ctaatttttg tatattttgt agagatgggg 47350
ttttgctgta ttgcccagtc tggtctcgaa ctcctgagct caagcaatcc 47400
atctgccttg gcctctcgaa gtgctggatt ataggcatgt ggcaccatgc 47450
ctggcctaag aacagttttt agcatttggg aggggctctc atctttaagc 47500
tccaaatgat actgtatttt cttgcttttt tctttctctt gccccacaag 47550
ttttggaaag taaattggaa tagttttccc ccactgaatt atttagcttg 47600
tatacctcag cagatgttcc ttggcctgtt ttgttttgtt tttgagacag 47650
ggtcttgctc tgtcacccag gctggagtgc agtgacacaa tcatggctca 47700
ctgcagcctt gactgcctgg gctcaatcca tcctgcagcc tcagcctcct 47750
gagtagttgg gactacaggc atgagccagc atgtccagct aatttttat 47800
ttttagtgga gatgaggtct ggctatgttg cccaagctgg gcttgaactc 47850
ttgggctcaa gtgatcctct cacctcagcc ttccaaagca ttgggattac 47900
aggtgtgaac cactgctccc gcccttggcc ctataagaag gaatgtgatt 47950
ctgttttcca gcagggcaca aacttctgct taaatacaaa gcccaaattt 48000
ttccaccaaa atgcccctag tgaagtggcc agcccagatg cccgactagc 48050
gtattatcca aagcatattg tcattggtgg aaaatggcct tatagtccat 48100
tgttttgtct taaaagtaaa tatataaata aacttgtata ttgtttccta 48150
attccgtgtt tatattaaca taaaagtgtt ttaaattacc tgtcagtggc 48200
caggtgcagt ggctcgtgcc tgtaatcgca gcactttggg aggccgaggc 48250
gggcagatca cctgaggtca ggagttcgag accagcctga ccagcatggt 48300
gaaaccctgt ctctactaaa aatacaaaaa ttagccaggt gtggtggcag 48350
gtgcctgtaa tcccagctac tcgggaagct gaggcaggag aattgcttga 48400
acccgggagg cagaggttgc agtgagttga gatcgcgcca ttgaacttca 48450
acttgggcaa cagagcaaga ctctgtctca gagaaagaaa aaaaaaaacc 48500
tatcagttga ataacaaaac cctttccttc cttgctttaa gtgaatctga 48550
agatccagga gctgtgctgc aggtaccctc tatgttgggt acccctggtt 48600
taggctgact agtacagtgt ggttggctca tgtagacagc agacccttta 48650
ttttagatac aacttttttt ctttttcttt tatttttttt gagacagagt 48700
cttgcttgtc acccagcctg gagtgcagtg gcgtgatcat ggctcactat 48750
agccttaaac tccctggctc aagtgatcct ctcacctcgg ctttcctagt 48800
agctgggacc acaggtgtgg gccagcaccc ctggctgatt taaaaaaaaa 48850
aaaatttttt tttttagaga tgtctcacta tgttacccag gctggtcttg 48900

aactcctggg ggctcaagca atcctcctgc tttgacctcc caaagtgctg 48950
ggatgacagg catgaactac tgcacctgct gagatgcaac agctttctgt 49000
cagactcatt ttattctcat catttcttcc tgtcctccct tgctgggagc 49050
atgagagctg tgatgggaat ataggaatgt atgaagtcct tctcccagat 49100
caaaaatcct aacttcttgt cttaaaggga ggaaaatttg aatgtaacct 49150
tacttttaga ctcttcagaa atccttctat acccttccgt ccccgctttc 49200
acccttcctc cctctccgtg tgtgtatctt cttctcttga aacacacagg 49250
tttataccct gacccctctt gattcatccc ttgaagcaca gtggtgaaca 49300
aggaaggggc ccgtgatgcc ctaattcttt gccacagcac catgtttgtt 49350
tcacaaggag cctggcaggt ttgggcttgg ggcagatagg ggagagaaag 49400
cagcagagac agcaaaacca aatcatgtca gcttggcatg tacttccctc 49450
tgaaatagct aagaatccat ttctgtaaaa gcactgatta tcagaaaacc 49500
ttattggcct ggccaccttt ggttcaaacc ctcacattaa taatgtggac 49550
agtagtatga ggtgtgccaa aggtggatga ctcagcacct aagtgatgac 49600
acctaattac gaataggttc attaaagcag acccccctggg gacctttgct 49650
tgaggatcct tacagtcaga attcctgaat atatttgaaa ataataattg 49700
catctttatt ttcatatgtt ctgtatggtt tggctgactt ccccctcaaa 49750
gtctgagtta gagttttcct taatttatgt gatgggtttg gtctttttgg 49800
attccagaaa gagctgggtg tggtttggag ctgcactcag agtcacacaa 49850
aaccacagcc tttagagaac ccacaggaag gctttggggc acgtcctgat 49900
tcttgacatt tctcatcagt gctgactttg tatcccttag gagttcacaa 49950
ttcataacca ctgaaatatt aaaatacaaa aagttttgga aggatgagag 50000
cccagatgct ctactacttg aaaatatgtt aaaacataag ttcatcatta 50050
tacattttgc taaatcagga taaagtctga agtttcaaag aagttttatt 50100
ttagcaaatt ttcagaaaca ctgcctcaac tgttagggcc agtgttctag 50150
tcagtatgcc tttggaagca tgaaagctgg attggtcgat aggatgggtg 50200
tggaaggggg gctgtgactg ggtgggtaca gagaggctct gaaacaatct 50250
cagattccag gagttcctgg ataaggactt catgtgcggg aacagagcac 50300
aggagaagca gattcctgag ccactcagga agaactgggc ctaggcctgc 50350
tcttgtcact gactggcttt ctacataacc acagaaacag cactgtgttg 50400
tagaaagagg aagatcatac tttttgatat ctgtgtctaa tttaaggtca 50450
tctgagccct gatagaaaag caaaacagac aaaaccccttg taactgctcc 50500
ctcccacccc acccaccatc aaaaaagctt tagagaggct ggacatggtg 50550
gctcttgcct gtgatcccag cactttggga ggctaaggtg ggtggatcac 50600
ctgaggtcag gagttcgaga ccagcctgac caatatggtg aaaccccatc 50650
tgtactaaaa atacaaaaat tagccaggtg tggtggcaca cgcctgtagt 50700
cccagctact tgggaggctg agacaggaga attacttgaa aacctgggag 50750
gcggaggttg cagtgagccg agatcacgcc attgtactcc agcctgggct 50800
acagagcgag actccttcaa aaaaaaaaaa aaaaaaagat ccggtttggt 50850
gtcttacaac tgtaatccca gcactttggg aggccgaggc cggtggatca 50900
cgaggttaag agatcaagac catcctgacc aacatggtga aaccctgtct 50950
ctactaaaaa ttagctgggc gtggtggcag gcgcctgtag tcccagctcc 51000
tcaggaggct gaggcagaag aatcgcttga acccgggagg cggaagttgc 51050
agtgagccta gatcgcgccc ctgcactcca gcctggcaac agagcaagac 51100
tacgtctcaa aaaaaaaata aataaaaact ctagagaagc aaaaagaata 51150
actttaaaag tgtttatgtt ctcagcaagc tttattttgg ggatgtcaga 51200
acttaactaa ccactgctcc ttctgtgtgt atgtttttcc tccagcctac 51250
cttatgttca gtattttgga ggtgtctctg ctctaagtaa acaacagttt 51300
ctaaccatca atggatttcc taataattat tggggctggg gaggagaaga 51350
tgatgacatt tttaacaggt aatggtcata acttagatat ctttctcctc 51400

tgtcaacctt cacttccagt tttttaacca atgcttggtt gttccccaag 51450
gactgaccct cagatgggat gcacccctag tcagcccaca ttcttaggtg 51500
tggcttccta caggtcctgc aggtgctaaa agggatctgt aggaaaatga 51550
gtttctgaga tttttgtatt ggcctggaaa aatgtcaaat gggaaccaag 51600
tgacggggca agtttacttt gacttgctgc atgccgtttt gtactcaagg 51650
agtaaaccaa tgtcctttgt aaaaatccct cctttcatta tggtcccctt 51700
tcactgtgaa acaagtttcc ttgagcagaa tcctaactgt cttcacagaa 51750
gctttgtgtt atatttttat tttggagtat tttcacatat acaaaagaga 51800
tactgtagta taataaacct ttgaggacct atccagcccc agcaaccatt 51850
atggcctggt cagttctgtc ccatccacat cctggggctc tttttaagct 51900
ggtaaatcat tatgatgtgg gttgtcattt acagtggtaa aaaacatcta 51950
tcagtagcat ttgaaagaac attctgctca gtcctctggc tgtagaggct 52000
tcaaccccac cagccaccga tgagcacctt ctccctccag gagccagtct 52050
gagctcatta ctgagtttaa tatcagaata caccctggtg cagcctttct 52100
aaattgcagt accagttaac agaaggtgtc tgtcagagca acacccaagt 52150
cattcaagtt accattgtgt gcaaacttaa cagagaccca cgtcttcaat 52200
ataagccttg aaggaaactc cagttttagt atgtagatgg ggtatcaagt 52250
gtgtgcacat tgaacatctg ctgcatacag agcactgtgc caggcaggcc 52300
caggacactg aaaacctgga catagggtcc agacagaagc aagcctgctt 52350
ccacagaggc actcctgggc agacactctg gactgatatg acagtgtgca 52400
gggccgacag gataccacag gtctgaatgg tcagaacagc tggggaggga 52450
gggagcatcc gcaggcatct agtcccatgc taacgcagtg gcactagaag 52500
gatgggtggt gtgtggagca actttcttga aagataaagg acctaacact 52550
ttctatgcac cacttactgt gtgccaggca aggccaggaa tgtttaagtg 52600
gtctgggatc agccagttct gcctcttaac taactttgct gtcctgctct 52650
ccaggctttc attttggtcc tcattccttt tccttggacc aacacagaat 52700
cctccaccct gttctggctg cctctagtct tgttctcagc cctccatttg 52750
ttttttttctg ccttttccca catgttctga agccctccat tcgtatacta 52800
ctttccagag acttccccat ggctaaaagc attttggaaa tactgtatat 52850
taggcccctt tcagatactg gcaaccgttt gtgggatgct ctgagaaggc 52900
ctctgtgact tagcctggcc cttttcagcc catcacctgc cacgtcctac 52950
cccagaccct tgtcaccagt ccccaggagc ttacgttgct ccctgagggc 53000
actaggcttg ctctcacttc catgcctttg cctgtgccat cctggctgcc 53050
caaaatgcta tggcagatac ctgttcatcc tcaactgggc tctgcctagg 53100
cttgctccag cagaggttac aaactctatg cttcttcctc tgtgtctcca 53150
acctcatctt cctcttctca cctccatcct ggccctaaag gccctatgtt 53200
tgaagcattc acactgtata ttctgtgggg cacacggccc cagtgtctgg 53250
cacatggtag tcaacaccac aaaccgcaga accagttgta aaaggacatg 53300
gagtcggaat gtgagtttta accagggtca tgctgggctg ggttctggca 53350
tgatgctggg ttgtgggctg agtgagaaca gcaagggtga tggtggatgg 53400
agcaacagtc ttgcagccgg ggctctcagg ccaagtgtat ggcagctctg 53450
tgataatgac tttcccttta ctctttgcag attagttttt agaggcatgt 53500
ctatatctcg cccaaatgct gtggtcggga ggtgtcgcat gatccgccac 53550
tcaagagaca agaaaaatga acccaatcct cagaggtgca ttctttgttt 53600
attcatactc cttccccctt taggatgagg taggctgcag gtccgaggct 53650
ctgggcctag agggaaattg aggtggtcag gttacagtgg agagggagga 53700
ggaagtacgt gtgatgattt cttcttaaga tttttgtttt aagacaatct 53750
ccttgtgctc ttttccttgt aggtttgacc gaattgcaca cacaaaggag 53800
acaatgctct ctgatggttt gaactcactc acctaccagg tgctggatgt 53850
acagagatac ccattgtata cccaaatcac agtggacatc gggacaccga 53900

gctagcgttt tggtacacgg ataagagacc tgaaattagc cagggacctc 53950
tgctgtgtgt ctctgccaat ctgctgggct ggtccctctc atttttacca 54000
gtctgagtga caggtcccct tcgctcatca ttcagatggc tttccagatg 54050
accaggacga gtgggatatt ttgcccccaa cttggctcgg catgtgaatt 54100
cttagctctg caaggtgttt atgcctttgc gggtttcttg atgtgttcgc 54150
agtgtcaccc cagagtcaga actgtacaca tcccaaaatt tggtggccgt 54200
ggaacacatt cccggtgata gaattgctaa attgtcgtga aataggttag 54250
aatttttctt taaattatgg ttttcttatt cgtgaaaatt cggagagtgc 54300
tgctaaaatt ggattggtgt gatctttttg gtagttgtaa tttaacagaa 54350
aaacacaaaa tttcaaccat tcttaatgtt acgtcctccc cccacccccc 54400
tctttcagtg gtatgcaacc actgcaatca ctgtgcatat gtcttttctt 54450
agcaaaagga ttttaaaact tgagccctgg acctttttgtc ctatgtgtgt 54500
ggattccagg gcaactctag catcagagca aaagccttgg gtttctcgca 54550
ttcagtggcc tatctccaga ttgtctgatt tctgaatgta aagttgttgt 54600
gtttttttttt aaatagtagt ttgtagtatt ttaaagaaag aacagatcga 54650
gttctaatta tgatctagct tgattttgtg ttgatccaaa tttgcatagc 54700
tgtttaatgt taagtcatga caatttattt ttcttggcat gctatgtaaa 54750
cttgaatttc ctatgtattt ttattgtggt gttttaaata tggggagggg 54800
tattgagcat tttttaggga gaaaaataaa tatatgctgt agtggccaca 54850
aataggccta tgatttagct ggcaggccag gttttctcaa gagcaaaatc 54900
accctctggc cccttggcag gtaaggcctc ccggtcagca ttatcctgcc 54950
agacctcggg gaggatacct gggagacaga agcctctgca cctactgtgc 55000
agaactctcc acttccccaa ccctccccag gtgggcaggg cggagggagc 55050
ctcagcctcc ttagactgac ccctcaggcc cctaggctgg ggggttgtaa 55100
ataacagcag tcaggttgtt taccagccct ttgcacctcc ccaggcagag 55150
ggagcctctg ttctggtggg ggccacctcc ctcagaggct ctgctagcca 55200
cactccgtgg cccacccttt gttaccagtt cttcctcctt cctcttttcc 55250
cctgcctttc tcattccttc cttcgtctcc ctttttgttc ctttgcctct 55300
tgcctgtccc ctaaaacttg actgtggcac tcagggtcaa acagactatc 55350
cattccccag catgaatgtg ccttttaatt agtgatctag aaagaagttc 55400
agccgaaccc acaccccaac tccctcccaa gaacttcggt gcctaaagcc 55450
tcctgttcca cctcaggttt tcacaggtgc tcccacccca gttgaggctc 55500
ccacccacag ggctgtctgt cacaaaccca cctctgttgg gagctattga 55550
gccacctggg atgagatgac acaaggcact cctaccactg agcgcctttg 55600
ccaggtccag cctgggctca ggttccaaga ctcagctgcc taatcccagg 55650
gttgagcctt gtgctcgtgg cggaccccaa accactgccc tcctgggtac 55700
cagccctcag tgtggaggct gagctggtgc ctggccccag tcttatctgt 55750
gcctttactg ctttgcgcat ctcagatgct aacttggttc tttttccaga 55800
agcctttgta ttggttaaaa attattttcc attgcagaag cagctggact 55850
atgcaaaaag tatttctctg tcagttcccc actctatacc aaggatatta 55900
ttaaaactag aaatgactgc attgagaggg agttgtggga aataagaaga 55950
atgaaagcct ctctttctgt ccgcagatcc tgacttttcc aaagtgcctt 56000
aaaagaaatc agacaaatgc cctgagtggt aacttctgtg ttattttact 56050
cttaaaacca aactctacct tttcttgttg ttttttttttt ttttttttttt 56100
tttttttgg ttaccttctc attcatgtca agtatgtggt tcattcttag 56150
aaccaaggga aatactgctc cccccatttg ctgacgtagt gctctcatgg 56200
gctcacctgg gcccaaggca cagccagggc acagttaggc ctggatgttt 56250
gcctggtccg tgagatgccg cgggtcctgt ttccttactg gggatttcag 56300
ggctgggggt tcagggagca tttccttttc ctgggagtta tgaccgcgaa 56350
gttgtcatgt gccgtgccct tttctgtttc tgtgtatcct attgctggtg 56400

actctgtgtg aactggcctt tgggaaagat cagagagggc agaggtggca 56450
caggacagta aaggagatgc tgtgctggcc ttcagcctgg acagggtctc 56500
tgctgactgc caggggcggg ggctctgcat agccaggatg acggctttca 56550
tgtcccagag acctgttgtg ctgtgtattt tgatttcctg tgtatgcaaa 56600
tgtgtgtatt taccattgtg taggggggctg tgtctgatct tggtgttcaa 56650
aacagaactg tatttttgcc tttaaaatta aataatataa cgtgaataaa 56700
tgaccctatc tttgtaac 56718

