

21191\_PCT SeqList\_ST25.txt  
SEQUENCE LISTING

<110> Helmholtz Zentrum fuer Infektionsforschung GmbH

<120> Cystobactamides

<130> 21191-PCT

<150> EP 13003539.7

<151> 2013-07-12

<160> 73

<170> PatentIn version 3.5

<210> 1

<211> 58456

<212> DNA

<213> Cystobacter velatus

<220>

<221> misc\_feature

<222> (1)..(58456)

<223> Cystobactamide biosynthetic gene cluster

<400> 1

gtagacgccg cggctcagag ggcggtgccg cagtgcctgc agtggtgcgc gtccaggtcg	60
tggccctgca ggccgcagcc gggacaggcg cgcgggtcga tggcgtgctg ccgggtcgcc	120
tgggcgagct ccacggacac gatgcccgtg ggcaccgcga ggatgccgta gcccatgatc	180
atcaacaccg aggcgatgaa ctgtccgggc accgtcttgg gcgagaggtc tccgtagccc	240
accgtggtca tcgtcacgat ggcccaatac atcccccgcg ggatgctgtc gaagccgttg	300
gcgcgccccct ccacatgta catcaccgcg ccatgatga cgaccgtgct cagcaccgcc	360
ccgaggaaga cgatgatctt ccgccgactg gcccggagcg cggtagagcag cacgtccgcc	420
tccccgagga agctggcgag cttgagtacg cggaagacgc gcagcaggcg gaacaccgcg	480
accaccagca gggactgcat gccgggcagc atcaagctca gcaccgaggg caggatggcc	540
agcagatcca ccagcccga gaagctcagc gcatagcgca gcggccgttt caccgacagc	600
agccgcagca cgtactccag tgtgaagagc ccggtgaaac accactcgag gacgcggatg	660
gtctgcccac gctggacgct gatggactcc acgctctcga gcatcaccgc gaggacgctg	720
agcacgatgg cccacagcaa tgccacatcg aaggcgcggc ccgccggggt gtccgactcg	780
aagatgattt cgtgcagccg cgcccggagt cccgacggag cgctctgctc ggatggatgt	840
ggcacgaggg cagtctagcc ctccacggcg cggcgggggc ggaatgcggt ccgcccaccg	900
tgacgcgccg gctactggga gcccgccttg gagctgccgg gggcatgcag ttgccgccgg	960
tcttccttgc cgcccttggt ggggcctccg tgggtgccga actcgcccgc gttgcgctgc	1020
ttggggtatt cctcgtcggg ccgccgctcg cggccccggc ccgagacgtc acccgagtcg	1080
accttcgggt gcagcctctc cttgtccgcg tcggaatgca gcttctccct gtcctggtcc	1140
tgtgccatcg ggcacctccg tttcctggag gaaacatggg gacggaagac gggagcggct	1200
caggagtgcc gccgcttcgc ggggagggcg ggccgccggg cgtctggagg gaaagccgct	1260

## 21191\_PCT SeqList\_ST25.txt

gtcgccagtt	gggcgttccc	tcccgccgca	cggaccagcc	gcgggaccgg	gctcgcggcc	1320
ggcccccgcc	aggcgcactc	agcgcttctt	cgcggaactg	cgcgcgggcg	cggtcttcac	1380
ggcgcgcgcc	acggtcttct	tcgccgac	cgcgggccga	gtcaccacct	tgcgcccgat	1440
gctaccacag	agccccgtgg	cgctcagctt	cttgcgcgcg	ggggccttcg	gctcgggtctc	1500
ctccccgcgt	tgacgggtag	gggccttggc	ggtggcctct	tgcgtcgcca	ccttcggggt	1560
gggcttcgcc	ttgggggagg	ccttcttcgc	ccgggtagcg	ggggcttggg	gctccgtgag	1620
cttcttctcc	gcgcggggcg	ggtagcgctt	cacgggtctg	gcgtgggcct	gtccatagcc	1680
ggtgggagtg	tcaggcaggg	ccgccttctc	cttctccttg	gtgagggcga	tcttggttct	1740
ttcattgccg	agccggggac	ccgagccctt	gtaggtctgc	gcgggttgct	gcgacaagaa	1800
gggttcgaaa	ctgtagggtc	ttcccatggc	tgtctcctgc	ctgcgtgact	gggatgtctt	1860
gaagaaataa	gtaaggagtg	gtccctgatt	ttggaatggg	cccctctcaa	ggcgcttcgc	1920
ggtccccgta	ccaggactct	tcctcttccc	cgtccaggta	gcgcaccacg	aggcccgagg	1980
gcttggtgctg	gcgagccagc	ctgcgcccgc	cgtggatggc	ctgggtcacg	ttggaatacc	2040
ggccgagctg	acggttgccc	tcgaatcgga	cgtaccaacc	ccggccatcc	gtcgccacga	2100
tcacccgccg	tgcgtgtgtg	gcggagccca	cttcgtgctg	cttgctctcc	ttgcgtcttg	2160
ccgggctcat	gaaagcaaac	tgtcaaccgc	gagcggaggt	cgcattgtcc	cagggatcag	2220
ggtgcgcgga	ttcaggtcgc	ccaggagcat	gagacggccc	cggggacttc	aacggccccc	2280
ggagccctcc	tgctgcccgg	cgacagggtc	ctgccagcga	gccatcgtgc	gccagggagc	2340
gcggcgctag	cggctggtgt	cgtcttcgga	gcccgtgccg	ctcatgttgc	cgctggagtc	2400
cgtgctgccg	gagccgtcca	cgtcactgcc	ggtgccggag	ccgccagggt	cgctgtccac	2460
gcccgagggc	tcggggctga	aaccgcccgg	ttcactggac	acgcccagac	cgccggagcc	2520
gcccacgtcg	ctaccggagc	ccgtgctgcc	actgctcgaa	ccgtcgatgt	cgccagcacc	2580
tggtccgccc	gtgcctccgc	ccgtggtgtc	accaccttcc	gtggtgcctc	cggtcgttcc	2640
ggttccgggtc	gtctcacttc	cggctcatgg	gccgccctga	gacgtatcgc	tccgcccgt	2700
tccttgattc	ccagcaccgc	ccgtcgtctg	acatcccacg	ccgaagagca	gagccgcgga	2760
caacgcaccc	accaccaccg	ccttgatgtg	tttcatgcgc	tttcctctcc	tccagttgga	2820
cacctgtgga	ggctaggaat	ggctccacac	gggtgcattg	gacgtgaaga	cagctcccc	2880
gctcgggtgc	ccactgatgg	tggctcggat	tcttccttgc	cctccgagcg	atgaggcacc	2940
ccgtcgtggt	gcgatggggt	cgacccgcgt	ggggctctca	gggcgaggcc	tggcgagagg	3000
agccgggtgg	cttcgcgcgc	cagacccggg	ccggctactt	ccaggtgtcg	ttgagggctg	3060
cggccccgga	ggcggggatc	gtggtcgagc	ggttggcgcc	gctctcccag	gtgacgttcc	3120
cggagccgtc	cttcttgatg	tacttgattt	cgagggccgt	cgagccgggc	aggctgagcg	3180
tcacgctcca	cttcgggtag	ctggccggag	acaggaggat	ggcggcgccg	gtgttccagt	3240
tgccgagcgc	ggcatgggta	cccacgaggt	agacgttctg	tcccacgacg	gtgctggccg	3300

## 21191\_PCT SeqList\_ST25.txt

tcacgttgaa ggtgacggag gtggccgagg aggtgctcgt ggtgacgctc agggcggtgc	3360
tctgggcgga ggcattgccc gcggtgtcgc gcgcgcgcac ggtgtagcgg taggtcgtgc	3420
cggcactcag gtcgctgtcg gtgtagctgg tggagacggg tgagcccacc agcgagccat	3480
cgcggtacac gtcatatccg gcgatgccgc tggcatccgt ggaggcgctc caggagagcg	3540
acacggagga ggacgtcttg gacgccgccg tgaggccga ggggacggag ggtgcggtgg	3600
tgctgagcgc gggcgctccg ctggagacga cgccgtcctt caccgtggag gtgcccgcgg	3660
gcaggaggta gttgttgccc ttgttgttgt cccaggtgcc cttgccatcg ttgaagacac	3720
actcgagctg ggtggccgct cccagattga cgggtgtattt ggcgtagccc ggcacctcgg	3780
aggtggccat gacgttgccg ggcacggctg tccacgtgcc accgccgatg cggaagtgga	3840
tgtatttgag ggcgaagtgt ttgttgaaat agtagacggt ggcgctgttg cccgtctggg	3900
tggtgacgga cagggccgtg ctgggcgagg agacattgcc cgccgcgtcc cgggcgcgca	3960
cggtgtagct gtaggtggtg ctcggcgaga ggccggtatc cgagtaggtc gtccccgtga	4020
cggacgcgac ctgggtgccg ttctggagca cctcgtagtt cgcgacgccg tagttgtcgg	4080
tggaggccgt ccaggcgagg gccaccgagg agctcgtcgt gcccgcgccc gtcaggcccc	4140
agggaacgga ggggtgggtg gtgtccggcg tcagggtggc gacgctcagg gcggtgctct	4200
gggcggacgc gttgcccgcc gcgtccccgg cgcgcacggt gtagctgtat tgagtgtcgc	4260
gggagaggcc gctgtcggta taggccgtgc tggtgctcga gcccacctgc gtgccatcgc	4320
ggaagacgtc atagccgctc accgccacgt tgtccgaggc cgcgctccag ctcagggtca	4380
ccgagcggtc cgtcttcgcc ttccggtca gtcccagggg gaccgagggc gcggtggtgt	4440
ccaccacgag gaagggatgc gttccctgta ccgtgccgtt ggggtcctcg atgtacttgc	4500
cgcccaccag gttgtaccgg cccgagccca cgtagacgga ctggatctct ccccggtga	4560
tgttgccccg gctgtcggty gcctcgatgt agtagtcgag gagctggctg cggtagtgtc	4620
ccaggtagac gtagtagagg tcgccgatct cctgcgcggg caccttggcc atgacgggca	4680
ggtaggcggg ctgccaggaa acaccattca tgacaggctt caggctcgcgc cgggtgagcg	4740
ggtagtccac ccaggcgccc acgcgggccc gatcgatgtt gggaacaccc gcggccttgc	4800
gcgccgccgg atcatagacc ttgtgggtgt tgctgagcgg gtcgatgctc ttgtgggtgt	4860
gcacccggac gcgggccttg atggaggaga tgccgctcgc gtcgtaggcg taggtgtaga	4920
gggcgaagtg gttgttgaag aagtggagcg tccagccctc ggacttgtcg gtgttggcgc	4980
tgccgggggt gtagggccag cgctgggccc accagacgga ggggcccgtc ttgtcctggg	5040
cgatgcgctg ctgcacgtag ggcttgaga agtagagga ttgattgaag gacagcgtgg	5100
gcttgacgtt gtcgtccttg ttctcgtcgt agtagccgaa gcccagatcc atggcgggca	5160
gcaggaagta ccaggcgagt tccgcggggg tggcgccgcc cgcccagtcg ttgttcacgt	5220
cgcccttgac gggaaaggac atcatccacg ggttgagctg gttgcccgty tgggtgatct	5280
gcttgtcgat cgcggtggtg ggcgaccagt gattggggtg cgcgtcgagc cagatctgct	5340

21191\_PCT SeqList\_ST25.txt

cggcgggtctt	cgcgtagttg	agggcggcct	ggagcagggc	gaagttgcgc	tcgaggtagt	5400
gccagccgtg	ctcgagggag	accgtcatgc	cctcctgcac	gccgctgagg	ttcgtcttgg	5460
gagagagatt	gaggccggtg	gcggcggtga	aggcggggaa	ctgacccttc	cagatgccga	5520
agggcagctt	ccagtgggtc	cactggggat	ccgaggagga	gtcgcgcgtg	tccaccacg	5580
agccgtcctg	gacgtgcacc	acgtcgggtg	aggcgggggg	gtggtggacg	aggtactcgg	5640
agatgcccac	gcactgcacg	ccattggcgc	aggtgacgga	gcggccggtg	taccagggtg	5700
agtcggagcc	ggcgcgctcg	ctcgagttgt	cgccatcatg	cgcgatgacg	aagaactgcc	5760
gctgggggaa	gaggccctcg	aagctcttga	ggttgacgac	gtcgacggtg	gcctcgcctt	5820
cccagccctc	gagccaggag	ccgttctggt	tgacggggat	gccgacgacg	cgcgactcgg	5880
cgcccgtggc	ggggtcacg	tagcgcaccc	agtggggagt	ggaggcgaag	gggtacttgt	5940
tcttgatgac	ctgctgctcg	tgggccatct	ggcgctcac	ccaggagccc	acggagctgg	6000
tgttctggag	atcggcgcgg	ttgggcgggg	agacgagcgt	gtcggagccc	ggatcgttga	6060
ggtaggggta	gtccttgagg	gtgcgggaga	agtggttgtc	gccgatgacg	gccactgca	6120
cgccgagctt	ggagaggggtg	gggatgaggc	gctcggagaa	gccgagctcg	gtggggaaga	6180
agcccttgga	ggactggaag	gagccgccga	ggaagtaggg	ctgggcgagc	gtggcgctct	6240
ggtagatgag	atccttgagg	aagtagtcgg	gaccgaccag	gggccccatg	gagtgggtggc	6300
cggtgaagtg	gatgagatcc	aggggtgcgg	tgcccgcggg	ggtgagcagg	gcgctgtagc	6360
ggtccttcca	ggaggcgccc	cagttcggat	tgtcgtagcc	ggggacgttc	ttcaggggtga	6420
cgagatcctg	gacattgttc	accacggcgc	cggacatggt	gacgtgcacc	tggccggtgg	6480
gggcattggt	tttcatgtcc	gaggcgacgc	ttggaggcca	gtacaggtag	gcaccgtct	6540
tcgcgttgtg	cgagtaatag	gtgacgaggt	catcgtgcgg	catgggcgcg	cccgatggca	6600
ggtagtatgt	gtaattggac	gggggattct	tcttcagggt	gatgacctgc	gcgtcataca	6660
tgtaccggat	ggggccgccg	gtgggcgtgg	acgcgtattg	gccaggtcg	tagtagggcc	6720
agaagttggg	catgtgggtg	tggtagacgt	gggccgcggc	gatctgcgcc	ctggcgggca	6780
gggcacacag	caacagcgcc	gacaggacgg	gccctatcaa	cggcttcact	cgatgcatgg	6840
gggttcctct	ggggtaagga	ggagcgcacc	ctagtggagc	cgtccggact	ttcctcgttt	6900
tctgatgaaa	aaggatttgc	cgcacgcggg	caatcgtttg	gcagcagact	ggaacgtcag	6960
cgaggagcaa	caacagccac	tggcggcacg	cgcggtctct	ctccagagag	aagagccgcg	7020
cgtggggggg	cgaaagcctg	gaggcctgtc	agcccgcgac	ggccacttgt	ggccgccgga	7080
ccggtgtgcg	cgaagggacg	gccgactccc	agaccggaag	tatgcttccc	atcttgtgga	7140
gcttcgcctc	gcagtaggag	aggttgtcct	cgtacggctt	gttcgcatg	aacggcattt	7200
gagtcccgcg	gtacttcacg	cgcaggctcg	tgctgggagc	gccctcgagc	ccgagtagct	7260
cagacgtgag	ctgcgcgtac	ttttcgggaa	cgcgcaggac	aatggcatcc	ttctccttcg	7320
agacgaccgt	cacgtgtttc	agcaaccctt	cgccattatt	gatgggcgtg	ttgctgtaca	7380

21191\_PCT SeqList\_ST25.txt

cgtgcggacg	gttgaggaga	tccatctcga	acaggaactc	cagcagctca	tcgttcatca	7440
tgcccagggg	ttgaatgaac	ccgaagagca	gttggtcgaa	ctctctgcgg	aactcgtgaa	7500
gtgtgacgtg	gaagatgccg	ccgttggcgc	tgaacttcga	ctggctggtc	ccgtcgatca	7560
cgctggtgat	gtactgcgtg	taggggtggt	cagggttccg	cttgacgtac	tccgagaacg	7620
aggagatcaa	gtccttgaag	gccagccgcc	cctgcttgtc	gaggtacctc	ccgacgaagc	7680
ggagtgcgcg	caggctgtac	aggctcgtga	gatgataccc	gaaccgcaca	ccctccttgt	7740
attcctcgcg	ggtaacgtcc	ttcgtcgcga	cgacgacctg	cgctcgcgtg	ttcgggtcct	7800
catcattcga	cacctccagc	ttgaactcct	cgcgctggct	gttcacgggc	acgttggtga	7860
tgagcaggag	gtgggtgatg	aggatcgcgt	cggcgtcgta	gctgcagagc	ttcccgatgc	7920
cctccctgaa	ggctccagc	gtctcgccgg	gaagcggcca	gatcatctcc	acgaacgagg	7980
agagcttgct	gcggtgcagt	tcttcctgga	ggctcaggta	ggcgctctcc	ttgatgttgc	8040
cgcgcttcac	gctcttcagc	gtgttcgcgt	ccatcgtctg	gagcgagacc	ggctgggtgg	8100
agatcaaacc	ctcctggctc	aggatccgcg	tgatctgcgt	gacctgggtca	ggcgagtctt	8160
tcgccgcgct	cagccaaatg	gtgagcggat	agccatactt	ccgcttgcac	tcggcgatgt	8220
gctgggcatg	ctcaatgtcg	cgggtcagca	tgccgaaatt	cgcgtcggtg	atgaagatgt	8280
agaacgcccc	gtgctggctg	agccagggtga	tctccgcctt	gacctgggtcc	atgtcggact	8340
tgaacacgcg	cgagttggtc	gccgcccccc	agaagcagta	ggtgcactgg	taggggcatc	8400
cccggttcgt	ctcaaggggc	gcccacacgt	acttctcgtc	gtcgaagtag	ccttccaggt	8460
aggagatggg	gacctgttcc	agatcctgga	tgcgcgcttg	gggctcggtc	gtgatcagct	8520
ctccgttccg	gtagaaggag	aggcccttga	ccttgccaag	gtcgggctgg	ggggagcaga	8580
gttcggccag	gtagttcgcg	aaggatatact	caccttcacc	gttgacagagc	accacctcgt	8640
cgttgccccg	atccagggtac	tgccccccgt	ggttcacac	ctgcggaccg	ccaaggatga	8700
tgtgcgcgtt	gggcttgccg	gcggtgaggg	tggggagcca	ccgcttcacg	aagcccatgt	8760
tccagacata	gcaagagatc	gcgtagacat	cggcatcgat	cttggttagc	ttgtcttcga	8820
atcggtcgtc	gttgatgcag	atcgagtggg	tttcgaagct	gcacgactcc	ctgatcaagg	8880
ggttctgctc	ggccacgcca	cgcatgtagc	cagaggccaa	gggataaacg	ccagagaaga	8940
ccgtcaactc	aatgaatgcg	acccgctggg	tggccatgac	acacgctccc	cgttacctac	9000
aaattggtat	attgccaaca	tgatggcggg	caggctagct	gaaaaattta	ctctccggca	9060
ctctcatgtt	cctgggtctc	cgggctcagt	gggcgagcag	cttgaatcgg	cggaacgcct	9120
cgcgcgctcg	cgctgctgac	aggacgtcgc	actgcatcag	cacgtagacc	aggtacccgg	9180
agaggggata	tcgcgcgcgg	aaatcctcca	gcggcggctc	cgagtacgtc	tcggagagga	9240
tccgctcgat	gtgctcggcc	gctagaccga	gctgctccag	cacgacgcgc	tcgtactccg	9300
ccatcatctt	cgggctgagg	tactcgcgga	tgaactctgg	cagcagctga	ccgatggcga	9360
gccgggcgct	ctcctccatc	tactccaca	ccagcttgag	cacgttcatg	aagaggaccg	9420

21191\_PCT SeqList\_ST25.txt

cgtaggcggcc	ctcgtcgcga	acatgggtcct	ccatcacctg	atggagcact	tcgttgaagg	9480
acttctcacc	cgtaggttc	agcagatcct	tggtagtgt	gttttccccg	atgcagacgg	9540
cgatgatttc	ccagagcccc	tgcagcgtct	cgggcagccg	gtgcttgccg	aaagccatgg	9600
ccctggacag	gtccgtttcc	gttcccaggg	gcagcggctt	gacgcccgtg	cgctgctcga	9660
tctgccgcat	gaagtcgcgt	gccacgtagg	cgtgataggc	ctcatcgatg	atgacggtga	9720
gcgcgtcgtg	gcggatgtcg	tccgggaacg	tgatgggcgt	gtgaccgttg	gcgatcttca	9780
tcgccacctc	gttgacggtc	tccgtctcga	agatggcgat	gtcccccattg	aacttgtagg	9840
cggagtggat	gaagaacagc	cgcagcgtct	cgggcggaag	gttcttcatg	agcgggtggg	9900
tgagcagggc	cgccttggcc	ggcgggtaca	ggtgcccagc	cacgtcccc	tccggcagta	9960
cgcgccgggg	cttgctgcgt	gtggcggaac	gcgaatccca	caccaactcc	ttggacttgt	10020
agtccctcgg	ggaaatcgcg	cccgaccttt	ctgctaccaa	ccctgtcttc	cctgtcgtcc	10080
cattcactct	ggcttctccg	acggcaccgt	attgctgcat	tgaaagggga	gcgagcgctt	10140
gcgggcgctg	gtcgcgcgcg	ctcagcgtct	gactccgtgc	accaggtatc	cctggggcac	10200
accgggggtg	ccgcgtggcg	ccacggggaa	gggcccagcg	ccgagctgct	tcccgatggc	10260
cgcggtgggtg	tagacgtggg	ggtcccagcc	aatcggcctt	agaatcacct	cgggctcgtc	10320
ggtgccgaac	tggcgggcga	ggtcgtgcat	caacttgacg	cgcgaggagt	ccaaaatcga	10380
acggccaacg	acgtcgatga	ggacgatgct	ctcgggaacg	ctcagggcgt	tgacacgggc	10440
catgagcagc	gtgacctgcg	cctcgggtgag	gtagacgagc	aatccctcga	tgagccacag	10500
ggtgggcacg	ccgggatcga	atccgctttt	cttcagcgcc	gccggccagt	catcgggcag	10560
atcgaccgac	acggcatgtc	gctcacattt	cggcgcgacg	ccggtcagct	tcgcctcctt	10620
gtcctggagc	acggcgtcgt	ggtcgcgctc	gaacagccgc	gtgtctcccc	gccaggccaa	10680
acggtagggc	cgggcatcca	ttcccgcggc	gaggatgacg	atctggcgga	tgccgcggcc	10740
caaccccagc	gtgatctgat	catcgagcca	gcgcgtgcga	acctcgatgg	cgggaggcat	10800
ggcgccctca	ccggcattgc	ggcgccgcag	ctcctcgacg	agcgtgtcac	cggcgagtcg	10860
acgggcaaag	ggatcccggg	acagtgggtt	ggaacgctcg	gtctcaagcg	cgcgcatctc	10920
cgccacccaa	agtgccgtct	ggccgatctc	ttgcatatgt	tttatgaccg	ccgcctcgtg	10980
agatgggtta	agggttcggc	aacacgtcaa	ctcgcaacga	cggagcgctc	agcgtccgtg	11040
gctggattcg	cgaagcgcga	acgccgcccc	ttgcggatcc	tcgcacacgg	cgatgcgatc	11100
gccattcggg	agttccatgg	ggccgatgac	gacgcctccg	gccttgcgga	cgacctccat	11160
cgcgggatcg	agcgcggcga	cgcggaaatg	gaacagccag	tgtgaatgga	cccccttgag	11220
ccccgccacg	tccacgaccg	agccggcgct	cggctcgtcc	gagcgccagg	tgaactcctg	11280
gtgaaccccc	agcgacccaa	ggtcgcggcg	atccgagagc	cgccatccga	acaggtcgca	11340
atacgaggcg	gccgtctgtt	gcacgttcgc	ggcatagagc	tgctgccaga	ccacctccgg	11400
ctggagcgct	ctcgtcgttg	ccggtgccgt	cgccacggcg	aaggctgccc	ctccaggatc	11460

21191\_PCT SeqList\_ST25.txt

gcggaggatc	gcgacgcgcc	cgccgtcgtt	cgtcgggtgg	gtcggggccga	gctgggtcgc	11520
cccgcgcccc	acgaacgagc	gcaccgcttc	atcgacgtcc	tcgacgccga	cgtaaccag	11580
ccaatgggcg	ggtgcgccgc	gggcaatcgc	ctgctcgggc	agcggcacga	tgtctgcgtt	11640
ggcggcgccc	tcaccgaaca	gagccgtgta	gaacgcccgt	gccgcgggga	cgttggtggt	11700
gcgcaactgg	agcttgaaga	accgtttcat	accacgtgac	ctcgttaccg	ccggggggcc	11760
ggctcagggg	gtctgatagc	cgtcgaccac	cattcccaac	gcctgggcca	gggcgacggc	11820
ggtctccacg	ccaacacgcg	tccctttgac	ctgggttcgcc	ttcgggtcga	agatgaaatt	11880
ggtcgatcga	gcaaaaattg	tcttggtgag	gacgcagccc	tgcatggtgc	atcctggcat	11940
atcggtgccg	gtgaagtccg	actcggcgag	gtccacgtca	atgaagttag	cttcgcgcgc	12000
ggagcagcca	acgaaccgcg	tcttgcgtag	attcaacttc	aagaaggagc	tgtagcgtag	12060
atcgactgtg	tcgaactgga	cgtccggcat	ggttccgagt	ccactccagt	ccacgcccac	12120
gaggcgggtg	tctttgaagg	tcacgcttcg	cagcgcgagc	ttctccggta	ccatccgcag	12180
gagatcgcat	ccctcgaata	cacaatcctc	caggcggctc	cggaccagc	ggctttcggg	12240
caacttgcac	cgccggaacg	tgcagcgctc	gaattccttg	ccggagagat	cagccgactc	12300
gatcgagaga	tcagaaaacg	tgacgtcggc	gaaaaagtcg	ccactttcca	gagagggagt	12360
ggagcggggc	ggcatatgtc	ctcatggctg	acacgcagag	cggcccctaa	taccagtgcg	12420
tgcgctaggg	atccagcaca	gtcagtccta	tgtcctccaa	ccgacatatc	gtctagatga	12480
gtcaaactta	agttgactcc	acaacacgta	tgtgccttga	atcgagcata	actgaactcg	12540
tggcgtgcgc	gggccgaatg	ccgagtgcgt	cggcctgtcc	ggaaacgcct	gcctcgtccg	12600
gagacggccg	caactgggcg	cgacgcgccc	tgggtggctcg	gtggacgcag	ggcaggaagc	12660
gtattttggc	gaaccgcaag	ttgccgggcc	gcgaggctcg	gcaggggaac	gacgatgagc	12720
atgaacgggg	acgaagccga	gtacgttggtc	ttgatcaacg	gcgaagagca	gtactcgctc	12780
tggcccgtgc	accgcgaaat	tccgggcggt	tggaaagaccg	ttgggcccac	gggaagcaag	12840
gaaacgtgtc	agtcctacat	ccaggagggtc	tggacggaca	tgaggccgaa	atcgctacgg	12900
gaagccctga	cgcgagcaaa	ctgctgatcc	cgctgcctcg	ggggctcctg	taccgccgtc	12960
gtctccagat	gaggattgca	gcgaggccac	aaccaatgag	tacgccagca	gcaggagcga	13020
agccgtccta	tctcgcgggt	attgaaacgg	tgatgggtcga	acctgagctt	gaggagggtc	13080
gctacctgac	cgtggagagc	ggcgacggac	ggcagagtac	cctctatgag	ttcgggtccga	13140
aggacgcgga	gaaggctcgtg	gtcttgccgc	cctacggagt	caccttcttg	ctgggtggcgc	13200
gactcgcgcc	gctcctctcc	cagcgattcc	atgtcttgat	ttgggagtca	aggggggtgtc	13260
cggactccgc	catcccgggtg	tatgacacgg	accttgggct	cgccgaccag	tcaaggcatt	13320
tctccgaggt	cctcaagcag	cagggcttcg	aggcgtttca	cttcgtcggc	tgggtgtcagg	13380
cggcgcagct	ggccgtgcat	gccaccgcca	gcggccaggt	caagccgcgg	acgatgtctt	13440
ggattgcccc	ggcggggctg	ggttactcgc	tgggtcaagtc	cgagttcgat	cgatgtgcac	13500