<210> 2
<211> 56718
<212> DNA
<213> Homo sapien

<220>
<223> variant B4GALT1 genomic sequence

<400> 2
gcgcctcggg cggcttctcg ccgctcccag gtctggctgg ctggaggagt 50
ctcagctctc agccgctcgc ccgcccccgc tccgggccct cccctagtcg 100
ccgctgtggg gcagcgcctg gcgggcggcc cgcgggcggg tcgcctcccc 150
tcctgtagcc cacacccttc ttaaagcggc ggcgggaaga tgaggcttcg 200
ggagccgctc ctgagcggca gcgccgcgat gccaggcgcg tccctacagc 250
gggcctgccg cctgctcgtg gccgtctgcg ctctgcacct tggcgtcacc 300
ctcgtttact acctggctgg ccgcgacctg agccgcctgc cccaactggt 350
cggagtctcc acaccgctgc agggcggctc gaacagtgcc gccgccatcg 400
ggcagtcctc cggggagctc cggaccggag gggcccggcc gccgcctcct 450
ctaggcgcct cctcccagcc gcgcccgggt ggcgactcca gcccagtcgt 500
ggattctggc cctggccccg ctagcaactt gacctcggtc ccagtgcccc 550
acaccaccgc actgtcgctg cccgcctgcc ctgaggagtc cccgctgctt 600
ggtaaggact cgggtcggcg ccagtcggag gattgggacc cccccggatt 650
tccccgacag ggtcccccag acattccctc aggctggctc ttctacgaca 700
gccagcctcc ctcttctgga tcagagtttt aaatcccaga cagaggcttg 750
ggactggatg ggagagaagg tttgcgaggt gggtccctgg ggagtcctgt 800
tggaggcgtg gggccgggac cgcacaggga agtcccgagg cccctctagc 850
cccagaacca gagaaggcct tggagacttc cctgctgtgg cccgaggctc 900
aggaagtttt ggagtttggg tctgcttagg gcttcgagca gccttgcact 950
gagaactctg gtagggacct cgagtaatcc actccctttt ggggactgac 1000
gtgaggctcc cggtggggaa ggagactgac ctctcggttc acgtgtcttg 1050
ccatagagcc actctcctga gtgggttttt ctcctgatcg tttgggccaa 1100
gtgacttctc tctgaacctc atatttctct tctgggataa taaatggtca 1150
ccctttcaag gggttgtttt ggaagatatt gtgaacaatg gtaaataagg 1200
gcttaattaa tgagggtaag ccctcagtaa attgtcactg tgtgttcatt 1250
tcttcctctg tgtggatcgt gaccgagagc ccttcccccc agcctcctcc 1300
tggtatgggt acccaaaacc taggtgagca gggatctctc ccaggggcag 1350
agagcttgtg tactctgggt gttagagggc taaaatataa ccagtcaaca 1400
ccacgttgcc catttctggt acttccggta gcagcctgag tctcaattat 1450
cttgcccaga tgatctgaac tctgacctct agcctgtttc agcataggca 1500
gagagcttga gtaggtgagt ttgcattcct catagcagct ggctgagcct 1550
agtctggact tctctttgac ctgtaaccta caggcccaca ggcccaaggc 1600

aaccacaggt tgcttccagg gttaccacac aggtggtttc tcatttctaa 1650
tgctaggttt tagataattg ttgtaagtga ggggccctgg caggcaggat 1700
gacatcctgc caataggagt tttctgtcac tttcccacag agccctggct 1750
actacatact cttgctcaat ttcgccagta attgcgtcaa tgtgttcata 1800
tcaagtttgg gaagaacatc ttggaattgg tcagacgtga actgtggtaa 1850
taatgggggc ttgtttttt aagcagataa ttaaattcct ttgcatttga 1900
tgattattct gggaagcaga ctagtcccat aaaatgaaat ggactctgcc 1950
ttgctgctaa gtgtctgact tgagacatgc tatcgagttt ctcaaaatct 2000
cttccttgtg taaaatgtgg ttgtcgatga ttaccttaca ggggtttttt 2050
taagactaaa tgagatcgtg tacattaaat acaggcactc aggctgggca 2100
tggtggctca cgcctgtaat cctagcactt tgggaggctg aggggagtgg 2150
atcacttgag gttaggagtt tgagaccagc ctggccaata tggtgaaaca 2200
ccatcccatc tctacaaaaa tacaaaaaag ttagccaggg gtggtggcat 2250
cgcagctact caggaggccg aggcaggaga attgcttgaa cctgggaggc 2300
agaggttgca gtgagtcaag attgtgccag tacactccag cctgggcgac 2350
gaagcaagac tgtctaaaaa aaaaaaaaaa aaaaaaaata cgggcactca 2400
atacaccgta taataataat atagtaataa tatttgctta ggatctttaa 2450
aaagtttcat tttttcagac tcccacagaa atggctctgc acagcagagt 2500
gaaaggggag agagactgag tctccaggcc agaaaaaggc caggtttttt 2550
gcttttgttt ttagttgttg cctggatatt gcacagaaag aaaaaataat 2600
tagcaagtta aacaaaagta ccgcaaagtt gattacattg gtatttgagt 2650
atcacatctt ctctcagaag cgtaagagac aaggtcgtga ccatacctct 2700
gcttagtttt gttttgtaat ggtgttgcta gtgatcggct tgtcaccagt 2750
tactggtgtt tctaaatgga ctataattgg ctacttgaaa ggacttcctg 2800
agaaagaaca ttttggagga cgaggagaga gtgccttctc tattttggct 2850
gctttcatgt gacatgcaag agaccatgac gtttaggctg ctgctgaggc 2900
agccccagaa atgggggccg agaggtcttt tcttcatttt aatagggtct 2950
gtaggtttgg gtggttaggt acagttctca gaatggaggt tcctggctat 3000
gaggccttga gaaagctgaa agtctccttg ggagtgtgtg ggtgggggga 3050
gtcgagccca tctgttcatg ggcaggtgtc agccaaagcc cttgcgggtg 3100
gttttgaggt tggtgggaga aagcatccgt ggggtttaga gttgtggcct 3150
tttcactact tgcagttcct ttccccgact tggctttact ttctggtgtc 3200
caggggtctg ggccagatgc tgagattcct ctcagctgac aggtgtgggt 3250
tatgggcaaa cccttccctg gaggacataa ggcaccggat tggactgctg 3300
atgggttgct gttggagttg tcagggcctt ggaatagtct tcagatagac 3350
ttgggttagt gtgacctggg gcaggctgca ggtttggagc catagtaccc 3400
cccgccccca caccgggcac cctgctctgg gctaatgtga ggcttgcagg 3450
agtgagtgat gcagtgggaa gggggggcctt tcctgaggat tctacagctt 3500
tctccaggga atcctcccag gtagtttagg cctgcaggtg ctatgctatc 3550
cttctttcct aaccctgtct caggtcctca gcggggccat gcggcatcca 3600
cttataaccc tgcagcgagg ccctcttttc tggccacctg ggtgtttgcc 3650
tgctgagatg ggaggaacag tggccttggg cttcttcccc cgtcatgttt 3700
atctctgctc agattgggca gcagctcaat gggacttgac cagctgtggc 3750
actgccagtc tgaagatgag tagggtgatg gggggaggtg ggcagtacct 3800
gaagctgaac tggtgagaga ggcaggctgg cctgggggct cagctggggc 3850
ctgggatggt tggtacagtc ccctcagggg ggtaggggag tgagtgttag 3900
actgcttaag cctcagaggc cgctcttgcc cacctatgct ttgaggagat 3950
cctcttcatt tgttcaaagg gaagactctg atctagagat gggcacttgg 4000
accagcaaac agcagctaca ggtagccagg gcacccgagg agcacttgct 4050
catgagccgg tttccctggt ttttatgggg gctgttgctg agcgtctgcc 4100

agggtttgtg tcctagcact tgctggtctt tgctgggctc tcagctctca 4150
ggtgtttctc taccagcacg tttccccctc cctcatatgc acacatgtgg 4200
acacaagcag gctgcccagg acagagtgta ctttgaggct tgggaaagga 4250
ctctctctcg ccctttgggg gatgagcctt ggaacctcat caccttccgg 4300
cttggggtgg agcttcatcc tgggggttga agctttaggc tcagataact 4350
agtcttgtaa gccagttttg tcctgttgtt tttttcgtgg aaaataatgt 4400
attgacgtat acacagacat tctttgtcta acagtctgag attgagaaat 4450
accctccatg actatttggt ttgctttcat ggtgaaactt ggtcgctttc 4500
ttagacacag cctatggcaa taagagtgat ccctggctgc tgtaattcat 4550
tccagacttt gagcaaacac aaggcaccgc ctccacctgc agtggagcct 4600
ctgatgaacc aaatggaaac tccttgggga atggggagta agagccaaat 4650
gtgggattgg acttaaactg cagcttctta gaactgtagc attccacgat 4700
gggattgtct agtgctcttc ctggaggtta ctattcaata gttggctagt 4750
gcacaggttc aggggtgacc tgatatgccc tagcgtttca gaagatccct 4800
gcaaggtgtg tcttttggtc catctgaagg gtcttgtatg gtgatcttgt 4850
atggatatcc gtgacggcta aggcatctga taacttcatt ccttcagttc 4900
cagcagtgtt cctgtattat gctgggcact agagctacaa agaagaaaac 4950
aaagtgcctc ctcttcagga actcttaatt taggcagggg aggcataatt 5000
gaacagtgct gaggtcatct aggggaacca aagtgtgtat ttatcccctt 5050
ccctatcact cccctccctc cttcatttct tcctttcttc tttcagaaac 5100
tccaagttca tatcaaaatt ctccagccct ggttttattt ggttgtgtga 5150
aaattttcct ctaatttctg aagctatgca ttagttctgc tgagtaatct 5200
ttaacttgct gctttataat gattataatg agatatcact gggtattatg 5250
gtctttgggt agcagcaggg tagggatttc caggctggga ctaagctaat 5300
ttatgggttg ggaattatgg ggcagttaat agcaaggcag tccaagcttt 5350
ccacagattc caccctaggg accatccaga cttaaggaac agggccggca 5400
ggctcatccc ctttgcactc agctgggcta tgggtgtgtg tttgtgaaag 5450
aggtttattc agtagtcata cctgctgatt tccctgctat ctgtttaccc 5500
agtgcctcct gtaccttgtt tcttactctt tgttctctgc tcttactatg 5550
aagaagcaga gactggaatt ctgcttgaac ccacatctac ctggaaattc 5600
cagtttttct tgtccagtgg agcagcaatc cagttgtttt aggacaaatg 5650
gtctgccctt gaagcttaaa tcctttgagg gcctggcatg gtgacagttt 5700
tacatttggc tttggtatag actggtgtgg tccctgggca gtgaggtcac 5750
tgtaaggcca gccagccaga ccctggctcc taggggaatt aacaaggcat 5800
gggattagac tcacagggtc cctcctgtcc ctaaacttgg taggggttcc 5850
tgggagccag actgcgatta agattgtaga gacctgagac ctgagttgta 5900
ggggcctctg tgttgatctg ggccattgcc gggtgagctg aggcggtcac 5950
tagctcaagg agtgatctca ggatattgtt ctgtaagtca gagacctcca 6000
ggttggagag tggggcttgg gggtgggggа cagggtttag tggggagctg 6050
gttctgggtg aatgtggcct aaagggattt gtccttagaa gacagagggg 6100
tgagtcacac actcagtgct tcaggttcca ctttgcggct tggcctcagc 6150
ccgccccttc cctgcacaaa tgaaggccag gggctatata attggctgtt 6200
gctgaattct ttggcagtga ttttaaagtc tggtctgggt gtgttatgta 6250
gctgcttctc tatccactcc ccacacccgc tgcttctcca gagcccctca 6300
caaagcccag gcagagagag agagagagag agagagaatg acttgcctca 6350
cagagatgtt ggggataggg ataggggtat gggtctttgc ttttgccttt 6400
tgaggggggа taatctcttc cttcatttta aaagtaaaaa gtaatgcagg 6450
ctcattgaaa ataatttgaa aagttgaaag agatataaaa gcacacccaa 6500
attcctatca cccaaaagaa acataccggc atatttccta ctagtctttt 6550
tcatgtttaa gaatatagct gatatatttt tttttctttt tctttttgag 6600

acagggtttt tgctctgtca cccaggctgg agtgcagtga tcacggctca 6650
ctgcagcctc gacctctcgg gctaagcgat tctcccactt cagtctcccg 6700
agttgctggg accacaggtg cacaccgcca tgcctgacta atttttgtat 6750
tttttgtaga gatggggttt tgccatgttg cctaggctgg tctcgaactc 6800
cagagctcaa gtgattcacc tgccttggcc tcccaaagcg ctgggattat 6850
aggtgtcagt caccacaccc agtgttatag ctgttgtctt tatagatgaa 6900
cagatagatt gacatagatt catgtagata gcctggtgtt cagcattttt 6950
catttaagat tctgtcacag acttgaccct atacctttaa aaatcacaaa 7000
ggcagtatca tagtctgtca gctgaatatg ccataactta aaaaaatcat 7050
tcaactgttg ctgaacacac acatatacat atatagtttt tgtttttttct 7100
tagtgatgta gtgatgcttg tgcagaaagc tttatgtact ttttggatgg 7150
tttctgtagg agagctttct aaaaaaggaa aaaaagtgtt gaatgttttt 7200
tgagaaggggc tagattttca agccagtctt acaaaaggat agactcattg 7250
gaaattccag atttgcttag tgctggcaga tgagtatcac ttattgctga 7300
acaatgtgtc tagaattctg attaaaaaag aaactaggtc caggaagtgc 7350
ctgggggcag gggcaaaggg ccaggctgca ggataggctc ttaggatctg 7400
gctgagcaga aatctgctgt gaacagaatc ggtgggggtg atgctttctc 7450
agtaacttct ccatttgttt ctttagcagc taagtccctg tgctggactt 7500
ctgtggacta ctgtggctct ggggctgtgg ttgtgggtga acaacagcta 7550
gctaaaccag tgctgttgac atcattgaga tgtgacgcac aggaaggtgg 7600
gagcaagctt gcaaatcaga ttctgaaaca tatagcacag ctctcccacc 7650
tccaggtggt cctgagatct agggaggagc catagtgaga aactttaggt 7700
ttctaggaat tctcttaggg agaagctctc ttagggagag gcagaacctg 7750
gttctcagtt ggggctgatt caggtgggtt agatcaataa agcctcaggc 7800
cagtgtgcca ggctattccc aaggagtata ctttgaagtt actcccttta 7850
gaatgtcctc agtggagata aattctctct gaggagcagt tttgtctgcc 7900
ggggtcattt ggcacaaagc ctggagtgct agggcgaggt tgcactgagg 7950
gaaggggcag gattatgtca gcagtgtgac ggatacagtg tgaggtcagg 8000
ctccttcctg ccccaccacg ggggcctaga ggtcatgggg agggtccctg 8050
gcaggggatt caatcattgc ttggccccat gacagagtat attctaaaaa 8100
tgccttaagt ttttttcttt caaagtttct tcctgttttg cataatggcc 8150
ttttgccttt gacatcctga aaccgcagag ctgtcattgg tgttgcagga 8200
cactgccagc ttgaaaaaaa tcaacaacaa aaaaagaaac aggaaaggat 8250
gtggagttca gggtgcggcc tagggaagct ggtatttgcg ttatgggatt 8300
gtggggatgt ggtattaagg tgttgggtag cgcctgacat ttagaggagt 8350
actctgggca gagtccctgc ctgcccaaga ataggtagaa ttgagtcttc 8400
acaccaaagt caggagagac cccctccccc caggaagaga atgaacaggg 8450
actcatttcc tcattcagca aacttttatt ggtaactaca ctatatgaag 8500
tgtgagagat agacatgaac aagagaggcc cccactcttg ggcagtccct 8550
tagtagtagt agatagactc tggcaatatg gtgtggtcag agagaggaag 8600
cctgggtgct ttgagggtac tgaggaggtg cagggagcca aatgggtggt 8650
ctgggccagg gccagagtca gaatgaagga cctctcttcc agacgttgat 8700
tttagcatct ctgtctctca gtatgtttga acagtctccc ttattggaag 8750
ggcaggagtc tactgctaaa agtaacctgc gatttcctct acttgctgtc 8800
atgtggaaag aatactaaag ctgaaattcc aaaagttgca caccttacc 8850
agcagggcag gagaggaaag gaaatggagg cagagtgagc tgaagatgat 8900
aaaagaaaga gaaggtggtg cagtttggac tgttatggac agaggaagtc 8950
tgagggtagc tggactgagg gatcaaaggg aggcagttga aagggaagag 9000
agctgcagag agggatttct tggtctgcag agggtaggag caagccttga 9050
aggctgctgg agtgaggatt ccgagccctg gtctttattc tttttctaat 9100

tcattacatc attttaggca agtcctaact cctttggtct ctgttgtctt 9150
tctgaaattt gagtgggctg ggcctgctgg tctttagcct ctgtctttct 9200
ctacctccta gattccagtt tggcgagtgg gggggaaaac ctggttgtat 9250
atgcaacgtg aaaggcctct ggaattcctt ttgaagctca ctacccatga 9300
ggcttctgct aaggatttca tcatgtctgt ctaagcagac ataaaaattt 9350
tagcaggtgg atgacccgta gaaatggcac aaggaatgtt tctttctgtc 9400
acactgtggt atttgattta agaaagttgt tatcctctct gtgcctcagt 9450
gttctcactt gtaaaatggc aataacagta tccacctcat agatgttatg 9500
aaatacaggt agtagccacg aaagggctta aaacagtgcc taacacagaa 9550
taagttgtga atatatgtta tttattattg gtagtataat gcttatttgt 9600
gaagattttg gcttttgctt tataggacct ttttttttt tagttgaaaa 9650
tacaatgtta ccatgttaaa tgttaaaaaa aattctactt accattgtaa 9700
cagaacatgc tcccacttct gtaacagagc ttgctattac ttttcaaatg 9750
catacatatt ccaatgcata tattccaatg cagttgtaga gtgaaactgt 9800
ttgcatgcag ccatttttat ccaacattat cttataaaat gttatgttgt 9850
ttatgattat cctaattatc ttttgttgct gtctagtatc cttatagata 9900
ttccattagc atacactatt ccaggtttca ctatcgtcga taatctagat 9950
atgaacattt ttgtagtgtg tagctctttg cttcagttga attactttcc 10000
tgggataaat tcctggggaa gaatttctag gccagaggat atggtcatct 10050
tgacaatact gattcacatt gctgcattgc tttccaagag gtttggaatc 10100
attcacaggt tctaaattgg aaaatcctgg cttttgaagt atgtggattc 10150
taagggcgat ttggatctag ctggagcctc acactgacac ttccagccag 10200
tgtgtgtgtg tgtgtgtgtg tgtgtgtgtg tgtgtgtagt tccctatgct 10250
ggacaccgtg tgtgtgtgtg tgtgtgtgtg tgtgtgtgtg tgtgtagttc 10300
cctatgctgg acaccatgtg gcctttctgg acattagggt tttcctgtga 10350
ttgcctcaga gcagttcctg ttgaattcac tctgtgtcca caaaaggagc 10400
cttactgtgg ctctttcaac acccacctac ctttgccaag ttggtttaca 10450
gaaagtaaga acattctttc cttcttcctt gatatgtggc gctaaaccta 10500
tagcatgggg caggctctgg ctttaaaaac ctgacttaaa aataatggtg 10550
ttgatcaaaa agtttgtgga tcagtttttg gaaacactgc atgtagccat 10600
ccatagaaac ttatattctg ttgggctagc ctgggcgcct gatcatttaa 10650
ctcatgtgga tgaacttcta tgtaatagcc ctggtgtatg ggatccagaa 10700
acagggccct aatgaagaaa ggcttttaaa ttatgttgga taaaaataag 10750
ttgttacaat agcccaaagt ctgcaaatat gaattgccag ttctgtcctt 10800
gtagtcatcc accatgtgcc tgcatctttt gtagactctt gtagattcag 10850
aagcccactg aattgcataa atgatggaat gattttagac ttagtgattt 10900
cagtgactaa aagtttacag atcctggccg ggcacagtgg ctcacacccg 10950
tattcccagc actttgggag gccgaggtgg gtggatcacc tgaggtcagg 11000
agtttgagac cagcctggcc aacatggtga aaccttgtct ctactaaaaa 11050
tacaaaaatt agccgggtgt ggtggcatgc acctgttgtc ccagctactt 11100
gggaggctga ggtgggagaa tggcttgaac ctgggaggcg gaggttgcag 11150
tgagcccaca tcaggccact gcactccagc ctgggtgaca gagtgagact 11200
ctgtctccac ctcccccgcc ccccgaaaaa aaaaaaagtt tacagatcca 11250
gcagatgggg catattcaat ttgtgacagc cactcccttc accttatagc 11300
tatgtcatat gtcttcttct cctttgactg cattctgcag cagtcagttg 11350
tgacttaata tggcactctg ggcccactga attaggtcag agctgctagt 11400
agtatattgt tcctagagac ctagggcaag attttcttac tacataaaat 11450
gagggagata atttcttacc tcaagatgtt ggtaagagga gtgaatgagg 11500
ttagttatat ggtaatatca gtactctgaa tgtcttttga tcaatgccta 11550
actcatcttc ttgggcacaa aaggcataca gtcagcaccc ttaggccaca 11600

tataaaattc ctccaaatgc aggttttcat ctgccttggg gcagagtcaa 11650
gagaaagaag aggaagaggc gtgaggctct gaccacaact tagggacaga 11700
atatagccca aagcgagtac cccaggccac aaggagaagg ccgctatctt 11750
gttgaatcca cagcactgga aacttggagt gtgtgttccc ctgtgtcagt 11800
tacactggaa ttttatggct gctcacattc ttcccttcag gtggacgttg 11850
ttcatcagta tcctgggcaa gaggccatca taaaccacag acagctgagt 11900
gattaggaag aggagctgaa gagggagcat tagatgtttg attgagtctt 11950
aggtgagaaa gtatatcatt aaaacaaaaa gatagatgta ggcgggctca 12000
gtcttgtgtg cctggtgtgt tggtagaaaa actaaagcac aagcctgtag 12050
ataacctgct ttattctacc tcggggctgg tgttggaatc caggatgcca 12100
gaccctaaag tccagctctc tttccaacct actgaataat ccgagagaaa 12150
tcatgttctc tctctgggcc tcagtttgcc catgtataaa atgagatgaa 12200
ggattggctg ggatgctctc cagagtctct tcctgcctgg agttctgacg 12250
tagccatgta ctcctgctca gcatcgctaa atggctttgt ggtaggacca 12300
ttgagtgctg cctccattag ggccagctat gtaatgctgg ggtggctgtc 12350
actgggccct aagagccagg attggtctta ctggagaaat ccacatccac 12400
ctaaacttaa gacccagggg tgtccaatct tttggcttcc ccaggccaca 12450
ctggaagaag aattgtcttg gaccgcatat aaaatacact aattatagcc 12500
gatgaggtta aaaaaaaaaa actcaatatt ttaagagagt tcatgaattt 12550
gtgttgagct gcattcaaag ccatcctggc cgcatgtggc ccatgggcca 12600
tcggttggac atgcttgctt tagacctccc agcaattcta gtctctaaac 12650
aggaaatcaa aagtcaagat gaatagataa gttggtcagt gtgaaaaagt 12700
aattggtggg agccactgta gatgcagggt tctaggctcc atcaacaacc 12750
acctacatca ctgaacgaaa gataatgctt gttcagcact tattacatgc 12800
caaccatggt aaaaatactt cagatgcatt gttttcatga actctcacag 12850
cagctctttt tcttgcctaa atgccccgtt agaacctcca gtacaatgtt 12900
aaatagatat gctaagagac aacatatgtg tcttgttagg gggaaaatat 12950
ccagtctttg actattaaga atggtgttag cagtgggttt ttcctaggtg 13000
ccctttatca ggttgaggaa gttccttttct attcctggtt tgttgagtat 13050
ttttatcatg aaaaggtgat gggttttgtc aaatgctttt ctgtgtctgt 13100
tgagatgatc atgtttttttt gtcatttatt ctattgatat ggtatattat 13150
acattgattt ttcagatatt aatcttgcat acctgggata aatcccactt 13200
ggtcatggtg tataattctt tttatttgtt gctggattga gtttgctagt 13250
attttgttga tttgtattca taacagatag tggtctgtag tctttccctc 13300
cctccctccc tccctccctc cctcccttcc ttccttcctc tctctctctc 13350
tctctccccc cccctccctt cttttcccct cctctcccct ccccttccct 13400
ttcttctctt tcatagttgt ttaccactgt cagaaaaggt ctgttcgttt 13450
tctttcgtcg tgagatcttt gtttggtttt ggtatcaggg taatactgcc 13500
tcaaaaaatg agtagggaag tgttccttcc tcttctgtat tttgagagag 13550
tttgtggtcg gtttttatta attcttcttt aaatatctgg tagcgttcac 13600
cagtaaagcc atctgggcct gatgttttct ttgtggaaaa ctttttgatt 13650
cctaattcag tttctggtta taggtctatt cagaccttct attttttctt 13700
aagtcagttt tgatagtttg tgtcttccaa ggagtttgct tcatctaagt 13750
catctaattt gttggcatac atttcatagt gattccttat gatccttttt 13800
atttccgtta aagttggtgt agggatagtc cctctttcat tactgattat 13850
aataatttga attttctttt tttcttagtc ttgccaaaag cttgtcattt 13900
ttattgatct tttcagagga ccaactttga gttcattatt tgttctcttt 13950
gttcttattt ttctgcttca ttaacttctc taatctttat tctttcattc 14000
tgcttgcttt tggttaagtt tgctttttct ggtgtcttaa ggtagaaggt 14050
taggttactg atttgagatt taaagatcat gctctttaaa cgttttgata 14100

gatactgtca gtttgccctc tggctttttc tcattaacag tgtataggag 14150
tgcttattcc tcacactcat accagccctg ggtgttacta acctttatat 14200
atttgccagt atcatattca gacatagtat cttgttttaa tatgtttctc 14250
tgattactga tgaagttaag caaattttca cgtgtttatt ggccatctgt 14300
ctttcttttt tcatcctttc tttcaagatg ggagtctttg ccatgttgcc 14350
caggctggac tcgaactcct gggctcaaat gatcttcctg cctcagcctc 14400
ctgagtagct gggactatag gcgtgagcca ccatggctgg cttgcccatt 14450
tgtatttctt atgtgagtat tttttctttt tttttgaagt ggagtctcac 14500
tccatccccc agagtggagt gcagttgtcc gatcttggct cactgcaacc 14550
accgcctccc aggttcaagt gattctcaca ccttagcctc ccaagtatct 14600
gggactatag gtgtgtgcca ccacacctgg ctaatatttg tatttttagc 14650
agagatgggg tttcaccatg ttggccaggc tggtttcaaa ctggcctcaa 14700
gtgattcacc tgcctcggcc tcccaaagtg ctgggattac aggtgtgagc 14750
cactgtgccc agctgacttt ttttttcttt tttttaaccc tttttttttt 14800
ttacccttttt tttggcccat tttttttttac ccttttttctt ttaacccatt 14850
tttctattag ttttaaaaat atgtttgcag gagcttttta tattgtggat 14900
ttttcttgtt tattacatat catttgtaaa tatggtctct ccatctgtca 14950
ctcttcttta tctctggttt ctttagctat gtagaagttg ttatgttatg 15000
ttatgttatg ttatgttatg ttatgttatg ttatgttatg ttatgttatt 15050
ttttggagag ggagtcttgc tctgtcgccc aggctggagt gcagtggtga 15100
aatctcggct cactgcaacc tctgcctcct gggttcaagc gattctcctg 15150
cctcagcttc ccgagaagct gtgattacag gcacccgcca ccacacccag 15200
ctaatttttg tgttttagta gagacggggt ttcactatgt aggtcaagct 15250
gatctcaaac tcctgatctc aaatgatcct cccaaagtgc tggggttaca 15300
ggcgtgagcc actgcactcg gccagaagtt ttgaattttt atgtgtttaa 15350
atctatgttt tcctttatga cttcaggttg ctttcatact taagcaggtc 15400
ttcaccatcc caaaatgata aaatttttct cctgagtttt cttctaagtt 15450
ggttctttag aagccaccaa cttggcttcg acagcaaaag atgaacagaa 15500
tttctgttca actctcatgc tgcaagaagc tttatgtaat actccaggga 15550
ccctttaagg tcccagagtt ttcctccaaa tctatcagtg attctagtgg 15600
ctaagagtag aaatgtgaaa atttagccat gtgtgctgat agagctgtag 15650
taatttgtaa gctctgaagt tctaaggagt caggggagaa gggaaagtaa 15700
catttattga acatctatta gctcaataag aacatgcgat aagtatgtat 15750
atgtattatt tcacttacat ctgaaaggaa ggcataatta tccccactcc 15800
ttagagaagg aaattggagc tggctacatt taaagtagtc ctgacaccag 15850
agagatattg ccaggagtac ttggctggct gagtgcccag atggcccata 15900
ggagtagtgg gccctccaca gtccaaggtc tggttctagg tggagagaga 15950
aggatgtgct cgtagtcagc accgcagctc cagaaaatct gctggggctc 16000
caaaactgat tagaggggca gctgactcag taataaaact cccaggagac 16050
ttacttacat actggaatgc aaagttgcag ctttactggg aagattagaa 16100
ctgttattga gtagcttaga aatctctggc tgaattcact gcaagggaag 16150
ccgcaggata agctaactgc tggtgagtca gcagtcagag cagggaagtg 16200
aatttaacat tagatgggtc agtctctcgt ggctgatgaa ttcatcccca 16250
caatactgta cacctgcctt agggaccttt gtctggacta ggggttgggg 16300
tccccctcct ttgtacagcc ctggaaggac acatccagct ccatccgcca 16350
tctctccctt acttatttcc ttccttcctt ccttctttcc atccagccat 16400
caagcttcct ttcatggcca ataatcatca ttggggtcta ctcatggact 16450
ctcttgcctc atgtatttgt tttattttgt cctcattccc acttctattt 16500
cccaggtata tcacaggcaa ctattctaac gtatttatag tttgtgtatc 16550
tgtttttgct cttgccaaaa tggaagccac tgctttatac atagatgtat 16600

tcttaacttt aaaaaaaatt tttttagatt aacctacaat aaaattggct 16650
ttttggcata tagtctataa attttaacac atacatattt ttgtgtatct 16700
accaccacaa tcaggataca gaacagttcc atcaccccaa aaaaatccct 16750
cttgtagtca cattctcctc ccacccttaa tcccaggcaa ccactgatct 16800
attcttcatt actattgttt tgtctttttg aggatgtcac ataaatggag 16850
tcacacagta tatatacatt tttttaaaca tatgtaaatg gcattttata 16900
gctcattttg attatatgtt tttcatccag ttctgttttt ttttttatt 16950
tttaaaaagt ttgacataac ttcagactta cagaaaagtt gttagactaa 17000
tacaaagaat tcctggatat cctttggagt ccctaaatgt taacatttta 17050
ctatatttac tttttccttc tctctctctc tctctctcgc tctgtgtgtg 17100
tgtgtgtgtg tgtgtgtgtg tgtgtatcta cctgtagata gatagatatt 17150
aatataattt tagatagatg tatctagatc tctctctctc atatatatgt 17200
gtgtgtgtat atatctatat ctatatctat atatatctcc ttttaccctt 17250
aaatattcag tgtatatttc ctaacaacaa ggtgatttaa aaatatatat 17300
ataaacatag tataattaac aatcaggaca tcaacattga aacatttctg 17350
ctatgtcatc tacaggcctt aggaagactt tgtcaggtgc cccaataata 17400
gccttgatgg tagaagaaaa ccatgtgttg tattcagttg tcatgtctct 17450
tagtgtcttg taatctgaaa taattcccaa gccctttgga tttcatgaca 17500
gtgacattgt tgaagagtac aggccagtta ttttgtagaa ggtctctcag 17550
tttaggtctg tctgatgttt cctcctgatc agattcaggt tattcacttt 17600
tgacaggaat accactgaaa tgatgctgag ttcttctcag tgtaacgaga 17650
tctagagaca cacactgtca gtttgttcct tattggcagt gtgaaccttg 17700
aggatttcat tgtagtggca tttggcatta ctccattata gttactattt 17750
taccatttta aattaaaact atctggccgg gcgtagtagc tcatgtctgt 17800
aatcccagca ctttaggagg ctgaggcggg caaattgctt gaggtcagaa 17850
gtttgaaacc atcctagcca acataacatg gtgaaacgcc atctctataa 17900
aaaatacaaa aaattagcct ggcgtggtgg cgcatttgta gttccagcta 17950
ctcaggaggc tgaggcacaa ggcttgcttg agcctgggag gcggaggttg 18000
cagtgagctg aaatcacgcc actgcactct agccagggtg acagagtgag 18050
actctgtctc aaaaaaaaaa agtaaataaa taaaaaaatt ttttaagtat 18100
cttatgggca tatacttgtc ctgttactcc tcaaactttc atccactttt 18150
ttttttttaa attttttttc ttacctttca tcgttttctt gatatccact 18200
gggttttagc atctacaaat gattcttgcc tgaatcagtt attatggtag 18250
ttgatggttt tctaattcca ttattccttc tatgtttgtt aattttggca 18300
ttcttctata aggaagagct tacccttttt ccctattaat taattcatat 18350
attaatgcag acctatgcat tcttacttca ttaaatcata atcctttact 18400
atcattatgt attctgatgt tcagactatc ccagatttag ccaataagat 18450
ccccttcagg ggaatggtct ttgggattcc tctttagagg ttcctggttc 18500
ctgttttctt ttgacatatc ctattactct ttgagcattt ttttttttt 18550
ttttactttt aggcacagca agaagttcca tggtcctctt gttctttccc 18600
caactcagcc ctagagtcag tcacttctcc aatgagctct agttcctttt 18650
agtagagaat cataattaga aaacaagaat cagtgccaag tgtgcacctt 18700
tgtttttaag gtccatccac gttgccgtgt atatgtccag catgttgatt 18750
ctaactgctg aataatacct catgattgtc atccatccca gtgtttcttt 18800
ttcccttctg taatgaggga ctcctggact gcctccagca ttaccttcac 18850
aaatattgct gtgaggaaaa tccttaaacg tttccttttat gggcaacgtg 18900
tgagcatgtt tatgttgatt caggggtgcc agacacagct ccagaatggc 18950
tgcctcagtt tacatttcca ccagcagagc atgacaggct ctgtgtctcc 19000
gtgaataatc agcattaacc agcttcctat tttttgccaa actaatagat 19050
gtgctaggat aactctttgt tttaacttgt ttttctctga ttaccaatga 19100

gctggagcat ttcttcatat gcctgatggt ctttgggatt cctcttaggt 19150
aaattgctta ttcattataa tcctttgcct gtttttcact ggagttctta 19200
tatttttctt gaagatatgc aggaattcct tatacatcct agatattaat 19250
cccttcctgg tctcagacat tgcagatatc ttctgaatct gttatttact 19300
tatttattta caatttttt tttaagagtt ggggttttgc tctgtcaccc 19350
agactggagt gcagtggtat gatcatgact cattgtggcc tcgcaatcct 19400
gggcttaagc gatcctccca cctcagcctc ctgagtagtt gggactacag 19450
gtatgcacca ccagacttgg ctaattttat tttatttttt agagatggaa 19500
gtcttaatat gttgctcagg ccaatcttga actcctggcc tcaagcaatc 19550
tttccacctc agcctcctgc atctattata tatatgttca ctttgctcat 19600
gctgtatttt gttgcaacat aaaactattt ttcccattgt tttgtgcagt 19650
ctctcaccag cactcttctt tttctgtaac tgtgttaatg ccctttgttc 19700
ttccatatgt taggtatgct ggtatagttg aactctgctg actctcctca 19750
gtaaacagtc tcttttttatg acaccttatc ctctactgaa ttctctctat 19800
caagaatgac ttggccgggc atgggggctc atgcctgtaa tcccagcatt 19850
ctgggaggcc gaggtgggca gatcacccga ggtcagaagt tcaagaccag 19900
cccggccaac acggtgaaac cctgtctcta tgaaaataca aaaatcagct 19950
gggcgtggtg gcaggtgcct gtaatcccag ctacttggga ggctgaggcg 20000
ggagaatcac ttgaacctga gggggaggtt gcagtaagcc gggatggcac 20050
attgcactcc agactgggtg atggagaaac tccatctcag ggggaaaaaa 20100
aaaaaaaaaa aaagaatgac ttgtcttcct cttagagtgt gaggtctaca 20150
tacaaatatt attcttgtat tcagcaaatg tatgtcatag gcctagtgtg 20200
tgttaggaac tgtgctgtca ccaacaaagt ttagagaggt tataaaactt 20250
gactgtagct ttttagaggt ggaggagtga tttgaaacct aggctgtaat 20300
tccttcctcc tgtgattcct tcctactgtg ttgccttccc ttgaaaattg 20350
catttggggg ccaggtgtgg tggctctcgc ctgtaatccc agcactttgg 20400
gaggctgagg cgggtggatc acctgaggtc aggagttcaa gaccagcctg 20450
gccaacatgg cgaaaccccg tctttactaa aaatacaaaa attagctgga 20500
tgtggtgtgt ggtgacatgc acctatattc ccaggtactc agtaggctga 20550
ggcaagagaa tcacttgaac ccaggaggca gaggctgcag tgagctgaaa 20600
ttgcaccact gcactccagc ctgagtgaca gagtgagact ctgtctcaaa 20650
aaaaaaaaaa agaaaagaaa gaaaattgca tttagttcct gtagactgtg 20700
tgtcaaatgt ctaaatctct tctaacaaat ggcctaagga ggtgcaaagc 20750
gaagcatcct caccagcatc ctgacttggc agtgaggcat gggaccctgg 20800
agggagtagt ggtaagtgtg actctggaat tcttcctggg ctacttgtca 20850
gtgactggct ccagattgag aggagagccc agaggacaca ggtggctgcc 20900
ccagcctgga ggtgaaagtc ttaaaataaa atgccagatg cctagaccat 20950
tctaaacctt tctgagaagc tgaaatcatc ccttctggaa gcgctctagt 21000
tctaaaagga cagatataca gcaagatctt cctggggcta atatggagtt 21050
tataggcaag taggcctcag aacctttccc tggtagtgat atctgtgggc 21100
aggcacagtt tccacacttt ccagaaattc cagcggaagg agtgagaagg 21150
aggaatctgc ccttgagtga ggaccaaaga aagcagaaat tcctcttggg 21200
aatttttcct ccagagacca aacactactt gggagcttgt ttactgggct 21250
ttaaaagctt gtgaccccca gtcactcttt cttgacccca aggctttgca 21300
tttctgtggc ttccccactg gacagaagtg gaactgtcat gctgcctgtt 21350
ctggggtctc ccagaggttt ccccatgtcc tctccttgct tctactgccc 21400
cacagaattg gggatctgtg accacatatg gtatagaatt aatgcttgag 21450
aatggtttag ttcagtgatg tcaaataaga ttcactttta tgccacctcc 21500
atcagttgaa ggcccccctg gcccctaaat tggaaaagat tctgagacag 21550
aatccccgtg ggtacagcgc agggacagta aaggcacgtg tgctgtgatt 21600