21191\_PCT SeqList\_ST25.txt

tgcccatcta	cctggagatc	gagaagcatg	gcctgttgca	cgccgagaag	ctcggcaggc	13560
ttctgaacaa	atacaatggc	gttcccgcga	cggcgcagaa	cgcggcggaa	aagctgacga	13620
tgcgccattt	ggccgacccg	cggatgacat	acgtcttctc	caggtacatg	aaggcgtatg	13680
aagacaacag	gctcctcgcc	aagcaatttg	tctcgaccgc	gctcgactcg	gtgccgacgc	13740
tggccattca	ctgccgggac	gacacgtaca	gccacttctc	ggagtccgtt	cagctctcga	13800
agctgcatcc	atccctcgag	cttcgcctac	tcggtaaggg	cggccatctg	cagatcttca	13860
acgaccccg	cacactggcg	gagtacgttc	tcggtttcat	cgacaccagg	gcgtcgcagg	13920
ctgccgctcc	tgcggtggcg	ggagcgtagg	gagacaacat	gatacttccc	aacaacatcg	13980
gcctcgacga	gcggacgcag	ctcgcacggc	agatctcctc	gtaccagaag	aagtccacg	14040
tgtggtggcg	cgagcggggg	cccaccgagt	tcctcgatcg	gcagatgcgc	cttcgcacgc	14100
cgaccggggc	ggtcagcggc	gtggactggg	ccgagtacaa	gacgatgcgt	cccgcagagt	14160
atcgctgggg	cctcttcatg	gtgccgatgg	accaggacga	gatcgccttc	ggcgaccacc	14220
gtggcaagaa	ggcgtgggag	gaggttccga	gcgaataccg	cacgctgctg	ctgcagcaca	14280
tctgcgtgca	ggccgacgtg	gagaacgccg	ccgtcgagca	gagccggctg	ctgacgcaga	14340
tggcgccgag	caaccgggac	ctggagaacg	tgttcagtt	cttcctcgag	gaggggcgcc	14400
acacctgggc	catggttcac	ctcctgctcg	cccacttcgg	tgaggacggg	gtcgtcgagg	14460
ccgaagcgct	cctggagcgg	ctgagcgggtg	acccgaggaa	ccccgcttg	ctggaggcgt	14520
tcaactatcc	gaccgaggac	tggctgtccc	acttcatgtg	gtgcttgctg	gccgaccggg	14580
ttggcaagta	ccagatacat	gcagtgaccg	aggcttcgtt	cgccccgttg	gcccgggcgg	14640
cgaagtcat	gatgttcgag	gaaccgctcc	acatcgccat	gggcgccgtg	ggtctggaac	14700
gagtgtggtg	caggaccgcc	gaggtcaccc	tgcgtgaggg	gacgttcgat	acgttcacg	14760
cgggggcgat	tccgttcccg	gttgtccaga	agtatctcaa	ttattgggcg	ccgaaggtct	14820
acgacctctt	cggaaacgac	ggctccgaac	gctcgaacga	actcttccgg	gctgggctcc	14880
ggaggcccg	gaatttcgtg	ggaagcgaat	cgagatcggt	tcgcatcgat	gagcgcatgg	14940
gcgacggact	gaccgtcggtg	gaagtggaa	gggagtgggc	gatcaacgcc	atcatgcgac	15000
gacagttcat	cgccgaagtg	caaacgctca	ttgatcgctg	gaacgccagc	ctgcgagcgc	15060
tgggcgtcga	cttcagttg	tacctccctc	acgagcgctt	cagcaggacc	tatggcccct	15120
gcgccggtct	gcccttcgac	gtggacggaa	aactgtcccc	ccgcggcacg	gaggcgaagc	15180
tcgccgagta	cttccccaca	cctcgcgaa	tcgcaacgt	ccgctcgctg	atgcagcggg	15240
agctggctcc	cgggcagtag	tcctcggtga	tcgccccgtc	cgcgacgcgg	ctgagcgcgc	15300
tgggtccagg	caggaacacg	cccaaggagc	acgaatgaaa	cgaagccgtc	ggatcgttga	15360
cgggagaaga	gcgagcagtt	cgtgggaacg	ggagaggggc	tcgccatgag	cggcaagctg	15420
cctcctcgta	tgtgtccgac	accccgga	gagcactcat	cacatgcgtt	gcctcatcat	15480
cgacaactac	gattcgttca	cctggaatct	ggcggactac	gttgcgcaga	cgttcgggag	15540



21191\_PCT SeqList\_ST25.txt

cgagccggtg gtcgtccgca acgaccagca tacctggcaa gaaatcaagg ccttgggctc	15600
cttcggatgc atcctggttt ctccgggtcc gggctcgggtg accaatccga aggatttcaa	15660
tgtctcgcga gacgcgctcg agcaggatga gttcccgggtg tttgggggtct gcctgggcca	15720
tcaagggctg gcgtacatct acggggggcga gatcactcac gctccggttc cgttccacgg	15780
caggacgtcg accatctacc atgacggcac gggcgtgttt cagggactcc cgccgagctt	15840
cgacgcggtg agatatcact cgctggtcgt gcggccggag tcgcttcccg cgaacctggt	15900
cgtcaccgct cggacggaat gcggcctgat catgggggtg cggcacgtga gtcgcccga	15960
gtggggcgctc cagttccatc ccgagtcgat tctgactgcg cacggcttgc agctcatctc	16020
caatttccgt gacgaggcgt accgatacgc ggggaaagag gttccgtcgc gccgtcccca	16080
ttcgactgcc ggcaacggtg tcggcgcagg tgctgccagg cgtgaccga gcgcccgcg	16140
cacaccggag cggagaaggg aacttcagac gttcaccagg cggctggcga cgtctctcga	16200
ggccgagacc gttttcctgg gcctgtatgc gggccgcgag cactgcttct ggctcgacag	16260
ccagtccgtg agagaagggg tatcccgtt ctcttcatg ggctgcgtgc cggagggctc	16320
gctgctgacg tacggcgtg cggaagcggc gtcagagggg ggcgccgagc ggtacctggc	16380
ggcgtggag cgggcgctcg aaagccgtat cgttggtcgc cccgtggatg ggctgccatt	16440
cgagtttcat ggcggctaca tcggcttcat gacctacga atgaaggagg cgtttggggc	16500
cgcgacgacg cacaagaaca ctattcccga cgccttgtgg atgcacgtga agcggttcct	16560
ggcgttcgac cactcgacgc gagaagtgtg gctggtcgcc atcgcgagc tcgaggagag	16620
cgcgagcgtc ctgcctgga tggacgagac cgccgacgt ctgaagtcgc ttccgcgcg	16680
cacccgttcg cccagtccc tggggttgaa atccatctcg gtatcaatgg attgtggacg	16740
ggatgactac ttcgccgcca tcgagcgtg caaggagaag atcgtcgatg gggagtccta	16800
cgaggctctg ttgacgaacg gtttctcgtt cgatctgaag ctggatcccg tcgagctgta	16860
cgtgacgatg cggagaggca atcccccccc gttcggcgct ttcataaga caggcaagac	16920
ctgcgtcctc agtacctccc cggagcgctt cctgaagggtg gatgaggatg ggacggtcca	16980
ggccaagccc atcaagggga cctgcgcgcg ctctgacgac cccgccaccg acagcacgaa	17040
tgccgcgcg ctggccgcct cggagaagga ccgggcggag aacctgatga tcgtggacct	17100
gatgcggaac gacctcggac ggggtgtccgt gccgggcagc gtccatgtct ccaatcta	17160
ggacatcgag agcttcaaga cgggtccatca gatggtcagc accgtcgaat cgaccttgac	17220
gccggagtgc agcctcgtt acctcctgcg cgcggtcttc ccggggggat ccatcaccgg	17280
ggctcccaag atccgcacga tggagatcat cgatcggctc gagaagagcc ctcggggcat	17340
ctactgcggc acgatcggct acctcgggta caaccggatc gccgacctga acatcgccat	17400
ccgcaccttg tcctacgacg gcaccctcgt gaagttcggt gccggcggag ccatcaccta	17460
cttgtcacag ccggaggggg agtttcagga gatcctgctc aaggcggaat ccatcctccg	17520
gccgatttgg cagtacatca atggcgcggg tgctcccttc gaacccagt tgcgcgaccg	17580

21191\_PCT SeqList\_ST25.txt

ggttctgtgc	ctggaggaga	agccgcgaag	ggcattcgt	ggccacgggt	cggcaattga	17640
tgcagtggag	cctagcgcgt	gaagcctacg	tcgagtcgag	acctgcccac	tcgcgcgtca	17700
agcccccagg	gaccatccga	accgcgtgcg	cgtccccggg	gccagtggat	gattgcgttc	17760
aaccgcgagg	cgcgggcccag	gctgcggctc	ttctgctttc	cgtacgcccg	tggcgacgcg	17820
aacatcttcc	gggactgggc	cgcggcgatg	cccgaggggg	tcgaggtcct	cggcgttcag	17880
tacccccggc	gcggtaccaa	cctggcggtg	ccgccgatca	gcgactgtga	cgagatggcg	17940
tcacaactgc	tggcggtgat	gacgccgttg	cttggcatca	acttcgcttt	tttcggccac	18000
agcaatggcg	ccttgatcag	cttcgaggtg	gcgcgaaggc	tccacgacga	actgaagggc	18060
cgcatgcggc	atcacttcct	gtcggccaag	tccgccctc	actacccgaa	caacaggagt	18120
aagatcagcg	gcctcaacga	cgaggacttt	ctccgggcga	tccggaagat	gggcggtacg	18180
ccccaggaag	tgctcgacga	cgcccggtg	atgcagattc	tgctgccaag	actgcgcgcg	18240
gacttcgcgc	tcggcgagac	gtatgtgttt	cgccccggac	ccaccctgac	gtgcgacgtc	18300
agcatcctgc	gaggcgagag	cgaccacctg	gtcgacggcg	agttcgtcca	gcggtggtcc	18360
gagctgacga	cgggcggcgc	gagccagtac	gcaatagatg	gtggccattt	cttcctgaat	18420
tcccacaagt	cgcaggtcgt	ggcgctcgtg	cgagcggcac	tgcttgagtg	tgtgtttag	18480
cgagaaaacg	gattcccaaa	taatgaccgc	tcagaaccaa	gcctccgcgt	tttctttcga	18540
tctcttctac	acgacggtca	atgcgtacta	ccggaccgcc	gccgtcaagg	cggccatcga	18600
gctcggcggtg	ttcgacgtcg	ttggcgagaa	gggcaagacc	ctggccgaga	tcgcgaaggc	18660
ctgcaacgcg	tcgccgcgtg	gcatccgcac	tctctgccgg	ttcctcgtgt	cgatcggggt	18720
cctcaagaat	gcgggtgagt	tgttcttcct	cacgcgagag	atggccctgt	ttctggacaa	18780
gaagtcgccc	ggctatctgg	gcggcagcat	tgatttcctt	ctgtcgccgt	acatcatgga	18840
cggcttcaag	gacctcgcgt	cggtggtgcg	gacgggcgag	ttgacgctgc	cggaaaaagg	18900
gggtggtggcg	ccagatcatc	cgcagtgggt	gacgttcgcg	cgcgcgatgg	cgccgatgat	18960
gtccctgcca	tccctcctgc	tcgcggaact	ggcggaccgc	caggcgaacc	agccgctcaa	19020
gggtgctcgat	gtcgccgccg	gccacggcct	cttcggcctg	gccatcgccc	agcggaatcc	19080
gaaggcgcat	gtgacgttcc	tcgactggga	aaacgtgcta	caggtggcgc	gcgagaacgc	19140
gacgaaggcg	ggagtctctg	acagggtcga	gttccgcccg	ggagatgcct	tctccgtgga	19200
cttcggcaag	gagctggacg	tcacctcctc	gacgaacttc	ttgcatcact	tcgacgaggc	19260
gggctgcgag	aagatcctca	agaaggccca	cgctgccctg	aaggaggggcg	gccgtgtgct	19320
gacgttcgag	ttcatcgca	acgaggaccg	gacgtcgcc	ccgcttgccg	ccacgttcag	19380
catgatgatg	ctcggcacga	cgcccggcgg	tgagacctac	gcctactccg	atctggagcg	19440
gatgttcaag	aacacgggtt	acgatcaagt	cgagctcaag	gccattcctc	ccgcgatgga	19500
gaaggtcgtc	gtttcgatca	agggcaaagc	gcagctctga	gcaacattca	gcacaatagg	19560
acctcctggg	agatttcgaa	tggccaccaa	attgtctgac	ttcgcgctcc	tcgactccga	19620

21191\_PCT SeqList\_ST25.txt

agacgccaac gtcattctccc gctcgaacga gacggggata tcgctggatc tgtccaagag	19680
cgtgggttgac ttgttcaacc tccagggtcga gagggcgccct gacgccacgg cgtgtctcgg	19740
ccgccagggg cgcttgactt acggagaact caaccggcgg acgaaccagc tcgcgcatca	19800
cctgatcgcg cgaggcgctc ggccggatgt tcccgtgggc gtcctgttcg agcgctccgc	19860
cgagcagctc atcgccatcc tgggcgtcct caaggcgggc ggggtgttatg tcccgttgga	19920
tccgcagtac cccgccgatt acatgcagca ggtcctgacg gacgcccggc cgcggatggt	19980
gggtgtcgagc cgggcgctcg gcgagcgccct ccgctcgggc gaggagcaga tcgtctacct	20040
cgatgacgaa cagctcctgg cgcgcgagac ccgcgacccg cctgtgaagg tgttgccgga	20100
gcagctcgcg tacgtgatgt acacgtcggg ctcgctccgga gtgccgaagg gcgtcatggt	20160
gccccatcgc cagatcctca actggctgca tgcactcctg gcgcgggtgc cgttcggcga	20220
gaacgaagtg gtggcccaga agacgtccac gtcattcgcc atctcagtga aggaactctt	20280
cgcgggattg gtcgcgggtg tcccgcaggt cttcatcgac gatgcgactg tccgcgacgt	20340
tgccagcttc gttcgtgagc tggagcagtg gcgcgtcacg cggctctata cttttccctc	20400
ccagctggcg gcgattctct cgagcgtgaa tggcgcgtac gagcgccctc gtcgctgcg	20460
ccacctgtac atctcgatcg agccctgccc aacagagctg ctggcgaagc tccgggcggc	20520
gatgccgtgg gtcacccctt ggtacatcta tggctgcacc gagatcaacg acgtcaccta	20580
ctgcgaccca ggggaccagg ctggcaacac gggcttcgtg ccgatcgggc ggcccatccg	20640
caacacgcgg gtgttcgtcc tcgacgaaga gctccgatg gtgcccgtcg gcgcgatggg	20700
tgagatgtac gtggagagcc tgagcacggc gcggggctac tggggccttc ccgagttgac	20760
ggcggagcgg ttcattcgcca accctcacgc ggaggacggt tcgcgcctgt acaagacagg	20820
cgacctcgcc cgctacctgc cggatggttc cctggagtgc ctcgggcgcc gggactacga	20880
gggtgaagatc cgcgggtatc gcgtggacgt ccggcaggtc gagaagggtc tcggggcgca	20940
tcccgcacatc ctgcaggtgg cgggtggtggg ctggccgctc ggcggggcga atccacaact	21000
ggtcgcctac gtcgtgccga gggcgaaggg ggctgtctcc atccaggaga tccgggacta	21060
cctgtcggcg tccctgcccg cctacatggt gccgacgatc ttccagggtc tggcggcgct	21120
gccacgtctt cccaatgaca aggtggatcg gttgagcctg cccgaccca aggtggagga	21180
gcagaccgag ggggtacgtg gcgctcgac ggaaaccgag aaggtactgg ccgaaatctg	21240
gagcgacgtc ctgagccagg gccgggcccc cctgaccgtc ggcgcgacgc acaacttttt	21300
cgaactggga ggccattcgc ttctcgccgc ccagatgttc tcgcggatcc ggcagaagtt	21360
cgatctcgaa ctgcccacat acaccctgtt cgagaccccc gtgctggagg gctttgagag	21420
cgccgtcgac gcggctcttg ccgagcggaa cggctccggc cagaggctga tcagcatgac	21480
ggaccgcggc caggcgcttc cgctgtcgca cgtccaggag cggctctggt tcgtgcacga	21540
gcacatggtc gagcagcggg gcagctacaa cgttgccttc gcctgccaca tgcgtggcaa	21600
ggggctgtcg atgccggcgc tgcgcgccgc catcaacggg ctggtggctc gccacgagac	21660

## 21191\_PCT SeqList\_ST25.txt

cttgcgagacg acgttcgtcg tctccgaggg cggaggagat cccgtccagc ggatcgccga	21720
ctccctgtgg atcgagggtc cgctatatga ggtcgatgcg tcggaagtcc cggcccgcac	21780
ggcggcccac gcgggccacg tgttcgacct tgcgaagggc cccctgctga agacctcggt	21840
cctgcggggtg acgcccgatc accacgtgtt cttgatgaac atgcatcaca tcatctgtga	21900
tgggtgggtcg atcgacatcc tgctgcggga cctctacgag ttctacaagg cggccgagac	21960
gggctcgag ccgaacctgc cggctctgcc aatccagtat gccgactact ccgtgtggca	22020
gcgtcagcag gacctcagca gtcacctcga ctactggaag aagacgctcg agggctacca	22080
ggaaggggttgc tcgcttccgt acgacttcgc ccgcccgtcc aacaggacct ggcgtgccgc	22140
gagtgctcgg caccagtacc cggcggaact cgccaccgt ctgtcggagg tgagcaagag	22200
ccatcaggcg acgggtgtca tgacgttgat ggccagcacg gcaatcgtgc tgaaccggta	22260
cacgggtcgg gatgatctgt gcgtgggtgc cacggtggcg ggccgtgacc acttcgagct	22320
cgagaacctg attggcttct tcgtcaacat cctcgccatc aggctcgacc tcagcgggaa	22380
tcccacggcc gagacggtgc tgacgcgggc gcgagcgag gtgctggaag gcatgaagca	22440
tcgcgacctg ccgttcgagc acatcctggc ggcgtgcag aagcagcgcg acagcagcca	22500
gattccccctg gtgccggtga tgggtccgcca ccagaacttc ccgacagtga cctcgcagga	22560
gcagggggtc gacctgggta tcggggagat cgagtttggg gagcggacga cggccaacga	22620
gctcgacatc cagttcatcg gcgaggggaag cacgctggag gtgggtgggtc agtacgcgaa	22680
ggatctgttc tccgagcgca cgatccagcg gctcatcacg cacttcgagc aggtgctgca	22740
gactctctgtg gacaagccgg actgccggct gacggatttt ccgctgggtg cgggggacgc	22800
gctgcagggc ggtgtgtcgg gctccggggg cgcgacgaag accggcaagc tcgacgtgtc	22860
gaagagcccc gtcgagttgt tcaacgagcg ggtagaggcc tcgccggacg cggtcgcctg	22920
catgggcgcg gacggaagcc tgacctaccg ggagctggac cgaaggcca atcaggctgc	22980
ccgccacctg atggggcgag ggggtggggc ggagacgcgg gtggggttgt ggttcgagcg	23040
ctcgccggac ctgctggtcg cactcctggg cataactcaag gcggggggct gcttcgttcc	23100
gctcgatccg agctatccgc aggagtacat caacaacatc gtcgccgatg cgcagccgct	23160
tctggtgatg tcgagccggg cgctgggctc acgcctgtca ctggaggcag ggcggctggt	23220
gtacctcgat gacgcgtgg cggcgtccac cgatgcgagc gatccccagg tgcgcatcga	23280
cccggagcag ctcatctacg tcatgtacac ctccggttcc accggtctgc cgaagggggt	23340
gctcgttccc catcggcaga tcctgaactg gctgtaccgg ctgtgggcga tgggtgccctt	23400
cgggcaggac gaggtggtgg cgcagaagac atccacggcc ttcgcgggtc cgatgaagga	23460
gctcttcacg gggctgctgg cgggcgtgcc ccaggatttc atcgacggca ccgtgggtcaa	23520
ggacgcggcg gccttcgtgc tccacctgga gcgatggcg gtcacccggc tgtacacgct	23580
cccgtcgcac ctcgatgcca tcctgtccca cgctcgacggg gcggcggagc gcctgcggtc	23640
cctgcggcat gtcacctcgc cgggggagcc gtgccccgtt gagctgatgg agaagctgcg	23700

21191\_PCT SeqList\_ST25.txt

cgagaccctg	ccgtcgtgca	cggcgtggtt	caactacggc	tgtaccgagg	tcaacgacat	23760
ctcctactgc	gtcccgaacg	agcagttcca	cagctcgggg	ttcgtgccga	tcggccggcc	23820
catccagtac	acccgggagc	tggtgctcga	cgacgagctg	cggacggtgc	cggtagggcat	23880
catgggggag	atttacgtcg	agagcccggg	gacggcgagg	ggctactgga	ggcagccgga	23940
tttgacggcc	gagcgggttc	tccccaaccc	gttcggcgag	ccgggtagcc	gtctctaccg	24000
tacgggagat	atggcgagat	gccttgagga	tggctcgctg	gagttcttgg	ggcgccggga	24060
ctacgaggtc	aagatccgtg	gccatcgctg	ggacgtccgc	caggctcgaga	agatcctcgc	24120
gagccacccg	gaagtcctcg	agtcggcggt	gttgggctgg	ccacgggggg	cgaagaaccc	24180
tcagttgctt	gcctacgccc	ccacgaagcc	gggccgtccc	ctgtcgactg	aaaacgtgag	24240
ggagtacctg	tcggcccgcg	tgccgacgta	catggtgccg	acgctctacc	agttcctgcc	24300
agcgctgccc	cgctcgccc	atggcaagct	cgaccgcttc	gggctgcccg	atcacaagaa	24360
agtcgagggt	ggcgggctct	acgtcgcccc	gcagacgccc	acggagaagg	tcttggcggg	24420
actgtgggcc	gagtgccctc	agcagggcga	catgcccgcg	ccgcagggtg	gccgcttgca	24480
caacttcttc	gacctcggtg	ggcactcgct	gctcgccaat	cgcgactga	tgcagggtgca	24540
gcggcatttc	ggggtcagcc	tgggcatcag	tgcgttggtc	ggttctccgg	tgctgaatga	24600
cttcgaggcg	gccatcgaca	aggcgctcgg	gaccgaggag	ccaggcgagg	aaggttcgag	24660
cgacgcacga	gaggctcgctg	cgaaggacac	ctccgtgctc	gtgccgctct	ccaccacagg	24720
gacgtgcccg	agcctgttct	gcgtccatcc	ggtgggcggg	cagggtccatg	cctaccgcga	24780
gctcgcccag	gcgatggaga	agcacgccag	catgtacgcg	ctccagtcgg	agggcgcccg	24840
tgagttcgac	acaatcgaga	ccttggcgcg	cttctacgcc	gatgcgatcc	gcggggctca	24900
gcccagcggg	agctaccgtc	tcctcggtatg	gtcttctggt	gggctcatca	ccctggcgat	24960
tgctcgcgag	ctggagcacc	agggctgcgc	cgtggagtac	gtgggcctcg	tggattcaaa	25020
gccaatcccc	cggttggcgg	gtgagcgagg	ctgggcgtcg	ctgatcgagg	cgacgaacat	25080
cctgggcggg	atgcgggggc	gcgggttctc	ggtcgccgag	gtcgatgctg	ccgggaagat	25140
cctcgagtcg	cgcggtatga	cggaggagtc	cttcgactcg	gaggggcatg	cggcggttga	25200
ggagttggct	cggcacttcg	gcataccagt	cgcgcaagag	tcatacggagt	acctcctggc	25260
ccggttcaag	accacgaagt	actacttgct	gctgttcgct	ggcttcaagc	cggcggcgct	25320
cgggcccggg	acgtacctct	atgaggcttc	agagcgggtc	ggagccacct	cgaacgacga	25380
cacgggagag	tggggggagc	cgctggatcg	caaggccctg	cgggcgaaca	tcgtgcagggt	25440
gccaggcaat	cactatactg	tcctgcaggg	agagaacgtg	ctgcaactgg	cggggcggtat	25500
cgccgaagcc	ttgtctgcga	tcgacaactc	ggtggtaacg	aggacgcgag	cttcgtgacc	25560
ctttcgccct	cgggttcgag	aagaggcaac	aaacgctgat	tcaccggcaa	gggaattccg	25620
tgagatgga	caatcgagag	atcgacacca	cccaatcggc	gcgcacgcgt	gatgcgtaca	25680
cggcggtacc	accagccaag	gccgagtatc	cgtcggagct	ctgtgtgcac	caactgttcg	25740

21191\_PCT SeqList\_ST25.txt

agttgcaggc	ggacaggatt	cccgacgccg	ttgcggcgag	ggcggggaac	gagtcctga	25800
cctaccggga	gctgaacttc	cgggcgaatc	agctcgcccc	gtacctgtt	gcgaaaggcg	25860
tggtcccgcg	aggctcggtg	gccgtgctga	tgaaccggac	ccctgcgtgt	ctgggtctcac	25920
tgctcgccat	catcaaggcg	ggcgcggcgt	acgttccggg	ggacgccgga	ttgcccgcc	25980
aacgggtgga	ctacattctg	acggacagcg	gcgcgacctg	cgtcctgacc	gacagggaga	26040
cgcggtcact	cctcgacgag	ccgcggtcgg	cttcgacgct	cgtcatcgac	gtggatgac	26100
catccatcta	ttcgggcgag	accagcaacc	tcgggctcgc	tgatgatccc	gagcagcagg	26160
tctactgcat	ctacacctcg	ggttcgacgg	gccttcccaa	aggcgtgatg	gtccagcacc	26220
gcgcgctgat	gaactacgtc	tggtgggcca	agaagcagta	cgtcaccgac	gcggtcgaga	26280
gttttgccct	gtactcctcg	ttgtcgttcg	acctcacggg	cacctccatc	ttcgttccgc	26340
tgatctccgg	acgctgcac	gatgtgtacc	cggacctggg	cgaggacgtc	cccgtcatca	26400
accgggtact	ggaggacaat	aaggctgatg	tcgtgaagct	cacgccggcc	caccttgccc	26460
tgctcaggaa	cacggaccta	tcgcaaagcc	ggctgaaagt	gctcatcctg	ggaggagagg	26520
acctccgagc	ggagacggcg	ggggacgtcc	acaagcggct	ggacggccgg	gcgggtgatct	26580
acaacgagta	cggccccacg	gagaccgtcg	tggggtgcat	gattcaccgc	tacgaccccg	26640
cgggtggatct	gcacgggtcg	gtgccgattg	gagtgggcat	cgacaacatg	cggatctact	26700
tgctcgacga	ccgtcggcgt	cccgtaagc	caggagaggt	tggcgagatt	tacatcgag	26760
gcgacggtgt	gaccctgggg	tacaaggaca	agcctcaagt	cacggcggac	cacttcatct	26820
ccaatccgtt	cgtggaaggg	gagcggttgt	acgccagtgg	cgacctcggc	cgggtgaatg	26880
agcgcggcgc	gctcgtcttc	ctcggccgga	aggatttgca	gatcaagctg	cgggggtacc	26940
ggatcgagct	gggcgagatc	gagagcgccc	ttctctccta	tccggggatc	aaggaaatgca	27000
tcgtcgattc	gaccaagacc	gcgcgagacc	aggccgccgc	tcagctcacc	tactgcacca	27060
agtgtggtct	ggcgtcgagc	ttcccgaata	cgacgtactc	cgccgagggg	gtctgcaacc	27120
actgcgaggc	cttcgacaag	taccgcagcg	tcgtcgacga	ctacttcagc	acgatggatg	27180
agctgcagtc	gatcgtcacc	gagatgaaga	gcatccacaa	ctcgaagtac	gactgcatcg	27240
tggcgctcag	cggcggaaaa	gacagcacgt	atgcactctg	ccggatgatc	gaaaccgggtg	27300
cccgtgtatt	ggccttcacg	ttggataacg	gctacatctc	ggaggaggcg	aagcagaaca	27360
tcaaccgggt	cgttgcccgg	ctgggagtgg	atcaccgcta	tctctcgacc	ggccacatga	27420
aggagatctt	cgtcgacagc	ctgaagcgac	acagcaatgt	gtgcaacggc	tgcttcaaga	27480
ccatctacac	gtttgcatc	aacctggcgc	aggagggtcg	cgtcaagcac	gtgggtcatgg	27540
ggttgtcaaa	gggccaactg	ttcgaaacgc	gcctctcggc	cttggtccgc	acgtcgacct	27600
tcgacaacgc	cgccttcgag	aagagcctcg	tcgacgcgcg	aaagatctac	catcgcatcg	27660
atgatgccgt	gagccgcctg	ctcgacacta	cttgcgtaaa	gaacgacaag	gtcatcgaga	27720
acatcagggt	cgtggacttc	tatcgttatt	gccacgccag	ccgtcaggag	atgtacgact	27780