tgctatccac tgtgtggatg catccaggaa tatcagaacc ctggaagatt 21650
atttaagggg aagttaggac agctttttg ccaatccaag ggtgttcttg 21700
aggaagtctg tcttcctgta tggccttcag tttctttcct gtgtaaccat 21750
ggggccaaca cataattccc acagctctat tggcccttgt ctgccaggat 21800
tctctagggt ctgattcgag gtggatcctg gccctttgag gtggcagaat 21850
ctgatcatgg tgctgtttcc ttagatttag gccttgatac ccttggcgag 21900
agcatcctgg gctgagtgac cacctgaggt ttttctggtg attttgtgac 21950
ccatgtaaaa ctttgagctt tgggattatt ctctcaagga aatagtgaca 22000
tttggtgaag agcctgtttg gtgtggctat gtgaggctta gccaagaaaa 22050
tgcaccattt ttattaggag gttaggccat ccgttgccac aaagtgtcag 22100
atgctaggcc tagagcctgg agaaaactta ttttaaaatt gatggggtgc 22150
tggaggggtt ggggggtggt ggctgtagct catgaatcag gtgctaaacc 22200
tagaaacaaa aggcctcatg tggcagactg tttctgagca cagatgaatg 22250
gatgagcaac tggcgcaact ttgcccagtt ggtccagctt cccacttggc 22300
cacctaggct tgctgtgaag acctcgtctg gcagaaatga gagtgttttt 22350
gccccatctt gatcttaact gtaatttaag actaaaatct tagattctaa 22400
aacatcaaag gcaagatggc tcccagctct gtgagctcag cttctcacct 22450
cttagttgaa caagtgcagt gtgggtcaat acatgattgc tgctcttgct 22500
gccaggaact gtcccagcat agaaaggaat gggacacaat ccctgccgtc 22550
aagattctaa gggaggaagc aggcaggtcg actggtgcct catctctgca 22600
gggctccagc caaggtttgt gaaggatttt gcaggcatat ggagtgggga 22650
ctgattgatc ccgagagggg actggggaaa gctctgaaga ggggatgaca 22700
tttggtttga actccaaaaa atggttgctt tacctgtttc ctgaagtttt 22750
tgaggtggct tataagaaca tataccataa aaaggaccaa tataaattta 22800
aaatcagaaa aagagaaaat gggctgggca tggtggctca tgcctgtaat 22850
cccagcactt tgggaggcca aggtgggtgg atcgtgaggt caggagatcg 22900
agaccatcct gcctggccaa catggtgaaa ccccggctct actaaaaata 22950
caaaaaatta gctgggtgtg gtggcacatg cctgtagtcc cacctacttg 23000
ggaggctgag gcaggagaat cgcttgaaac ctgggaggcg gaggttgcag 23050
tgagctgaga tcgcaccact gcactccagc ctgggcgaca gagtgagact 23100
cctcctcaaa aataaataaa taaagagaaa atggaactta gaaaattaag 23150
aggaagagtg aaaaggtaga tatttagtca ggcacagtgg ctcatgcctg 23200
taatcccaac actttgggag gccaagacag gaaaatctct tgagaccagg 23250
agcttgagac ttgcctggca acatctcagg tgagacctta tctctacaaa 23300
aaatttaaaa attagctgag ctgtgtggct cgtgactgtg atcccagcta 23350
ctcaggaggc cgagaccaca gcccaggagg atcgcttggg cccagcagtt 23400
tgaggctgca gtgagctggc accactgcaa ttcagcctgg gctacagagc 23450
aagacccagt ttaaaaaaaa aaaaaaagat attcaaacca tgggtcccaa 23500
cgtagttatt atatttgacc atttgcaaaa gctgaaagca aaacatgtta 23550
cacattttca gagaggaaaa tacacagtag ttcctgagtg taagttgttt 23600
ttcttgacct cattcttaaa ttgcttcatg agggtgggag ggaagtggta 23650
gttaataagt gaacctgtaa accagcgttt ctcaaaatgt agtccaggga 23700
attgcatcaa aattgcagtt acctacagtg cttgttaaaa tgcagattcc 23750
tgggcccctg ccccaggctt atcaaatcaa tctggtgagt aggactcaag 23800
aacctgtaaa ttcacatact tctgcagatg attcttcttg cactgcacag 23850
catgaaagcc tctgcaatag acagaaagct accagcattg cgaaagcaac 23900
ttgagtgctt ggcctttgaa ggttgagtgg gactttaatg agggagagag 23950
taaggcatga gaaatggcag ttccactgag gtcagtcagt ggttcattgc 24000
tgacgaagtc acttttaagt catgttttag aagaactacc aagtgtggca 24050
ggtcaggcat gtggcaggac tgtttctgag cacagatgaa tggatgagca 24100

cctggcccca ctgtgcccag ttggtctagc ttcccacttg gccacctacg 24150
gtctgctgtg tggaccttgt ctggcagtct cctttaattt atttttttatt 24200
atttttttct ttttgagatg gagtcttgct ttgttgccca ggctagagtg 24250
cagtggcatg atctcggctc actgcagcct ccacttccca ggttccagcg 24300
attctcctgc ctcagcctcc caggtagctg ggatcacagg caagtgccac 24350
cacgcccagc taatttttgt atttttaata gagacatggt tttaccatgt 24400
tggccaggct ggtctcgaac tcctgacctc aggtgatcca cccatctcag 24450
cctcccaaaa tgctggaatt acaggtgtga gccaccgcac ctggcctatt 24500
ttttttcagc aaattctttg tttttctctc tgttcccaaa tgcagggtac 24550
tgagaccaca gatgtattct gtttcctgtt gaaaaaatgt ttctcactta 24600
gctgggtgtg gtagcatgca ctgcagtccc acgggaggct gaggcgagag 24650
gattgcttga gcccaggagt tcgataatca tgccattgca ctctggtctg 24700
ggtaacagag cgagaaactg tctcttaaaa aaaagaaaaa gaaaaagagg 24750
tcctagggaa agaaacaaat agtggcttgg atggtgagtt ggtggaaaga 24800
acagtgggtg ttgggggtgt tgaacttgtg tttgtgtgtg gtgtacccaa 24850
gacatatcat gtcagcatta agaatagact attcctgttt tctggtcact 24900
gagttgtatg ttttgacatc cttattttgg aagatacttc cttactagga 24950
atgggatagg gagggggtca cctttcccat ctgtgggtca tattttaaaa 25000
tatttattgt tcaagtttaa agatataacc aaaggtataa agaaaaatac 25050
cacaaacatc tgatttaaga aacaaaccag ccgagcgcgg tggctcgtgc 25100
ctgtaatccc agcactgtgg gaggccgagg caggcagatc atgaggtcaa 25150
gagatcgaga ccatcctggc caacatggtg aaaccccgtc tctactgaaa 25200
atacaaaaat taactggtca tggtggtgtg tgcctgtagt cccagctact 25250
cgggaggctg tggcaggaga atcgcttgaa cccaggaggc ggaggttgta 25300
gtgagccaag attgtgccac tgcattctag cctggcgaca gagtgagact 25350
ccgtctcaaa aagaaaaaaa aaagaaagaa atcatttcct acaccttcga 25400
agccttcatg agttagattt tgaaacagtg caaaatgctt cacgtgagaa 25450
tcgagagtcc cttctggtgg ctctccatcc cctgctcttc tgtcaggttt 25500
tcttgtaggt ttatggaaac ctttgttact tgtgcaggtg gcagagaagc 25550
agagaggata gctgcgcgcc acccacacag ctaggattta ttggcgtact 25600
cccacgtgca tggcagccaa gtggacacaa ctctgtgatg aatcctccca 25650
agagaactga ggggccctga tggaggagct gcttctttgc aaagctttcc 25700
ttgactctct tcctgtcccc tagttgattc cccttctgtg ctagttttag 25750
cttattgttt gttacctgtc acacttagca gtactgttgg ctttgctggt 25800
ctccttgact actgggggta aagacctttt gttgttgttg ttgagacaga 25850
gtcttgctct gtcgcccagg ctggagtgca atggcgtgat ttcggctcac 25900
tgcaaccttc acctcccagg ttcaagagat tctcctgcct cagcctccta 25950
agtagctggg attacagcta caccacaccc ggttaatttt tgtatttta 26000
atagagatgg ggtttagtag agatggggtt tcaccatgtt ggccaggctg 26050
gtctcaagcc cctgacctca aggtgacctg cctgtctcag cctcccaaag 26100
tgctgggatt acagacatga gccaccatgc ccagcctcaa agacctcttc 26150
tttacttgct caccctgccg cccactcccc taccaacccc tgcatgccct 26200
ataccacctg gcacatgata catactaact gggtacatgt ttgaatatga 26250
atggatgtgg tgctgtgaat gcttagggga agtgggtgaa atgcttaaga 26300
accaaccttg agtggtctgg gaaggcttcc tgggagggtg gtgtttgagc 26350
taaggccagg cagctgttag atttgttaga ctgaagccct tgcagactta 26400
gagagcttgt gctcttccca gaatgacggg tgagccacgt acagtaaatg 26450
gtgcttctca tttctagccc aaggggcctc aaggggcacc gtgatttcac 26500
gagaatgctg caagcaaatc ttttctcaag ctggggaatt tggtggtaat 26550
gcctggctca gcttgcggtg cgcacctggc ctttggaaga ttggtacaga 26600

gagaagcggc ccatccacat gagcctgtgg aacagcactg gtgggggagc 26650
tgatttgtga agaggggctg tgcagtgtac tgtcaggtct gagacccagg 26700
aagaaattcc agtatcccag ctctcagaat cacagagttc taggcactgc 26750
ctagttccac gtgttcccaa atgtttcctg aatacttgga tttcctgtcc 26800
agagaatttt caaaacaaac ttagaggcct gacccatggc tgccaaggaa 26850
ggatttttt tttaaattaa attttaaaaa tcagtccagc atgaaaatct 26900
atgatgattt cataagagaa aggacatttt aatattcaaa gagtaagaag 26950
cacttaatct tggaagaaag ggcattccta tactttgatt acctttagtt 27000
taattaaaaa acacctacat ggtctttact tctgtgattt cattcctggg 27050
ctagtgaaac attgtcacaa taaagcatca ggccaacgct tctttcgacc 27100
cactggccaa tcagttgaca aacagtgact agatgtttca gcctattttg 27150
ctgaggctaa aggattgaac tagtgcttca gccagcatga aaaccagtca 27200
ggagtccgtg ctggtgttgg cttagattag cagggccttt gatggagggg 27250
catgtatgtg tttgggtttg ctgtgccagg caggggagca gtggaatttg 27300
tctgaattga gctcacacat tgaagttatt gagcgactta catgcaaggc 27350
catgacctgg actcccagcc gagaggccca cgtggcgggg cttgagctgg 27400
gggagccgag gacagcttac atctgctcat ctgcttacgt aaccctgcct 27450
cccagcttcc agagccaaga aaacacacaa gccagcccag cggggccgag 27500
agcctgtggt agcacacgcc atgcgccgca cagcaagggc gccttggctc 27550
ggcttgaggc ctgtcatgaa gccctcagcc ctctgcctcc tcccagagct 27600
tctccccacc accccaggca gtggctctga aacctggtcg caggtctgca 27650
tgattctgaa cagaggtagt cgttgccttc ctggagtctg agctctctgg 27700
agtttctcac tgggacagag ccaggtgtgt agcagagcat ggtccctgca 27750
gtatggcagg aggtgtgcag ggcattcagg aggcctcctg gctggcactc 27800
gacccaatta gtcattcaac gccaggtctg gggctgctgt ctgttgtctc 27850
aaaggtgtga gctgcaagat ccttagagtt gtggagaaaa aattgccaga 27900
ttggcaagaa gggcaggatt gggggtcaag gtgtctcagt gtgttggaag 27950
catgatgggg gttgtgcaag gggcacagcg agttcagaag ggagcaggag 28000
agtgagaaga ggctgttcag tgataaagct ctgcacagag ccattggagg 28050
agcaagctcc ttgaccatcc ttaaaccagg gtaattttca tttaggttct 28100
gccacacgct cagcagggaa ctcctggaag gcaggatttg tcttgtccat 28150
cctccctccc tacctcaacc cactcctcct tgggctggca cacagtaggt 28200
acccagaaag tatcaattga aacaaattga aagtggtctt gatacatatc 28250
acagggcaag tttgcagtta acagacattt cagagtaaag actctctggc 28300
ttggtgctcg atcggcttct gtgggttgtc agcatgctgt ggacagcccc 28350
ggcatgggag cgagtgggcg tgtgtgtgtg tgtatgtgag ggtgagagag 28400
cgttagtgtg tgtgttgggg ttggggagag aggaggggga atagaagatg 28450
gaccacccgg gtatcagctt ctgccctggg gagatggtgg tgtcagttgc 28500
tgagggaatc ctgagaagca ggtctggctg taggtggtga tggtggtggg 28550
gttgcatgag aatccatttg gggcaggttg aatttgaggt gcccatgaca 28600
tatggctagc catgttctgt tggctgtgag gtcaggagag agacatgaga 28650
tggaaacaga ggtttgggaa ctgtcatgtg cttaaaccaa agacctgggt 28700
atagggagag tgagaagaga agggggcaaa gatggacatc caagaaagaa 28750
gctgagaaag cctaggaatt tgaggtaaga ggagacgtag gtaaatgtga 28800
cgcttggtga tcaaggcttc tttccacctc tcctatgctg gacactcacg 28850
tctcctgtct gcttggaaat tcatgctgag ggcagggaag gtgggagcaa 28900
ggatttgtct aaagatcttg ctttggatcc ctgcactcct cctggtttac 28950
caagtgtcac tggacacgtc agggcgttct gagaccttag agagcatcca 29000
gtcctgtccc tgcagtttac aaatgaggaa accagtaccc tgagagtggc 29050
tgtactatcc actctcagga taccaaagat catctggaaa gtcactggtg 29100

gagctggacc ggggcccagg catctcttct cctgtccggg gctcttgact 29150
tcaggaccac ctttctgaaa cccatgatgg ggcaacacca ggacactttc 29200
cagcctgcag gtgtctgtcc cgcggaagcg agccaggcca catgtgaatt 29250
cctgttttct gggtgggttt cagaaggtac gagcaagtcg gcagggtgac 29300
agcccaggtg cttcttgggt tccccaaaac gcggttatgt ttagcagcat 29350
cctcagaacc aaaggtgggg tgggggctgc agatgttgtg ggggccctct 29400
gaagtgaaaa gagccctgtg acagatcttt tcttcatgtt tttcacaagt 29450
tcactgtgca gcagggcccc cccagtagcc tttgcccagg gttgggtgtt 29500
gggcagccca ggcctggctg accttgtggg gaagggtgtg aatggtggga 29550
atccccgagg gccctctttg cccgaaagcc ctaagccttg acatcagatg 29600
cccatcagat ggtccatcgg agccctacta cccagcttgc ccagtgagaa 29650
tcatctgggc tccttgttag gtagccattt aggtccttcc caaaatccac 29700
agactctcta agggaagggc ccgagatgct gtacttgtac taacttcctc 29750
aagcaattct tgtgataggt ttgggaaaaa cttgtccagg gtgaccactg 29800
actgagtcct ggtcttctct gaagagcaca gtgcctgctc actttagggc 29850
accctgggag gtgggagctg gctcagcagg cagtcttata agggactgag 29900
cttcaaggcc tctgtccctc caggagggag gtgcatgacc agagagggag 29950
gcctgaggat cttcttccct gccccagagg gtctgctgcc tgagctctgt 30000
gatagcgcag agagtaaaag gatcaagctt gattgaggcc tatctctcaa 30050
tgcgaaagtt tgctagttaa gaggagagtg ggaagggcat ttctggcaaa 30100
gagaaaagtg tggacaggca tggcttaagg gatggggagg gagacagaca 30150
gagctgaggg tgaagggcct tttgctcagc tgtgggcctt ggccttccct 30200
tgtgcaggga cacacagcct tagagccact ggaggtttta gtgggaaagt 30250
aatatggtcg gggctgtatc tcagaagaaa acaaactaat gggaacaggt 30300
cctgtgatgg tggacctggg tcagctacgg agggagggaa gatgtgagat 30350
gtgtactggg gaaggggtg gaagtggcag ctatctggtg agaggaagca 30400
ggcccacagc ttttttctc aagctgttga attcagaagg gcgagtgatt 30450
ccgggagtag ggggtgcttg gagagccacg cgttattgat aaacagggca 30500
ggctgaagcc tgctcactgg ccctgggcgg gttctcacca gcatgtttca 30550
ggttttgatc tgtgcttgtg gttggtgttc ctacctgttc tctaggttcc 30600
ttcctttgtt cttgtggctc atttgcttca caggtgaagc tggttacact 30650
agagtaacag ttcccaaagt gtgttccctg gaaaaatggt tctgtagcca 30700
aataagcttg ggaaatggtg ggttaaatat aacgaagggg gtttttcgac 30750
tgcacaactt ctcagagcct ttggtgtgtg tcgtgacttt gcagaagcag 30800
gatttaatac gcagcattcc cgttcttatt tgaccacgag acatgttttt 30850
ccattaagca tcttgctggg tctgatgttt tctggaaccc attttgaggc 30900
ggtctggtct gcagagagta tggggagcct gggttcaagc cttggctctt 30950
gactctcagc agagccttga ttccctgtgt tgcctggact gcaccacgtg 31000
taccacatac ccggtatgtg acgttttcct catccctctt cccacctgcc 31050
gttacctcac aatccacaat ctgcacctca tccatttttc ttctgaggca 31100
agcactctct tactaactta cttatctcat ctgcatccat gttcttctag 31150
gccagaaact tgggagtcat ccctccctct ttgttacttc ttcttcctct 31200
ttgttacttt atcccctctg ttactaaaca ttcttctgtg tttccagcta 31250
tttcttttat tttccctcgg tctcctttgg ggtttctttg cctccatctc 31300
tcccagacct tggttcacct tccatcgagt cccttcctgg gacatgggca 31350
ctcatgccac tcctgctacc ttccacttcg aagctaactc cctccacact 31400
gacgtcccca acatgcatgc atacacacac acacacacac acacacatac 31450
acacacacac acacacactt ccccagttag gctagaatca gagagatgat 31500
gtcagccatt tgtccaaggc cacgcagctg ggaggtcaca gagctaagtc 31550
tcaacctcag gggttttgag aaattgcctt ctcatccgtg atcactgatt 31600

tctacaacag cctgtcagga agtctgggta gaaattactt ccattttaca 31650
gtggagtcag agcggggagg gtcctgggca ggcgagtgct tcacagagtg 31700
accaaccatc taggtttgcc ccacactgaa gggggtttct ggggatggtt 31750
ggtcacccta atgctggatg tggtgcctga tgctgggcag gagggccctc 31800
tccgtggcca cgttgcctcc caggaggaga catttcctct gcagctgcag 31850
ctgcagcctg gccatctgat gcagcctgtg gagcggtggc gagtcctgtg 31900
gcctgctaac ttctccctcc ctccacctct ctagtgggcc ccatgctgat 31950
tgagtttaac atgcctgtgg acctggagct cgtggcaaag cagaacccaa 32000
atgtgaagat gggcggccgc tatgccccca gggactgcgt ctctcctcac 32050
aaggtggcca tcatcattcc attccgcaac cggcaggagc acctcaagta 32100
ctggctatat tatttgcacc cagtcctgca gcgccagcag ctggactatg 32150
gcatctatgt tatcaaccag gtgaggcctg ggaaggtgga atgagagagg 32200
gtgtgtgtgc atgcagatgt gtatcagatg tgtgtgtaat gagggcaggg 32250
gaaggggagt gatttcacag acacctggca cttacagcga ggaaccagcc 32300
ccccagccac caccagtgca gatgaggtaa acgccaaaca gtgtgcttgc 32350
ctattgctgt caactctata gccaagggaa atgctggagt gttttcgttg 32400
ttctgttttt gttttctgga agtagccttc cagcaagatt gggaaaaaag 32450
acaaccctaa ttattccaaa gtacacactg attattccct ggctttgtgt 32500
agctgtgtat tttcctttta aaaataaaac caccatttag atgtcagact 32550
tttaggtaac ttcaaagttt atccagtcag tcagagcgtg tctcctgggg 32600
cacctggaga cagtgccctt agttcaggtc acatgcctac atgccagccc 32650
ctggtgaaat atctggagaa gtctgattcg tgggccatct gagagttatg 32700
tggactgggc cgagtctgag aaaaagtttc tcactgctcg tctgatccat 32750
atgtgttggg ctttagccct gcttaggaaa gtaatgctaa ggataggtca 32800
actttcatca ccatggcatg gagaatcaga ttgatctaag aggcatcttt 32850
attgaaataa atttttcagt ttatttgagg agcattattt tcccaagagt 32900
ataactttga tatttcaaga ttacccctaa cacttaaatt catgtttta 32950
gactataacc tcctaggtgc aatgacacat ctaacttatc taagcaccca 33000
gtttcattga aattcatttg aagagtctga gtacgcccat ttctacaagg 33050
cccaatgtcc atttcatttc gagataaact ctgctttagg taggaggatt 33100
gttggcagtt tacggcttcc atcaaggtca aggaactctg tgcaccttcc 33150
ctatgacccc aggggaagca ctcgaggact gctgtggcat tgtgctgcat 33200
cacttgctgc agggagattc tgaagaagtg taaggtctca gtcctgccct 33250
gtcccgaagc ctccaaccca cttctggcaa gtgggacctt cccagggaac 33300
aatttgttaa cagacccaaa tatcctgtga ttggatggtg gctgccaaat 33350
gctttggaag ctcagaggaa ggagagagag caatggcttg gaagaaccag 33400
gatataaact aggttctaaa gtctgcaggg agatgggctt ctcagctggg 33450
gccagtgagc agggacctta aggcagaaag gagccttgca tgttcctgga 33500
aattgagatg cccactgggg taggaaagca ccagaagctc tgggaccagg 33550
tgtcagagtt aagcctgtga ggcaggagag agcagaacaa gccctgttac 33600
aaggaaactg aagcaggaga gcaggtggtg ggcaaacccc ttgaggctgt 33650
ttgaattctt cggccaagtg aggtacagac cagggcccta tgaacacctg 33700
caagcaagac agccacgcag ttgtgggtca ccttggaaga atattggaga 33750
atgcaagaga gaacaggtaa atgtcctgca aaatgcgggt cactttaacc 33800
caacacatat tcatttaaga aaagctctgt gattgagaaa catttgtctg 33850
atgccagtta gcacatacca atgacggcaa gattcaggag cctgttatta 33900
aagcagtggc agcgagcacc tggaagaggc ggccaccatc accaggagcc 33950
agcagggatg actaataagc cgtgccagct gcatctcgtt tctctcttga 34000
cagttgctat gccagtagat gagggatgta ctgtggatac aatgctgtca 34050
tatcttattc agcagggcat ctgatagcat cccacaaatc tgcctgagta 34100

gaagacagac agctgtggtc tgggtgccat ataggtaggt taaaatatat 34150
atttgggcct aggcgcagtg gctcatgcct gtaatcccag cactttggga 34200
ggccaaggca ggcggatcac ttgaagtcag gagttcaaga ccagcctggc 34250
caacatggcg aaaccccgtc tctactaaaa atacaaaaat tagctggaca 34300
tagtggtggg cggctgtaat cccagctact cgggaggctg aggcaggaga 34350
atctcttgaa cccaggaggc agaggttgca gtgagccgag atcatgccac 34400
tgcactccag cctgggcaac agagtgagac tctgtctcaa aaaaataaaa 34450
taaataaata aataaataaa atatatactt gggtaaagag gataaaagag 34500
ttagcgatga tgctgaattt ttgaactgag gtggctgttt tcaaggaaga 34550
ctggagggtg ggatgctacg tctagatatg ttgcagttta ggtgaatgtg 34600
agacttccct gttttgaagt caaatattgg accagtaaaa tctagccatc 34650
agcttaaatt cctatgatac aatttacata ctccccaggc tcaacacagt 34700
agatttctga atgtcctctg ccagctacat gctcctgccc acctcaatcc 34750
gagtagatgg aacaactaac caagccagct cagaccggtg gcacagctgt 34800
gctggctaac actgggcacc acctaagaga gtgcttctcc aaaagtgtgc 34850
ttccccaaat ggagcgaaat acgcttgagg aatgttgggt tgaaccatgt 34900
aaagcaggtc tcattcccgc agagcctttg gtaccccggt gtacactgta 34950
accccagaag tgtttcctga gcttgcctga cgagacaact tttccaagaa 35000
ccgtctcaag tgatgagtgt tttgtgagtc acactttggg gaaagcgggc 35050
ctaagttagc atctcctccc agctgcctcc ctgctttccc tggaacacta 35100
ggaactgccc gtcctccctc cctccctcct cttcccactt cacaacttag 35150
catcaggaat attttagttt tggtttttca aacatatata cctccttttt 35200
tcttatcttg tcaatatcat cttttttttt tctttgcttt tcctcatact 35250
ttttttctc ttcatccttt ccttctccaa gggttaactt tccaccttag 35300
gagaatcttt tctgcttttt ctcccacttc cccagctact ctcttatcat 35350
ctgctccaat ctcaccctaa ttgatcattt tgggaaaata tggtcagagt 35400
ccagataact aagttgagaa atgcttaaac tctgccatac ctttccagta 35450
aagaatatta cctaataaat aataaaatgg taatgggaaa cctgaaccct 35500
gaaaaaaaag aggtggaagg agaaacattt ggagcacatc ctgtctacaa 35550
attaggaact gcctgtgtta tctgttttat ggttatattc tagaagaaga 35600
aagggatttt gtagcacctg gttttgacct ttctgcactg tttgttgagc 35650
aaataaacct tatgggctgt tagccctctt tatagcctct cagcttatcc 35700
ctggcccaga caccctgctg tcattttgac ttttcattcc cacacacaca 35750
tacacatgca cacacatgta cacacacaca cataccattt aagattagac 35800
agaagtaatg ctcaaaatgg agtggcttct gagacattta gtccaagggt 35850
tcccaaacag gcttttcagt atcagatttc tttctgcccc attgaaatgc 35900
tacacaacct tccgcttaca gcaggtcaca agggtttcat tctacttgaa 35950
gtaggggcca tgtcccattt ccacttcctt ggcttcccat tcagtcactg 36000
ctaggatttg cctagacccc tgaggccaga caatgtagaa acttctgctc 36050
catgtcacag gtgaggaaac aggctcagag agggacaggc tccgaaagtc 36100
acatagacaa cagtagggct gcggctcaaa ccccagcgtc tgactccagg 36150
tttagtgcct tctcagggca tcagtgacac tcctcatggc cagggtgccc 36200
ccagtgttgc tcacagtctg gtatccaggg ctgagagtgt gctgtgtgct 36250
cagactgcct gggttcagtc ctggcactgc cactttacag tcagtgacct 36300
caggcaggtt acttaagctc tgcaggcctc agtttcctcc ttggtgggga 36350
gggttatgag gcatccttct catggtaaac cttcagtaaa taccagccgt 36400
tactaggagg gtccactcct gcctctccac tctccattca tcctgcctgt 36450
ttcctctgcc tgcttcctct gcctgcttct gtggtggtga attcttcatg 36500
gctcccaccg cctcctgctg caccccccact cagggcccgc atcaggaccc 36550
ttcctcctat tggtttgaac tccttggagt cagagggtaa tggatagtgg 36600

agtgagccag gtggcagaat ctcagaggcc atcccgggcc tataagcctc 36650
ttcaaaatag ggccacgtat caagctttac acacaggagt gaactttcac 36700
aagttgttat gactcatact ctgtctatag taagctgtta accactccca 36750
tttggcttat gcctctgtaa ttattgtact aacttatatc ttaaaataag 36800
gatattgaag gaatgagccg ggagaggctt tcctggttga gatatagaag 36850
aacaagagtt gctctttttc cttaaggtct ctcctcccac ccctgacctt 36900
agctcaccag catgggagaa tactatttga ctccttgtac tctgagacgt 36950
ggatttcaag atatagcatt ccaacttcaa cggcagcaag aaaagaagca 37000
acagaaggag aagacatcat agcaaacagg gatgcatgct gcatttccta 37050
atactcaaac ccggaaacga gacttcactc aaggtgaagg gagggcaggt 37100
caccacctgg tagcactagc cctaaattaa ggaatgcaga atgtttgtgg 37150
gattgcccat cataaaaatt acaaaatgag taaggaatgc aggcacagct 37200
ggccaggtgg gtttgtcaca accatggcag ccctttgccc cacagccagt 37250
acacagaact ggtctctcca attccgattg catatcttct ggcacctctg 37300
ttcctctccc tcagctgccc aggatttttc tggttctgac catgttactt 37350
cctcttttaa acctgttagc atttcacgac tgcctacagg caacggtcta 37400
aatggtcgga aggcccaagc ttagcatccg agaccctgac ctacctccag 37450
ccacttcctc ctcctctcca cttcactgga ctccccatct ccacccagac 37500
acctctgttc tcccctctgt gtgcctttgc ttatgctgtc ccctgtgttc 37550
ctagtgtgtc tctggctatc ttttaagctt ccctccccaa cctcattagt 37600
tctgtggagc ccctggaata gagctgactt ctccttccct gctgctccca 37650
ggctgctcag aactttctgg aaagggatga ttatctgagt tccagcctca 37700
ccccagcccc cggactctga gtccctcatg tctgcctccc ttctttctct 37750
ctgaccacac agctggtaca tagtcagtac agacgcagtc agtgagtgga 37800
gcacggggct tctctccagg attcctgccc ctttgtttat ccctagtctc 37850
aggactccct actcctggtc ttctgcctaa atctgtgcct cttggaagtg 37900
aagcctccgt tcccagtggg gccaggtcct gacccttggg aacttgcagg 37950
atccctccct tgggcctctc cccgaagctt ccagctcaat gctgaccaga 38000
gcacaggctg cctgtgacag tccttggggt gacctccctt atcaggaaaa 38050
atgcagaaaa cctattaata ccttagcctt gtgattgtta atggtcacaa 38100
aactccttta gggtcctttg gactcagcac ctttatggtc tcactttgaa 38150
ttttgaacct cccacctccc cccatccccc agagtaaggc aaatggtctt 38200
ctgattgttc ctgcagaggg aaggctccac aggtaagcac acgatggcca 38250
ggaagcagag ctggagcctg cctgaaaggc tgtggagaaa tggagggagg 38300
gctgccctga ggactctgtc tggctttgaa gttttctact gtttcctttt 38350
cttctgtgca ctgttttagg atgatggggt gatagttcca ggctggttga 38400
ggatggattt ggagacagtc ctttgtaccc tcagtgagca agagtatctg 38450
tcaccctacc tcagcagttg tctctgtcac tggtccaagc agctggttcc 38500
tacacaaggt caagatcaac tggggagaag cagactcctg ggtctatccc 38550
attagtgagg acagctgcct gggcttatgg cctcattggt ttggtttcta 38600
tcttgatcat ctctaccatc cccccatccc ggccttccat tttctacctc 38650
agctgtcagt gcacagattg atgtgtgtgg gaacggagct tgggaggagt 38700
ggggtagggc tggtcctgtc ctgtagcctc cccttccttc gggcacttgg 38750
acccctttgga gcttgccggg gtggggaatg ggagtgggaa ggccagggag 38800
tgtctctgca ccatcactgt ttgagtgttg ccccctttgct gtgtgcccca 38850
cctagtctat gtgtgtctct gttctctggg gactcaattt gctggtgaat 38900
tgcttccatg gacattgttc tgggaaatgc catttttct gctcacccat 38950
gactctgtga caaggaatga cagcttatta ggaatttgtt tttgcattgg 39000
aacagtggtc atcagaatgg gccccttttc ccttgcagct ttgacatttg 39050
cctctctttt cctcacctct ctcccttgca tccacccttt tctctttttc 39100

ttctttttg ttttccttct agcaggggcc ttttaccttt acttgttaat 39150
cctgtttgta gcaaagcaag tggaaggagg agttcctctc tgatctgctt 39200
cttattctcc acctaccttc tcttctgtac tttccgcctc ctagagagag 39250
agagagagag aggaatgccg acctaactac cgctgccact gctgctgcca 39300
ccaccgctgc caccaccacc ctggtaatgt tcacatgtcc tcaaatcaac 39350
ccagagccag ggccctgctg gtcaggggga ggctatgtaa ataatcccat 39400
gagtgtgcca tcctcaggcc ctggggtctc ctaggcaaga ccagggcctc 39450
tgtgggctct ctcggaaatg ctgaggttgc tggaagccag cccgtcatac 39500
agggtctgag agtttaactt cttttaaatt aaaccacagt tgagctcatg 39550
ctgtgtgtgt ataaactttt gtatcctgct ttttccttaa attctttatc 39600
atcagcatct tcccatgtta tttcatagtc ttcatcatca tcactttcca 39650
taccttcata gtagttgatc gtagaattcc atcataatta acttgtcttt 39700
tctctcttag aagtccctta ggtaatgtcc aattttccgt gagtgtaagt 39750
aataccataa tgaacatctt ggagtctgaa gtttattctg tgttggtttg 39800
ttccacattt aggatcattt tcccaggcta gattttcaga tgtgggatta 39850
tgggttcaga tatggtttac acatttttat agttcttaat acagatggcc 39900
aaattgcttt ctgaaagaga agcttttctt aagtattttt ctccaacttg 39950
tatcttaaac atcctgaaca tgcttagcac cactgtcttg atatatctgc 40000
ggaaagccac gtctccactt ttcagtgtgt cgggccctgg gagaggcagg 40050
catcctgcgc tggctccttg gagctgggtt taaaattgtc tcctctggct 40100
gggcgtggtg gctcacacct gtaatcccag tactttggga ggccgaggtg 40150
ggcggatcac taggtcagga gatcgagacc atcctggcta acatggtgaa 40200
accccgtctc tactaaaaat acaaaaaatt agccgggcgt ggtggcgggc 40250
acttgaaaag tcccagctac tcgggaggct gaggcaggag aatgatatga 40300
acccgggagg cggagcttgc agtgagccga gatcgcgcca ctgcactcca 40350
gcctgggcga cagagtgaga ctccatttta aaaaaacaaa caaacaaaac 40400
aaaaaaacaa acaaacaaaa actgtctctt ctgtgctcac ttcacccaga 40450
atccctgttg ggctcttcaa ggagctcagt tctctctgaa agcaacttta 40500
tagcctcagt ccagtctgtg ttcctgtgtg gcaggggtca agggtatgct 40550
cactcttgag agtggtgtct ttggttgacc aagaaccact cccatagcct 40600
ggtccctaac ccttgaaggc ccatctctct cactcactgg ggtgaagagt 40650
ttaaatctca gatccaagtt ttgttgagag ctctgagcta ccatattgct 40700
atggttaaca atagttaaca atgttaacaa tggttaacta tggttaacaa 40750
tagttaacaa tgtttaacaa ctagagccca gctgggtgtg gtggcatgtg 40800
ctaacagtcc cagcttctca agaggctgag gtgagaagat tgctggagtc 40850
caggagctca aggccagcct gggcaacatg gcgagaccct gtctcccctg 40900
caaaaaaaca acaacaacaa aagcaaaact agagcccaac tgctgtgaac 40950
tcatggctga gtagatatta ttagccctcc acaaactcag catttgtata 41000
atcccaggct gtttccagta attctctggg gatcatctcc cagcctgtcc 41050
actgttccag gatccacact taggcctata ggaatgcccc gtcagagctt 41100
ctgctgccgc tgatctgtta ctgtttcatg caacccactc ggcctagttc 41150
cttcctctta ctgtctcagt gggcacagaa aagcatacag agggtgtttc 41200
agcaaacatt gccactggct gcagacctgc ccccggatct gtcctgttga 41250
gagcttagtg ctgcgttctt gcatggtggg gaggggtgtg gctctgtgat 41300
gagccagggc atgtgtatag gagcaacagt gtctctctta tcacgtagaa 41350
gttctgactc attgcgagtc ttggctttgg gttaatggtt ccagccatgt 41400
tgctgctgtg tcttttggtg caggagaggc tgggcacagt tggtccctaa 41450
gccattatgg ataagggatg tgtctgctga tatacacaca tggacctgac 41500
atccagggaa ggcagggtga ttggacagaa cagttcttcc agaagctgtt 41550
ggaacttgga caagagtggc ccttggcttt ctgtagttgg tcatctgtcc 41600