## 21191\_PCT SeqList\_ST25.txt

acatccagga	gagagtcggg	tgggccaggc	cgattgacac	cgggcggtcg	acgaactgtc	27840
tcctcaatga	tgttggtcatc	tacgttcaca	acaaggagcg	caggtaccac	aactactccc	27900
tgccctacag	ctgggacgtc	cggatgggccc	acatcagcag	ggaagaggcg	atgagagagc	27960
tcgacgactc	ggccgacatc	gacgtcgaga	gggtcgaggg	catcatcaag	gaccttggt	28020
acgagctgaa	cgaccagggtg	gtgggctcgg	cggaagccca	gctggtcgcc	tactatgtct	28080
ccgcggagga	gttccccgcg	tccgacctgc	ggcagttcct	gtcggagatt	ctgccggagt	28140
acatggtacc	caggtcgttc	gtccagctgg	acagcatccc	gctgacgccc	aatggcaagg	28200
tcaatcgta	ggccctgccc	aagcctgacc	tgcttcggaa	ggccggcacc	gacggacaag	28260
ccgcaccccc	aacaccggtg	gagaagcagt	tggcggagct	gtggaaggag	gtgctgcagg	28320
tcgacagtgt	cgggatccac	gacaacttct	tcgagatggg	cgggcactcg	cttccggcgc	28380
tcatgctgct	ctacaagatc	gacagtcagt	tccataagac	gatcagcatc	caggagtctt	28440
cgaagggtccc	caccatcagc	gcgctcgcgg	cgcatctcgg	cagtgacacc	gaagcgggtgc	28500
cgccagggtc	gggcgaggtc	gtcgatcaga	gcgcgcctgc	atacagggga	taacgtgcgc	28560
ttcgtcactg	tcaatggtga	ggactcggca	gtttgctcgg	tgctggatcg	cggactccag	28620
ttcggagatg	gcctgttcga	gacgatgctg	tgtgttggtc	gtgcgccggt	cgacttccc	28680
gaacactggg	cgcggttga	tgagggtcgc	cgccggctgg	gaatcgaatg	cccggacatc	28740
cggcgcgaag	tgaccgctgc	gatcgccagg	tggggtgctc	ccagggcgggt	cgccaagctc	28800
gtcgtcactc	ggggaagcac	ggagcgggga	taccggtgcg	ccccttccgt	ccggccgaac	28860
tggatcctca	ccatcacgga	tgccccgaag	tatccgctgg	cccacgagga	cagaggcgtg	28920
gccgtcaaac	tctgccgaac	gctcgtctcg	ctcgatgacc	cacagctggc	cgggttgaag	28980
cacctcaacc	ggttgcccca	ggtgctcgcg	aggaggaggt	gggacgacga	gtaccacgat	29040
ggcctgctga	ccgaccacgg	tggtcacctc	gtcgagggtt	gcacgagcaa	cctgttcctc	29100
gttgccgacg	gagccttgag	gacgcccgat	ctgactgcgt	gcggtgtgcg	cggtatcgtg	29160
cggcagaagg	tcctcgacca	ctcgaaggca	atcgggatcc	gctgcgaggt	aaccaccctg	29220
aagctacgag	atctcgaaca	cgcgagcag	gtcttcctga	cgaactctgt	ctacgggatt	29280
gtgccggttg	gtagcgtcga	tggtatgagg	taccggatag	gtccgacgac	ggcgcgtttg	29340
ctgaaagacc	tttgccaggg	tgtgtacttt	tgaggctccg	tggaggacgg	tatgaccggt	29400
aatttgata	gcgcggcatg	gcccgtaatc	atcacgcctg	gccagcagcc	agcggcgtg	29460
gaggattggg	tctcagcgaa	ccgtgacgga	ctcgagcggc	agttgaccga	gtgtaaggcc	29520
attctctttc	gaggcttccg	tagcaggaat	ggcttcgaga	gcattgcca	cagcttcttc	29580
gaccggcgcc	tcaactatac	ctatcggtcg	acgccccgta	cggacctggg	gcagaacctc	29640
tacacggcga	cggagtaccc	gaagcagctg	tcgattccgc	agcattgcga	gaacgcctac	29700
cagcgcgact	ggccgatgaa	gctgctgttc	cactgcgtgg	agccggcgag	caaaggcggc	29760
cggacgcctt	tggccgacat	gacgaaggta	acggcgatga	tccccgccga	aatcaaggag	29820

21191\_PCT SeqList\_ST25.txt

gagttcgcgc	ggaagaaggt	cgggtacgtg	cggaactacc	gtgctggagt	ggatctgcct	29880
tgggaagagg	tgtttggaac	gagcaacaag	gcagagggtg	agaagttctg	cgtcgagaat	29940
ggcatagagt	accactggac	cgagggtggc	ttgaagacca	tccaggtctg	ccaggcgttc	30000
gcttcgcac	cactcaccgg	tgagacgatc	tggttcaatc	aggcccacct	gtttcacctt	30060
tccgcattgg	acccggcttc	acagaagatg	atgctttcct	tcttcggtga	gggcggcctc	30120
ccgcgcaact	cgtacttcgg	agacgggtcg	gccatcgga	gcgacgtcct	cgaccagatc	30180
cgctccgctt	acgaacgcaa	caaggtctcg	ttcagatggc	agaaggacga	cggtgtgctg	30240
atcgacaaca	tgctggtttc	tcacggacga	gatccgttcg	aaggcagccg	gcgggtgctg	30300
gtctgcatgg	cggagccgta	ttcgggaagtc	cagcggcggg	gattcgccgg	ggcaacgaac	30360
tcagggcgct	cgtaagggcc	gggctcgatg	gtggtgtcgc	tttcgccgtt	gcgcaaaaca	30420
gtcggaggag	tttcttgctc	cgaatttcga	tgctgctgga	gggagagctg	gaggggtacg	30480
aggacggggt	ggaactgccg	tacgacttcc	cgcgacgtc	gaatagggcg	tggagagcgg	30540
cgacgttcca	gcatagctac	ccgcccagc	tggcgaggaa	ggtggcggag	ctcagccggg	30600
agcagcagtc	cacgctgttc	atgagcctgg	tggcgagcct	ggcgggtggtg	ttgaaccggt	30660
acacgggccc	cgaggacgtg	tgcatcggga	cgacggtggc	gggccgagcg	caggtggggg	30720
cgttggggga	tctgagcggg	tccaccgtcg	acatcctccc	gctgaggctg	gacctgtcgg	30780
gcgctccgag	ccttcacgag	gtgctgcgga	ggacgaaggc	ggtggtgctg	gagggattcg	30840
agcacgaggc	gttgccgtgc	cagattccct	tggtgccggt	ggtggtgagg	caccagaact	30900
ttccgatggc	gcgtctggag	ggctggagtg	aggggggtga	gctgaagaag	ttcgagctgg	30960
cgggggaaag	gacgacggcg	agcgagcagg	actggcagtt	cttcggggac	gggtcctcgc	31020
tggagctgag	cctggagtac	gcggcggagc	tggtcagcga	gaagacgggtg	aagaggatgg	31080
tggagcacca	ccagcgagtg	ctggaggcgc	tggtggaggg	gctggaggag	gtgcggctgc	31140
acgaggtgcg	gctgctgacg	gaggaggagg	aggggctgca	cgggaggttg	aacgacacgg	31200
cgcgagagct	ggaggagcgc	tggagcctgg	cggagacgtt	cgagcgtcag	gtgagggaga	31260
caccggaggc	ggtggcttgc	gttggcgtgg	aggtggcgac	gggagggcac	tcgcggccga	31320
cataccggca	gctgacatac	cggcagctga	atgcgcgagc	caaccagggtg	gcacggaggc	31380
tgagggcact	gggagtgggc	gcggagacac	gggtcgcggt	cttgagcgac	cgctcgccgg	31440
agctgctggg	ggcgatgctg	gcgatattca	aggccggggg	ctgctacgtg	ccggtggacc	31500
cacagtaccc	gggaagctac	atcgagcaga	tactggaggga	tgccggcaccg	caggtggtgt	31560
tgggcaagag	gggaagagcg	gacgggggtg	gggtggatgt	gtggctggag	ctggatggag	31620
cgcaacggct	gacggacgag	gcgctggcgg	cacaggaaga	gggagagctg	gagggggcgg	31680
agaggccgga	gagccagcag	ttggcgtgtt	tgatgtacac	gtcgggctcc	acgggcagac	31740
cgaagggggg	gatggtgccg	tacagccagt	tgcaactg	gctggaggcg	gggaaggagc	31800
gctcgccgct	cgagcgtggg	gaagtaatgt	tgcaagac	ggcaatcgcg	ttcgcggtgt	31860



21191\_PCT SeqList\_ST25.txt

cggtgaagga gctgctgagc ggattgctgg cgggagtggc gcaggtgatg gtgccggaga	31920
cgctggtgaa ggacagcgtg gcgctggcgc aggagataga gcggtggcgg gtgacgagaa	31980
tccacctggt gccatcgcac ctgggagcac tgctggaggg ggcgggggaa gaggcgaagg	32040
ggctgaggtc gctgaagtac gtcataacgg cgggggaggg actggcgagc ggggtgaggg	32100
aggaggcgag gaggaagctg ccggggggcgc agttgtggaa caactacggg tgcacggagc	32160
tgaatgacgt gacgtaccac cccgcgagcg aggggggaggg ggacacggta ttcgtgcaa	32220
tcgggcggcc catcgcaac acgcgggtgt acgtgttggc cgagcagttg aggcgggtgc	32280
cggtgggggt gatgggggag ttgtatgtgg acagcgtggg gatggcgagg gggatttggg	32340
gccagccagc gctgacggcg gagcgcttca tcgcgaaccc gtacgcgagc cagcccggag	32400
cgaggttgta ccggacggga gacatggtga ggggtgctggc ggacggctcg ctggagtacc	32460
tggggaggcg agactacgag ataaaggtga gagggcaccg ggtggacgtg cgccaggtgg	32520
agaaggtggc gaacgcgcat ccagccatcc gccaggcggg ggtgtcggga tggccgttgg	32580
gctcgagcaa cgcgcagttg gtggcctacc tgggtgccga ggcgggcgcg acggtggggc	32640
cgcggcaggt gagggattac ctggcgaggt cgctgccggc gtacatggtg ccaacgctat	32700
acacggtgtt ggaggagttg ccgcggctgc cgaacgggaa gctggaccgg ttgtcgtgc	32760
cggagccgga cctgtcgagc agccgagagg agtacgtcgc gccccacggc gaggtcgagc	32820
ggaagctggc ggaaatcttc ggcaacctcc tggggctcga acatgtcggc gtccacgaca	32880
acttcttcag cctcggcggg cactccctcc tggctgcca gctgatttcg cgcatacggg	32940
cgaccttccg cgtggaagtg gcgatggcca cgggtgtcga gtccccacg gtggagccgc	33000
tcgcccgcca catcgaggag aagctcaagg acgagtctcg ggtccagctc tccaacgttg	33060
tgccggctcga gcggacgcag gagattccgc tctcctacct gcaggagcgg ctgtggttcg	33120
tgcacgagca catgaaggag cagcggacca gctataacat cacctggacg ttgcacttcg	33180
ccggcaaggg tttctcggtg gaggcgttgc ggacggcctt cgatgagctg gtggccagac	33240
acgagacact gcgcacgtgg ttccaggtgg gggaggggac agagcaggcc gtacaggtca	33300
tcggggagcc ctggtcgatg gagctgccgc tgagagaggt ggcggggacg gaggtgacgg	33360
cggcaatcaa tgagatgtcc cgacaggtct tcgacttgag agcgggacgg ttgctgacgg	33420
cggcggctct gaggggtggc gaggatgagc acatcctcgt cagcaacatc caccacatca	33480
tcacggacgg ctggtcgttc ggggtgatgc tgcgggagct gagggagttg tacgaggcag	33540
cggtgcgggg gaagagagcg gagctgccgc cgctgacggg gcagtacggc gactatgcgg	33600
tgtggcagag gaagcaggac ctgagcgagc acctggcgta ctggaagggg aaggtggagg	33660
agtacgagga cgggttgagg ctgccgtacg acttcccgcg gacgtcgaat agggcgtgga	33720
gagcggcgac gttccagtat agctaccac ccgagctggc gaggaaggtg gcggagctca	33780
gccgggagca gcagtccacg ctgttcatga gcctgggtggc gagcctggcg gtggtgttga	33840
accggtacac gggccgccag gacgtgtgca tcgggacgac ggtggcgggc cgagcgcagg	33900

## 21191\_PCT SeqList\_ST25.txt

tggagctgga	gagcctcatc	gggttcttca	tcaacatcct	cccgtgagg	ctggacctgt	33960
cgggcgctcc	gagccttcac	gaggtgctgc	ggaggacgaa	ggcggtggtg	ctggagggat	34020
tcgagcacca	ggagttgccg	ttcgagcacc	tgctgaaggc	gctgaggcgg	cagcgggaca	34080
gcagccagat	tcccttggtg	ccagtgggtg	tgaggcacca	gaacttcccg	atggcgcgtc	34140
tggagggctg	gagtgagggg	gtggagctga	agaagttcga	gctggcgggg	gaaaggacga	34200
cggcgagcga	gcaggactgg	cagttcttcg	gggacgggtc	ctcgctggag	ctgagcctgg	34260
agtacgcggc	ggagctgttc	agcgagaaga	cggtgaggag	gatggtggag	caccaccagc	34320
gagtgcctga	ggcgctgggt	gaggggctgg	aggaggggct	gcacgaggtg	cggctgctga	34380
cggaggagga	ggaggggctg	cacgggaggt	tgaacgacac	ggcgcgagag	ctggaggagc	34440
gctggagcct	ggcggagacg	ttcgagcgtc	aggtgagggg	gacaccggag	gcggtggctt	34500
gcgttgccgt	ggaggtggcg	acgggagggc	actcgcgcc	gacataccgg	cagctgacat	34560
accggcagct	gaatgcgcga	gccaaccagg	tggcacggag	gctgagggca	ctgggagtgg	34620
gcgcggagac	acgggtcgcg	gtcttgagcg	accgctcgcc	ggagctgctg	gtggcgatgc	34680
tggcgatatt	caaggccggg	ggctgctacg	tgccggtgga	cccacagtac	ccgggacact	34740
acatcgagca	gatattggag	gatgcggcac	cgcaggtggt	gttgggcaag	aggggaagag	34800
cggacggggg	gcgggtggat	gtgtggttgg	agctggatgg	agcgcaacgg	ctgacggacg	34860
aggcgctggc	ggcacaggaa	gagggggagc	tggagggggc	ggagaggccg	gagagccagc	34920
agttggcgtg	tttgatgtac	acgtcgggct	ccacgggcag	gccgaagggg	gtgatggtgc	34980
cgtacagcca	gttgacaaac	tggctggagg	cggggaagga	gcgctcgccg	ctcgagcgctg	35040
gggaagtaat	gttgacagaag	acggcaatcg	cgttcgcggt	gtcgggtgaag	gagctgctga	35100
gcggattgct	ggcgggagtg	gcgcaggtga	tgggtgccga	gacgctggtg	aaggacagcg	35160
tggcgctggc	gcaggagata	gagcgggtggc	gggtgacgag	aatccacctg	gtgccatcgc	35220
acctgggagc	actgctggag	ggggcggggg	aagaggcgaa	ggggctgagg	tcgctgaagt	35280
acgtcataac	ggcgggggag	gcaactggcg	agggggtgag	ggaggaggcg	aggaggaagc	35340
tgccgggggc	gcagttgttg	aacaactacg	ggtgcacgga	gctgaatgac	gtgacgtacc	35400
accccgcgag	cgagggggga	ggggacacgg	tattcgtgcc	aatcgggcgg	cccatcgcca	35460
acacgcgggt	gtacgtgttg	gacgagcagt	tgaggcgggt	gccggtgggg	gtgatggggg	35520
agttgtatgt	ggacagcgctg	gggatggcga	gggggtattg	gggccagcca	gcgctgacgg	35580
cggagcgctt	catcgcgaaac	ccgtacgcga	gccagcccg	agcgagggtg	taccggacgg	35640
gagacatggt	gaggggtgctg	gcggacggct	cgctggagta	cctggggagg	cgagactacg	35700
agataaagg	gagagggcac	cgggtggacg	tgccgaggt	ggagaagggtg	gcgaacgcgc	35760
atccagccat	ccgccaggcg	gtggtgtcgg	gatggccgtt	gggctcgagc	aacgcgcagt	35820
tggtggccta	cctggtgccg	caggcggggc	cgacgggtgg	gccgcggcag	gtgagggatt	35880
acctggcgga	gtcgctgcca	gcgtacatgg	tgccaacgct	atacacggtg	ttggaggagt	35940

## 21191\_PCT SeqList\_ST25.txt

tgccgcggtt gccgaacggg aagctggacc ggctgtcgtt gccggagccg gacctgtcga	36000
gcagccgaga ggagtacgtc gcgccccacg gcgaggtcga gcggaagctg gcggaaatct	36060
tcggcaacct cctggggctc gaacatgtcg gcgtccacga caacttcttc agcctcggcg	36120
ggcactccct cctggctgcc caggtggtct caaggattgg caaggagctt ggcactcaga	36180
tctcgatcg c gatctgttt caaaggccca cgattgaaca gctctgtgag ctgattggag	36240
gactggacga tcagacccag agggagctcg ccctcgctcc gtcggggaac accgaggcgg	36300
tgctctcgtt cgcgcaagag cgcagtgtgt tcctgcacaa cttcgtcaag ggcattgcct	36360
acaacacgcc agggctcgac cacctgacgg gtgagctcga tgcgcggcg ctagaaaagg	36420
ccatccgcgc ggtcatccgt cgccacgagc ccctgcggac gaatttcgtc gagaaggacg	36480
gggtgctgtc ccagttggtg gggacggaag aacgcttccg cctgaccgtg actcccatcc	36540
gcgacgagag cgaggtcgcg cggctcatgg aagccgtgat ccaaacgcca gtcgatctgg	36600
agcgggagtt gatgatccgg gcttatctct accgggtcga cccgcggaat cactacctgt	36660
tcaccaccat ccatcacatc gccttcgatg gctggtcgac atcgatcttc taccgtgagc	36720
tggctgcgta ctacgccgcg tttctccggc gcgaagacag tccgctgccc gcgctggaaa	36780
tctcctatca ggactatgcc cgctgggagc gggccattt ccaggacgag gtgttggcgg	36840
aaaaactgag gtactggcgg cagcggctgt cgggcgctcg gcccctcgta cttccgacca	36900
cctaccatcg gccgcccac cagagtttcg ctggcgccgt cgtgaacttc gagatcgatc	36960
gctccatcac cgagcggttg aagacgctgt tcgccgagtc gggcaccacg atgtacatgg	37020
tgttgctcgg cgcgttctcc gtggtgctgc agcgtactc cggtcaggac gacatctgca	37080
tcggctcccc cgtggcgaac cggggtcaca tccagacaga agggctgatc ggcttgttcg	37140
tcaacaccct ggtgatgagg gtggatgccg ccgggaatcc ccgtttcatc gacctgtcg	37200
cgcgcattca acggacagcc atcgatgctt acgcgaacca agaagtgccc ttcgagaaga	37260
tcgtggacga cctgcaggtc gcgagagaca cggcccgatc tccgctcgtg caggtcattc	37320
tcaacttcca caacacgcct cctcaatccg agctggaact gcagggggtg accctcacgc	37380
ggatgccggt gcacaacggc acggccaagt tcgagctctc catcgacgtc gcggagacga	37440
gcgccggtct aacgggattc gtggagtacg cgacggatct gttcagcgag aacttcatcc	37500
ggcggatgat cggccacctc gaggtggtgc tggacgcggt cggtcgcgat ccgcgggcgc	37560
ctatccatga gttgccactg ctcacccggc aggatcagtt ggacctactg tcgcggagcg	37620
gccacacagc ccccgcggtg gaacacgtcg agttgatccc tcatacgttc gagcggcgcg	37680
tccaggagag ccctcaagcg attgccctgg tctgcggtga cgagcgcgtc acctactccg	37740
cgtcaaccg ccgggccagc cagattgccc gccgcctgcg cgccgcaggg atcggaccgg	37800
acaccctcgt cgggctttgc gcggggcgct ccatcgagct ggtctgcggc gtccttgga	37860
tcttgaaggc gggcggtgcg tacgtgcca tcgacccac ctcctcgccc gaggtgatct	37920
acgacgtcct gtatgagtcg aaggtgcggc atctgttgac cgagtcgcgc ctggtcgggg	37980

21191\_PCT SeqList\_ST25.txt

gactgccggt	cgatgaccag	gaaatcctgc	tcctggatac	ccccgcggac	ggtgaagggg	38040
acaaggctgt	tgctgaccgg	gaggagccac	ctgaccttgg	cgaggtcagc	ctcactcccg	38100
agtgtcttggc	gtacgtcaac	ttcacctccg	actccggtgg	ggcgccgagg	ggcatcgccg	38160
tccgccatgg	ggcgctggct	cgccggatgg	ccgccggcca	cgcacagtac	ctggccaatt	38220
ccgccgtacg	tttcctgctg	aaggcgccgc	tcacgttcga	cctggcggtc	gcggagctgt	38280
tccagtggat	cgtcagcggc	ggcagcctga	gcacacctga	ccccaatgcc	gaccgcgacg	38340
cctctgcctt	cctcgcgag	gtgcgcagg	actcgattgg	cgctccttac	tgcgtcccct	38400
ccgaactctc	gacgctgggt	agccacctgg	agcgcgagcg	tgaaggggtg	catgagctga	38460
acaccctccg	gttcatcttc	tgcggcgggg	ataccctggc	ggttaccgtc	gtcgagcgctc	38520
tcgggggtact	ggtgcgggcc	ggccagctcc	cgctgcggct	ggtcaacgtc	tatgggacga	38580
aggagacggg	aatcggcgcg	ggttgcttcg	agtgcgcgct	ggacgcgaac	gaccccagcg	38640
ccgaactccc	gccgggacgg	ctctcgcatg	agcggatgcc	catcggcggg	cccgccaga	38700
acctgtgggt	ctatgtgggt	caacccaacg	gtggcctggc	tccgttgggc	atcccggggg	38760
aactgtacgt	cggcggcgcg	caactcgccg	acgcccgttt	cggcgacgag	cccacggcga	38820
cccacccccg	cttcgtcccc	aaccccttcc	ggagcggagc	ggagaaggac	tggctgtaca	38880
agacggggga	cctcgtccgc	tggctgcctc	agggggccgct	cgagctggtc	agcgcggtc	38940
gggagcgca	cggaggcggg	gaccaccggc	tcgatcgcg	cttcatcgag	gcgcgcatgc	39000
gtcgtgtggc	cattgtccgc	gacgccgtgg	tggcctacgt	cccggatcgc	caggacaggg	39060
cccggttggt	ggcctacgtc	gttctgaagg	agtcgcccgc	ggcggacgtg	gagccgcgcg	39120
aagggcgggg	aacgctgaag	gctcggatca	gcgccgaact	tgggagcacg	ttgccggagt	39180
acatgcttcc	ggccgcctac	gtgttcatgg	acagcctgcc	gttgacggct	tacgggagga	39240
tcgaccggaa	agccctgccc	gagccggagg	atgaccgcca	cgggtgtagt	gcgatcgctt	39300
acgtggcccc	gcgcggggcc	acggagaagg	caactggcga	catttgagc	caagtgtga	39360
aacgccccca	ggtcggactg	cgagacaact	tctttgagct	gggcgggcac	tcagtggcgg	39420
ccatccaact	ggtgtccgtg	agccggaagc	acctggaggt	cgaagtcccc	ctcagcctga	39480
tcttcgaatc	gccggtcctg	gaggcgatgg	cgcgcgcat	cgaagcgctg	caacagcagg	39540
gccgcagcgg	cgcggtgtcg	tcgatccatc	gggtggagcg	gaccggaccg	ctgcctctgg	39600
cgtacgtgca	ggagaggctg	tggttcgtgc	acgagcacat	gaaggagcag	cggaccagct	39660
ataacatcac	ctggacgttg	cacttcgccg	gcaaggggtt	ctcgggtggg	gcgttgcgga	39720
cggccttcga	tgagctgggt	gccagacacg	agacactgca	cacgtgggtc	caggtggggg	39780
aggggacaga	gcaggccgta	caggtcatcg	gggagccctg	gtcgatggag	ctgccgctga	39840
gagagggtgg	ggggacggag	gtgacggcgg	caatcaatga	gatgtcccgg	caggtccttcg	39900
acttgagagc	gggacgggtg	ctgacggcgg	cggtcctgag	ggtggcggag	gatgagcaca	39960
tcctcgtcag	caacatccac	cacatcatca	cggacggcgtg	gtcgttcggg	gtgatgctgc	40020

21191\_PCT SeqList\_ST25.txt

gggagctgag	ggagttgtac	gaggccgcgg	tgcgggggga	gcgagcggag	ctgccgccgc	40080
tgacggtgca	gtacggcgac	tatgcggtat	ggcagaggaa	gcaggacctg	agcgagcacc	40140
tggcgtactg	gaaggggaag	gtggaggggg	acgaggacgg	gttgagctg	ccgtacgact	40200
tcccgcggac	gtcgaatagg	gcgtggagag	cggcgacgtt	ccagtatagc	taccacccc	40260
agctggcgag	gaaggtggcg	gagctcagcc	gggagcagca	gtccacgctg	ttcatgagcc	40320
tggtggcgag	cctggcggtg	gtgttgaacc	ggtagacggg	ccgcgaggac	ctgtgcatcg	40380
ggacgacggt	ggcggggccga	gcgcaggtgg	aactggagag	cctcatcggg	ttcttcatca	40440
acatcctccc	gctgaggctg	gacctgtcgg	gcgctccgag	ccttcacgag	gtgctgcgga	40500
ggacgaaggt	ggtggtgctg	gagggattcg	agcaccagga	gttgccgttc	gagcacctgc	40560
tgaaggcgct	gaggcggcag	cgggacagca	gccagattcc	cttggtgcca	gtggtggtga	40620
ggcaccagaa	cttcccgatg	gcgcgtctgg	agggctggag	tgagggggtg	gagctgaaga	40680
agttcgagct	ggcgggggaa	aggacgacgg	cgagcgagca	ggactggcag	ttcttcgggg	40740
acgggtcctc	gctggagctg	agcctggagt	acgcggcgga	gctgttcagc	gagaagacgg	40800
tgaggaggat	ggtggagcac	caccaacgag	tgctggaggc	gctggtggag	gggctggagg	40860
aggggctgca	cgaagtgcgg	ctgctgacgg	aggaggagga	ggggctgcac	gggaggttga	40920
acgacacggc	gcgagagctg	gaggagcgct	ggagcctggc	ggagacgttc	gagcgtcagg	40980
tgagggagac	accggaggcg	gtggcttgcg	ttggcgtgga	ggtggcgacg	ggagggcact	41040
cgcggccgac	ataccggcag	ctgacatacc	ggcagctgaa	tgcgcgagcc	aaccagggtg	41100
cacggaggct	gagggcactg	ggagtgggcg	cggagacacg	ggtcgcggtc	ttgagcgacc	41160
gctcgccgga	gctgctggtg	gcgatgctgg	cgatattcaa	ggccgggggc	tgctacgtgc	41220
cggtggaacc	acagtacc	ggaagctaca	tcgagcagat	actggaggat	gcggcaccgc	41280
aggtggtggt	gggcaagagg	ggaagagcgg	acggggtg	ggtggatgtg	tggtgagc	41340
tggtgagc	gcaacggctg	acggacgagg	cgctggcg	acaggaagag	ggagagctgg	41400
agggggcgga	gaggccggag	agccagcagt	tggcgtgttt	gatgtacacg	tcgggctcca	41460
cgggcagacc	gaagggggtg	atggtgccgt	acagccagtt	gcacaactgg	ctggaggcgg	41520
ggaaggagcg	ctcgccgctc	gagcgtgggg	aagtaatgtt	gcagaagacg	gcaatcgct	41580
tcgcggtgtc	ggtgaaggag	ctgctgagcg	gattgctggc	gggagtggcg	caggtgatgg	41640
tgccggagac	gctggtgaag	gacagcgtgg	cgctggcgca	ggagatagag	cgggtggcgg	41700
tgacgagaat	ccacctggtg	ccatcgaccc	tgggagcact	gctggagggg	gcgggggaag	41760
aggcgaagg	gctgaggtcg	ctgaagtacg	tcataacggc	gggggaggca	ctggcgag	41820
gggtgaggg	ggaggcgagg	aggaagctgc	cggggcgca	gttgtggaac	aactacgggt	41880
gcacggagct	gaatgacgtg	acgtaccacc	ccgcgagcga	ggggggaggg	gacacggtat	41940
tcgtgccaat	cgggcggccc	atcggaaca	cgcggtgtga	cgtgttgac	gagcagttga	42000
ggcgggtgcc	ggtgggggtg	atgggggagt	tgtatgtgga	cagcgtgggg	atggcgaggg	42060