cctgttgcaa tcaggggaag gccacacttg ccttccttaa ccacagttag 41650
gattttcttg gggattagac cagattctag cacctgtcct gaacctctcg 41700
ccccgccccc acaaaggctg cttgcaagtg tagtgcacat acacagggag 41750
caggtggggc atggaagtgg aagtggagcc cctgcctttg gcccttgggg 41800
gaggcactgt ctgcttaccc acggttgttg cctcatagga atcatacaac 41850
agcttcctaa ctggtctcct tgccttcagt tggattgggg cacaaatccc 41900
tccttgacat ataaaccatg gtttaaggct ccctgtggcc taaataaaga 41950
taaagcttaa gtatcttaac aagcacctaa cccttctccc cagcctcggt 42000
gatttggctc atcgctgcct tcatgtttca ttctggcttc actcattcgg 42050
aatttcttgt agttccttgg ctgttctctt ttccttaccg cctttacaaa 42100
tgctctcacc atgcatgctt ttctctgctc ctacagatgc cttctctccc 42150
agcaccgcct ccagagtcta tgtctggtcg attctgtctg ctgtctccag 42200
tccccatctt gtggcagtct ctgctcaatc atttggggat tttatatgtt 42250
ttctggcctt tcttttgggg gcctgtcttc tccttctaaa agcagccagt 42300
tgacctagaa ggaagggata actgtaactc ttgtctacca acataagatt 42350
aggcccaccc tttaaaagct gcgtctttga aagggacacc tgcacccagc 42400
atgctggctt ctcttcacca agcgtgactt cctacgcatt tcacaggcct 42450
ccagaggtcc ccctgactct cttctgctgt gagaaactct aatcatgtaa 42500
gccacaggct aattcccttg agccttaaat gtttttagta atttcccatt 42550
catcagagaa gcaggatttg ggaggaattt tgaagcaaac actacagaag 42600
gcagagtctc caggtaggat atctaagaga catttggaat ggtctgactg 42650
ttcaagatgg atgggaaagc ctcttcctgt aatgatagta gccaacattt 42700
gttgtcaggc agtggggccc catttttgag atggggtctc tgtcacccag 42750
gttggagtgc ggtggtgctg tcatggctca ctgcaacctc agcctccccg 42800
ggctgggtct tcttaattct gaaaaaccca gcttttaaag ggtggaccta 42850
atcttatgtt ggtagacaat gttgtctcat ttaatacaat gcacatgctc 42900
tccccataac acaaaagagg gaactgaggc ctggaggtgt gatgtacccc 42950
aagtcacata gctaataaat aaagaagcca gcattcctgg gattaaaaat 43000
gcatgtgtct gtcactgtgg tgtatttggt gcttgatcaa tgtttacttg 43050
agcaaatgga ggggcagagg taccgatgag tgtgctcagt gaggagggca 43100
ggagtgaagc tgggcgtctt cccgcctctt gtgagtggtg gggcttggtg 43150
agcttgccag ggcctgtctt tcttatcaaa gaaggtgtgt gccccagtgt 43200
tacagcattt cacccaaagc agcctagaaa atgcttgact tttctgtcat 43250
tccggggagg acactttcct cctccactgt tctgctggcc tggtgtaccc 43300
acggcccctg atagatgata gcacctgcta aagtgcacca tgcccttccg 43350
tctcactgca tcccacagat gaggccaggc tgggatgagg gagaaaggga 43400
gggatatata gttcaggtta ttttggaaaa ctgcctgacc aattttaagt 43450
ctgggccgga cactggggca tctcaccacg ttgaaagggc cgtggcaccc 43500
cgggcggtga aaggggctgg aaccaggtct gcttcttggg cttctcctcc 43550
agggtgccat tgctcatggg ccttggctgc agaggtgctc attcgtggtt 43600
ccaaaattcc aattcctggg agaggaaaaa tgcttagttc agtctcagtt 43650
aggcctctgc ttagatcaaa cagccaaggc cagtaggccc agtcctatgg 43700
tagagacatg gcctcaaaga gccctctgct gcagttgttg gggagtgtac 43750
caagagaagg gagcattgtc ctgggctggg cagccctggg ggtctagtgc 43800
atagatgtag aaaggctctg ttggtatacc tccctttgct tgttggaaag 43850
tgctcaacgg ggctgaattg tgtttgacag tgtaagtctg ggctggggtg 43900
agggttgtta caagattgtc aagatgatta aatgaaatgc catttgaaac 43950
acttatccat gccttgtgta tggtatcccc accagtgaat attcacagta 44000
tattataata attccaacaa cttcataatt ttcatatgca atttctaaac 44050
tttgaacttt ttttttttt ttttttttt tgagacagtg tctcgctctg 44100

ttgcccaggc tggagtgcag tggcgcaatc ttggctcact gcaacctcca 44150
cctcccggct tcaagtgatt ctcctgcctc agcctcctga gtagctagga 44200
atccaggcgc ccgccaccac acccagctaa tttttgtatt tttagtagag 44250
acgggctttc gccatgttgg ccaggctggt ctcaaactcc tgacctgagg 44300
tgatccaccg ccttggcctt ccaaagtgct aggattacat acgtgagcca 44350
ctgtgcccgg caatttttg tgtttttagt agagatgggg tttcaccatg 44400
ttggccaggc tggtctcgaa ctcctgacct caagtgatct gcccgcctca 44450
gcctccctaa tgctgggatt acaggtgtga gccaccacgc ccagcctaaa 44500
ctttgaattt ctttgaaccc atgacttaca cagaattagc tgaacgcaga 44550
attccaaatc aactcagcct gtgggacagc caaaaaacac agtgtgcctt 44600
tgggctcctt cactcaccac gcggggttag aaaactttgt cagaggcttt 44650
aaaaaaggag ctcttgtgtg taaaatgttt ccttgattct ctttctggtg 44700
cctctctttc tctaagtggt ttgcttcccc aagttcccca cctgagtctg 44750
ggtggctgtg gcacatctgt gcattctgta cgcacacagg cagccttttg 44800
gagtgccagt ttccaggtct tggttttatt tatttattta tttatttttt 44850
tgagatgggg gtctcactct gccgcccagg ctggagtgca gtggtgccgt 44900
catggctcac tgcaacctca acctccctgg gatcagttga gcctcctacc 44950
tcagcctcca gagtactagg gaccaccatg cctggcaaat ttttgtaatt 45000
ttttgtagag gcagagtctc accatgttgc tcaggctggt ctcgagctcc 45050
tagactcaag tgatctgccc accttggcct cccaagtgtt aggattacaa 45100
gtgtgagcca ccatgcccag cccaggtcat cttttgaggg catggagaga 45150
agactttgag catcccactt ttgagattgt gtaccagtcg caagccccta 45200
tgacacactt tttccccaaa gtagagggct ctgactatgt tgatcccaag 45250
agagatggga aagagcattg aatgaggatt ccaaagtatt gggccttagt 45300
tcgtttcctc atgttggtgt tgtgaagatt ctggttagga taacagcatg 45350
tgtgcaggag gctttgtgaa ctgctgagag tgaggcgtgg caatgtcagt 45400
gctaggtttg tccttactaa cctggggcca tgggaattga taagaccaga 45450
ttcccaactc taccccacaa tgtgatccct gtggtgaccc ctcacagggc 45500
tctttggtcg agcttcccag aagggatcac catctgccat tgtatgttga 45550
accccattca ttcattcatt cattcagcca accagcaact atttgttgag 45600
ctcttattgt gtgagaagca gtcttcaagg aactgggtga ataaaaaaaa 45650
caaaacatcc taaccttcat tgagcttaca ttcttactga aagaaaacaa 45700
ataaaacata catgtaatcc tagcactttg ggaggccaag gcaggcggat 45750
cacttgaggt caggaatttg aaaccagcct ggccaacgtg aaacccatct 45800
ctactgaaaa ttaaaaaaaa aaaaaaaaaa aagccgggca tggtggcaca 45850
tgcctgtaat cccagctact cgcgaggcta aggcaggaga atcgcttgaa 45900
tcctggaggc agaggttgca gtgagccaag atcataccat tatactccag 45950
cctcagtgat gaagcaagac tccatctcaa aaataaaaaa taaaaataaa 46000
aatatgcatt ccctttgcac cagcacactt ggtgcctggg gacctcgtgg 46050
ttggcaccct gaagcaggtg tccctcttct gtcttgcaca ccttgcttct 46100
gtcctggtgt gtatggcatg gccttctgcc ctccatggtg agcactgtga 46150
gggcagaggt tgagttgggt ttgctgtatt tctcaggtgc ctaggtttgt 46200
gcttgacagg tagatggaag gcacacaatg tggtcatcaa acctcagtca 46250
accatataag gaaggtagaa gtgaaaagtc ccataggtac ccaactaatg 46300
tcaccagttt cctggatacc tttcctggag tttatttata gtgtgtataa 46350
ataaatgatg tatgtgttta aatgcctttt tcacctttcc ttttagagct 46400
gcctcttttt aacagttcca ttccattgta tggatgtact atgatttatt 46450
gaaccagttc cctactgatt attctgtttt ttgcagtctt ttgttatgat 46500
gaacattcca cagtgacaat gttgttcata gtcattcaca cacatgcaag 46550
tccttctgca ggatatattt ctagagggga attgctgact cagaggtttt 46600

ggtactctgt gttgattgta gagtgacggc agaaaagtga ggcccaagag 46650
tttcctagtg accatgtgta gtggacaagt caccagtccc tgtgagtgtt 46700
tggcccaaag gctttaaggc atttgatatc actgtttttg tttctgcacc 46750
aggcgggaga cactatattc aatcgtgcta agctcctcaa tgttggcttt 46800
caagaagcct tgaaggacta tgactacacc tgctttgtgt ttagtgacgt 46850
ggacctcatt ccaatgaatg accataatgc gtacaggtgt ttttcacagc 46900
cacggcacat ttccgttgca atggataagt ttggattcag gtaagagata 46950
ctcagtcaga atctgtggta aacatgtctc tctcatgtgt tgactaggaa 47000
atgcagtcct ggcagctcaa gagtgcctct ttaagctctg gagcagaatg 47050
cctcctctga gaaatgggtg ctttgtatta gttgagatgg aaagaagaga 47100
ccagaaatgc ctgtagtctc tgcacatcca gacaaaaaca aattttcccc 47150
ccttttttt ttttgtttgt tttttgagac agggtctggc tctgtcaccc 47200
aggctggagt gcagtgccgt gatcttggct caccgcaacc tctgcctccc 47250
gggttcatgc catcctgtca cctcagcctc ctgagtagct gggactacaa 47300
acacttgcca ccatgcgcag ctaatttttg tatattttgt agagatgggg 47350
ttttgctgta ttgcccagtc tggtctcgaa ctcctgagct caagcaatcc 47400
atctgccttg gcctctcgaa gtgctggatt ataggcatgt ggcaccatgc 47450
ctggcctaag aacagttttt agcatttggg aggggctctc atctttaagc 47500
tccaaatgat actgtatttt cttgcttttt tctttctctt gccccacaag 47550
ttttggaaag taaattggaa tagttttccc ccactgaatt atttagcttg 47600
tatacctcag cagatgttcc ttggcctgtt ttgttttgtt tttgagacag 47650
ggtcttgctc tgtcacccag gctggagtgc agtgacacaa tcatggctca 47700
ctgcagcctt gactgcctgg gctcaatcca tcctgcagcc tcagcctcct 47750
gagtagttgg gactacaggc atgagccagc atgtccagct aatttttat 47800
ttttagtgga gatgaggtct ggctatgttg cccaagctgg gcttgaactc 47850
ttgggctcaa gtgatcctct cacctcagcc ttccaaagca ttgggattac 47900
aggtgtgaac cactgctccc gcccttggcc ctataagaag gaatgtgatt 47950
ctgttttcca gcagggcaca aacttctgct taaatacaaa gcccaaattt 48000
ttccaccaaa atgcccctag tgaagtggcc agcccagatg cccgactagc 48050
gtattatcca aagcatattg tcattggtgg aaaatggcct tatagtccat 48100
tgttttgtct taaaagtaaa tatataaata aacttgtata ttgtttccta 48150
attccgtgtt tatattaaca taaaagtgtt ttaaattacc tgtcagtggc 48200
caggtgcagt ggctcgtgcc tgtaatcgca gcactttggg aggccgaggc 48250
gggcagatca cctgaggtca ggagttcgag accagcctga ccagcatggt 48300
gaaaccctgt ctctactaaa aatacaaaaa ttagccaggt gtggtggcag 48350
gtgcctgtaa tcccagctac tcgggaagct gaggcaggag aattgcttga 48400
acccgggagg cagaggttgc agtgagttga gatcgcgcca ttgaacttca 48450
acttgggcaa cagagcaaga ctctgtctca gagaaagaaa aaaaaaaacc 48500
tatcagttga ataacaaaac cctttccttc cttgctttaa gtgaatctga 48550
agatccagga gctgtgctgc aggtaccctc tatgttgggt acccctggtt 48600
taggctgact agtacagtgt ggttggctca tgtagacagc agacccttta 48650
ttttagatac aacttttttt ctttttcttt tatttttttt gagacagagt 48700
cttgcttgtc acccagcctg gagtgcagtg gcgtgatcat ggctcactat 48750
agccttaaac tccctggctc aagtgatcct ctcacctcgg ctttcctagt 48800
agctgggacc acaggtgtgg gccagcaccc ctggctgatt taaaaaaaaa 48850
aaaatttttt tttttagaga tgtctcacta tgttacccag gctggtcttg 48900
aactcctggg ggctcaagca atcctcctgc tttgacctcc caaagtgctg 48950
ggatgacagg catgaactac tgcacctgct gagatgcaac agctttctgt 49000
cagactcatt ttattctcat catttcttcc tgtcctccct tgctgggagc 49050
atgagagctg tgatgggaat ataggaatgt atgaagtcct tctcccagat 49100

caaaaatcct aacttcttgt cttaaaggga ggaaaatttg aatgtaacct 49150
tacttttaga ctcttcagaa atccttctat acccttccgt ccccgctttc 49200
acccttcctc cctctccgtg tgtgtatctt cttctcttga aacacacagg 49250
tttataccct gacccctctt gattcatccc ttgaagcaca gtggtgaaca 49300
aggaaggggc ccgtgatgcc ctaattcttt gccacagcac catgtttgtt 49350
tcacaaggag cctggcaggt ttgggcttgg ggcagatagg ggagagaaag 49400
cagcagagac agcaaaacca aatcatgtca gcttggcatg tacttccctc 49450
tgaaatagct aagaatccat ttctgtaaaa gcactgatta tcagaaaacc 49500
ttattggcct ggccaccttt ggttcaaacc ctcacattaa taatgtggac 49550
agtagtatga ggtgtgccaa aggtggatga ctcagcacct aagtgatgac 49600
acctaattac gaataggttc attaaagcag acccccctggg gacctttgct 49650
tgaggatcct tacagtcaga attcctgaat atatttgaaa ataataattg 49700
catctttatt ttcatatgtt ctgtatggtt tggctgactt ccccctcaaa 49750
gtctgagtta gagttttcct taatttatgt gatgggtttg gtctttttgg 49800
attccagaaa gagctgggtg tggtttggag ctgcactcag agtcacacaa 49850
aaccacagcc tttagagaac ccacaggaag gctttggggc acgtcctgat 49900
tcttgacatt tctcatcagt gctgactttg tatcccttag gagttcacaa 49950
ttcataacca ctgaaatatt aaaatacaaa aagttttgga aggatgagag 50000
cccagatgct ctactacttg aaaatatgtt aaaacataag ttcatcatta 50050
tacattttgc taaatcagga taaagtctga agtttcaaag aagttttatt 50100
ttagcaaatt ttcagaaaca ctgcctcaac tgttagggcc agtgttctag 50150
tcagtatgcc tttggaagca tgaaagctgg attggtcgat aggatgggtg 50200
tggaaggggg gctgtgactg ggtgggtaca gagaggctct gaaacaatct 50250
cagattccag gagttcctgg ataaggactt catgtgcggg aacagagcac 50300
aggagaagca gattcctgag ccactcagga agaactgggc ctaggcctgc 50350
tcttgtcact gactggcttt ctacataacc acagaaacag cactgtgttg 50400
tagaaagagg aagatcatac tttttgatat ctgtgtctaa tttaaggtca 50450
tctgagccct gatagaaaag caaaacagac aaaaccccttg taactgctcc 50500
ctcccacccc acccaccatc aaaaaagctt tagagaggct ggacatggtg 50550
gctcttgcct gtgatcccag cactttggga ggctaaggtg ggtggatcac 50600
ctgaggtcag gagttcgaga ccagcctgac caatatggtg aaaccccatc 50650
tgtactaaaa atacaaaaat tagccaggtg tggtggcaca cgcctgtagt 50700
cccagctact tgggaggctg agacaggaga attacttgaa aacctgggag 50750
gcggaggttg cagtgagccg agatcacgcc attgtactcc agcctgggct 50800
acagagcgag actccttcaa aaaaaaaaaa aaaaaaagat ccggtttggt 50850
gtcttacaac tgtaatccca gcactttggg aggccgaggc cggtggatca 50900
cgaggttaag agatcaagac catcctgacc aacatggtga aaccctgtct 50950
ctactaaaaa ttagctgggc gtggtggcag gcgcctgtag tcccagctcc 51000
tcaggaggct gaggcagaag aatcgcttga acccgggagg cggaagttgc 51050
agtgagccta gatcgcgccc ctgcactcca gcctggcaac agagcaagac 51100
tacgtctcaa aaaaaaaata aataaaaact ctagagaagc aaaaagaata 51150
actttaaaag tgtttatgtt ctcagcaagc tttattttgg ggatgtcaga 51200
acttaactaa ccactgctcc ttctgtgtgt atgtttttcc tccagcctac 51250
cttatgttca gtattttgga ggtgtctctg ctctaagtaa acaacagttt 51300
ctaaccatca atggatttcc taataattat tggggctggg gaggagaaga 51350
tgatgacatt tttaacaggt aatggtcata acttagatat ctttctcctc 51400
tgtcaacctt cacttccagt tttttaacca atgcttggtt gttccccaag 51450
gactgaccct cagatgggat gcacccctag tcagcccaca ttcttaggtg 51500
tggcttccta caggtcctgc aggtgctaaa agggatctgt aggaaaatga 51550
gtttctgaga tttttgtatt ggcctggaaa aatgtcaaat gggaaccaag 51600