21191\_PCT SeqList\_ST25.txt

ggatttgggg	ccagccagcg	ctgacggcgg	agcgcttcat	cgcaacccg	tacgcgagcc	42120
agcccggagc	gagggtgtac	cggacgggag	acatggtgag	ggtgctggcg	gacggctcgc	42180
tggagtacct	ggggaggcga	gactacgaga	taaaggtgag	agggcaccgg	gtggacgtgc	42240
gccaggtgga	gaaggtggcg	aacgcgcata	cagccatccg	ccaggcgggtg	gtgtcgggat	42300
ggccgttggg	ctcgagcaac	gcgaggttgg	tggcctacct	ggtgccgcag	gcgggcgcga	42360
cggtagggcc	gcggcaggtg	agggattacc	tggcggagtc	gctgccagcg	tacatggtgc	42420
caacgctata	cacggtgttg	gaggagttgc	cgcggttgcc	gaacgggaag	ctggaccggc	42480
tgctggtgcc	ggagccggac	ctgtcgagca	gccgagagga	gtacgtcgcg	ccccacggcg	42540
aggtcgagcg	gaagctggcg	gaaatcttcg	gcaacctcct	ggggctcgaa	catgtcggcg	42600
tccacgacaa	cttcttcaac	ctcggcgggc	actccctcct	ggcttcccag	ctgatttcgc	42660
gcatacgggc	gaccttccgc	gtggaagtgg	cgatggccac	ggtgttcgag	tccccacggg	42720
tggagccgct	cgcccgccac	atcgaggaga	agctcaagga	cgagtctcgg	gtccagctct	42780
ccaacgttgt	gccggtcgag	cggacgcagg	agcttccgct	ctcctacctg	caggagaggc	42840
tgtggttcgt	gcacgagcac	atgaaggagc	agcggaccag	ctataacgga	acgatcgggc	42900
tccggcttcg	gggtcctctg	tcaatccccg	cgctcagggc	caccttccac	gatctggtcg	42960
cccgtcacga	gagcctgcgc	accgtcttcc	gggtccccga	aggccgcacc	acgccggtgc	43020
aggtgattct	tgattcgatg	gatctggaca	tcccgggtccg	cgatgcaacc	gaggccgaca	43080
tcatcccggg	catggatgag	ctggcgggtc	acatctacga	catggagaag	ggtccgctgt	43140
tcatggttcg	cctcttgccg	ctggccgagg	actcccacgt	tctcctgatg	gggatgcata	43200
acatcgtcta	cgacgcatgg	tcacagttca	atgtgatgag	tcgcgatata	aacctgctct	43260
actcggcgca	cgtgacggga	atcgaggcac	ggcttccccg	gcttcccatc	cagtacgccg	43320
acttctcggg	gtggcagcgc	cagcaggact	tccgtcacca	cctggactac	tggaagtcca	43380
cactgggcga	ctaccgggat	gatctcgagc	tgccgtatga	ctaccgcggg	ccgcccagcc	43440
ggacatggca	cgcgacccga	ttcaccttcc	ggtatccgga	tgcactggcg	cgcgcttctg	43500
ccaggttcaa	tcagtcccat	cagtcgacgc	tgttcatggg	gctgctgacc	agcttcgcga	43560
tcgtgctcag	gcactacacc	ggccggaacg	acatctgcat	cggaacgaca	acggcggggc	43620
gcgcccagtt	ggagttggag	aacctcgttg	gcttcttcat	caacatcctg	ccgttgcgca	43680
tcaatctggc	gggtgacccc	gacatcagcg	agctcatgaa	tcgagcgaag	aagagcgtct	43740
tgggcgccct	cgagcatcaa	gctctgccgt	tcgagcgtct	cctcagtgcc	ctcaacaaac	43800
agcgtgacag	cagccataat	ccgctgggtc	ccgtcatggt	gcgccaccag	aacttcccga	43860
cggcgatgac	cggcaagtgg	gccgatggtg	tggacatgga	ggtcatcgag	cgcgacgagc	43920
gcacgacgcc	caacgagctg	gacctccagt	tctttggcga	cgacacctac	ttgcatgctg	43980
tcgtcgagtt	ccccgcgcag	ctcttctccg	aggtgaccgt	ccggcgtctg	atgcagcgtc	44040
accagaaggt	catagagttc	atgtgcgcga	cgctgggggc	tcggtgaacg	tgctcgctag	44100

21191\_PCT SeqList\_ST25.txt

gcattccacc	ggctccacg	acgagccggt	ggccggcgac	gtcgaactcc	gcgtcggtag	44160
ccccggtgtg	ccggacgctc	attccagcga	gagcgttgaa	gtgctggcgc	ggtggctgcy	44220
gaccgccgag	gagaagtacc	cgggcgcat	gggccgatc	cgccaggagg	gcccctggtt	44280
cgccatccc	ttgacctgcc	cgcgcggtgc	ccggtcggcg	cgattcggcc	tctggctcgg	44340
ggaactagac	cgtcagggac	agctcctcca	catggtcgcc	tcgtatctgg	cggccgtgca	44400
ccacgtgctg	gtcagcgctt	gcgagcccag	cgccaacgtg	ctggagggtgc	tggtctctga	44460
ctcaacaacg	ccatctgggc	tcaaccggtt	cctgaacggc	ctggactccg	tcctggagat	44520
cctggctcac	gggcgcagcg	acctcctcct	gcagcatctc	acgggccggc	tgcccccgga	44580
cgagatgccc	ttcgtggagg	accgtgagga	gcgcgaggag	caccggcca	ccgatgtcga	44640
ggccgatgcy	gttgtctccg	tcctgttcca	accagttgac	ttcccagacc	tggcgaggct	44700
ggacgcgagc	ctcctcgct	atgacgacga	ggatgccggc	gcggtgggcc	gggtcctggg	44760
ggagctcctc	cagccgttcc	tgctcgactc	cgccaggatg	accgtggggc	gaaaggcgg	44820
gagggtcgat	cacatctgcc	tgcttggtt	gttgcgagcc	gacagcagag	cggcgaggga	44880
gtcggttctc	gcgcccgcct	tgcgcttggc	gacgaagccc	ggtcggcatt	tcgtcgcgtt	44940
gtgccggaac	accgccctgc	ggctgggaga	caggctgccc	cacttgctcg	cgcagggccc	45000
gctctgcgat	ggcgcgtaaa	cggcgctcct	tctgttgcaa	cgggtgctgg	acacgcttat	45060
cgggagcggg	ggactgaagg	accatcgcc	cacgctcgag	ctggttggcg	ccgatccacg	45120
gaccgaggcc	gcgtttcggg	cccggactcc	gtggctggtg	gcggaacggg	ccgcttcggc	45180
tgcatcaacg	gatgcaccgc	gcgtcgacgt	cgctgcctg	ttcccggcgg	cacggccgag	45240
cgcgctcgag	ctgcggccag	acagcgctcg	catcgacctt	tttggcacct	ggagcctgag	45300
accgcgaccc	gaggttcttg	cgaagaacat	cgtctacgtg	cgaggggcct	cggctcgtct	45360
cgcgggagag	gccgtcgtct	cgactccctc	cttcgcgccg	gatcgagtgg	agccggcgct	45420
cctcgaggcg	cttctccggg	aactcgacgc	ggaggccagt	agtgcgggc	tcgcccacga	45480
gcaccgcctt	gagattggcg	gcattcgcg	gttctgggg	gagatccgcc	gggcggagtg	45540
ggacgccttt	cattcgcgcc	gccgggggga	gctggcgagg	tttcagggtg	cggggcaggt	45600
gaccgccgcc	aatccggggc	tcgccagcct	gcccgatggg	gcgacgaaca	tctgcgaata	45660
catcttccgg	gaagcgaccc	ttcgctccgg	ctcgtgcctc	gtcgatcccc	agagcggcc	45720
gtccgcgacc	tacgccgagc	tgccggcact	ggcggcagcg	tacgcgcggc	ggtttcgggc	45780
attggggctc	cgccaggggag	acgtcgtggc	gctcgcggcg	ccggatggga	tttcgtccgt	45840
cgcggtgatg	ctgggttgct	tcctggggcg	gtgggtcttc	gcgccgctca	accacaccgc	45900
ctcggccgtg	aacttcgagg	cgatgttgag	ttccgccagt	ccccgcctgg	tgctccatgc	45960
cgcgtcgacg	gtcggccgcc	atctgccgg	cctgagcacg	cggcgatgcy	cggaactcgc	46020
gtccttcctg	ccgccggacg	cgctggacgg	cgtggagggg	gacgtcacc	ccctgccagt	46080
gtcaccggaa	gccccgcgg	tcagtctgtt	cacctcgggc	tccacggggg	ggccgaaggc	46140

## 21191\_PCT SeqList\_ST25.txt

agtgacgcac	acccacgccg	acttcatcac	ctgcagtcgc	aactacgcac	cctatgtcgt	46200
cgaactcaga	ccggacgatc	gtgtctatac	gccgtccccg	accttcttcg	cctatggatt	46260
gaacaacttg	ctgctgtccc	tcagcgcggg	ggccacgcac	gtgatctcgg	tccctcgcaa	46320
cggcgggatg	ggtgtcgcgg	agatcctcgc	gcggaacgaa	gtaaccgtgc	tcttcgcggt	46380
tcccgccgtc	tataagctga	tcattctcga	gaacgaccgg	ggcctgcggt	tgccgaagtt	46440
gagattgtgc	atctctgctg	gcgagaagct	gccattgaag	ctgtatcggg	aggcgcgaa	46500
cttcttcagc	gtgaacgtac	tggacgggat	cgggtgcacc	gaagccatct	cgacgttcat	46560
ctcgaaccgg	gagagttatg	tcgcgccccg	gtgcacgggc	gtggtggtcc	cggggttcga	46620
ggtcaagctg	gtgaacccgc	gtggcgagct	ctgccgggtg	ggagaggtgg	gcgtcctctg	46680
ggttcggggg	ggggcgctga	cccggggcta	cgtgaacgcc	cccgatctga	cagagaagca	46740
cttcgtggac	ggctggttca	acaccagga	catgttcttc	atggatgccg	agtaccggct	46800
ctacaacgtg	ggcagggctg	gttcggtcat	caagatcaat	tcctgctggt	tctcaccgga	46860
gatgatggag	tcggtcctgc	aatcccatcc	agcggtgaa	gagtgtgccg	tctgcgtcgt	46920
cattgacgac	tacgggttgc	caaggccgaa	ggcattcatc	gtcaccggcg	agcatgagcg	46980
ctccgagccg	gagctcgagc	acttgtgggc	cgagttgcgc	gttctgtcga	aagagaagct	47040
tgggaaggac	cactacccgc	atctgttcgc	gaccatcaaa	acgttcccc	ggacctccag	47100
cgggaagctg	atgcggtccg	aactcgcgaa	gctgctcacc	agcgggcccc	catgaatcca	47160
aagttcctcg	gaggcctggg	ggcaggggtg	tgcattgcct	ctttgttcca	gacggtcatg	47220
cggaccgtgc	cgctcaagga	cgccggctcc	ggcgacaggg	cttgtagtag	ttgctgcaa	47280
tgctgactcg	caccaagaac	ttcaatgtca	tgggaatcga	ctggatgcct	tcctccgcgg	47340
agttcaagcg	acgcgtcccc	cggacccagc	gggcggcaga	ggccgtgctc	gccggacgga	47400
gatgcttgat	ggatatcctg	gaccgcgggg	atcctgcgct	cttcgtcatc	gtggggccct	47460
gctccattca	cgatccggtg	gcggggctgg	actatgcgaa	gcggctgcgg	aaactcgctg	47520
atgaggttcg	cgagaccctg	ttcgtggtga	tgcgcgtgta	cttcgaaaag	ccgcgcacca	47580
ccacgggttg	gaaaggcttc	atcaatgacc	cgcgcatgga	tggctctttc	cacatcgagg	47640
agggcatgga	gcggggacgt	cgcttcctgc	tcgacgtggc	cgaggagggg	ctacccgctg	47700
ccaccgaggc	gctggacccc	atcgctcgc	agtactacgg	cgacctcatt	tcctggacgg	47760
ccattggcgc	gcgcaccgcc	gagtcgcaga	cgcaccgcga	gatggcgtcc	ggcctttcca	47820
ccccagtagg	cttcaagaac	ggcacggacg	gctcgctgga	tgcggccgtc	aatggcatca	47880
tctccgcttc	acaccgcac	agcttcctgg	gggtgagcga	aaatggcgcg	tgcgccatca	47940
tccgcacgcg	cggcaacacc	tacggccacc	tggtgctgcg	cggcggtggt	gggcggccca	48000
actacgacgc	cgtgtcgggtg	gcgcttgctg	agaaggcgct	tgccaaggcc	aggctaccca	48060
ccaacatcgt	ggtggactgc	tctcacgcca	actcctggaa	gaatcccag	ctccagccgc	48120
tggtgatgcg	ggacgtggtg	caccagattc	gcgagggcaa	ccgctcggtg	gtgggcctga	48180



21191\_PCT SeqList\_ST25.txt

tgatcgagag	cttcatcgag	gcaggcaacc	agcccatccc	ggcggacctg	tcgcaactgc	48240
gctacggctg	ctcggtcact	gatgcatgtg	tggactggaa	gaccaccgag	aagatgctgt	48300
acagcgcgca	cgaggagctg	ctccacattc	tgccccgtag	caaggtggct	tgacgcccga	48360
gggttgaggt	gtggttgctt	cccagcaggg	gttccccggc	caggtggcgg	cggcgcacgg	48420
cctggtacac	gcagcggcgt	tgagctttac	ggagagctcg	ggcgccggac	tgggctgctg	48480
gcgcctgatt	caaaggtcga	tgcgcagacc	caccccggcc	tggatggtag	gtggagcgac	48540
ggcgatggga	ggcgtcacct	gctcgcccat	gcgcagggcc	ggcaggttga	gcgcgaagcg	48600
gaactcgcca	ccccgctggc	catagttagc	ggcgatgaag	gcctcgatgc	tgagatagcg	48660
cagggccccg	tgcgtcacgt	ccaaccgtgt	gatgaaagaa	cggtcagaga	ggttgcccag	48720
gttggtacag	atgaagttgg	tgttgctcca	ggatcccggg	ccggacagga	acgcgtagac	48780
ggcggcgtag	tgccggccga	ggtagaaggg	ctgatactgg	ccctggagga	tgaggtaggg	48840
gtaggccagc	gagccgggat	agcccatcga	attgtagaag	tactcgacgc	ccacggtggc	48900
ggtgtcgctc	tccgagtagg	cgaacgtcca	ggtcgcgccg	ccgctcacct	gcggcgtgta	48960
accctcgggg	tagtacgcct	ctatggggag	cgcgcccagg	tcgggaggca	tgccgccatt	49020
gccctggaac	tgaccgagca	ggtctccgag	ggagacacct	tggggcatgc	ggaacatggg	49080
cgcacccgag	cccttcttga	gggcgagttc	gccgtagatg	tcgatggggc	cgagcccggg	49140
ggagaggtcg	agcccgaagc	ggggcttgcg	gccgtgttgg	agcacggcat	cgacgccgag	49200
ttccgtatgg	ccgagcacca	cctcggcgcg	agcagcgccc	ccgacgcggc	cgagcgtatt	49260
ggccggggcc	gcgttgtcga	gcaggccgag	gacgtagaag	ttccagcctt	tcgcctccca	49320
gggcatgtgc	atcttgagca	tggtcgcgcc	ggtgcgcgtg	tccaagaggg	cgagcggatc	49380
cctgcgtggg	ggcgagagga	agtcgggtggg	gttccagaag	cgcgaggtgc	cccacttcac	49440
gtgctgcttg	ccgacggtga	tgaagagctt	gtggtccagg	tcgaagcgca	gccaggcctg	49500
atccaacagc	acgaccggat	ccgcagcgac	gttggagggtg	gacgtgctcg	tggggacgat	49560
gccgagggag	cccgccttgc	gggtcggatc	gaagggtgagc	cgtccgagca	cgaagccgcg	49620
cagccgctcg	gtggggcggg	catcgaagta	gccgtccacc	agcatggggg	cggagaaggt	49680
ggtgttgctg	aaggacaccc	cttcgttggc	ctgtgagtag	gcgcgcaggt	agaagcggcc	49740
gccgatcttc	agcggatcct	cgacggcctc	ctcgggtgtcg	aaggcgttgg	tggccgacgg	49800
gccaccgagc	gcctgcgcac	cccggtcctg	gggcgtggcg	gagggcttgt	cgggggccgc	49860
ggtggccgcc	gcgctctgtg	cggccggggg	ggacgcgggg	gtgtcaccga	agaggggaact	49920
ctcgtcgggg	cggggcgcat	cggccggagc	gggcttcgtc	tctggagtgt	cgccgccgaa	49980
gaggtcgccc	tcgctgggac	gctcctgggc	gagcgcgggc	agcgcggcga	gggacgcggc	50040
cagggccagg	gaggtgcgcg	tgtcatcgcg	cttttgctct	cgaaccaggc	cttgggtgaag	50100
atgttctcct	cgagcgagcg	caggtccacg	ctcttcacga	cgatgacggg	ggagttggtc	50160
ttctccacct	cgtcatagaa	gcgcacatcc	tgcggtgtacc	agacgtcggc	cttcttggtg	50220

## 21191\_PCT SeqList\_ST25.txt

tcgctgaaga	gcttcatcca	cttggggaag	taggaggtgc	gcatcaggcg	gccggaaagg	50280
gcgaactcct	ggcgcttgag	gatgtttgtc	gtgtccttct	ccaccacag	gtgtaccacg	50340
gggtaggcga	cgtccacgtt	cggcttggcg	gtgaggacga	gcttccaggt	ggtgaacttg	50400
ccgagtttct	cctcgccctc	gaacttgcca	tcgagctcct	cggccaggcg	cgactcgtcg	50460
aagtcggcgc	ggcggtgtgc	ggtgccggcg	atacgctcac	gctcgggtgc	ccggtcccac	50520
ttgccggtgt	tcgggtcgta	gctccagagg	ttcttgtcca	gccgcaggta	gcccttgccg	50580
gcctcgccct	tgggcttggg	catgaggatc	atcagctgat	ccttctcgtc	gcgccggtag	50640
acgacggcct	cgcgcacgac	gtctgttttg	tccttctcct	tctgctcgat	atacaccagc	50700
gacttgtagt	cgccgccgtt	gcgctggcgg	ttgtcgagcg	tctccaggag	cttcttgatc	50760
tcggcggggt	cggtgaggtc	cgcgcgagcg	gtcggagcgg	ccagcagcag	cgcggcgaac	50820
agggcgccga	ggaggttgcg	cagggtcatg	gtcgtcacc	gatgtggtgc	atcgccgtga	50880
tgggcttcat	ccgcgcggcg	aggaaagagg	gaatgagcga	gatgaagggtg	gtgcacagcg	50940
tgatgaacgc	gatggctctc	atcaccgatc	cgggcttcac	gatgagggtg	agcttgctcg	51000
agaggatgaa	gagctggacg	ggcacgggca	cggaggggtc	cacggcggtg	atgagcaggc	51060
acacgcccac	gcccacgagg	gcgcccaccg	tggtgccgag	cagtccgagc	acgagcgcct	51120
ccaggaggaa	catcaccagc	acgtaccagc	gctgcatgcc	gatggcgcg	aggggtgccga	51180
tttcccgggt	gcgctcgcg	atggcgatcc	acaggggtgt	catgatgcc	accgcgatga	51240
tgatgagcag	cacgaagatg	aggacgccgg	tgagggcgct	catcgccgac	acggtccact	51300
tgatgaagga	gatctcgctc	tcccagttgg	tgatgtccag	cttctgcccc	gtccaggcct	51360
cgcggttgac	ggtctggaac	ttcatgaaga	aggcccgggg	gtcatgctcc	agcacctgat	51420
aacccaactc	gggcagacgc	ttgtagaggc	gcgcctgcac	gctgggggatg	gcgctcatgt	51480
ccttgagggtg	gagcatgagg	gcgccggtgg	agtcctcgcg	cagctggtag	agggcgcgca	51540
gggtggcggt	gggcaccaag	acgttgaaag	aactcagcat	gcccacgttg	gcggcgatgg	51600
ccaccacacg	tacgtccacg	gtgttgctga	tcccgcgcat	ggtggacgcg	gagaggggtga	51660
cgtgtcacc	caccttgacc	tcgagccgct	tcgcctgctc	gtcgaagagg	aggaggggtat	51720
tgggttgcg	caggtcttcc	aaccgaccct	cccgcaactg	cagcaccttg	cggatgccag	51780
tctcgccgc	tacgtcgatg	ccgccgattc	ccgtctgcac	ggagccagac	tcgctacca	51840
acttgaccca	gccgcgcgtg	cgctggacgg	agaagtccag	ctcggggact	tccttgcgca	51900
gctgtcagag	cagcttgggg	taggaggtca	ccacgggcgc	agactggccg	gccgtcacct	51960
tgtagaagcc	agccacgttg	acgtgcccgg	tcaccagcgt	ggtggcggac	cggagcatcg	52020
tgctcttcat	gccgttgga	aggcccatga	ggatgacgag	cagggccgtg	acaccggcga	52080
tggcgccgc	cagcagaagc	gtacggcgct	tgtgggtgcc	caggttgcg	actgcgatga	52140
ggaggagctg	ttgcatggct	tactcgtcc	gtctgcatcg	cctggagagg	cgagacccgg	52200
gtcgcgagg	acgcggggta	gaagggtggag	agggcgga	ccacgagcac	gatgacgaag	52260

21191\_PCT SeqList\_ST25.txt

gccgccacga	ggtttgacag	gtggagactg	gggaagaggc	ggggtcccga	gaagaagaag	52320
tagagcgcct	cgttgccggc	ggggatgccc	acgtggccga	gcatgttcat	gatggcacct	52380
cccatggcgg	ctcccagcac	gccgaagacg	agccccagca	ccaccgtttc	caccagcacc	52440
atgctcagca	cgaacgagcg	ctgcgcgccg	atggcccgcg	gggtgcccac	ctcgcgcacc	52500
cgctgcagcg	tggccatcat	catcgcgttg	ttgatgatga	cgagcgccac	cacgaagatg	52560
atgaagacgg	cgaagtagag	caccagcttg	gcgaccagga	cgaactggcc	gatcgtgccg	52620
gaggccttct	gccaggagat	gatccgcaag	ggtagtttcg	cgtcgtccgc	cgatttccgc	52680
agctcggcca	gggtctgctc	cagcttctcc	ggatgcttca	gcagaaccgc	ggtgctgagc	52740
accacgccgc	tttcgatttc	ctgctgcgtg	tacaccggg	aggcgagctc	ctcgcggtgc	52800
agcttctggg	cgagcccgtc	gagttgcttg	tcctcgtcga	tctggccggc	ggttcccctcg	52860
gccaccagcg	aggcgctgcc	ctgctcgcca	aagagcgccg	tctcggcgtc	ctcgcgcttc	52920
acctgctgca	ccccgctggc	cttctgcagg	cccgcgagct	cggccttctt	ctcagcggtg	52980
agatagccgt	acagctcgcg	gaaggacatc	agggtccagca	ggttgagggc	tccggcgacc	53040
gcggacttct	ccagcccgtc	gaactggtag	gtgccgtaga	tcttcacggt	cacgctctgc	53100
acatagccgg	tgcgcgagaa	tgcggtgatg	gtgaggtcgt	ccccgatgcg	gatgcggtac	53160
aggtcgagca	gcgtcgccag	ctcggagtag	aactgctggt	agcgcgtgtc	gaagttggcg	53220
tcatccatgg	tgaagaaggc	gggcagtagc	ttgcccaggt	ccgtctcctg	gctgcccagc	53280
acgcgctgga	gccgctccac	ggcctgcttc	gtcttgaggt	cgtcgagctg	gaagaggatc	53340
tcccgctct	gggtctgggt	ctccttcacc	cagcgctgga	gttgcggatc	catcgcgatg	53400
gtcttggtgt	tggtatcacg	cgcctccttg	atgagatcca	accggtgcgc	cgtcttcagc	53460
ttgaagtcgt	tctcgtaggt	gaacttggag	agcatcatgc	cgcggtgccc	cgggggcacc	53520
ggcgtgccct	ccacgatgcg	catgcggtcg	aaggctcttct	ggaagttgac	caggctcggtg	53580
cctacatagc	gcagggacaa	catgtccccg	tccgtcatat	acggggcgat	gcggttctcc	53640
aggaactcga	gcgagtcgaa	tggcttctcg	tcgaagtccg	cccagaaggc	ctcggaacgg	53700
gcgcggggcca	tggcctccgc	gtccgcgggg	tccgtggtct	tgtcgtcgat	gatttccctg	53760
cgccgcttca	tatcctcctc	gagcaagggtg	atgatgtgac	gcacatgcgc	ctggaggctg	53820
tggatctgcc	cgcggaagtc	gggtgtgtcg	ccctgtgctg	ctttcttgta	gaggtcgcgc	53880
aggcgcgcca	aggtcaggtc	gatggtgttt	cccagattga	tgaacgtggc	gccggtgccc	53940
atgggcacca	ccgtcttcac	gttgggggtgc	tgctgtacca	gttgcttgat	gcgcgagaag	54000
tcatccagcg	cgctcaggtc	cggttcgcgg	cccatctgcc	cgaagagcga	gagctcgtcc	54060
ttggagtggg	ccgagtacac	ctggagggtg	ccggcgacgc	tgccgataat	gctgcggctc	54120
atgcctcgt	ccacgctgtc	gacgaggag	ccggccacca	ccaccagcac	ggtgccgaag	54180
aagatgatgc	ctccgatgag	gaggttgatc	ctgctcacga	acaagttgcg	cagggccact	54240
tggagcagga	gcttgagttg	gcccattagt	ggccccctc	gctcacggcc	atgaccttct	54300