tgacggggca agtttacttt gacttgctgc atgccgtttt gtactcaagg 51650
agtaaaccaa tgtcctttgt aaaaatccct cctttcatta tggtcccctt 51700
tcactgtgaa acaagtttcc ttgagcagaa tcctaactgt cttcacagaa 51750
gctttgtgtt atatttttat tttggagtat tttcacatat acaaaagaga 51800
tactgtagta taataaacct ttgaggacct atccagcccc agcaaccatt 51850
atggcctggt cagttctgtc ccatccacat cctggggctc tttttaagct 51900
ggtaaatcat tatgatgtgg gttgtcattt acagtggtaa aaaacatcta 51950
tcagtagcat ttgaaagaac attctgctca gtcctctggc tgtagaggct 52000
tcaaccccac cagccaccga tgagcacctt ctccctccag gagccagtct 52050
gagctcatta ctgagtttaa tatcagaata caccctggtg cagcctttct 52100
aaattgcagt accagttaac agaaggtgtc tgtcagagca acacccaagt 52150
cattcaagtt accattgtgt gcaaacttaa cagagaccca cgtcttcaat 52200
ataagccttg aaggaaactc cagttttagt atgtagatgg ggtatcaagt 52250
gtgtgcacat tgaacatctg ctgcatacag agcactgtgc caggcaggcc 52300
caggacactg aaaacctgga catagggtcc agacagaagc aagcctgctt 52350
ccacagaggc actcctgggc agacactctg gactgatatg acagtgtgca 52400
gggccgacag gataccacag gtctgaatgg tcagaacagc tggggaggga 52450
gggagcatcc gcaggcatct agtcccatgc taacgcagtg gcactagaag 52500
gatgggtggt gtgtggagca actttcttga aagataaagg acctaacact 52550
ttctatgcac cacttactgt gtgccaggca aggccaggaa tgtttaagtg 52600
gtctgggatc agccagttct gcctcttaac taactttgct gtcctgctct 52650
ccaggctttc attttggtcc tcattccttt tccttggacc aacacagaat 52700
cctccaccct gttctggctg cctctagtct tgttctcagc cctccatttg 52750
ttttttttctg ccttttccca catgttctga agccctccat tcgtatacta 52800
ctttccagag acttccccat ggctaaaagc attttggaaa tactgtatat 52850
taggcccctt tcagatactg gcaaccgttt gtgggatgct ctgagaaggc 52900
ctctgtgact tagcctggcc cttttcagcc catcacctgc cacgtcctac 52950
cccagaccct tgtcaccagt ccccaggagc ttacgttgct ccctgagggc 53000
actaggcttg ctctcacttc catgcctttg cctgtgccat cctggctgcc 53050
caaaatgcta tggcagatac ctgttcatcc tcaactgggc tctgcctagg 53100
cttgctccag cagaggttac aaactctatg cttcttcctc tgtgtctcca 53150
acctcatctt cctcttctca cctccatcct ggccctaaag gccctatgtt 53200
tgaagcattc acactgtata ttctgtgggg cacacggccc cagtgtctgg 53250
cacatggtag tcaacaccac aaaccgcaga accagttgta aaaggacatg 53300
gagtcggaat gtgagtttta accagggtca tgctgggctg ggttctggca 53350
tgatgctggg ttgtgggctg agtgagaaca gcaagggtga tggtggatgg 53400
agcaacagtc ttgcagccgg ggctctcagg ccaagtgtat ggcagctctg 53450
tgataatgac tttcccttta ctctttgcag attagttttt agaggcatgt 53500
ctatatctcg cccaaatgct gtggtcggga ggtgtcgcat gatccgccac 53550
tcaagagaca agaaaaatga acccagtcct cagaggtgca ttctttgttt 53600
attcatactc cttccccctt taggatgagg taggctgcag gtccgaggct 53650
ctgggcctag agggaaattg aggtggtcag gttacagtgg agagggagga 53700
ggaagtacgt gtgatgattt cttcttaaga tttttgtttt aagacaatct 53750
ccttgtgctc ttttccttgt aggtttgacc gaattgcaca cacaaaggag 53800
acaatgctct ctgatggttt gaactcactc acctaccagg tgctggatgt 53850
acagagatac ccattgtata cccaaatcac agtggacatc gggacaccga 53900
gctagcgttt tggtacacgg ataagagacc tgaaattagc cagggacctc 53950
tgctgtgtgt ctctgccaat ctgctgggct ggtccctctc atttttacca 54000
gtctgagtga caggtcccct tcgctcatca ttcagatggc tttccagatg 54050
accaggacga gtgggatatt ttgcccccaa cttggctcgg catgtgaatt 54100

cttagctctg caaggtgttt atgcctttgc gggtttcttg atgtgttcgc 54150
agtgtcaccc cagagtcaga actgtacaca tcccaaaatt tggtggccgt 54200
ggaacacatt cccggtgata gaattgctaa attgtcgtga aataggttag 54250
aatttttctt taaattatgg ttttcttatt cgtgaaaatt cggagagtgc 54300
tgctaaaatt ggattggtgt gatctttttg gtagttgtaa tttaacagaa 54350
aaacacaaaa tttcaaccat tcttaatgtt acgtcctccc cccaccccct 54400
tctttcagtg gtatgcaacc actgcaatca ctgtgcatat gtcttttctt 54450
agcaaaagga ttttaaaact tgagccctgg acctttttgtc ctatgtgtgt 54500
ggattccagg gcaactctag catcagagca aaagccttgg gtttctcgca 54550
ttcagtggcc tatctccaga ttgtctgatt tctgaatgta aagttgttgt 54600
gtttttttttt aaatagtagt ttgtagtatt ttaaagaaag aacagatcga 54650
gttctaatta tgatctagct tgattttgtg ttgatccaaa tttgcatagc 54700
tgtttaatgt taagtcatga caatttattt ttcttggcat gctatgtaaa 54750
cttgaatttc ctatgtattt ttattgtggt gttttaaata tggggagggg 54800
tattgagcat tttttaggga gaaaaataaa tatatgctgt agtggccaca 54850
aataggccta tgatttagct ggcaggccag gttttctcaa gagcaaaatc 54900
accctctggc cccttggcag gtaaggcctc ccggtcagca ttatcctgcc 54950
agacctcggg gaggatacct gggagacaga agcctctgca cctactgtgc 55000
agaactctcc acttccccaa ccctccccag gtgggcaggg cggagggagc 55050
ctcagcctcc ttagactgac ccctcaggcc cctaggctgg ggggttgtaa 55100
ataacagcag tcaggttgtt taccagccct ttgcacctcc ccaggcagag 55150
ggagcctctg ttctggtggg ggccacctcc ctcagaggct ctgctagcca 55200
cactccgtgg cccacccttt gttaccagtt cttcctcctt cctcttttcc 55250
cctgcctttc tcattccttc cttcgtctcc ctttttgttc ctttgcctct 55300
tgcctgtccc ctaaaacttg actgtggcac tcagggtcaa acagactatc 55350
cattccccag catgaatgtg ccttttaatt agtgatctag aaagaagttc 55400
agccgaaccc acaccccaac tccctcccaa gaacttcggt gcctaaagcc 55450
tcctgttcca cctcaggttt tcacaggtgc tcccacccca gttgaggctc 55500
ccacccacag ggctgtctgt cacaaaccca cctctgttgg gagctattga 55550
gccacctggg atgagatgac acaaggcact cctaccactg agcgcctttg 55600
ccaggtccag cctgggctca ggttccaaga ctcagctgcc taatcccagg 55650
gttgagcctt gtgctcgtgg cggaccccaa accactgccc tcctgggtac 55700
cagccctcag tgtggaggct gagctggtgc ctggccccag tcttatctgt 55750
gcctttactg ctttgcgcat ctcagatgct aacttggttc tttttccaga 55800
agcctttgta ttggttaaaa attattttcc attgcagaag cagctggact 55850
atgcaaaaag tatttctctg tcagttcccc actctatacc aaggatatta 55900
ttaaaactag aaatgactgc attgagaggg agttgtggga aataagaaga 55950
atgaaagcct ctctttctgt ccgcagatcc tgacttttcc aaagtgcctt 56000
aaaagaaatc agacaaatgc cctgagtggt aacttctgtg ttattttact 56050
cttaaaacca aactctacct tttcttgttg ttttttttttt ttttttttttt 56100
ttttttttgg ttaccttctc attcatgtca agtatgtggt tcattcttag 56150
aaccaaggga aatactgctc cccccatttg ctgacgtagt gctctcatgg 56200
gctcacctgg gcccaaggca cagccagggc acagttaggc ctggatgttt 56250
gcctggtccg tgagatgccg cgggtcctgt ttccttactg gggatttcag 56300
ggctgggggt tcagggagca tttccttttc ctgggagtta tgaccgcgaa 56350
gttgtcatgt gccgtgccct tttctgtttc tgtgtatcct attgctggtg 56400
actctgtgtg aactggcctt tgggaaagat cagagagggc agaggtggca 56450
caggacagta aaggagatgc tgtgctggcc ttcagcctgg acagggtctc 56500
tgctgactgc caggggcggg ggctctgcat agccaggatg acggctttca 56550
tgtcccagag acctgttgtg ctgtgtattt tgatttcctg tgtatgcaaa 56600

tgtgtgtatt taccattgtg taggggggctg tgtctgatct tggtgttcaa 56650
aacagaactg tatttttgcc tttaaaatta aataatataa cgtgaataaa 56700
tgaccctatc tttgtaac 56718

<210> 3
<211> 4214
<212> DNA
<213> Homo sapien

<220>
<223> wild-type B4GALT1 mRNA sequence

<400> 3
gcgccucggg cggcuucucg ccgcucccag gucuggcugg cuggaggagu 50
cucagcucuc agccgcucgc ccgcccccgc uccgggcccu ccccuagucg 100
ccgcuguggg gcagcgccug gcgggcggcc cgcgggcggg ucgccucccc 150
uccuguagcc cacacccuuc uuaaagcggc ggcgggaaga ugaggcuucg 200
ggagccgcuc cugagcggca gcgccgcgau gccaggcgcg ucccuacagc 250
gggccugccg ccugcucgug gccgucugcg cucugcaccu uggcgucacc 300
cucguuuacu accuggcugg ccgcgaccug agccgccugc cccaacuggu 350
cggagucucc acaccgcugc agggcggcuc gaacagugcc gccgccaucg 400
ggcaguccuc cggggagcuc cggaccggag gggcccggcc gccgccuccu 450
cuaggcgccu ccucccagcc gcgcccgggu ggcgacucca gcccagucgu 500
ggauucuggc ccuggccccg cuagcaacuu gaccucgguc ccagugcccc 550
acaccaccgc acugucgcug cccgccugcc cugaggaguc cccgcugcuu 600
gugggcccca ugcugauuga guuuaacaug ccuguggacc uggagcucgu 650
ggcaaagcag aacccaaaug ugaagauggg cggccgcuau gcccccaggg 700
acugcgucuc uccucacaag guggccauca ucauuccauu ccgcaaccgg 750
caggagcacc ucaaguacug gcuauauuau uugcacccag uccugcagcg 800
ccagcagcug gacuauggca ucuauguuau caaccaggcg ggagacacua 850
uauucaaucg ugcuaagcuc cucaauguug gcuuucaaga agccuugaag 900
gacuaugacu acaccugcuu uguguuuagu gacguggacc ucauuccaau 950
gaaugaccau aaugcguaca gguguuuuuc acagccacgg cacauuuccg 1000
uugcaaugga uaaguuugga uucagccuac cuuauguuca guauuuugga 1050
ggugucucug cucuaaguaa acaacaguuu cuaaccauca auggauuucc 1100
uaauaauuau uggggcuggg gaggagaaga ugaugacauu uuuaacagau 1150
uaguuuuuag aggcaugucu auaucucgcc caaaugcugu ggucgggagg 1200
ugucgcauga uccgccacuc aagagacaag aaaaaugaac ccaauccuca 1250
gagguuugac cgaauugcac acacaaagga gacaaugcuc ucugaugguu 1300
ugaacucacu caccuaccag gugcuggaug uacagagaua cccauuguau 1350
acccaaauca caguggacau cgggacaccg agcuagcguu uugguacacg 1400
gauaagagac cugaaauuag ccagggaccu cugcugugug ucucugccaa 1450
ucugcugggc uggucccucu cauuuuuacc agucugagug acaggucccc 1500
uucgcucauc auucagaugg cuuuccagau gaccaggacg agugggauau 1550
uuugccccca acuuggcucg gcaugugaau ucuuagcucu gcaagguguu 1600
uaugccuuug cggguuucuu gauguguucg cagugucacc ccagagucag 1650
aacuguacac aucccaaaau uugguggccg uggaacacau ucccggugau 1700
agaauugcua aauugucgug aaauagguua gaauuuuucu uuaaauuaug 1750
guuuucuuau ucgugaaaau ucggagagug cugcuaaaau uggauuggug 1800

```
ugaucuuuuu gguaguugua auuuaacaga aaaacacaaa auuucaacca  1850
uucuuaaugu uacguccucc ccccaccccc uucuuucagu gguaugcaac  1900
cacugcaauc acugugcaua ugucuuuucu uagcaaaagg auuuuaaaac  1950
uugagcccug gaccuuuugu ccuaugugug uggauuccag ggcaacucua  2000
gcaucagagc aaaagccuug gguuucucgc auucaguggc cuaucuccag  2050
auugucugau uucugaaugu aaaguuguug uguuuuuuuu uaaauaguag  2100
uuuguaguau uuuaaagaaa gaacagaucg aguucuaauu augaucuagc  2150
uugauuuugu guugauccaa auuugcauag cuguuuaaug uuaagucaug  2200
acaauuuauu uuucuuggca ugcuauguaa acuugaauuu ccuauguauu  2250
uuuauugugg uguuuuaaau auggggaggg guauugagca uuuuuuaggg  2300
agaaaaauaa auauaugcug uaguggccac aaauaggccu augauuuagc  2350
uggcaggcca gguuuucuca agagcaaaau cacccucugg ccccuuggca  2400
gguaaggccu cccggucagc auuauccugc cagaccucgg ggaggauacc  2450
ugggagacag aagccucugc accuacugug cagaacucuc cacuucccca  2500
acccucccca ggugggcagg gcggagggag ccucagccuc cuuagacuga  2550
ccccucaggc cccuaggcug ggggguugua aauaacagca gucagguugu  2600
uuaccagccc uuugcaccuc cccaggcaga gggagccucu guucuggugg  2650
gggccaccuc ccucagaggc ucugcuagcc acacuccgug gcccacccuu  2700
uguuaccagu ucuuccuccu uccucuuuuc cccugccuuu cucauuccuu  2750
ccuucgucuc ccuuuuuguu ccuuugccuc uugccugucc ccuaaaacuu  2800
gacuguggca cucaggguca aacagacuau ccauucccca gcaugaaugu  2850
gccuuuuaau uagugaucua gaaagaaguu cagccgaacc cacaccccaa  2900
cucccuccca agaacuucgg ugccuaaagc cuccuguucc accucagguu  2950
uucacaggug cucccacccc aguugaggcu cccacccaca gggcugucug  3000
ucacaaaccc accucuguug ggagcuauug agccaccugg gaugagauga  3050
cacaaggcac uccuaccacu gagcgccuuu gccaggucca gccuggguc   3100
agguuccaag acucagcugc cuaaucccag gguugagccu ugugcucgug  3150
gcggacccca aaccacugcc cuccuggggua ccagcccuca guguggaggc  3200
ugagcuggug ccuggcccca gucuuaucug ugccuuuacu gcuuugcgca  3250
ucucagaugc uaacuugguu cuuuuuccag aagccuuugu auugguuaaa  3300
aauuauuuuc cauugcagaa gcagcuggac uaugcaaaaa guauuucucu  3350
gucaguuccc cacucuauac caaggauauu auuaaaacua gaaaugacug  3400
cauugagagg gaguuguggg aaauaagaag aaugaaagcc ucucuuucug  3450
uccgcagauc cugacuuuuc caaagugccu uaaaagaaau cagacaaaug  3500
cccugagugg uaacuucugu guuauuuuac ucuuaaaacc aaacucuacc  3550
uuuucuuguu guuuuuuuuu uuuuuuuuuu uuuuuuuuug guuaccuucu  3600
cauucauguc aaguaugugg uucauucuua gaaccaaggg aaauacugcu  3650
ccccccauuu gcugacguag ugcucucaug ggcucaccug ggcccaaggc  3700
acagccaggg cacaguuagg ccuggauguu ugccuggucc gugagaugcc  3750
gcggguccug uuuccuuacu ggggauuuca gggcuggggg uucagggagc  3800
auuuccuuuu ccugggaguu augaccgcga aguugucaug ugccgugccc  3850
uuuucuguuu cuguguaucc uauugcuggu gacucugugu gaacuggccu  3900
uugggaaaga ucagagaggg cagagguggc acaggacagu aaaggagaug  3950
cugugcuggc cuucagccug gacagggucu cugcugacug ccaggggcgg  4000
gggcucugca uagccaggau gacggcuuuc augucccaga gaccuguugu  4050
gcuguguauu uugauuuccu guguaugcaa auguguguau uuaccauugu  4100
guagggggcu gugucugauc uugguguuca aaacagaacu guauuuuugc  4150
cuuuaaaauu aaauaauaua acgugaauaa augacccuau cuuuguaaca  4200
aaaaaaaaaa aaaa   4214
```