21191\_PCT SeqList\_ST25.txt

gggcctcggc	cggcgtgatg	cggtcgagga	tcttcccgtc	cgccaggcgc	accacggcgt	54360
tggcgtgggt	catcaccttg	gcgtcgtggg	tggagaagat	gaaggtggtg	ccctccttgc	54420
ggttgagctc	cttcatcagg	tcgatgatgt	tctggccggt	gacggagtcg	aggttggcgg	54480
tgggctcgtc	ggcgagcacc	agcttggggc	gggtgacgag	agcgcgcgcc	acggccacgc	54540
gctggcgctg	gcctccagac	agctcattgg	ggcggtgttt	ggcgtgcttc	tccaggccca	54600
cctgctccag	cagcgtcatc	acgcgcgtgc	ggcgtcggga	ggcgttgagc	ttgcgctgca	54660
gcagcagggg	gaactctacg	ttctggaaga	cgctgagcac	cgagacgagg	ttgaagctct	54720
ggaagatgaa	gccgatgggt	tgcagccgca	agtgggtgag	ctgccgctcg	gtgagcttct	54780
tgggtgcctg	gccatccacg	ctcaccacgc	ccgaggaggc	cgtgtccacg	cagccgatga	54840
gattgagcgc	cgtcgtcttg	ccactgcccg	atgggccggc	gatggagatg	aactctcccg	54900
ggtagacctc	tagcgtcacg	cctcggagtg	cgggcacctg	caccttacct	agggagtagc	54960
tcttggtaac	ctcggtgagg	gagacgatcg	gctgggtgct	gccggggagg	gcagtgcctt	55020
ggctcatgat	tgtttggatc	ctttccgcga	aacggaggga	tgggggtggg	gacgcctggg	55080
agggggggcg	ctcggcgtgg	gcgtgcgcgg	gacgagggtg	atggcactgg	gtattgaatt	55140
cgcagatgcg	cggctcccc	tggtattccc	ccaccggggc	aaaagttgcg	cgcttgctctg	55200
actactggcg	tcaagacatt	gagtcaacgc	cgaaggagag	cgcattccaa	aagaggcagc	55260
gtccatggag	cgaaggcagc	ggcgagtggt	gcatgcgctc	agaggggaaa	acagggctcg	55320
taggacagag	gaatcgaacc	tcccggggac	atgtctccat	gccccccacc	ggttttgaag	55380
gctgggtggt	tcagtggggg	tctccctcgg	agattgcacg	tggttccact	cggctgtatc	55440
ccaggggacgt	aataggggac	taatcccgaa	tccgatgggt	gcagcatgcc	gcagaagtcc	55500
gtgggggaagt	ggaagggcgg	gcgggtcaag	ctcgtcgatg	gtcggaagggt	gtggctcctc	55560
gagaagatgg	tctccggggc	ccggttctcg	gtctccttgg	cggctctcaa	cgaggaggac	55620
gcgctggccg	agctggccct	gttccggcgc	gaccgggacg	cctacctggc	caaggatgaag	55680
gccgacaggt	cggaggaagt	ccaggcatcc	actgtagccg	gggcagttcc	tctgtcgggg	55740
gatgtggggc	ctcggctcga	tgccgattct	gtccgggagt	tcctccgaca	cttgaccacg	55800
cgggggcgaa	cggagggtta	ccggcggggc	gcccgaacct	acctgtcgca	atgggcccag	55860
gttctggccg	gaaggggac	gagtaccgtc	agcctcctcg	agttgcgccg	cgccctgagc	55920
caatggccca	cggccaggaa	gatgcggatc	atcacgctca	agagcttctt	ctcgtggctg	55980
agggaagagg	atcgccctca	ggctgctgaa	gacccacgtg	tgtccctcaa	gggtgccgcc	56040
gcggctcgcg	agaaggggag	acgggccaag	gggtattcga	tggcccaagt	ggagaagctc	56100
tacgcggcca	tcggctccca	gacggtgagg	gacgtgctgt	gtctgcgggc	caagaccggc	56160
atgcacgact	cggagatcgc	ccgcctggca	tcgggcaagg	gggaactgcg	cgctcgtcaat	56220
gacccctccg	gcatcgccgg	tactgcgcgg	tttctgcaca	agaacggccg	cgttcacatc	56280
ctcagtctgg	atgcccaggc	ccttgctgcc	gcgcagcggc	tccagggttcg	gggcagggcg	56340

21191\_PCT SeqList\_ST25.txt

cccatcagga	acaccgtccg	ggagtccatc	gggtatgctg	cggcgcgcat	tgggcagtcg	56400
cccatccatc	ccagcgagct	ccgccacagc	ttcaccacct	gggccacgaa	tgagggccag	56460
gtcgtgaggg	caacccgggg	cggagtgcc	ctcgatgtcg	ttgcctcgg	tcttgccat	56520
cagtccacac	gggcgaccaa	gaagttctat	gacgggaccg	aaattcccc	gatgatcacc	56580
gtcccgtca	agctgcatca	tccacaggac	ccagcggtag	tgcagctgag	gcgtaactgc	56640
tcgccggacc	ccgtcgtgac	gagagaggca	gaggcgtgag	acgtccaggc	catcaacctg	56700
gaggtacacg	tggagacgtc	cggggctcct	ccccgcacct	ccttcgaggt	tgatttcctg	56760
tgctcctcgc	attccccctc	ggcctcctgt	cgctggcgct	cctgtccact	accaccgaaa	56820
tctctgcggc	tcttcccgtg	gacgagtgcg	agtcggcgag	cctgcgcac	gagctgccc	56880
ctacgccagg	gggaaagcca	cccgtggtgt	gtctcgggtc	aggtctgccc	attcatttcc	56940
gcttcgactc	cgcgctccaa	cagaagtccc	tgaggattca	ggatcggggc	tggttcgagg	57000
attgggcttt	gggccagcag	acgtcgtac	tgactcctca	cgacaacctg	gtggctggga	57060
agcgatctga	agtggaggtg	tgcttcgcgg	atggtgccgc	cccggcgtgc	gcttccttcg	57120
tgctccggcg	ctgaggcgag	tgcaccgcac	tgattcagtt	cctcttcaac	cccggtagcg	57180
ctcggccacg	cggtagagct	gggtgaggga	gtagtccagc	aacgattcgc	acgagcgcat	57240
gtagtggtag	gccccgcgaa	acggcaacca	cacacggttg	ccgacgagca	cctgggcctc	57300
gtcgagtttc	tggcgaggta	tccacttgcc	gcccaggtta	cgcaccagca	cctcgcccaa	57360
gtacgcgcca	atggcgggca	ccgcgtgcgc	gtcgatgtgc	tgccgctcga	acaccctcgg	57420
gaagtcctca	tgccagaact	ggtagtccac	gtactgaga	gactcgggcg	ttgcctcgaa	57480
gacggagggc	accttcgtgt	gcatcagcgc	cacgaggtgc	tcagccagag	ttctgtaatg	57540
ctcggttagcg	cgctccaggt	ttccacatc	cggatggcga	cgctatccac	cacgtgagag	57600
aggagtggcg	ctacatccgg	gtggaagcag	ggctcaacgg	gagcgagcgc	ggcgctacgc	57660
tcgtgcaggg	ttcgcagcac	cgtgtcgaag	cggaggtccg	gccggaggtg	aacgtgcgcg	57720
cgcgcctgtg	cgtgccgtgc	ctcggcgccc	gcgaagtccg	cagcgggtgg	ccacgtcacc	57780
aggaggatgg	agccattggg	cagttcctcc	acccggtgag	ctggcgtgga	cagcatgcgc	57840
tcgcggccca	cggcttccac	caacttgggg	ccgaagacgt	tgagccagaa	gatctcgtag	57900
attctgtcga	acccgtctct	ccgtgcggtc	cgcgcacgcg	gtccaaaatc	gggcgcacct	57960
gccaacgccc	tgtcagccac	gctgtgggct	gcggcgtgag	tgaccgggta	gcaagaggcc	58020
caggtgcgta	ccatttctac	gaattggcgg	cagcgtcctc	tctccgcgaa	gcgggtgagc	58080
ggttgcaccg	tagtcattac	gtccaaagcg	ggcggaagcg	gcggaaacca	gagatgcagc	58140
gacatctcca	gtgtcggccg	ctgtgtgcgg	tagagccagg	tgtctgtgct	tcgttcatcg	58200
cgccgctcct	ccagagcctt	ccagatattg	gctcgggag	atttgagtcg	ccgcctgcc	58260
ctgacgactt	ccggcatcca	atcgccctga	tattcctcca	gcgcctggaa	aaatggctcg	58320
agaactttct	caagcgcagc	ctgcggatca	agcgcaccct	caaaagtgag	ccggagactg	58380

21191\_PCT SeqList\_ST25.txt

tcctccgact tcacgtcacc aagccccagc accttcattg aaacaggacc tccactcccg 58440  
gaactgcctt ctcaagt 58456

<210> 2  
<211> 213  
<212> DNA  
<213> Cystobacter velatus

<220>  
<221> misc\_feature  
<222> (1)..(213)  
<223> CysA

<400> 2  
atgagcatga acggggacga agccgagtac gttgtcttga tcaacggcga agagcagtac 60  
tcgctctggc ccgtgcaccg cgaaattccg ggcggttga agaccgttgg gcccaagga 120  
agcaaggaaa cgtgtcagtc ctacatccag gaggtctgga cggacatgag gccgaaatcg 180  
ctacgggaag ccctgacgcg cagcaactgc tga 213

<210> 3  
<211> 954  
<212> DNA  
<213> Cystobacter velatus

<220>  
<221> misc\_feature  
<222> (1)..(954)  
<223> CysB

<400> 3  
atgagtacgc cagcagcagg agcgaagccg tcctatctcg cgggtattga aacggtgatg 60  
gtcgaacctg agcttgagga gggtcgtac ctgaccgtgg agagcggcga cggacggcag 120  
agtaccctct atgagttcgg tccgaaggac gcggagaagg tcgtggtctt gccgccctac 180  
ggagtcacct tcttgctggt ggcgcgactc gcccggctcc tctcccagcg attccatgtc 240  
ttgatttggt agtcaagggg gtgtccggac tccgccatcc cgggtgatga cacggacctt 300  
gggctcgccg accagtcaag gcatttctcc gaggtcctca agcagcaggg cttcgaggcg 360  
tttcacttcg tcggctggtg tcaggcggcg cagctggccg tgcattgccac cgccagcggc 420  
caggtcaagc cgcggacgat gtcttgatt gcccgggcg ggctgggtta ctgctgggtc 480  
aagtccgagt tcgatcgatg tgcactgccc atctacctgg agatcgagaa gcatggcctg 540  
ttgcacgccg agaagctcgg caggcttctg aacaaataca atggcggtcc cgcgacggcg 600  
cagaacgcgg cggaagagct gacgatgccc catttgccg acccgcgat gacatacgtc 660  
ttctccaggt acatgaaggc gtatgaagac aacaggctcc tcgccaagca atttgtctcg 720  
accgcgctcg actcggtgcc gacgctggcc attcactgcc gggacgacac gtacagccac 780  
ttctcggagt ccgttcagct ctggaagctg catccatccc tcgagcttcg cctactcggg 840  
aagggcggcc atctgcagat cttcaacgac cccgccacac tggcggagta cgttctcggg 900

## 21191\_PCT SeqList\_ST25.txt

ttcatcgaca ccagggcgtc gcaggctgcc gctcctgcgg tggcgggagc gtag 954

<210> 4  
 <211> 1380  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(1380)  
 <223> CysC

<400> 4  
 atgatacttc ccaacaacat cggcctcgac gagcggacgc agctcgacgc gcagatctcc 60  
 tcgtaccaga agaagttcca cgtgtggtgg cgcgagcggg ggcccaccga gttcctcgat 120  
 cggcagatgc gccttcgcac gccgaccggg gcggtcagcg gcgtggactg ggccgagtac 180  
 aagacgatgc gtcccgcacga gtatcgctgg ggcctcttca tggtgccgat ggaccaggac 240  
 gagatcgctt tcggcgacca ccgtggcaag aaggcgtggg aggaggttcc gagcgaatac 300  
 cgcacgctgc tgctgcagca catctgcgtg caggccgacg tggagaacgc cgccgctcag 360  
 cagagccggc tgctgacgca gatggcgccg agcaaccggg acctggagaa cgtgttccag 420  
 ttcttctctg aggaggggcg ccacacctgg gccatggttc acctcctgct cgcccacttc 480  
 ggtgaggacg gggctcgtcga ggccgaagcg ctcttgagc ggctgagcgg tgacccgagg 540  
 aacccccgct tgctggaggc gttcaactat ccgaccgagg actggctgtc ccacttcatg 600  
 tgggtgcttg tggccgaccg ggttggcaag taccagatac atgcagtgc cgaggcttcg 660  
 ttcgccccgt tggccccggc ggcgaagttc atgatgttcg aggaaccgct ccacatcgcc 720  
 atgggcgccc tgggtcttga acgagtgcgt gccaggaccg ccgaggtcac cctgcgtgag 780  
 gggacgttcg atacgttcca cgcggggggc attccgttcc cggttggtcca gaagtatctc 840  
 aattattggg cgccgaaggt ctacgacctc ttcggaaacg acggctccga acgctcgaac 900  
 gaactcttcc gggctgggct ccggagggccg cggaatttcg tgggaagcga atcgagatc 960  
 gttcgcatcg atgagcgcgt gggcgacgga ctgaccgtcg tggaagtgga aggggagtgg 1020  
 gcgatcaacg ccatcatgcg acgacagttc atcgccgaag tgcaaacgct cattgatcgc 1080  
 tggaacgcca gcctgcgagc gctgggcgtc gacttccagt tgtacctccc tcacgagcgc 1140  
 ttcagcagga cctatggccc ctgcgccggt ctgcccttcg acgtggacgg aaaactgctc 1200  
 ccccgcgcca cgaggcgaa gctcgccgag tacttcccca cacctcgca actcgcaac 1260  
 gtccgctcgc tgatgcagcg ggagctggct cccgggcagt actcctcgtg gatcgccccg 1320  
 tccgcgacgc ggctgagcgc gctggtccag ggcaggaaca cgcccaagga gcacgaatga 1380

<210> 5  
 <211> 2199  
 <212> DNA  
 <213> Cystobacter velatus

## 21191\_PCT SeqList\_ST25.txt

<220>  
 <221> misc\_feature  
 <222> (1)..(2199)  
 <223> CysD

```

<400> 5
atgCGttgcc tcatcatcga caactacgat tcgttcacct ggaatctggc ggactacgtt      60
gcgcagacgt tcgggagcga gccgttggtc gtccgcaacg accagcatac ctggcaagaa      120
atcaaggcct tgggctcctt cggatgcata ctggtttctc cgggtccggg ctcggtgacc      180
aatccgaagg atttcaatgt ctcgcgagac gcgctcgagc aggatgagtt cccggtgttt      240
ggggctctgcc tgggccatca agggctggcg tacatctacg ggggcgagat cactcacgct      300
ccggttccgt tccacggcag gacgtcgacc atctaccatg acggcacggg cgtgtttcag      360
ggactcccgC cgagcttcga cgcggtgaga tatcactcgc tggctcgtgcg gccggagtcg      420
cttcccgCga acctggtcgt caccgctcgg acggaatgcg gcctgatcat ggggttgCgg      480
cacgtgagtc gcccgaagtG gggcgTccag ttccatcccG agtcgattct gactgcgcac      540
ggcttgCagc tcatctccaa tttccgtgac gaggcgtacc gatacgCggg gaaagagggt      600
ccgtcgcgcc gtccccattc gactgccggc aacggtgtcg gcgcagggtc tgccaggcgt      660
gacccgagcg cccgccgcac accggagcgg agaagggaac ttcagacgtt caccaggcgg      720
ctggcgacgt ctctcgaggc cgagaccgtt ttcttgggcc tgtatgcggg ccgcgagcac      780
tgcttctggc tcgacagcca gtccgtgaga gaagggatat cccggttctc cttcatgggc      840
tgcgTgccgg agggctcgtc gctgacgtac ggcgtgcgg aagcggcgtc agaggggggc      900
gccgagcggT acctggcggc gctggagcgg gcgctcgaaa gccgtatcgt tgTtcGccc      960
gtggatgggc tgccattcga gtttcatggc ggctacatcg gttcatgac ctacgaaatg     1020
aaggaggcgt ttggggccgc gacgacgcac aagaacacta ttcccGacgc cttgtggatg     1080
cacgtgaagc ggttcctggc gttcgaccac tcgacgcgag aagtgtggct ggtcgccatc     1140
gcggagctcg aggagagcgc gagcgtcctc gcctggatgg acgagaccgc cgacgtctcg     1200
aagtcgcttc cgcgcggcac ccgttcgccc cagtccctgg ggttgaaatc catctcggtA     1260
tcaatggatt gtggacggga tgactacttc gccgccatcg agcgtgcaa ggagaagatc     1320
gtcgatgggg agtcctacga ggtctgcttg acgaacgggt tctcgttcga tctgaagctg     1380
gatcccgtcg agctgtacgt gacgatgcgg agaggcaatc ccgccccgtt cggcgctttc     1440
atcaagacag gcaagacctg cgtcctcagt acctccccgg agcgttcctt gaaggtggat     1500
gaggatggga cggTccaggc caagcccatc aaggggacct gcgcgcgctc tgacgacccc     1560
gccaccgaca gcacgaatgc cgcgcggtcg gccgcctcgg agaaggaccg ggcggagaac     1620
ctgatgatcg tggacctgat gcggaacgac ctcggacggg tgtccgtgcc gggcagcgtc     1680
catgtctcca atctaattgga catcgagagc ttcaagacgg tccatcagat ggtcagcacc     1740
gtcgaatcga ccttgacgcc ggagtgcagc ctcgttgacc tcctgcgcgc ggtcttcccG     1800
gggggatcca tcaccggggc tccaagatc cgcacgatgg agatcatcga tcggctcgag     1860

```



21191\_PCT SeqList\_ST25.txt

aagagccctc	ggggcatcta	ctgcggcacg	atcggtacc	tcgggtacaa	ccggatcgcc	1920
gacctgaaca	tcgccatccg	caccttgtcc	tacgacggca	ccctcgtgaa	gttcggtgcc	1980
ggcggagcca	tcacctactt	gtcacagccg	gagggggagt	ttcaggagat	cctgctcaag	2040
gcggaatcca	tcctccggcc	gatttggcag	tacatcaatg	gcgcgggtgc	ttccttcgaa	2100
ccccagttgc	gcgaccgggt	tctgtgcctg	gaggagaagc	cgcaagggt	cattcgtggc	2160
cacgggtcgg	caattgatgc	agtggagcct	agcgcgtga			2199

<210> 6  
 <211> 732  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(732)  
 <223> CysE

<400> 6	
atgattgcgt	tcaaccgca ggcgcggccc aggtgcggc tcttctgctt tccgtacgcc 60
ggtggcgacg	cgaacatctt ccgggactgg gccgcggcga tgcccagggg ggtcgaggtc 120
ctcggcgttc	agtaccccg ggcgcgtacc aacctggcgt tgccgccgat cagcgactgt 180
gacgagatgg	cgtcacaact gctggcggtg atgacgccgt tgcttgcat caacttcgct 240
tttttcggcc	acagcaatgg cgccttgatc agcttcgagg tggcggaag gctccacgac 300
gaactgaagg	gccgcatgcg gcatcacttc ctgtcgccca agtccgcccc tcaactaccg 360
aacaacagga	gtaagatcag cggcctcaac gacgaggact ttctccgggc gatccggaag 420
atgggcggta	cgccccagga agtgctcgac gacgcccggc tgatgcagat tctgctgcca 480
agactgcgcg	cggacttcgc gctcggcgag acgtatgtgt ttcgccccgg acccaccctg 540
acgtgcgacg	tcagcatcct gcgaggcgag agcgaccacc tggtcgacgg cgagttcgtc 600
cagcgggtgg	ccgagctgac gacgggcggc gcgagccagt acgcaataga tgggtggccat 660
ttcttcctga	attcccacaa gtcgcaggtc gtggcgctcg tgcgagcggc actgcttgag 720
tgtgtgttgt	ag 732

<210> 7  
 <211> 1038  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(1038)  
 <223> CysF

<400> 7	
atgaccgctc	agaaccaagc ctccgcgttt tctttcgatc tcttctacac gacggtcaat 60
gcgtactacc	ggaccgccgc cgtcaaggcg gccatcgagc tcggcggtgt cgacgtcggt 120

21191\_PCT SeqList\_ST25.txt

ggcgagaagg gcaagaccct ggccgagatc gcgaaggcct gcaacgcgtc gccgcgtggc	180
atccgcattc tctgccggtt cctcgtgtcg atcgggttcc tcaagaatgc gggtagattg	240
ttcttcctca cgcgagagat ggccctgttt ctggacaaga agtcgcccgg ctatctgggc	300
ggcagcattg atttccttct gtcgccgtac atcatggacg gcttcaagga cctcgcgtcg	360
gtggtgcgga cgggagagtt gacgctgccg gaaaaagggg tggtagcgcc agatcatccg	420
cagtgggtga cgttcgcgcg cgcgatggcg ccgatgatgt ccctgccatc cctcctgctc	480
gcggaactgg cggaccgcca ggcaaccag ccgctcaagg tgctcgatgt cgccgccggc	540
cacggcctct tcggcctggc catcgcccag cggaatccga aggcgatgt gacgttcctc	600
gactgggaaa acgtgctaca ggtggcgcgc gagaacgcga cgaaggcggg agttctcgac	660
agggtcgagt tccgcccggt agatgccttc tccgtggact tcggcaagga gctggacgtc	720
atcctcctga cgaacttctt gcatcacttc gacgaggcgg gctgcgagaa gatcctcaag	780
aaggcccacg ctgccctgaa ggagggcggc cgtgtgtctga cgttcgagtt catcgcaac	840
gaggaccgga cgtgcctcc gcttgccgcc acgttcagca tgatgatgct cggcacgacg	900
cccggcggtg agacctacgc ctactccgat ctggagcgga tgttcaagaa cacgggttac	960
gatcaagtcg agctcaaggc cattcctccc gcgatggaga aggtcgtcgt ttcgatcaag	1020
ggcaaagcgc agctctga	1038

<210> 8  
 <211> 5979  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(5979)  
 <223> CysG

<400> 8	
atggccacca aattgtctga cttcgcgtc ctcgactccg aagacgccaa cgtcatctcc	60
cgctcgaacg agacggggat atcgttgat ctgtccaaga gcgtggttga cttgttcaac	120
ctccaggctc agagggcgcc tgacgccacg gcgtgtctcg gccgccaggg gcgcttgact	180
tacggagaac tcaaccggcg gacgaaccag ctcgcgcac acctgatcgc gcgaggcgtc	240
gggccggatg ttcccgtggg cgtcctgttc gagcgctccg ccgagcagct catcgccatc	300
ctgggcgtcc tcaaggcggg cgggtgttat gtcccgttg atccgcagta ccccgccgat	360
tacatgcagc aggtcctgac ggacgcccg ccgcggatgg tggtagcgag ccgggcgctc	420
ggcgagcgcc tccgctcggg cgaggagcag atcgtctacc tcgatgacga acagctcctg	480
gcgcgcgaga cccgcgacct gcctgtgaag gtgttgccgg agcagctcgc gtacgtgatg	540
tacacgtcgg gtcgtccgg agtgccgaag ggcgtcatgg tgccccatcg ccagatcctc	600
aactggctgc atgcactcct ggcgcgggtg ccgttcggcg agaacgaagt ggtggcccag	660

## 21191\_PCT SeqList\_ST25.txt

aagacgtcca	cgtcattcgc	catctcagtg	aaggaactct	tcgcgggatt	ggtcgcgggt	720
gtcccgagcagg	tcttcatcga	cgatgcgact	gtccgcgacg	ttgccagctt	cgttcgtgag	780
ctggagcagt	ggcgcgtcac	gcggctctat	acttttccct	cccagctggc	ggcgattctc	840
tcgagcgtga	atggcgcgta	cgagcgccctc	cgctcgctgc	gccacctgta	catctcgatc	900
gagccctgcc	caacagagct	gctggcgaag	ctccgggcgg	cgatgccgtg	ggtcaccccc	960
tggtacatct	atggctgcac	cgagatcaac	gacgtcacct	actgcgaccc	aggggaccag	1020
gctggcaaca	cgggcttcgt	gccgatcggg	cggcccatcc	gcaacacgcg	ggtgttcgtc	1080
ctcgacgaag	agctccggat	ggtgcccgtc	ggcgcgatgg	gtgagatgta	cgtggagagc	1140
ctgagcacgg	cgcggggcta	ctggggccct	cccagattga	cggcggagcg	gttcatcgcc	1200
aaccctcacg	cggaggacgg	ttcgcgcctg	tacaagacag	gcgacctcgc	ccgctacctg	1260
ccggatgggt	ccctggagtt	cctcgggcgc	cgggactacg	aggtgaagat	ccgcgggtat	1320
cgcgtggacg	tccggcaggt	cgagaaggct	ctcggggcgc	atcccagacat	cctcgaggtg	1380
gcggtggtgg	gctggccgct	cggcggggcg	aatccacaac	tggtcgccta	cgtcgtgccg	1440
agggcggaagg	gggctgctcc	catccaggag	atccgggact	acctgtcggc	gtccctgccg	1500
gcctacatgg	tgccgacgat	cttccaggtg	ctggcggcgc	tgccacgtct	tcccaatgac	1560
aaggtggatc	ggttgagcct	gcccgaaccc	aaggtggagg	agcagaccga	ggggtacgtg	1620
gcgcctcgca	cggaaaccga	gaaggtagct	gccgaaatct	ggagcgacgt	cctcagccag	1680
ggccgggccc	ccctgaccgt	cggcgcgacg	cacaactttt	tcgaactggg	aggccattcg	1740
cttctcgccg	cccagatggt	ctcgcggatc	cggcagaagt	tcgatctcga	actgcccata	1800
aacaccctgt	tcgagacccc	cgtgctggag	ggctttgcga	gcgccgtcga	cgcggtctct	1860
gccgagcgga	acggtccggc	gcagaggctg	atcagcatga	cggaccgcgg	ccaggcgctt	1920
ccgctgtcgc	acgtccagga	gcggctctgg	ttcgtgcacg	agcacatggt	cgagcagcgg	1980
agcagctaca	acgttgccct	cgcctgccac	atgctgaggc	aggggctgtc	gatgccggcg	2040
ctgcgcgccg	ccatcaacgg	gctgggtggct	cgccacgaga	ccttgccggac	gacgttcgtc	2100
gtctccgagg	gcggaggaga	tcccgtccag	cggatcgccg	actccctgtg	gatcgagggt	2160
ccgctatatg	aggtcgatgc	gtcgggaagtc	ccggcccgcga	tggcggccca	cgcgggccac	2220
gtgttcgacc	ttgcgaaggg	ccccctgctg	aagacctcgg	tcctgcgggt	gacgcccgat	2280
caccacgtgt	tcttgatgaa	catgcatcac	atcatctgtg	atgggtgggtc	gatcgacatc	2340
ctgctgcggg	acctctacga	gttctacaag	gcggccgaga	cgggctcgca	gccgaacctg	2400
ccggtcctgc	caatccagta	tgccgactac	tccgtgtggc	agcgtcagca	ggacctcagc	2460
agtcacctcg	actactggaa	gaagacgctc	gagggctacc	aggaagggtt	gtcgttccg	2520
tacgacttcg	cccgcccgtc	caacaggacc	tggcgtgccg	cgagtgtccg	gcaccagtac	2580
ccggcggaac	tcgccacccg	tctgtcggag	gtgagcaaga	gccatcaggc	gacggtgttc	2640
atgacgttga	tggccagcac	ggcaatcgtg	ctgaaccggt	acacgggtcg	ggatgatctg	2700

## 21191\_PCT SeqList\_ST25.txt

tgctggtggtg	ccacggtggc	gggccgtgac	cacttcgagc	tcgagaacct	gattggcttc	2760
ttcgtcaaca	tcctcgccat	caggctcgac	ctcagcggga	atccacggc	cgagacggtg	2820
ctgcagcggg	cgcgagcgca	ggtgctggaa	ggcatgaagc	atcgcgacct	gccgttcgag	2880
cacatccttg	cggcgctgca	gaagcagcgc	gacagcagcc	agattcccct	ggtgccggtg	2940
atggtccgcc	accagaactt	cccgcagtg	acctcgagc	agcaggggct	cgacctgggt	3000
atcggggaga	tcgagtttgg	tgagcggacg	acgccaacg	agctcgacat	ccagttcatc	3060
ggcgagggaa	gcacgctgga	ggtggtggtc	gagtacgcga	aggatctgtt	ctccgagcgc	3120
acgatccagc	ggctcatcac	gcacttgagc	cagggtgctg	agactctcgt	ggacaagccg	3180
gactgccggc	tgacggattt	tccgctggtg	gccggggacg	cgctgcaggg	cggtgtgtcg	3240
ggctccgggg	gcgcgacgaa	gaccggcaag	ctcgacgtgt	cgaagagccc	ggtcgagttg	3300
ttcaacgagc	gggtagaggc	ctcgccggac	gcggtcgctt	gcatggggcg	ggacggaagc	3360
ctgacctacc	gggagctgga	ccgaagggcc	aatcaggtcg	cccgccacct	gatggggcga	3420
ggggtggggc	gggagacgcg	ggtgggggtg	tggttcgagc	gctcgccgga	cctgctggtc	3480
gcactcctgg	gcataactca	ggcggggggc	tgcttcgttc	cgctcgatcc	gagctatccg	3540
caggagtaca	tcaacaacat	cgctgccgat	gcgcagccgc	ttctggtgat	gtcgagccgg	3600
gcgctgggct	cacgcctgtc	actggaggca	ggcgggctgg	tgtacctcga	tgacgcgctg	3660
gcggcggtcca	ccgatgcgag	cgatccccag	gtgcgcatcg	acccggagca	gctcatctac	3720
gtcatgtaca	cctccggttc	caccggtctg	ccgaaggggg	tgctcgttcc	ccatcggcag	3780
atcctgaact	ggctgtacct	gctgtggggc	atggtgccct	tcgggcagga	cgaggtggtg	3840
gcgcagaaga	catccacggc	cttcgcggtc	tcgatgaagg	agctcttcac	ggggctgctg	3900
gcgggcgtgc	cccaggtatt	catcgacggc	accgtggtca	aggacgcggc	ggccttcgtg	3960
ctccacctgg	agcgatggcg	ggtcacccgg	ctgtacacgc	tcccgtcgca	cctcgatgcc	4020
atcctgtccc	acgtcgacgg	ggcggcggag	cgctgcgggt	ccctgcggca	tgtcatcctc	4080
gcggggggagc	cggtccccgt	tgagctgatg	gagaagctgc	gcgagacctt	gccgtcgtgc	4140
acggcggtggt	tcaactacgg	ctgtaccgag	gtcaacgaca	tctcctactg	cgtcccgaac	4200
gagcagttcc	acagctcggg	gttcgtgccg	atcgccgggc	ccatccagta	caccggggcg	4260
ctggtgctcg	acgacgagct	gcggacggtg	ccggtgggca	tcattggggg	gatttacgtc	4320
gagagccccg	ggacggcgcg	gggctactgg	aggcagccgg	atttgacggc	cgagcggttc	4380
atccccaacc	cgttcggcga	gccgggtagc	cgctcttacc	gtacggggcg	tatggcgcg	4440
tgctttaggg	atggctcgct	ggagttcttg	gggcgcccgg	actacgaggt	caagatccgt	4500
ggccatcgcg	tggacgtccg	ccaggtcgag	aagatcctcg	cgagccaccc	ggaagtcctc	4560
gagtcggcgg	tggtgggctg	gccacggggg	gcgaagaacc	ctcagttgct	tgcttacgcc	4620
gccacgaagc	cgggcccgtc	cctgtcgact	gaaaacgtgc	gggagtacct	gtcggcccgc	4680
ttgccgacgt	acatggtgcc	aacgctctac	cagttcctgc	cagcgctgcc	gcgcctgccc	4740

21191\_PCT SeqList\_ST25.txt

aatggcaagc tgcaccgctt cgggctgccc gatcacaaga aagtcgaggt gggcggcgtc	4800
tacgtcgcgc cgcagacgcc gacggagaag gtcttggcgg gactgtgggc cgagtgcctc	4860
aagcagggcg acatgcccgc gccgcaggtt ggccgcttgc acaacttctt cgacctcggc	4920
gggcactcgc tgctcgccaa tcgcgtactg atgcaggtgc agcggcattt cggggtcagc	4980
ctgggcatca gtgcgttgtt cggttctccg gtgctgaatg acttcgcggc ggccatcgac	5040
aaggcgctcg ggaccgagga gccaggcgag gaagggtcga gcgacgcacg agaggtcgct	5100
gcgaaggaca cctccgtgct cgtgccgctc tccaccacg ggacgctgcc gagcctgttc	5160
tgctgccatc cgggtgggcgg gcagggtccat gcctaccgcg agctcgcca ggcgatggag	5220
aagcacgcca gcatgtacgc gctccagtcg gagggcgccc gtgagttcga cacaatcgag	5280
accttggcgc gcttctacgc cgatgcgatc cgcggggctc agcccgacgg gagctaccgt	5340
ctcctcggat ggtcttctgg tgggtcatc accctggcga ttgctcgca gctggagcac	5400
cagggtcgc ccgtggagta cgtgggcctc gtggattcaa agccaatccc gcggttggcg	5460
ggtgagcgc gctgggcgtc gctgatcgcg gcgacgaaca tcctgggcgc gatgcggggg	5520
cgcggcttct cggtcgcca ggatcgatgct gccgggaaga tcctcgagtc gcgcggatgg	5580
acggaggagt ccttcgactc ggaggggcat gcggcggttg aggagttggc tcggcacttc	5640
ggcatcaccg tcgcgcaaga gtcacggag tacctcctgg ccggttcaa gaccacgaag	5700
tactacttgt cgctgttcgc tggcttcaag ccggcggcgc tcgggccgga gacgtacctc	5760
tatgaggctt cagagcgggt cggagccacc tcgaacgacg acacgggcga gtggggggac	5820
gcgctggatc gcaaggccct gcgggcgaac atcgtgcagg tgccaggcaa tcactatact	5880
gtcctgcagg gagagaacgt gctgcaactg gcggggcgga tcgccgaagc cttgtctgcg	5940
atcgacaact cgggtggaac gaggacgcga gcttcgtga	5979

<210> 9  
 <211> 2928  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(2928)  
 <223> CysH

<400> 9	
atggacaatc gagagatcgc acccacccaa tcggcgcgca cgcgtgatgc gtacacggcg	60
gtaccaccag ccaaggccga gtatccgtcg gacgtctgtg tgcaccaact gttcgagttg	120
caggcggaca ggattcccga cgcggttgcg gcgagggcgg ggaacgagtc cctgacctac	180
cgggagctga acttccgggc gaatcagctc gcccgggtacc ttgttgcgaa aggcgtggtc	240
ccgcgaggct cgggtggcgt gctgatgaac cggaccctcg cgtgtctggt ctactgctc	300
gccatcatca aggcgggcgc ggcgtacgtt ccggtggacg ccggattgcc cgccaaacgg	360
gtggactaca ttctgacgga cagcggcgcg acctgcgtcc tgaccgacag ggagacgcgg	420

21191\_PCT SeqList\_ST25.txt

tcactcctcg acgagccgcg gtcggcttcg acgctcgtca tcgacgtgga tgatccatcc	480
atctattcgg gcgagaccag caacctcggg ctcgctgtcg atcccagca gcaggtctac	540
tgcatctaca cctcgggttc gacgggcctt cccaaaggcg tgatggtcca gcaccgcgcg	600
ctgatgaact acgtctggtg ggcgaagaag cagtacgtca ccgacgcggt cgagagtttt	660
gccctgtact cctcgttgct gttcgacctc acggtcacct ccattctcgt tccgctgac	720
tccggacgct gcatcgatgt gtacccggac ctgggcgagg acgtccccgt catcaaccgg	780
gtactggagg acaataaggt cgatgtcgtg aagctcacgc cggcccacct tgccctgctc	840
aggaacacgg acctatcgca aagccggctg aaagtgtca tcctgggagg agaggacctc	900
cgagcggaga cggcggggga cgtccacaag cggctggacg gccgggcggt gatctacaac	960
gagtacggcc ccacggagac cgtcgtgggg tgcatgattc accgctacga ccccgcggtg	1020
gatctgcacg ggtcggtgcc gattggagtg ggcacgaca acatgcggat ctacttgctc	1080
gacgaccgtc ggcgtcccgt caagccagga gaggttggcg agatttacat cggaggcgac	1140
ggtgtgaccc tggggtacaa ggacaagcct caagtcacgg cggaccactt catctccaat	1200
ccgttcgtgg aaggggagcg gttgtacgcc agtggcgacc tcggccgggt gaatgagcgc	1260
ggcgcgctcg tcttcctcgg ccggaaggat ttgcagatca agctgcgggg gtaccggatc	1320
gagctgggcg agatcgagag cgcccttctc tcctatccgg ggatcaagga atgcatcgtc	1380
gattcgacca agaccgcgca gagccaggcc gccgctcagc tcacctactg caccaagtgt	1440
ggtctggcgt cgagcttccc gaatacgacg tactccgccg agggggtctg caaccactgc	1500
gaggccttcg acaagtaccg cagcgtcgtc gacgactact tcagcacgat ggatgagctg	1560
cagtcgatcg tcaccgagat gaagagcatc cacaactcga agtacgactg catcgtggcg	1620
ctcagcggcg gaaaagacag cacgtatgca ctctgccgga tgatcgaaac cggtgcccgt	1680
gtattggcct tcacgttggg taacggctac atctcggagg aggcgaagca gaacatcaac	1740
cgggtcgttg cccggctggg agtggatcac cgctatctct cgaccggcca catgaaggag	1800
atcttcgtcg acagcctgaa gcgacacagc aatgtgtgca acggctgctt caagaccatc	1860
tacacgtttg cgatcaacct ggcgcaggag gtcggcgtca agcacgtggt catggggttg	1920
tcaaagggcc aactgttcga aacgcgcctc tcggccttgt tccgcacgtc gaccttcgac	1980
aacgccgcct tcgagaagag cctcgtcgac gcgcgaaaga tctaccatcg catcgatgat	2040
gccgtgagcc gcctgctcga cactacttgc gtcaagaacg acaaggatcat cgagaacatc	2100
aggttcgtgg acttctatcg ttattgccac gccagccgtc aggagatgta cgactacatc	2160
caggagagag tcgggtgggc caggccgatt gacaccgggc ggtcgacgaa ctgtctcctc	2220
aatgatgttg gcatctacgt tcacaacaag gagcgcagggt accacaacta ctccctgccc	2280
tacagctggg acgtccggat gggccacatc agcaggggag aggcgatgag agagctcgac	2340
gactcggccg acatcgacgt cgagaggggtc gagggcatca tcaaggacct tggctacgag	2400
ctgaacgacc aggtggtggg ctcggcgga gcccagctgg tcgcctacta tgtctccgcg	2460

21191\_PCT SeqList\_ST25.txt

gaggagttcc ccgcgtccga cctgcggcag ttcctgtcgg agattctgcc ggagtacatg	2520
gtacccaggt cgttcgtcca gctggacagc atcccgtga cgcccaatgg caaggccaat	2580
cgtcaggccc tgccgaagcc tgacctgctt cggaaggccg gcaccgacgg acaagccgca	2640
ccccgaacac cgggtggagaa gcagttggcg gagctgtgga aggaggtgct gcaggtcgac	2700
agtgtcggga tccacgacaa cttcttcgag atgggcgggc actcgcttcc ggcgctcatg	2760
ctgctctaca agatcgacag tcagttccat aagacgatca gcatccagga gttctcgaag	2820
gtccccacca tcagcgcgct cgcggcgcac ctcggcagtg acaccgaagc ggtgccgcca	2880
gggctgggcg aggtcgtcga tcagagcgcg cctgcataca ggggataa	2928

<210> 10  
 <211> 819  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(819)  
 <223> CysI

<400> 10 gtgcgcttcg tcaactgtcaa tgggtaggac tcggcagttt gtcggtgct ggatcgcgga	60
ctccagttcg gagatggcct gttcgagacg atgctgtgtg ttggcgggtgc gccggtcgac	120
ttcccgaac actgggcgcg gcttgatgag ggctgccgcc ggctgggaat cgaatgcccg	180
gacatccggc gcgaagtgaac cgctgcgac gccaggtggg gtgctcccag ggcggtcgcc	240
aagctcgtcg tcaactcgggg aagcacggag cggggatacc ggtgcgcccc ttccgtccgg	300
ccgaactgga tcctcaccat cacggatgcc ccgaagtatc cgctggccca cgaggacaga	360
ggcgtggccg tcaaactctg ccgaacgctc gtctcgctcg atgaccaca gctggccggg	420
ttgaagcacc tcaaccggtt gcccaggtg ctcgcgagga gggagtggga cgacgagtac	480
cacgatggcc tgctgaccga ccacgggtggg cacctcgtcg aggggtgcac gagcaacctg	540
ttcctcgttg ccgacggagc cttgaggacg cccgatctga ctgcgtgcgg tgtgcgcggt	600
atcgtgcggc agaaggctct cgaccactcg aaggcaatcg ggatccgctg cgaggtaacc	660
accctgaagc tacgagatct cgaacacgcg gacgaggtct tcctgacgaa ctctgtctac	720
gggattgtgc cggttggtag cgctgatggg atgaggtacc ggataggtcc gacgacggcg	780
cgtttgctga aagacctttg ccagggtgtg tacttttga	819

<210> 11  
 <211> 984  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(984)

21191\_PCT SeqList\_ST25.txt

<223> CysJ

<400> 11  
atgaccggtg atttgatag cgcggcatgg cccgtaatca tcacgcctgg ccagcagcca 60  
gcggcgctgg aggattgggt ctcagcgaac cgtgacggac tcgagcggca gttgaccgag 120  
tgtaaggcca ttctctttcg aggcttccgt agcaggaatg gcttcgagag cattgccaac 180  
agcttcttcg accggcgcct caactatacc tatcggtcga cgccccgtac ggacctgggg 240  
cagaacctct acacggcgac ggagtacccg aagcagctgt cgattccgca gcattgcgag 300  
aacgcctacc agcgcgactg gccgatgaag ctgctgttcc actgcgtgga gccggcgagc 360  
aaaggcggcc ggacgccctt ggccgacatg acgaaggtaa cggcgatgat ccccgccgaa 420  
atcaaggagg agttcgcgcg gaagaaggct gggtagctgc ggaactaccg tgctggagtg 480  
gatctgcctt gggaagaggt gtttgaacg agcaacaagg cagagggtga gaagttctgc 540  
gtcgagaatg gcatagagta ccactggacc gaggggtggct tgaagaccat ccaggtctgc 600  
caggcgttcg cttcgcattc actcaccggt gagacgatct ggttcaatca ggcccacctg 660  
tttcacctt ccgcattgga cccggcttca cagaagatga tgctttcctt cttcgggtgag 720  
ggcggcctcc cgcgcaactc gtacttcgga gacgggtcgg ccacgaggag cgacgtcctc 780  
gaccagatcc gtcctgctta cgaacgcaac aaggtctcgt tcgagtggca gaaggacgac 840  
gtgttgctga tcgacaacat gctggtttct cacggacgag atccgttcga aggcagccgg 900  
cgggtgctgg tctgcatggc ggagccgtat tcggaagtcc agcggcgggg attcgccggg 960  
gcaacgaact cagggcgctc gtaa 984

<210> 12  
<211> 13638  
<212> DNA  
<213> Cystobacter velatus

<220>  
<221> misc\_feature  
<222> (1)..(13638)  
<223> CysK

<400> 12  
atgctgctgg agggagagct ggaggggtac gaggacgggt tggaactgcc gtacgacttc 60  
ccgcggacgt cgaatagggc gtggagagcg gcgacgttcc agcatagcta cccgcccag 120  
ctggcgagga aggtggcgga gctcagccgg gagcagcagt ccacgctgtt catgagcctg 180  
gtggcgagcc tggcgggtgt gttgaaccgg tacacgggcc gcgaggacgt gtgcatcggg 240  
acgacgggtg cgggccgagc gcaggtgggg gcgttggggg atctgagcgg gtccaccgtc 300  
gacatcctcc cgctgaggct ggacctgtcg ggcgctccga gccttcacga ggtgctgcgg 360  
aggacgaagg cgggtggtgt ggagggattc gagcacgagg cgttgccgtg ccagattccc 420  
ttggtgccgg tgggtggtgag gcaccagaac ttcccgatgg cgcgtctgga gggctggagt 480  
gaggggggtg agctgaagaa gttcgagctg gcgggggaaa ggacgacggc gagcgagcag 540



21191\_PCT SeqList\_ST25.txt

gactggcagt	tcttcgggga	cgggtcctcg	ctggagctga	gcctggagta	cgcggcggag	600
ctgttcagcg	agaagacggt	gaagaggatg	gtggagcacc	accagcgagt	gctggaggcg	660
ctggtggagg	ggctggagga	ggtgcggctg	cacgaggtgc	ggctgctgac	ggaggaggag	720
gaggggctgc	acgggaggtt	gaacgacacg	gcgcgagagc	tggaggagcg	ctggagcctg	780
gcggagacgt	tcgagcgtca	ggtgaggag	acaccggagg	cggtggcttg	cgttggcgtg	840
gaggtggcga	cgggagggca	ctcgcggccg	acataccggc	agctgacata	ccggcagctg	900
aatgcgcgag	ccaaccaggt	ggcacggagg	ctgagggcac	tgggagtggg	cgcgagagaca	960
cgggtcgcgg	tcttgagcga	ccgctcgccg	gagctgctgg	tggcgatgct	ggcgatatctc	1020
aaggccgggg	gctgctacgt	gccggtggac	ccacagtacc	cgggaagcta	catcgagcag	1080
atactggagg	atgcggcacc	gcaggtggtg	ttgggcaaga	ggggaagagc	ggacgggggtg	1140
cgggtgggatg	tgtggctgga	gctggatgga	gcgcaacggc	tgacggacga	ggcgctggcg	1200
gcacaggaag	agggagagct	ggagggggcg	gagaggccgg	agagccagca	gttggcgtgt	1260
ttgatgtaca	cgtcgggctc	cacgggcaga	ccgaaggggg	tgatggtgcc	gtacagccag	1320
ttgcacaact	ggctggaggc	ggggaaggag	cgctcgccgc	tcgagcgtgg	ggaagtaatg	1380
ttgcagaaga	cggcaatcgc	gttcgcggtg	tcggtgaagg	agctgctgag	cggattgctg	1440
gcgggagtg	cgaggtgat	ggtgccggag	acgctggtga	aggacagcgt	ggcgctggcg	1500
caggagatag	agcgggtggcg	ggtgacgaga	atccacctgg	tgccatcgca	cctgggagca	1560
ctgctggagg	gggcggggga	agaggcgaag	gggctgaggt	cgctgaagta	cgtcataacg	1620
gcgggggagg	caactggcgca	gggggtgagg	gaggaggcga	ggaggaagct	gccgggggag	1680
cagttgtgga	acaactacgg	gtgcacggag	ctgaatgacg	tgacgtacca	ccccgcgagc	1740
gaggggggag	gggacacggt	attcgtgcca	atcgggcggc	ccatcgcgaa	cacgcgggtg	1800
tacgtgttgg	acgagcagtt	gaggcgggtg	ccggtggggg	tgatggggga	gttgatatgtg	1860
gacagcgtgg	ggatggcgag	ggggtatttg	ggccagccag	cgctgacggc	ggagcgcttc	1920
atcgcgaaacc	cgtacgcgag	ccagcccggg	gcgaggttgt	accggacggg	agacatggtg	1980
aggggtgctgg	cggacggctc	gctggagtac	ctggggaggc	gagactacga	gataaagggtg	2040
agagggcacc	gggtggacgt	gcgccagggtg	gagaagggtg	cgaacgcgca	tccagccatc	2100
cgccaggcgg	tggtgtcggg	atggccgttg	ggctcgagca	acgcgcagtt	ggtggcctac	2160
ctggtgccgc	aggcgggcgc	gacggtgggg	ccgcggcagg	tgagggatta	cctggcggag	2220
tcgctgccgg	cgtacatggt	gccaacgcta	tacacggtgt	tggaggagtt	gccgcggctg	2280
ccgaacggga	agctggaccg	gttgctcgctg	ccggagccgg	acctgtcgag	cagccgagag	2340
gagtacgtcg	cgccccacgg	cgaggctcag	cggaagctgg	cggaaatctt	cggcaacctc	2400
ctggggctcg	aacatgtcgg	cgtccacgac	aacttcttca	gcctcggcgg	gactccctc	2460
ctggctgcc	agctgatttc	gcgcatacgg	gcgaccttcc	gcgtggaagt	ggcgatggcc	2520
acggtgttcg	agtccccac	ggtggagccg	ctcgcccgcc	acatcgagga	gaagctcaag	2580

21191\_PCT SeqList\_ST25.txt

gacgagtctc	gggtccagct	ctccaacgtt	gtgccggtcg	agcggacgca	ggagattccg	2640
ctctcctacc	tgcaggagcg	gctgtggttc	gtgcacgagc	acatgaagga	gcagcggacc	2700
agctataaca	tcacctggac	gttgcacttc	gccggcaagg	gtttctcggg	ggaggcggtg	2760
cggacggcct	tcgatgagct	ggtggccaga	cacgagacac	tgcgcacgtg	gttccaggtg	2820
ggggagggga	cagagcaggc	cgtacaggtc	atcggggagc	cctggtcgat	ggagctgccg	2880
ctgagagagg	tggcggggac	ggaggtgacg	gcggcaatca	atgagatgtc	ccgacaggtc	2940
ttcgacttga	gagcgggacg	gttgctgacg	gcggcggtcc	tgagggtggc	ggaggatgag	3000
cacatcctcg	tcagcaacat	ccaccacatc	atcacggacg	gctggtcggt	cggggtgatg	3060
ctgcgggagc	tgaggggagt	gtacgaggca	gcgggtgcgg	ggaagagagc	ggagctgccg	3120
ccgctgacgg	tgcagtacgg	cgactatgcg	gtgtggcaga	ggaagcagga	cctgagcgag	3180
cacctggcgt	actggaaggg	gaaggtggag	gagtacgagg	acggggttga	gctgccgtac	3240
gacttcccgc	ggacgtcgaa	tagggcgtgg	agagcggcga	cgttccagta	tagctaccca	3300
cccgagctgg	cgaggaaggt	ggcggagctc	agccgggagc	agcagtccac	gctgttcatt	3360
agcctggtgg	cgagcctggc	ggtggtgttg	aaccggtaca	cgggcccgca	ggacgtgtgc	3420
atcgggacga	cgggtggcgg	ccgagcgag	gtggagctgg	agagcctcat	cgggttcttc	3480
atcaacatcc	tcccgtgag	gctggacctg	tcgggcgctc	cgagccttca	cgaggtgctg	3540
cggaggacga	aggcgggtgg	gctggaggga	ttcgagcacc	aggagttgcc	gttcgagcac	3600
ctgctgaagg	cgctgaggcg	gcagcgggac	agcagccaga	ttcccttggt	gccagtgggt	3660
gtgaggcacc	agaacttccc	gatggcgcg	ctggagggct	ggagtgaggg	ggtggagctg	3720
aagaagtctg	agctggcggg	ggaaaggacg	acggcgagcg	agcaggactg	gcagttcttc	3780
ggggacgggt	cctcgctgga	gctgagcctg	gagtacgcgg	cggagctgtt	cagcgagaag	3840
acggtgagga	ggatggtgga	gcaccaccag	cgagtgtgtg	aggcgctggt	ggaggggctg	3900
gaggaggggc	tgcacgaggt	gcggctgctg	acggaggagg	aggaggggct	gcacgggagg	3960
ttgaacgaca	cggcgcgaga	gctggaggag	cgctggagcc	tggcggagac	gttcgagcgt	4020
caggtgaggg	agacaccgga	ggcgggtggc	tgcgttggcg	tggaggtggc	gacgggaggg	4080
cactcgcggc	cgacataccg	gcagctgaca	taccggcagc	tgaatgcgcg	agccaaccag	4140
gtggcacgga	ggctgagggc	actgggagtg	ggcgcgagga	cacgggtcgc	ggtcttgagc	4200
gaccgctcgc	cggagctgct	ggtggcgatg	ctggcgatat	tcaaggccgg	gggctgctac	4260
gtgccggtgg	accacagta	cccgggacac	tacatcgagc	agatattgga	ggatgcggca	4320
ccgcagggtg	tgttgggcaa	gaggggaaga	gcggacgggg	tgcgggtgga	tgtgtggttg	4380
gagctggatg	gagcgcaacg	gctgacggac	gaggcgctgg	cggcacagga	agagggggag	4440
ctggaggggg	cggagaggcc	ggagagccag	cagttggcgt	gtttgatgta	cacgtcgggc	4500
tccacgggca	ggccgaaggg	ggtgatggtg	ccgtacagcc	agttgcacaa	ctggctggag	4560
gcggggaagg	agcgctcgcc	gctcgagcgt	ggggaagtaa	tgttgacaga	gacggcaatc	4620

## 21191\_PCT SeqList\_ST25.txt

gcgttcgcgg	tgctcggtgaa	ggagctgctg	agcggattgc	tggcgggagt	ggcgcaggtg	4680
atggtgcccg	agacgctggt	gaaggacagc	gtggcgcctg	cgcaggagat	agagcggctg	4740
cgggtgacga	gaatccacct	ggtgccatcg	cacctgggag	cactgctgga	gggggcgggg	4800
gaagagggcg	aggggctgag	gtcgcctgaag	tacgtcataa	cggcggggga	ggcactggcg	4860
caggggggtga	gggaggaggc	gaggaggaag	ctgccggggg	cgcagttgtg	gaacaactac	4920
gggtgcacgg	agctgaatga	cgtgacgtac	cacccgcgca	gcgagggggg	aggggacacg	4980
gtattcgtgc	caatcgggcg	gcccacgcg	aacacgcggg	tgtacgtgtt	ggacgagcag	5040
ttgaggcggg	tgccggtggg	ggtgatgggg	gagttgtatg	tggacagcgt	ggggatggcg	5100
aggggggtatt	ggggccagcc	agcgcctgac	gcggagcgct	tcatcgcgaa	cccgtacgcg	5160
agccagcccc	gagcgagggt	gtaccggacg	ggagacatgg	tgagggtgct	ggcggacggc	5220
tcgctggagt	acctggggag	gcgagactac	gagataaagg	tgagagggca	ccgggtggac	5280
gtgcgccagg	tggagaaggt	ggcgaacgcg	catccagcca	tccgccaggc	ggtggtgtcg	5340
ggatggccgt	tgggctcgag	caacgcgcag	ttggtggcct	acctggtgcc	gcaggcgggc	5400
gcgacggtgg	ggccgcggca	ggtgagggat	tacctggcgg	agtcgctgcc	agcgtacatg	5460
gtgccaacgc	tatacacggt	gttgaggagg	ttgccgcggt	tgccgaacgg	gaagctggac	5520
cggctgtcgt	tgccggagcc	ggacctgtcg	agcagccgag	aggagtacgt	cgcgccccac	5580
ggcgagggtcg	agcggaaagct	ggcggaaatc	ttcggcaacc	tcctggggct	cgaacatgtc	5640
ggcgtccacg	acaacttctt	cagcctcggc	gggactccc	tcctggctgc	ccaggtggtc	5700
tcaaggattg	gcaaggagct	tggcactcag	atctcgatcg	ccgatctgtt	tcaaaggccc	5760
acgattgaac	agctctgtga	gctgattgga	ggactggacg	atcagacca	gaggagctc	5820
gccctcgctc	cgtcggggaa	caccgaggcg	gtgctctcgt	tcgcgcaaga	gcgcatgtgg	5880
ttcctgcaca	acttcgtcaa	gggcatgccc	tacaacacgc	cagggtcga	ccacctgacg	5940
ggtgagctcg	atgtcgcggc	gctagaaaag	gccatccgcg	cggtcatccg	tcgccacgag	6000
cccctgcgga	cgaatttcgt	cgagaaggac	ggggtgctgt	cccagttggt	ggggacggaa	6060
gaacgcttcc	gcctgaccgt	gactcccatc	cgcgacgaga	gcgaggctgc	gcggctcatg	6120
gaagccgtga	tccaaacgcc	agtcgatctg	gagcgggagt	tgatgatccg	ggcttatctc	6180
taccgggtcg	accgcgggaa	tactacctg	ttcaccacca	tccatcacat	cgccttcgat	6240
ggctggctga	catcgatctt	ctaccgtgag	ctggctgcgt	actacgccgc	gtttctccgg	6300
cgcgaagaca	gtccgctgcc	cgcgctggaa	atctcctatc	aggactatgc	ccgctgggag	6360
cgggcccatt	tccaggacga	ggtgttggcg	gaaaaactga	ggtactggcg	gcagcggctg	6420
tcgggcgctc	ggccccctcg	acttccgacc	acctaccatc	ggccgcccac	ccagagtttc	6480
gctggcgccg	tcgtgaactt	cgagatcgat	cgctccatca	ccgagcgggt	gaagacgctg	6540
ttcgccgagt	cgggcaccac	gatgtacatg	gtgttgctcg	gcgcgttctc	cgtggtgctg	6600
cagcgtact	ccggtcagga	cgacatctgc	atcggtccc	ccgtggcgaa	ccggggtcac	6660