<210> 4
<211> 4214
<212> DNA
<213> Homo sapien

<220>
<223> variant B4GALT1 mRNA sequence

<400> 4
gcgccucggg cggcuucucg ccgcucccag gucuggcugg cuggaggagu 50
cucagcucuc agccgcucgc ccgcccccgc uccgggcccu ccccuagucg 100
ccgcuguggg gcagcgccug gcgggcggcc cgcgggcggg ucgccucccc 150
uccuguagcc cacacccuuc uuaaagcggc ggcgggaaga ugaggcuucg 200
ggagccgcuc cugagcggca gcgccgcgau gccaggcgcg ucccuacagc 250
gggccugccg ccugcucgug gccgucugcg cucugcaccu uggcgucacc 300
cucguuuacu accuggcugg ccgcgaccug agccgccugc cccaacuggu 350
cggagucucc acaccgcugc agggcggcuc gaacagugcc gccgccaucg 400
ggcaguccuc cggggagcuc cggaccggag gggcccggcc gccgccuccu 450
cuaggcgccu ccucccagcc gcgcccgggu ggcgacucca gcccagucgu 500
ggauucuggc ccuggccccg cuagcaacuu gaccucgguc ccagugcccc 550
acaccaccgc acugucgcug cccgccugcc cugaggaguc cccgcugcuu 600
gugggcccca ugcugauuga guuuaacaug ccuguggacc uggagcucgu 650
ggcaaagcag aacccaaaug ugaagauggg cggccgcuau gcccccaggg 700
acugcgucuc uccucacaag guggccauca ucauuccauu ccgcaaccgg 750
caggagcacc ucaaguacug gcuauauuau uugcacccag uccugcagcg 800
ccagcagcug gacuauggca ucuauguuau caaccaggcg ggagacacua 850
uauucaaucg ugcuaagcuc cucaauguug gcuuucaaga agccuugaag 900
gacuaugacu acaccugcuu uguguuuagu gacguggacc ucauuccaau 950
gaaugaccau aaugcguaca gguguuuuuc acagccacgg cacauuuccg 1000
uugcaaugga uaaguuugga uucagccuac cuuauguuca guauuuugga 1050
ggugucucug cucuaaguaa acaacaguuu cuaaccauca auggauuucc 1100
uaauaauuau uggggcuggg gaggagaaga ugaugacauu uuuaacagau 1150
uaguuuuuag aggcaugucu auaucucgcc caaaugcugu ggucgggagg 1200
ugucgcauga uccgccacuc aagagacaag aaaaaugaac ccaguccuca 1250
gagguuugac cgaauugcac acacaaagga gacaaugcuc ucugaugguu 1300
ugaacucacu caccuaccag gugcuggaug uacagagaua cccauuguau 1350
acccaaauca caguggacau cgggacaccg agcuagcguu uugguacacg 1400
gauaagagac cugaaauuag ccagggaccu cugcugugug ucucugccaa 1450
ucugcugggc uggucccucu cauuuuuacc agucugagug acaggucccc 1500
uucgcucauc auucagaugg cuuuccagau gaccaggacg agugggauau 1550
uuugccccca acuuggcucg gcaugugaau ucuuagcucu gcaagguguu 1600
uaugccuuug cggguuucuu gauguguucg cagugucacc ccagagucag 1650
aacuguacac aucccaaaau uugguggccg uggaacacau ucccggugau 1700
agaauugcua aauugucgug aaauagguua gaauuuuucu uuaaauuaug 1750
guuuucuuau ucgugaaaau ucggagagug cugcuaaaau uggauuggug 1800
ugaucuuuuu gguaguugua auuuaacaga aaaacacaaa auuucaacca 1850
uucuuaaugu uacguccucc ccccaccccc uucuuucagu gguaugcaac 1900
cacugcaauc acugugcaua ugucuuuucu uagcaaaagg auuuuaaaac 1950
uugagcccug gaccuuuugu ccuaugugug uggauuccag ggcaacucua 2000

gcaucagagc aaaagccuug gguuucucgc auucaguggc cuaucuccag 2050
auugucugau uucugaaugu aaaguuguug uguuuuuuuu uaaauaguag 2100
uuuguaguau uuuaaagaaa gaacagaucg aguucuaauu augaucuagc 2150
uugauuuugu guugauccaa auuugcauag cuguuuaaug uuaagucaug 2200
acaauuuauu uuucuuggca ugcuauguaa acuugaauuu ccuauguauu 2250
uuuauugugg uguuuuaaau auggggaggg guauugagca uuuuuuaggg 2300
agaaaaauaa auauaugcug uaguggccac aaauaggccu augauuuagc 2350
uggcaggcca gguuuucuca agagcaaaau cacccucugg ccccuuggca 2400
gguaaggccu cccggucagc auuauccugc cagaccucgg ggaggauacc 2450
ugggagacag aagccucugc accuacugug cagaacucuc cacuucccca 2500
acccucccca ggugggcagg gcggagggag ccucagccuc cuuagacuga 2550
ccccucaggc cccuaggcug ggggguugua aauaacagca gucagguugu 2600
uuaccagccc uuugcaccuc cccaggcaga gggagccucu guucuggugg 2650
gggccaccuc ccucagaggc ucugcuagcc acacuccgug gcccacccuu 2700
uguuaccagu ucuuccuccu uccucuuuuc cccugccuuu cucauuccuu 2750
ccuucgucuc ccuuuuuguu ccuuugccuc uugccugucc ccuaaaacuu 2800
gacuguggca cucaggguca aacagacuau ccauucccca gcaugaaugu 2850
gccuuuuaau uagugaucua gaaagaaguu cagccgaacc cacaccccaa 2900
cucccuccca agaacuucgg ugccuaaagc cuccuguucc accucagguu 2950
uucacaggug cucccacccc aguugaggcu cccacccaca gggcugucug 3000
ucacaaaccc accucuguug ggagcuauug agccaccugg gaugagauga 3050
cacaaggcac uccuaccacu gagcgccuuu gccaggucca gccuggggcuc 3100
agguuccaag acucagcugc cuaaucccag gguugagccu ugugcucgug 3150
gcggacccca aaccacugcc cuccuggggua ccagcccuca guguggaggc 3200
ugagcuggug ccuggcccca gucuuaucug ugccuuuacu gcuuugcgca 3250
ucucagaugc uaacuugguu cuuuuuccag aagccuuugu auugguuaaa 3300
aauuauuuuc cauugcagaa gcagcuggac uaugcaaaaa guauuucucu 3350
gucaguuccc cacucuauac caaggauauu auuaaaacua gaaaugacug 3400
cauugagagg gaguuguggg aaauaagaag aaugaaagcc ucucuuucug 3450
uccgcagauc cugacuuuuc caaagugccu uaaaagaaau cagacaaaug 3500
cccugagugg uaacuucugu guuauuuuac ucuuaaaacc aaacucuacc 3550
uuuucuuguu guuuuuuuuu uuuuuuuuuu uuuuuuuuug guuaccuucu 3600
cauucauguc aaguaugugg uucauucuua gaaccaaggg aaauacugcu 3650
ccccccauuu gcugacguag ugcucucaug ggcucaccug ggcccaaggc 3700
acagccaggg cacaguuagg ccuggauguu ugccuggucc gugagaugcc 3750
gcggguccug uuuccuuacu ggggauuuca gggcuggggg uucagggagc 3800
auuuccuuuu ccugggaguu augaccgcga aguugucaug ugccgugccc 3850
uuuucuguuu cuguguaucc uauugcuggu gacucugugu gaacuggccu 3900
uugggaaaga ucagagaggg cagagguggc acaggacagu aaaggagaug 3950
cugugcuggc cuucagccug gacagggucu cugcugacug ccaggggcgg 4000
gggcucugca uagccaggau gacggcuuuc augucccaga gaccuguugu 4050
gcuguguauu uugauuuccu guguaugcaa auguguguau uuaccauugu 4100
guagggggcu gugucugauc uugguguuca aaacagaacu guauuuuugc 4150
cuuuaaaauu aaauaauaua acgugaauaa augacccuau cuuuguaaca 4200
aaaaaaaaaa aaaa 4214

<210> 5
<211> 1197
<212> DNA

<213> Homo sapien

<220>
<223> wild-type B4GALT1 cDNA sequence

<400> 5
atgaggcttc gggagccgct cctgagcggc agcgccgcga tgccaggcgc 50
gtccctacag cgggcctgcc gcctgctcgt ggccgtctgc gctctgcacc 100
ttggcgtcac cctcgtttac tacctggctg gccgcgacct gagccgcctg 150
ccccaactgg tcggagtctc cacaccgctg cagggcggct cgaacagtgc 200
cgccgccatc gggcagtcct ccggggagct ccggaccgga ggggcccggc 250
cgccgcctcc tctaggcgcc tcctcccagc cgcgcccggg tggcgactcc 300
agcccagtcg tggattctgg ccctggcccc gctagcaact tgacctcggt 350
cccagtgccc cacaccaccg cactgtcgct gcccgcctgc cctgaggagt 400
ccccgctgct tgtgggcccc atgctgattg agtttaacat gcctgtggac 450
ctggagctcg tggcaaagca gaacccaaat gtgaagatgg gcggccgcta 500
tgcccccagg gactgcgtct ctcctcacaa ggtggccatc atcattccat 550
tccgcaaccg gcaggagcac ctcaagtact ggctatatta tttgcaccca 600
gtcctgcagc gccagcagct ggactatggc atctatgtta tcaaccaggc 650
gggagacact atattcaatc gtgctaagct cctcaatgtt ggctttcaag 700
aagccttgaa ggactatgac tacacctgct ttgtgtttag tgacgtggac 750
ctcattccaa tgaatgacca taatgcgtac aggtgttttt cacagccacg 800
gcacatttcc gttgcaatgg ataagtttgg attcagccta ccttatgttc 850
agtattttgg aggtgtctct gctctaagta aacaacagtt tctaaccatc 900
aatggatttc ctaataatta ttggggctgg ggaggagaag atgatgacat 950
ttttaacaga ttagttttta gaggcatgtc tatatctcgc ccaaatgctg 1000
tggtcgggag gtgtcgcatg atccgccact caagagacaa gaaaaatgaa 1050
cccaatcctc agaggtttga ccgaattgca cacacaaagg agacaatgct 1100
ctctgatggt ttgaactcac tcacctacca ggtgctggat gtacagagat 1150
acccattgta tacccaaatc acagtggaca tcgggacacc gagctag 1197

<210> 6
<211> 1197
<212> DNA
<213> Homo sapien

<220>
<223> variant B4GALT1 cDNA sequence

<400> 6
atgaggcttc gggagccgct cctgagcggc agcgccgcga tgccaggcgc 50
gtccctacag cgggcctgcc gcctgctcgt ggccgtctgc gctctgcacc 100
ttggcgtcac cctcgtttac tacctggctg gccgcgacct gagccgcctg 150
ccccaactgg tcggagtctc cacaccgctg cagggcggct cgaacagtgc 200
cgccgccatc gggcagtcct ccggggagct ccggaccgga ggggcccggc 250
cgccgcctcc tctaggcgcc tcctcccagc cgcgcccggg tggcgactcc 300
agcccagtcg tggattctgg ccctggcccc gctagcaact tgacctcggt 350
cccagtgccc cacaccaccg cactgtcgct gcccgcctgc cctgaggagt 400
ccccgctgct tgtgggcccc atgctgattg agtttaacat gcctgtggac 450

ctggagctcg tggcaaagca gaacccaaat gtgaagatgg gcggccgcta 500
tgcccccagg gactgcgtct ctcctcacaa ggtggccatc atcattccat 550
tccgcaaccg gcaggagcac ctcaagtact ggctatatta tttgcaccca 600
gtcctgcagc gccagcagct ggactatggc atctatgtta tcaaccaggc 650
gggagacact atattcaatc gtgctaagct cctcaatgtt ggctttcaag 700
aagccttgaa ggactatgac tacacctgct ttgtgtttag tgacgtggac 750
ctcattccaa tgaatgacca taatgcgtac aggtgttttt cacagccacg 800
gcacatttcc gttgcaatgg ataagtttgg attcagccta ccttatgttc 850
agtattttgg aggtgtctct gctctaagta aacaacagtt tctaaccatc 900
aatggatttc ctaataatta ttggggctgg ggaggagaag atgatgacat 950
ttttaacaga ttagttttta gaggcatgtc tatatctcgc ccaaatgctg 1000
tggtcgggag gtgtcgcatg atccgccact caagagacaa gaaaaatgaa 1050
cccagtcctc agaggtttga ccgaattgca cacacaaagg agacaatgct 1100
ctctgatggt ttgaactcac tcacctacca ggtgctggat gtacagagat 1150
acccattgta tacccaaatc acagtggaca tcgggacacc gagctag 1197

<210> 7
<211> 398
<212> PRT
<213> Homo sapien

<220>
<223> wild-type B4GALT1 sequence

<400> 7
Met Arg Leu Arg Glu Pro Leu Leu Ser Gly Ser Ala Ala Met Pro Gly
1   5   10   15

Ala Ser Leu Gln Arg Ala Cys Arg Leu Leu Val Ala Val Cys Ala Leu
            20   25   30

His Leu Gly Val Thr Leu Val Tyr Tyr Leu Ala Gly Arg Asp Leu Ser
        35   40   45

Arg Leu Pro Gln Leu Val Gly Val Ser Thr Pro Leu Gln Gly Gly Ser
    50   55   60

Asn Ser Ala Ala Ala Ile Gly Gln Ser Ser Gly Glu Leu Arg Thr Gly
65   70   75   80

Gly Ala Arg Pro Pro Pro Pro Leu Gly Ala Ser Ser Gln Pro Arg Pro
                85   90   95

Gly Gly Asp Ser Ser Pro Val Val Asp Ser Gly Pro Gly Pro Ala Ser
            100   105   110

Asn Leu Thr Ser Val Pro Val Pro His Thr Thr Ala Leu Ser Leu Pro
        115   120   125

```
Ala Cys Pro Glu Glu Ser Pro Leu Leu Val Gly Pro Met Leu Ile Glu
    130                 135                 140

Phe Asn Met Pro Val Asp Leu Glu Leu Val Ala Lys Gln Asn Pro Asn
145                 150                 155                 160

Val Lys Met Gly Gly Arg Tyr Ala Pro Arg Asp Cys Val Ser Pro His
                165                 170                 175

Lys Val Ala Ile Ile Ile Pro Phe Arg Asn Arg Gln Glu His Leu Lys
            180                 185                 190

Tyr Trp Leu Tyr Tyr Leu His Pro Val Leu Gln Arg Gln Gln Leu Asp
        195                 200                 205

Tyr Gly Ile Tyr Val Ile Asn Gln Ala Gly Asp Thr Ile Phe Asn Arg
    210                 215                 220

Ala Lys Leu Leu Asn Val Gly Phe Gln Glu Ala Leu Lys Asp Tyr Asp
225                 230                 235                 240

Tyr Thr Cys Phe Val Phe Ser Asp Val Asp Leu Ile Pro Met Asn Asp
                245                 250                 255

His Asn Ala Tyr Arg Cys Phe Ser Gln Pro Arg His Ile Ser Val Ala
            260                 265                 270

Met Asp Lys Phe Gly Phe Ser Leu Pro Tyr Val Gln Tyr Phe Gly Gly
        275                 280                 285

Val Ser Ala Leu Ser Lys Gln Gln Phe Leu Thr Ile Asn Gly Phe Pro
    290                 295                 300

Asn Asn Tyr Trp Gly Trp Gly Gly Glu Asp Asp Asp Ile Phe Asn Arg
305                 310                 315                 320

Leu Val Phe Arg Gly Met Ser Ile Ser Arg Pro Asn Ala Val Val Gly
                325                 330                 335

Arg Cys Arg Met Ile Arg His Ser Arg Asp Lys Lys Asn Glu Pro Asn
            340                 345                 350

Pro Gln Arg Phe Asp Arg Ile Ala His Thr Lys Glu Thr Met Leu Ser
        355                 360                 365

Asp Gly Leu Asn Ser Leu Thr Tyr Gln Val Leu Asp Val Gln Arg Tyr
    370                 375                 380

Pro Leu Tyr Thr Gln Ile Thr Val Asp Ile Gly Thr Pro Ser
385                 390                 395
```

<210> 8
<211> 398
<212> PRT
<213> Homo sapien

<220>
<223> variant B4GALT1 sequence

<400> 8

```
Met Arg Leu Arg Glu Pro Leu Leu Ser Gly Ser Ala Ala Met Pro Gly
1               5                  10                  15

Ala Ser Leu Gln Arg Ala Cys Arg Leu Leu Val Ala Val Cys Ala Leu
            20                  25                  30

His Leu Gly Val Thr Leu Val Tyr Tyr Leu Ala Gly Arg Asp Leu Ser
        35                  40                  45

Arg Leu Pro Gln Leu Val Gly Val Ser Thr Pro Leu Gln Gly Gly Ser
    50                  55                  60

Asn Ser Ala Ala Ala Ile Gly Gln Ser Ser Gly Glu Leu Arg Thr Gly
65                  70                  75                  80

Gly Ala Arg Pro Pro Pro Pro Leu Gly Ala Ser Ser Gln Pro Arg Pro
                85                  90                  95

Gly Gly Asp Ser Ser Pro Val Val Asp Ser Gly Pro Gly Pro Ala Ser
            100                 105                 110

Asn Leu Thr Ser Val Pro Val Pro His Thr Thr Ala Leu Ser Leu Pro
        115                 120                 125

Ala Cys Pro Glu Glu Ser Pro Leu Leu Val Gly Pro Met Leu Ile Glu
    130                 135                 140

Phe Asn Met Pro Val Asp Leu Glu Leu Val Ala Lys Gln Asn Pro Asn
145                 150                 155                 160

Val Lys Met Gly Gly Arg Tyr Ala Pro Arg Asp Cys Val Ser Pro His
                165                 170                 175

Lys Val Ala Ile Ile Ile Pro Phe Arg Asn Arg Gln Glu His Leu Lys
            180                 185                 190

Tyr Trp Leu Tyr Tyr Leu His Pro Val Leu Gln Arg Gln Gln Leu Asp
        195                 200                 205
```

```
Tyr Gly Ile Tyr Val Ile Asn Gln Ala Gly Asp Thr Ile Phe Asn Arg
    210                 215                 220

Ala Lys Leu Leu Asn Val Gly Phe Gln Glu Ala Leu Lys Asp Tyr Asp
225                 230                 235                 240

Tyr Thr Cys Phe Val Phe Ser Asp Val Asp Leu Ile Pro Met Asn Asp
                245                 250                 255

His Asn Ala Tyr Arg Cys Phe Ser Gln Pro Arg His Ile Ser Val Ala
            260                 265                 270

Met Asp Lys Phe Gly Phe Ser Leu Pro Tyr Val Gln Tyr Phe Gly Gly
        275                 280                 285

Val Ser Ala Leu Ser Lys Gln Gln Phe Leu Thr Ile Asn Gly Phe Pro
    290                 295                 300

Asn Asn Tyr Trp Gly Trp Gly Gly Glu Asp Asp Asp Ile Phe Asn Arg
305                 310                 315                 320

Leu Val Phe Arg Gly Met Ser Ile Ser Arg Pro Asn Ala Val Val Gly
                325                 330                 335

Arg Cys Arg Met Ile Arg His Ser Arg Asp Lys Lys Asn Glu Pro Ser
            340                 345                 350

Pro Gln Arg Phe Asp Arg Ile Ala His Thr Lys Glu Thr Met Leu Ser
        355                 360                 365

Asp Gly Leu Asn Ser Leu Thr Tyr Gln Val Leu Asp Val Gln Arg Tyr
    370                 375                 380

Pro Leu Tyr Thr Gln Ile Thr Val Asp Ile Gly Thr Pro Ser
385                 390                 395
```

<210> 9
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> guide RNA recognition sequences

<400> 9
attagttttt agaggcatgt   20

<210> 10

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> guide RNA recognition sequences

<400> 10
ggctctcagg ccaagtgtat 20

<210> 11
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> guide RNA recognition sequences

<400> 11
tactccttcc ccctttagga 20

<210> 12
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> guide RNA recognition sequences

<400> 12
gtccgaggct ctgggcctag 20

<210> 13
<211> 6
<212> DNA
<213> Artificial Sequence

<220>
<223> PAM for Cas9 from S. aureus

<220>
<221> n is A, G, C, or T
<222> (1) .. (2)

<220>
<221> r is A or G
<222> (4) .. (5)

<400> 13
nngrrt 6

<210> 14
<211> 5
<212> DNA
<213> Artificial Sequence

<220>
<223> PAM for Cas9 from S. aureus

<220>
<221> n is A, G, C, or T
<222> (1) .. (2)

<220>
<221> r is A or G
<222> (4) .. (5)

<400> 14
nngrr 5

<210> 15
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> target motif preceding NGG recognized by Cas9 protein

<220>
<221> n is A, G, C, or T
<222> (2) .. (21)

<400> 15
gnnnnnnnnn nnnnnnnnnn ngg 23

<210> 16
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> target motif preceding NGG recognized by Cas9 protein

<220>

<221> n is A, G, C, or T
<222> (1) .. (21)

<400> 16
nnnnnnnnnn nnnnnnnnnn ngg 23

<210> 17
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> RNA recognition sequence

<220>
<221> n is A, G, C, or T
<222> (3) .. (23)

<400> 17
ggnnnnnnnn nnnnnnnnnn nnngg 25