## 21191\_PCT SeqList\_ST25.txt

atccagacag	aagggctgat	cggcttggtc	gtcaacaccc	tggatgatgag	ggtggatgcc	6720
gccgggaatc	cccgtttcat	cgacctgctg	gcgcgcattc	aacggacagc	catcgatgct	6780
tacgcgaacc	aagaagtgcc	cttcgagaag	atcgtggacg	acctgcaggt	cgcgagagac	6840
acggccccgat	ctccgctcgt	gcaggtcatt	ctcaacttcc	acaacacgcc	tcctcaatcc	6900
gagctggaac	tgcagggggg	gaccttcacg	cggatgccgg	tgcacaacgg	cacggccaag	6960
ttcgagctct	ccatcgacgt	cgcggagacg	agcgccggtc	taacgggatt	cgtggagtac	7020
gcgacggatc	tgttcagcga	gaacttcatc	cggcggatga	tcggccacct	cgaggtggtg	7080
ctggacgcgg	tcggtcgcga	tccgcggggc	cctatccatg	agttgccact	gctcacccgg	7140
caggatcagt	tggacctact	gtcgcggagc	ggccacacag	ccccgcgggt	ggaacacgtc	7200
gagttgatcc	ctcatacgtt	cgagcggcgc	gtccaggaga	gccctcaagc	gattgccctg	7260
gtctgcggtg	acgagcgcgt	cacctactcc	gcgctcaacc	gccggggccag	ccagattgcc	7320
cgcgcctg	gcgccgcagg	gatcggaccg	gacaccctcg	tcgggctttg	cgcggggcgc	7380
tccatcgagc	tggctctgcg	cgctcctggc	atcttgaagg	cgggcgggtg	gtacgtgcca	7440
atcgacccca	cctcctcgcc	cgaggtgatc	tacgacgtcc	tgtatgagtc	gaaggtgcgg	7500
catctgttga	ccgagtcgcg	cctggtcggg	ggactgccgg	tcgatgacca	ggaaatcctg	7560
ctcctggata	ccccgcgga	cgggtgaagg	gacaaggctg	ttgctgaccg	ggaggagcca	7620
cctgaccttg	gcgaggtcag	cctcactccc	gagtgccttg	cgtacgtcaa	cttcacctcc	7680
gactccggtg	gggcgccgag	gggcatcgcc	gtccgccatg	gggcgctggc	tcgccggatg	7740
gccgcgggcc	acgcacagta	cctggccaat	tccgccgtac	gtttcctgct	gaaggcgccg	7800
ctcacgttcg	acctggcggt	cgcggagctg	ttccagtggg	tcgtcagcgg	cggcagcctg	7860
agcatcctcg	accccaatgc	cgaccgcgac	gcctctgcct	tcctcgcgca	ggtgcgcagg	7920
gactcgattg	gcgtcctcta	ctgcgtcccc	tccgaactct	cgacgctggg	gagccacctg	7980
gagcgcgagc	gtgaaagggg	gcatgagctg	aacaccctcc	ggttcattct	ctgcggcggg	8040
gatacccttg	cggttaccgt	cgctgagcgt	ctcgggggtac	tgggtcgggc	cggccagctc	8100
ccgctgcggc	tgggtcaacgt	ctatgggacg	aaggagacgg	gaatcggcgc	gggttgcttc	8160
gagtgcgcgc	tggacgcgaa	cgaccccagc	gccgaactcc	cgccgggacg	gctctcgcat	8220
gagcggatgc	ccatcggcgg	gcccggcccag	aacctgtggt	tctatgtggt	gcaacccaac	8280
ggtggccttg	ctccgttggg	catcccgggg	gaactgtacg	tcggcgggcg	gcaactcgcc	8340
gacgcccgtt	tcggcgacga	gcccacggcg	accacccccg	gcttcgtccc	gaaccccttc	8400
cggagcggag	cggagaagga	ctggctgtac	aagacggggg	acctcgtccg	ctggctgcct	8460
caggggcccgc	tcgagctggt	cagcgcggct	cgggagcgcg	acggaggcgg	ggaccaccgg	8520
ctcgatcgcg	gcttcatcga	ggcgcgcgatg	cgctcgtgtg	ccattgtccg	cgacgccgtg	8580
gtggcctacg	tcccggatcg	ccaggacagg	gcccgggttg	tggcctacgt	cgttctgaag	8640
gagtcgccc	cggcggacgt	ggagccgcgc	gaagggcggg	aaacgctgaa	ggctcggatc	8700

## 21191\_PCT SeqList\_ST25.txt

agcgccgaac	ttgggagcac	gttgccggag	tacatgcttc	cgccgccta	cggtgtcatg	8760
gacagcctgc	cgttgacggc	ttacgggagg	atcgaccgga	aagccctgcc	cgagccggag	8820
gatgaccgcc	acggtggtag	tgcgatcgcc	tacgtggccc	cgcgggggcc	cacggagaag	8880
gcactggcgc	acatttgcca	gcaagtgctg	aaacgcccc	aggtcggact	gcgagacaac	8940
ttctttgagc	tgggcgggca	ctcagtggcg	gccatccaac	tgggtgtccgt	gagccggaag	9000
cacctggagg	tcgaagtccc	cctcagcctg	atcttcgaat	cgccggtcct	ggaggcgatg	9060
gcgcgcggca	tcgaagcgct	gcaacagcag	ggccgcagcg	gcgcggtgtc	gtcgatccat	9120
cggttgaggc	ggaccggacc	gctgcctctg	gcgtacgtgc	aggagaggct	gtggttcctg	9180
cacgagcaca	tgaaggagca	gcggaccagc	tataacatca	cctggacggt	gcacttcgcc	9240
ggcaagggtt	tctcggtgga	ggcgttgcg	acggccttcg	atgagctggt	ggccagacac	9300
gagacactgc	gcacgtggtt	ccagggtggg	gaggggacag	agcaggccgt	acaggctatc	9360
ggggagccct	ggtcgatgga	gctgccgctg	agagagggtg	cggggacgga	ggtgacggcg	9420
gcaatcaatg	agatgtccc	gcaggctctc	gacttgagag	cgggacggtt	gctgacggcg	9480
gcggtcctga	gggtggcgga	ggatgagcac	atcctcgtca	gcaacatcca	ccacatcatc	9540
acggacggct	ggtcgttcgg	ggtgatgctg	cgggagctga	gggagttgta	cgaggcccg	9600
gtgcgggggg	agcgagcgga	gctgccgccg	ctgacgggtg	agtacggcga	ctatgcggta	9660
tggcagagga	agcaggacct	gagcgagcac	ctggcgctact	ggaaggggaa	ggtggagggg	9720
gacgaggacg	ggttgagct	gccgtacgac	ttcccgcgga	cgtcgaatag	ggcgtggaga	9780
gcggcgacgt	tccagtata	ctaccacccc	gagctggcga	ggaagggtgg	ggagctcagc	9840
cgggagcagc	agtcacacgt	gttcatgagc	ctggtggcga	gcctggcggt	ggtgttgaa	9900
cggtagacgg	gccgcgagga	cctgtgcatc	gggacgacgg	tggcggggcc	agcgaggtg	9960
gaactggaga	gcctcatcgg	gttcttcac	aacatcctcc	cgctgaggct	ggacctgtcg	10020
ggcgtccga	gccttcacga	ggtgctgcgg	aggacgaagg	tgggtgtgct	ggagggattc	10080
gagcaccagg	agttgccgtt	cgagcacctg	ctgaaggcgc	tgaggcggca	gcgggacagc	10140
agccagattc	ccttggtgcc	agtgggtggt	aggcaccaga	acttcccgat	ggcgcgtctg	10200
gagggctgga	gtgagggggt	ggagctgaag	aagttcgagc	tggcggggga	aaggacgacg	10260
gcgagcgagc	aggactggca	gttcttcggg	gacgggtcct	cgctggagct	gagcctggag	10320
tacgcggcgg	agctgttcag	cgagaagacg	gtgaggagga	tgggtggagca	ccaccaacga	10380
gtgctggagg	cgctggtgga	ggggctggag	gaggggctgc	acgaagtgcg	gctgctgacg	10440
gaggaggagg	aggggctgca	cgggagggtg	aacgacacgg	cgcgagagct	ggaggagcgc	10500
tggagcctgg	cggagacggt	cgagcgtcag	gtgagggaga	caccggaggc	ggtggcttgc	10560
gttggcgtgg	aggtggcgac	gggagggcac	tcgcggccga	cataccggca	gctgacatac	10620
cggcagctga	atgcgcgagc	caaccagggt	gcacggaggc	tgagggcact	gggagtgggc	10680
gcggagacac	gggtcgcggt	cttgagcgac	cgctcgccgg	agctgctggt	ggcgatgctg	10740

## 21191\_PCT SeqList\_ST25.txt

gcgatattca	aggccggggg	ctgctacgtg	ccggtggacc	cacagtaccc	gggaagctac	10800
atcgagcaga	tactggagga	tgcggcaccg	caggtggtgt	tgggcaagag	gggaagagcg	10860
gacgggggtgc	gggtggatgt	gtggctggag	ctggatggag	cgcaacggct	gacggacgag	10920
gcgctggcgg	cacaggaaga	gggagagctg	gagggggcgg	agaggccgga	gagccagcag	10980
ttggcgtgtt	tgatgtacac	gtcgggctcc	acgggcagac	cgaaggggggt	gatggtgccg	11040
tacagccagt	tgcacaactg	gctggaggcg	gggaaggagc	gctcgccgct	cgagcgtggg	11100
gaagtaatgt	tgcagaagac	ggcaatcgcg	ttcgcggtgt	cggtgaagga	gctgctgagc	11160
ggattgctgg	cgggagtggc	gcaggtgatg	gtgccggaga	cgctggtgaa	ggacagcgtg	11220
gcgctggcgc	aggagataga	gcggtggcgg	gtgacgagaa	tccacctggt	gccatcgcac	11280
ctgggagcac	tgctggaggg	ggcgggggaa	gaggcgaagg	ggctgaggtc	gctgaagtac	11340
gtcataacgg	cgggggaggg	actggcgag	ggggtgaggg	aggaggcgag	gaggaagctg	11400
ccgggggcgc	agttgtggaa	caactacggg	tgcacggagc	tgaatgacgt	gacgtaccac	11460
cccgcgagcg	aggggggagg	ggacacggta	ttcgtgccaa	tcgggcggcc	catcgcaaac	11520
acgcgggtgt	acgtgttga	cgagcagttg	aggcgggtgc	cggtgggggt	gatgggggag	11580
ttgtatgtgg	acagcgtggg	gatggcgagg	gggtattggg	gccagccagc	gctgacggcg	11640
gagcgcttca	tcgcgaaccc	gtacgcgagc	cagcccggag	cgaggttgta	ccggacggga	11700
gacatggtga	gggtgctggc	ggacggctcg	ctggagtacc	tggggaggcg	agactacgag	11760
ataaaggtga	gagggcaccg	ggtggacgtg	cgccaggtgg	agaaggtggc	gaacgcgcac	11820
ccagccatcc	gccaggcggt	ggtgtcggga	tggccgttgg	gctcgagcaa	cgcgagttg	11880
gtggcctacc	tgggtgccga	ggcgggcgcg	acggtggggc	cgcggcaggt	gagggattac	11940
ctggcggagt	cgctgccagc	gtacatggtg	ccaacgctat	acacggtgtt	ggaggagtgtg	12000
ccgcggttgc	cgaacgggaa	gctggaccgg	ctgtcgttgc	cggagccgga	cctgtcgagc	12060
agccgagagg	agtacgtcgc	gccccacggc	gaggtcgagc	ggaagctggc	ggaaatcttc	12120
ggcaacctcc	tggggctcga	acatgtcggc	gtccacgaca	acttcttcaa	cctcggcggg	12180
cactccctcc	tggcttccca	gctgatttcg	cgcatacggg	cgaccttccg	cgtggaagtg	12240
gcgatggcca	cgggtgttca	gtccccacg	gtggagccgc	tcgcccgcca	catcgaggag	12300
aagctcaagg	acgagtctcg	ggtccagctc	tccaacgttg	tgccggtcga	gcggacgcag	12360
gagcttccgc	tctcctacct	gcaggagagg	ctgtggttcg	tgcacgagca	catgaaggag	12420
cagcggacca	gctataacgg	aacgatcggg	ctccggcttc	ggggtcctct	gtcaatcccc	12480
gcgctcaggg	ccaccttcca	cgatctggtc	gcccgtcacg	agagcctgcg	caccgtcttc	12540
cgggtccccg	aaggccgcac	cacgccggtg	caggtgattc	ttgattcgat	ggatctggac	12600
atccccgtcc	gcgatgcaac	cgaggccgac	atcatccccg	gcatggatga	gctggcgggt	12660
cacatctacg	acatggagaa	gggtccgctg	ttcatggttc	gcctcttgcg	gctggccgag	12720
gactccccacg	ttctcctgat	ggggatgcat	cacatcgtct	acgacgcatg	gtcacagttc	12780

21191\_PCT SeqList\_ST25.txt

aatgtgatga gtcgcatat caacctgctc tactcggcgc acgtgacggg aatcgaggca	12840
cggttccccg cgcttcccat ccagtagcc gacttctcgg tgtggcagcg ccagcaggac	12900
ttccgtcacc acctggacta ctggaagtcc aactgggcg actaccggga tgatctcag	12960
ctgccgtatg actaccgcg gccgcccagc cggacatggc acgcgacccg attcaccttc	13020
cggtatccgg atgcaactggc gcgcgcgttc gccaggttca atcagtccca tcagtcgacg	13080
ctgttcattg ggctgctgac cagcttcgcg atcgtgctca ggcaactacac cggccggaac	13140
gacatctgca tcggaacgac aacggcgggg cgccccagt tggagttgga gaacctcgtt	13200
ggcttcttca tcaacatcct gccgttgccg atcaatctgg cgggtgaccc cgacatcagc	13260
gagctcatga atcgagcgaa gaagagcgtc ttggggcgct tcgagcatca agctctgccg	13320
ttcgagcgtc tcctcagtgc cctcaacaaa cagcgtgaca gcagccatat cccgctgggt	13380
cccgtcatgt tgcgccacca gaacttcccc acggcgatga ccggcaagtg ggccgatggt	13440
gtggacatgg aggtcatcga gcgcgacgag cgcacgacgc ccaacgagct ggacctccag	13500
ttctttggcg acgacaccta cttgcatgct gtcgtcagat tccccgcgca gctcttctcc	13560
gaggtgaccg tccggcgtct gatgcagcgt caccagaagg tcatagagtt catgtgcgcg	13620
acgctggggg ctcggtga	13638

<210> 13  
 <211> 3072  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(3072)  
 <223> CysL

<400> 13	
gtgaacgtgc tcgctaggca ttccaccggc tcccacgacg agccggtggc cggcgacgtc	60
gaactccgcg tcggtggccc cgggtgtgccg gacgctcatt ccagcgagag cgttgaagtg	120
ctggcgcggt ggctgcggac cgccgaggag aagtaccgga gcgtcatggg cccgatccgc	180
caggagggcc cctggttcgc catcccgttg acctgcccgc gcggtgcccg gtcggcgcgga	240
ttcggcctct ggctcgggga actagaccgt caggacagc tcctccacat ggtcgcctcg	300
tatctggcgg ccgtgcacca cgtgctggtc agcgttcgcg agcccagcgc caacgtgctg	360
gaggtgctgg tctctgactc aacaacgcca tctgggtca accggttcct gaacggcctg	420
gactccgtcc tggagatcct ggctcacggg cgcagcgacc tcctcctgca gcatctcacg	480
ggccggctgc cccccgacga gatgcccttc gtggaggacc gtgaggagcg cgaggagcac	540
ccggccaccg atgtcgaggc cgatgcggtt gtctccgtcc tgttccaacc agttgacttc	600
ccgagcctgg cgaggctgga cgcgagcctc ctcgcgtatg acgacgagga tgccggcgcg	660
gtggggccggg tcctggggga gtcctccag ccgttcctgc tcgactccgc caggatgacc	720
gtggggcgaa aggcggtgag ggtcgatcac atctgcctgc ctggcttggt gcgagccgac	780

21191\_PCT SeqList\_ST25.txt

agcagagcgg	cggaggagtc	ggttctcgcg	ccgccttgc	gcttggcgac	gaagcccgg	840
cggcatttcg	tcgcgttg	ccggaacacc	gccctgcggc	tgggagacag	gctgccccac	900
ttgctcgcgc	agggcccgc	ctgcgatggc	gcgtcaacgg	cgctccttct	gttgcaacgg	960
gtgctggaca	cgcttatcgg	gagcggggga	ctgaaggacc	atcgccctcac	gctcgagctg	1020
gttggcgccg	atccacggac	cgaggccgcg	tttcggggcc	ggactccgtg	gctgggtggcg	1080
gaacggggccg	cttcggctgc	atcaacggat	gcaccgcgcg	tcgacgtcgt	cgctcctgttc	1140
ccggcggcac	ggccgagcgc	gctcgagctg	cggccagaca	gcgtcgtcat	cgaccttttt	1200
ggcacctgga	gcctgagacc	gcgacccgag	gttctggcga	agaacatcgt	ctacgtgcga	1260
ggggcctcgg	tccgtctcgc	cggagaggcc	gtcgtctcga	ctccctcctt	cgcgccggat	1320
cgagtggagc	cggcgctcct	cgaggcgctt	ctccgggaac	tcgacgcgga	ggccagtagt	1380
gacgggctcg	cccacgagca	ccgccttgag	attggcggca	ttcgcggggt	ctgggggtgag	1440
atccgccggg	cggagtggga	cgcctttcat	tcgcgccgcc	ggggggagct	ggcgaggttt	1500
caggtgtcgg	ggcaggtgac	cgccgccaat	ccggggctcg	ccagcctgcc	cgatggggcg	1560
acgaacatct	gcgaatacat	cttccgggaa	gcgcaccttc	gctccggctc	gtgcctcgtc	1620
gatccccaga	gcggccagtc	cgcgacctac	gccgagctgc	ggcgactggc	ggcagcgtac	1680
gcgcggcggt	ttcgggcatt	ggggctccgc	caggagacg	tcgtggcgct	cgcggcgccg	1740
gatgggattt	cgtccgtcgc	ggtgatgctg	ggttgcttcc	tgggcgggtg	ggtcttcgcg	1800
ccgctcaacc	acaccgcctc	ggccgtgaac	ttcgaggcga	tgttgagttc	cgccagtccc	1860
cgcctggtgc	tccatgccgc	gtcgacggtc	gcccgccatc	tgccggtcct	gagcacgcgg	1920
cgatgcgcgg	aactcgcgtc	cttcctgccg	ccggacgcgc	tggacggcgt	ggagggggac	1980
gtcaccccc	tgccagtgtc	accggaagcc	cccgccgtca	tgctgttcac	ctcgggctcc	2040
acggggggggc	cgaaggcagt	gacgcacacc	cacgccgact	tcatcacctg	cagtcgcaac	2100
tacgcaccct	atgtcgtcga	actcagaccg	gacgatcgtg	tctatacgcc	gtccccgacc	2160
ttcttcgcct	atggattgaa	caacttgctg	ctgtccctca	gcgcgggggc	cacgcacgtg	2220
atctcgggtcc	ctcgcaacgg	cgggatgggt	gtcgcggaga	tcctcgcgcg	gaacgaagta	2280
accgtgctct	tcgcggttcc	cgccgtctat	aagctgatca	tctcgaagaa	cgaccggggc	2340
ctgcggttgc	cgaagttgag	attgtgcatc	tctgctggcg	agaagctgcc	attgaagctg	2400
tatcgggagg	cgcgaagctt	cttcagcgtg	aacgtactgg	acgggatcgg	gtgcaccgaa	2460
gccatctcga	cgttcatctc	gaaccgggag	agttatgtcg	cggccgggtg	cacgggcgtg	2520
gtgggtcccgg	ggttcgaggt	caagctgggtg	aaccgcgctg	gcgagctctg	ccgggtggga	2580
gaggtgggcg	tcctctgggt	tcgggggtggg	gcgctgaccc	ggggctacgt	gaacgcccc	2640
gatctgacag	agaagcactt	cgtggacggc	tggttcaaca	cccaggacat	gttcttcatg	2700
gatgccgagt	accggctcta	caacgtgggc	agggctgggt	cggatcatcaa	gatcaattcc	2760
tgctgggttct	caccggagat	gatggagtcg	gtcctgcaat	cccatccagc	ggtgaaggag	2820



21191\_PCT SeqList\_ST25.txt

tgtgccgtct gcgtcgtcat tgacgactac gggttgccaa ggccgaaggc attcatcgtc	2880
accggcgagc atgagcgctc cgagccggag ctcgagcact tgtggggccga gttgcgcgtt	2940
ctgtcgaaaag agaagcttgg gaaggaccac taccgcgcatc tgttcgcgac catcaaaacg	3000
cttccccgga cctccagcgg gaagctgatg cgggccgaac tcgcgaagct gctcaccagc	3060
gggcccccat ga	3072

<210> 14  
 <211> 117  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(117)  
 <223> CysM

<400> 14	
atgaatccaa agttcctcgg aggcctgggg gcaggggtgt gcatcgcttc tttgttccag	60
acgggtcatgc ggaccgtgcc gctcaaggac gccggctccg gcgacagggc ttgttag	117

<210> 15  
 <211> 1074  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(1074)  
 <223> CysN

<400> 15	
atgtcgactc gcaccaagaa cttcaatgtc atgggaatcg actggatgcc ttcctccgcg	60
gagttcaagc gacgcgtccc gcggaccag cgggaggcag aggccgtgct cgccggacgg	120
agatgcttga tggatatcct ggaccgcggg gatcctcgcc tcttcgtcat cgtggggccc	180
tgctccattc acgatccggt ggcggggctg gactatgcga agcggctgcg gaaactcgct	240
gatgagggtc gcgagaccct gttcgtggtg atgcgcgtgt acttcgaaaa gccgcgcacc	300
accacggggt ggaaaggctt catcaatgac ccgcgcatgg atggctcttt ccacatcgag	360
gagggcatgg agcgggggacg tcgcttcctg ctcgacgtgg ccgaggaggg tctaccgct	420
gccaccgagg cgctggaccc catcgcgctc cagtactacg gcgacctcat ttcctggacg	480
gccattggcg cgcgaccgc cgagtcgcag acgcaccgcg agatggcgct cggcctttcc	540
accccagtag gcttcaagaa cggcacggac ggctcgtggt atgcggccgt caatggcatc	600
atctccgctt cacacccgca cagcttcctg ggggtgagcg aaaatggcgc gtgcgccatc	660
atccgcacgc gcggcaacac ctacggccac ctggtgctgc gcggcggtgg tgggaggccc	720
aactacgacg ccgtgtcggg ggcgcttgct gagaaggcgc ttgccaaggc caggctaccc	780
accaacatcg tgggtggactg ctctcacgcc aactcctgga agaatcccga gctccagccg	840

21191\_PCT SeqList\_ST25.txt

ctggtgatgc gggacgtggt gcaccagatt cgcgaggga accgctcggg ggtgggcctg	900
atgatcgaga gcttcatcga ggcaggcaac cagcccatcc cggcggacct gtcgcaactg	960
cgctacggct gctcggtcac tgatgcatgt gtggactgga agaccaccga gaagatgctg	1020
tacagcgcgc acgaggagct gctccacatt ctgccccgta gcaaggtggc ttga	1074

<210> 16  
 <211> 612  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(612)  
 <223> CysO

<400> 16	
atgcccgcgc gctccactcc ctctctggaa agtggcgact ttttcgccga cgtcacgttt	60
tctgatctct cgatcgagtc ggctgatctc tccggcaagg aattcgagcg ctgcacgttc	120
cggcgggtgca agttgcccga aagccgctgg gtccggagcc gcctggagga ttgtgtattc	180
gagggatgcg atctcctgcg gatggtaccg gagaagctcg cgctgcgaag cgtgaccttc	240
aaagacaccc gcctcatggg cgtggactgg agtggactcg gaaccatgcc ggacgtccag	300
ttcgaacagt gcgatctgcg ctacagctcc ttcttgaagt tgaatctacg caagacgcgg	360
ttcgtttggc gctccgcgcg cgaagccaac ttcatlgacg tggacctcgc cgagtcggac	420
ttcaccggca ccgatatgcc aggatgcacc atgcagggct gcgtcctcac caagaccaat	480
tttgctcgat cgaccaatct catcttcgac ccgaaggcga accaggtcaa agggacgcgt	540
gttggcgtgg agaccgccgt cgccctcgcc caggcggtgg gaatggtggg cgacggctat	600
cagacaccct ga	612

<210> 17  
 <211> 702  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(702)  
 <223> CysP

<400> 17	
atgaaacggt tcttcaagct ccagttgcgc accaccaacg tccccgcggc acgggcgttc	60
tacacggctc tgttcgggtga gggcgccgcc aacgcagaca tcgtgccgct gcccgagcag	120
gcgattgccc gcggcgcacc cgccattgg ctgggttacg tcggcgctcga ggacgtcgat	180
gaagcggtgc gctcgttcgt ggggcgcggg gcgacccagc tcggcccgac ccacccgacg	240
aacgacggcg ggcgcgtcgc gatcctccgc gatcctggag gggcgacctt cgccgtggcg	300
acggcaccgg caacgacgag agcgctccag ccggagggtg tctggcagca gctctatgcc	360

21191\_PCT SeqList\_ST25.txt

gcgaacgtgc aacagacggc cgcctcgtat tgcgacctgt tcggatggcg gctctcggat	420
cgccgcgacc ttggtgcgct ggggggttcac caggagttca cctggcgctc ggacgagccg	480
agcgccggct cggtcgtgga cgtggcgggg ctcaaggggg tccattcaca ctggctgttc	540
catttccgcg tcgccgcgct cgatccccgcg atggaggctc tccgcaaggc cggaggcgctc	600
gtcatcggcc ccatggaact tccgaatggc gatcgcatcg ccgtgtgcga ggatccgcaa	660
cgggcggcgt tcgcgcttcg cgaatccagc cacggacgct ga	702

<210> 18  
 <211> 795  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(795)  
 <223> CysQ

<400> 18	
atgcaagaga tcggccagac ggcacttttg gtggcgggaa tgcgcgcgct tgagaccgag	60
cgttccaacc cactgttccg ggatcccctt gcccgtcgac tcgccggtga cacgctcgctc	120
gaggagctgc ggcgccgcaa tgccggtgag ggcgccatgc ctcccgccat cgagggttcgc	180
acgcgctggc tcgatgatca gatcacgctg gggttgggccc gcggcatccg ccagatcgctc	240
atcctcgccg cgggaatgga tgcccgcgcc taccgttttg cctggccggg agacacgcgg	300
ctgttcgagc tcgaccacga cgccgtgctc caggacaagg aggcgaagct gaccggcgctc	360
gcgccgaaat gtgagcgaca tgccgtgtcg gtcgatctgg ccgatgactg gccggcggcg	420
ctgaagaaaa gcggattcga tcccggcgctg cccaccctgt ggctcatcga gggattgctc	480
gtctacctca ccgaggcgca ggtcacgctg ctcatggccc gtgtcaacgc cctgagcggtt	540
cccagagagca tcgtcctcat cgacgtcggt ggccgttcga ttttggactc ctgcgcgctc	600
aagttgatgc acgacctcgc ccgccagttc ggcaccgacg agcccagggt gattctaagg	660
ccgattggct gggacccccca cgtctacacc accgcggcca tcgggaagca gtcggggcgc	720
tggcccttcc ccgtggcgcc acgcggcacc cccggtgtgc ccaggggata cctggtgcac	780
ggagtcaagc gctga	795

<210> 19  
 <211> 1002  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(1002)  
 <223> CysR

<400> 19	
gtgaatggga cgacagggaa gacagggttg gtagcagaaa ggtcgggcgc gatttccccg	60

21191\_PCT SeqList\_ST25.txt

agggactaca agtccaagga gttggtgtgg gattcgttg cgcacacag cagcaagccc	120
cggcgcgtac tgccggaggg ggacgtggtc gggcacctgt acccgccggc caaggcggcc	180
ctgctcacc acccgctcat gaagaacctt ccgcccgaga cgctgcggct gttcttcatc	240
cactccgcct acaagtcatc gggggacatc gccatcttcg agacggagac cgtcaacgag	300
gtggcgatga agatcgccaa cggtcacacg cccatcacgt tcccggacga catccgccac	360
gacgcgctca ccgtcatcat cgatgaggcc tatcacgcct acgtggcacg cgacttcatg	420
cggcagatcg agcagcgcac gggcgtaag ccgctgcccc tgggaacgga aacggacctg	480
tccagggcca tggctttcgg caagcaccgg ctgcccgaga cgctgcacgg gctctgggaa	540
atcatcgccg tctgcatcgg ggaaaacaca ctcaccaagg atctgctgaa cctgacgggt	600
gagaagtcct tcaacgaagt gtcctcatcag gtgatggagg accatgttcg cgacgagggc	660
cgccacgcgg tcctcttcat gaacgtgctc aagctggtgt ggagtgagat ggaggagagc	720
gcccggctcg ccatcggta gctgctgcca gagttcatcc gcgagtacct cagcccgaag	780
atgatggcgg agtacgagcg cgtcgtgctg gacgagctcg gtctagcggc cgagcacatc	840
gagcggatcc tctccgagac gtactcggag ccgccgctgg aggatttccg cgcgcgatat	900
cccctctccg ggtacctggt ctacgtgctg atgcagtgcg acgtcctgtc gcacgcgccg	960
acgcgcgagg cgttccgccg attcaagctg ctcgccact ga	1002

<210> 20  
 <211> 1929  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(1929)  
 <223> CysS

<400> 20	
atggccaacc agcgggtcgc attcattgag ttgacggtct tctctggcgt ttatcccttg	60
gcctctggct acatgcgtgg cgtggccgag cagaaccctt tgatcaggga gtcgtgcagc	120
ttcgaaatcc actcgatctg catcaacgac gaccgattcg aagacaagct caacaagatc	180
gatgccgatg tctacgcgat ctcttgctat gtctggaaca tgggcttcgt gaagcggtgg	240
ctccccaccc tcaccgcccg caagcccaac gcgcacatca tccttggcgg tccgcagggtg	300
atgaaccacg gggcgagta cctggatccg ggcaacgagc ggggtggtgct ctgcaacggt	360
gagggtgagt ataccttcgc gaactacctg gccgaactct gctccccca gcccgacctt	420
ggcaaggta agggcctctc ctctaccgg aacggagagc tgatcacgac cgagcccaa	480
gcgcgcattc aggatctgaa cacggtccca tctccctacc tggaaggcta cttcgacagc	540
gagaagtacg tgtgggcgcc ccttgagacg aaccggggat gccctacca gtgcacctac	600
tgcttctggg gggcggcgac caactcgcgc gtgttcaagt ccgacatgga ccgggtcaag	660

21191\_PCT SeqList\_ST25.txt

gcggagatca cctggctcag ccagcaccgg gcgttctaca tcttcacac cgacgcgaat	720
ttcggcatgc tgacccgcga cattgagatc gccagcaca tcgccgagtg caagcggaag	780
tatggctatc cgctcaccat ttggctgagc gcggcgaaga actcgctga ccgggtcacg	840
cagatcacgc ggatcctgag ccaggagggt ttgatctcca ccagccggt ctcgctccag	900
acgatggacg cgaacacgct gaagagcgtg aagcgcgga acatcaagga gagcgctac	960
ctgagcctcc aggaagaact gcaccgcagc aagctctcct cgttcgtgga gatgatctgg	1020
ccgcttcccg gcgagacgct ggagacctc agggagggca tcgggaagct ctgcagctac	1080
gacgccgacg cgatcctcat ccaccacctc ctgctcatca acaacgtgcc gatgaacagc	1140
cagcgcgagg agttcaagct ggagggtgctg aatgatgaag acccgaacag cgaggcgag	1200
gtcgtcgtcg cgacgaagga cgttaccgc gaggaataca aggagggtgt gcggttcggg	1260
tatcatctca cgagcctgta cagcctgcgc gactccgct tcgctgggag gtacctcgac	1320
aagcaggggc ggctggcctt caaggacttg atctcctcgt tctcgagta ctgcaagcgg	1380
aacctgacc acccctacac gcagtacatc accagcgtga tcgacgggac cagccagtcg	1440
aagttcagcg ccaacggcgg catcttcac gtcacacttc acgagttccg cagagagttc	1500
gaccaactgc tcttcgggtt cattcaaacc ctgggcatga tgaacgatga gctgctggag	1560
ttcctgttcg agatggatct cctcaaccgt ccgcacgtgt acagcaacac gccatcaat	1620
aatggcgaag ggttgctgaa acacgtgacg gtcgtctcga aggagaagga tgccattgtc	1680
ctgcgcgttc ccgaaaagta cgcgacgctc acgtctgagc tactcgggct cgagggcgt	1740
cccagcacga gcctgcgcgt gaagtaccgc gggactcaa tgccgttcac ggcgaacaag	1800
ccgtacgagg acaacctctc ctactgcgag gcgaagctcc acaagatggg aagcatactt	1860
ccggtctggg agtcggccgt cccttcgcgc acaccggtcc ggcggccaca agtggccgtc	1920
gcgggctga	1929

<210> 21  
 <211> 3804  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(3804)  
 <223> CysT

<400> 21	
atgcatcgag tgaagccgtt gatagggccc gtcctgtcgg cgctgttgct gtgtgccctg	60
cccgccaggg cgcagatcgc cgcgcccccac gtctaccaca accacatgcc caacttctgg	120
gcctactacg acctgggcca atacgcgtcc acgcccaccg gcggcccat ccggtacatg	180
tatgacgcgc aggtcatcaa cctgaagaag aatccccgt ccaattacac atactacctg	240
ccatcgggcg cgcccatgcc gcacgatgac ctcgtcacct attactcgca caacgcgaag	300
acgggtgcct acctgtactg gcctccaagc gtcgcctcgg acatgaaaac caatgcccc	360

21191\_PCT SeqList\_ST25.txt

accggccagg	tgcacgtcac	catgtccggc	gccgtggtga	acaatgtcca	ggatctcgtc	420
accctgaaga	acgtcccccg	ctacgacaat	ccgaactggg	gcgctctctg	gaaggaccgc	480
tacagcgccc	tgctcacccc	cgcgggcaac	cgcaccctgg	atctcatcca	cttcaccggc	540
caccactcca	tggggcccct	ggtcggtccc	gactacttcc	tcaaggatct	catctaccag	600
agcgccacgc	tcgcccagcc	ctacttcctc	ggcggctcct	tccagtcctc	caagggtctc	660
ttccccaccg	agctcggctt	ctccgagcgc	ctcatcccca	ccctctccaa	gctcggcgtg	720
cagtgggccc	tcatcggcga	caaccacttc	tcccgcaccc	tcaaggacta	cccctacctc	780
aacgatccgg	gctccgacac	gctcgtctcc	ccgcccgaac	gcgccgatct	ccagaacacc	840
agctccgtgg	gctcctgggt	gagcgcccag	atggcccacg	agcagcaggt	catcaagaac	900
aagtacccct	tcgcctccac	tccccactgg	gtgcgctacg	tggaccccg	cacgggcgcc	960
gagtcgcgcg	tcgtcggcat	ccccgtcaac	cagaacggct	cctggctcga	gggctgggaa	1020
ggcgaggcca	ccgtcgacgt	cgtcaacctc	aagagcttcg	agggcctcgt	tcccagcgg	1080
cagttcttcg	tcatcgcgca	tgatggcgac	aactcgagcg	gacgcgccgg	ctccgactcc	1140
acctggtaca	acggccgctc	cgtcacctgc	gccaatggcg	tgcagtgcgt	gggcatctcc	1200
gagtacctcg	tccaccacac	ccccgcctcc	accgacgtgg	tgcacgtcca	ggacggctcg	1260
tgggtggaca	cgcgcgactc	ctcctcggat	ccccagtggc	accactggaa	gctgcccttc	1320
ggcatctgga	agggtcagtt	ccccgccttc	aacgccgcca	ccggcctcaa	tctctctccc	1380
aagacgaacc	tcagcggcgt	gcaggagggc	atgacggtct	ccctcgagca	cggctggcac	1440
tacctcgagc	gcaacttcgc	cctgctccag	gccgccctca	actacgcgaa	gaccgccgag	1500
cagatctggc	tcgacgcgca	ccccaatcac	tggtcgcca	ccaccgcgat	cgacaagcag	1560
atcacccaca	cgggcaacca	gctcaaccgg	tggatgatgt	cctttcccgt	caagggcgac	1620
gtgaacaacg	actgggcggg	cggcgccaac	cccgcggaac	tcgcctggta	cttcctgctg	1680
cccgccatgg	actcgggctt	cggctactac	gacgagaacc	aggacgacaa	cgtcaagccc	1740
acgctgtcct	tcaatcaatc	cctctacttc	tccaagccct	acgtgcagca	gcgcatcgcc	1800
caggacaaga	cgggcccctc	cgtctgggtg	gccagcgct	ggccctacaa	ccccggcagc	1860
gccaacaccg	acaagtccga	gggctggacg	ctccacttct	tcaacaacca	cttcgccctc	1920
tacacctacg	cctacgacgc	gagcggcatc	tcctccatca	aggcccgcgt	ccgggtgcac	1980
accacaaga	gcatcgaccc	gctcgacaac	accacaagg	tctatgatcc	ggcggcgcgc	2040
aaggccgcgg	gtgttcccaa	catcgatccg	gcccgcgtgg	gcgcttggtg	ggactacccg	2100
ctcacccggc	gcgacctgaa	gcctgtcatg	aatggtgttt	cctggcagcc	cgcctacctg	2160
cccgtcatgg	ccaagggtgc	cgcgcaggag	atcggcgacc	tctactacgt	ctacctgggc	2220
aactaccgcg	accagctcct	cgactactac	atcgaggcca	ccgacagccg	gggcaacatc	2280
accgggggag	agatccagtc	cgtctacgtg	ggctcggggc	ggtacaacct	ggtgggcggc	2340
aagtacatcg	aggaccccaa	cggcacggta	cagggaacgc	atcccttcct	cgtggtggac	2400

## 21191\_PCT SeqList\_ST25.txt

accaccgcgc	cctcgggtccc	ctcgggactg	accgcgaagg	cgaagacgga	ccgctcggtg	2460
accctgagct	ggagcgcggc	ctcggacaac	gtggcggtga	gcggctatga	cgtcttccgc	2520
gatggcacgc	aggtgggctc	gagcaccagc	acggcctata	ccgacagcgg	cctctccccg	2580
agcactcaat	acagctacac	cgtgcgcgcc	cgggacgcgg	cgggcaacgc	gtccgcccag	2640
agcaccgccc	tgagcgtcgc	caccctgacg	ccggacacca	ccccaccctc	cgttccctcg	2700
ggcctgacgg	cgtcgggcac	gacgagctcc	tcggtggccc	tcgcctggac	ggcctccacc	2760
gacaactacg	gcgtcgcgaa	ctacgaggtg	ctccgaaacg	gcacccagggt	cgcgctccgtc	2820
acggggacga	cctactcggg	taccggcctc	tcgccgagca	ccacctacag	ctacaccgtg	2880
cgcgcccggg	acgcggcggg	caatgtctcc	tcgccagca	cggccctgtc	cgtcaccacc	2940
cagacgggca	acagcgccac	cgtctactat	ttcaacaaca	acttcgccct	caaatacatc	3000
cacttccgca	tcggcggttg	cacgtggacg	accgtgcccg	gcaacgtcat	ggccacctcc	3060
gaggtgcccg	gctacgcaa	atacaccgtc	aatctgggag	cggccaccca	gctcgagtgt	3120
gtcttcaacg	atggcaaggg	cacctgggac	aacaacaagg	gcaacaacta	cctcctgccc	3180
gcggggcacct	ccacggtgaa	ggacggcgtc	gtctccagcg	gagcgcccg	gctcgacacc	3240
accgcaccct	ccgtccccctc	gggcctcacg	gcggcggtcca	agacgtcctc	ctccgtgtcg	3300
ctctcctgga	gcgcctccac	ggatgccagc	ggcatcgccg	gatatgacgt	gtaccgcgat	3360
ggctcgctgg	tgggctcacc	cgtctccacc	agctacaccg	acagcgacct	gagtgccggc	3420
acgacctacc	gctacaccgt	gcgcgcgcgc	gacaccgcgg	gcaatgcctc	cgcccagagc	3480
accgccctga	gcgtcaccac	gagcacctcc	tcggccacct	ccgtcacctt	caacgtgacg	3540
gccagcaccg	tcgtgggaca	gaacgtctac	ctcgtgggta	accatgccgc	gctcggcaac	3600
tggaacaccg	gcgccgccat	cctcctgtct	ccggccagct	acccgaagtg	gagcgtgacg	3660
ctcagcctgc	ccggctcgac	ggccctcgaa	tacaagtaca	tcaagaaggga	cggctccggg	3720
aacgtcacct	gggagagcgg	cgccaaccgc	tcgaccacga	tccccgcctc	ggggaccgcg	3780
accctcaacg	acacctggaa	gtag				3804

```
<210> 22
<211> 831
<212> DNA
<213> Cystobacter velatus
```

```
<220>
<221> misc_feature
<222> (1)..(831)
<223> ORF1
```

[illegible]

21191\_PCT SeqList\_ST25.txt

cagaccatcc gcgtcctcga gtggtgtttc accgggctct tcacactgga gtacgtgctg	240
cggctgctgt cggtgaaacg gccgctgcgc tatgcgctga gcttcttcgg gctggtggat	300
ctgctggcca tcctgccctc ggtgctgagc ttgatgctgc ccggcatgca gtccctgctg	360
gtggtgcggg tgttccgcct gctgcgcgtc ttccgcgtac tcaagctcgc cagcttcctc	420
ggggaggcgg acgtgctgct caccgcgtc cgggccagtc ggcggaagat catcgtcttc	480
ctcggggcgg tgctgagcac ggtcgtcatc atgggcgcgg tgatgtacat ggtggagggg	540
cgcgccaacg gcttcgacag catcccgcgg gggatgtatt gggccatcgt gacgatgacc	600
acggtgggct acggagacct ctgcccgaag acggtgccc gacagttcat cgcctcgggtg	660
ttgatgatca tgggctacgg catcctcgcg gtgcccacgg gcatcgtgtc cgtggagctc	720
gcccaggcga cccggcagca cgccatcgac ccgcgcgcct gtcccggctg cggcctgcag	780
ggccacgacc tggacgcgca ccactgcaag cactgcggca ccgccctctg a	831

<210> 23  
 <211> 237  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(237)  
 <223> ORF2

<400> 23	
atggcacagg accaggacag ggagaagctg cattccgacg cggacaagga gaggctgcac	60
ccgaaggctc actcgggtga cgtctcgggc cggggccgcg agcggcggcc cgacgaggaa	120
taccccaagc agcgcaacgc gggcgagttc ggcaccacg gaggcccaa caaggcggcg	180
aaggaagacc ggcggcaact gcatgcccc ggcagctcca aggcgggctc ccagtag	237

<210> 24  
 <211> 489  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(489)  
 <223> ORF3

<400> 24	
atgggaagaa cctacagttt cgaacccttc ttgtcgcagc aaccgcgcga gacctacaag	60
ggctcgggtc cccggctcgg caatgaagaa cacaagatcg ccctcacaa ggaagaggag	120
aaggcggccc tgctgacac gccaccggc tatggacagg ccacgccga gaccgtgaag	180
cgctaccgcg ccgcgcgga gaagaagcgc acggagccca agacccccgc taccgggctg	240
aagaaggccg cccccaaggc gaagcccacc cggaaggtgg cgacgcaaga ggccaccgcc	300
aaggccccta cccgtcaagc gcgggaggag accgagccga aggccccgc gcgcaagaag	360



21191\_PCT SeqList\_ST25.txt

ctgagcgcca cggggctcgt gggtagcatc gggcgcaagg tggtagctcg ggccgcggtc 420  
gcggcgaaga agaccgtggc gcgcgccgtg aagaccgccg ccgcgcgcaa gtccgcgaag 480  
aagcgctga 489

<210> 25  
<211> 264  
<212> DNA  
<213> Cystobacter velatus

<220>  
<221> misc\_feature  
<222> (1)..(264)  
<223> ORF4

<400> 25  
atgagcccg caagacgcaa ggagagcaag cagcacgaag tgggctccgc cacacacgca 60  
cggcgggtga tcgtggcgac ggatggccgg ggttggtacg tccgattcga gggcaaccgt 120  
cagctcggcc ggtattccaa cgtgaccag gccatccacg gcgggcgag gctggctcgc 180  
cagcacaagc ccgcgggcct cgtggtgcgc tacctggacg gggaagagga agagtcctgg 240  
tacggggacc gcgaggcgcc ttga 264

<210> 26  
<211> 450  
<212> DNA  
<213> Cystobacter velatus

<220>  
<221> misc\_feature  
<222> (1)..(450)  
<223> ORF5

<400> 26  
atgaaacaca tcaaggcggg ggtggtgggt gcgttggtccg cggctctgct cttcggcgtg 60  
ggatgtcaga cgacgggcgg tgctgggaat caaggaacgg gcgggagcga tacgtctcag 120  
ggcggcacca tgaccggaag tgagacgacc ggaaccggaa cgaccggagg caccacggaa 180  
ggtggtgaca ccacgggcgg aggcaccggc ggaacagggt ctggcgacat cgacggttcg 240  
agcagtggca gcacgggctc cggtagcgac gtgggcggct ccggcggtc gggcgtgtcc 300  
agtgaaccgg gcggtttcag ccccgacgcc tcgggcgtgg acagcgacct gggcggctcc 360  
ggcaccggca gtgacgtgga cggctccggc agcacggact ccagcggcaa catgagcggc 420  
acgggctccg aagacgacac cagccgctga 450

<210> 27  
<211> 1578  
<212> DNA  
<213> Cystobacter velatus

<220>  
<221> misc\_feature  
<222> (1)..(1578)

21191\_PCT SeqList\_ST25.txt

<223> ORF6

<400> 27

atgagcacgc gcacctccct ggccttgcc gcgtccctcg ccgcgctgcc cgcgctcgcc	60
caggagcgtc ccagcgaggg cgacctcttc ggcgcgaca ctccagagac gaagcccgtc	120
ccggccgatg cgccccgccc cgacgagagt tccctcttcg gtgacacccc cgcgtccacc	180
ccggccgcac agagcgcggc ggccaccgcg gcccccgaca agccctccgc cagccccag	240
gaccgggatg cgcaggcgct cgggtggccc tcggccacca acgccttcga caccgaggag	300
gccgtcgagg atccgctgaa gatcggcggc cgcttctacc tgcgcgcta ctcacaggcc	360
aacgaagggg tgtccttcag caacaccacc ttctccgccc ccatgctggt ggacggctac	420
ttcgatgccc gccccaccga gcggctgcgc ggcttcgtgc tcggacggct caccttcgat	480
ccgacccgca aggcgggctc cctcggcatc gtccccacga gcacgtccac ctccaacgtc	540
gctgcggatc cggtcgtgct gttggatcag gcctggctgc gcttcgacct ggaccacaag	600
ctcttcatca ccgtcggcaa gcagcacgtg aagtggggca cctcgcgctt ctggaacccc	660
accgacttcc tctcggccca gcgcagggat ccgctcgccc tcttgacac gcgcaccggc	720
gcgaccatgc tcaagatgca catgccctgg gaggcgaaag gctggaactt ctacgtcctc	780
ggcctgctcg acaacgccgg cccggccaat acgctcggcc gcgtcggggg cgctgctcgc	840
gccgaggtgg tgctcggcca tacggaactc ggcgctgatg ccgtgctcca acacggccgc	900
aagccccgct tcgggctcga cctctcctcc gggctcggcc ccatcgacat ctacggcgaa	960
ctcgcctca agaagggtc ggatgcgccc atgttcgca tgcaccaagg tgtctccctc	1020
ggagacctgc tcggtcagtt ccagggcaat ggcgcatgc ctcccgacct gggcgcgctc	1080
cccatagagg cgtactaccc cgagggttac acgccgcagg tgagcggcgg cgcgacctgg	1140
acgttcgcct actcggagag cgacaccgcc accgtgggcg tcgagtactt ctacaattcg	1200
atgggctatc ccggctcgct ggcctacccc tacctcatcc tccagggcca gtatcagccc	1260
ttctacctcg gccggcacta cgccgccgtc tacgcgttcc tgtccggtcc gggatcctgg	1320
gacaacacca acttcatcct gtccaacctg ggcaacctct ctgaccgttc tttcatcaca	1380
cggttggacg tgacgcaccg ggcctgcgc tatctcagca tcgaggcctt catcgccgcc	1440
aactatggcc agcggggtgg cgagttccgc ttcgcgctca acctgccggc cctgcgcatg	1500
ggcgagcagg tgacgcctcc catcgccgtc gctccaccta ccatccaggc cggggtgggt	1560
ctgcgcatcg acctttga	1578

<210> 28

<211> 786

<212> DNA

<213> *Cystobacter velatus*

<220>

<221> misc\_feature

<222> (1)..(786)

<223> ORF7

# 21191\_PCT SeqList\_ST25.txt

```

<400> 28
atgaccctgc gcaacctcct cggcgccctg ttcgccgcgc tgctgctggc cgctccgacc      60
gctcgcgcgg acctcaccga ccccgccgag atcaagaagc tcctggagac gctcgacaac      120
cgccagcgca acggcggcga ctacaagtcg ctggtgtata tcgagcagaa ggagaaggac      180
aaaacagacg tcgtgcgcga ggccgtcgtc taccggcgcg acgagaagga tcagctgatg      240
atcctcatga ccaagcccaa gggcgaggcc ggcaagggtc acctgcggtc ggacaagaac      300
ctctggagct acgaccgaa caccggcaag tgggaccggc gcaccgagcg tgagcgtatc      360
gccggcaccg acagccgccg cgccgacttc gacgagtcgc gcctggccga ggagctcgat      420
ggcaagttcg agggcgagga gaaactcggc aagtccacca cctggaagct cgtcctcacc      480
gccaagccga acgtggacgt cgcctacccc gtggtacacc tgtgggtgga gaaggacacg      540
aacaacatcc tcaagcgcca ggagttcgcc ctttcgggcc gcctgatgcg cacctcctac      600
ttccccaagt ggatgaagct cttcagcgag tccaagaagg ccgacgtctg gtacccgcag      660
gagatgcgct tctatgacga ggtggagaag accaactcca ccgtcatcgt cgtgaagagc      720
gtggacctgc gtcgctcga ggagaacatc ttcaccaagg cctggttcga gagcaaaagc      780
cgatga                                          786

```

```

<210> 29
<211> 1302
<212> DNA
<213> Cystobacter velatus

```

```

<220>
<221> misc_feature
<222> (1)..(1302)
<223> ORF8

```

```

<400> 29
atgcaacagc tcctcctcat cgcagtgcgc aacctgggca cccacaagcg ccgtacgctt      60
ctgctggggcg gcgccatcgc cggtgtcacg gccctgctcg tcatcctcat gggcctgtcc      120
aacggcatga aggacacgat gctccggtcc gccaccacgc tggtgaccgg gcacgtcaac      180
gtggctggct tctacaaggt gacggccggc cagtctgcgc ccgtggtgac ctcctacccc      240
aagctgctcg agcagctgcg caaggaagtc cccgagctgg acttctccgt ccagcgcacg      300
cgcggctggg tcaagttggt gagcgagtct ggctccgtgc agacgggaat cggcggcatc      360
gacgtagcgg ccgagactgg catccgcaag gtgctgcagt tgcgggaggg tcggttgaa      420
gacctggcgc aaccaatac cctcctcctc ttcgacgagc aggcgaagcg gctcgaggtc      480
aaggtgggtg acagcgtcac cctctccgcg tccaccatgc gcgggatcag caacaccgtg      540
gacgtacgtg tgggtggccat cgccgccaac gtgggcatgc tgagttcctt caacgtcttg      600
gtgcccacg ccaccctgcg cgccctctac cagctgcgcg aggactccac cggcgccctc      660
atgctccacc tcaaggacat gagcgccatc cccagcgtgc aggcgcgcct ctacaagcgt      720
ctgcccagat tgggttatca ggtgctggag catgaccccc gggccttctt catgaagttc      780

```

21191\_PCT SeqList\_ST25.txt

cagaccgtca accgcgaggc ctggacgggg cagaagctgg acatcaccaa ctgggaggac	840
gagatctcct tcatcaagtg gaccgtgtcg gcgatggacg ccctcaccgg cgtcctcatc	900
ttcgtgctgc tcatcatcat cgcggtgggc atcatgaaca ccctgtggat cgccatccgc	960
gagcgcaccc gggaaaatcgg caccctgcgc gccatcggca tgcagcgctg gtacgtgctg	1020
gtgatgttcc tcctggaggc gctcgtgtc ggactgctcg gcaccacggt gggcgccctc	1080
gtgggcatgg gcgtgtgcct gctcatcaac gccgtggacc cctccgtgcc cgtgcccgtc	1140
cagctcttca tcctctccga caagctccac ctcatcgtga agcccggatc ggtgatgaga	1200
gccatcgcgt tcatcacgct gtgcaccacc ttcatctcgc tcattccctc tttcctcgcc	1260
gcgcggatga agcccatcac ggcatgcac cacatcgggt ga	1302

<210> 30  
 <211> 2106  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(2106)  
 <223> ORF9

<400> 30	
atgggcccaac tcaagctcct gctccaagtg gccctgcgca acttgttcgt gagcaggatc	60
aacctcctca tcggaggcat catcttcttc ggcaccgtgc tgggtggtggt gggcggtcc	120
ctcgtcgaca gcgtggacga ggcgatgagc cgcagcatta tcggcagcgt cgccggccac	180
ctccagggtg actcggccca ctccaaggac gagctctcgc tcttcgggca gatgggccgc	240
gaaccggacc tgagcgcgct ggatgacttc tcgcgcatca agcaactggt acagcagcac	300
cccaacgtga agacggtggt gcccatgggc accggcgcca cgttcatcaa ctcgggaaac	360
accatcgacc tgaccttggc gcgcctgcgc gacctctaca agaaagcagc acagggcgac	420
acacccgaac tccgcgggca gatccacagc ctccaggcgc atgtgctca catcatcacc	480
ttgctcgagg aggatatgaa gcggcgagg gaaatcatcg acgacaagac cacggacccc	540
gcggacgcgg aggccatggc ccgcgcccgt tccgaggcct tctgggcgga cttcgacgag	600
aagccattcg actcgtcga gttcctggag aaccgcatcg ccccgatatat gacggacggg	660
gacatgttgt ccctgcgcta tgtaggcacc gacctggtca acttccagaa gaccttcgac	720
cgcgtgcgca tcgtggaggg cacgccggtg ccccgggggc accgcggcat gatgctctcc	780
aagttcacct acgagaacga cttcaagctg aagacggcgc accggttggga tctcatcaag	840
gaggcgcgtg ataccaacca caagaccatc gcgatggatc cgcaactcca gcgctgggtg	900
aaggagaacc agaccagac gcgggagatc ctcttcagc tcgacgacct caagacgaag	960
caggccgtgg agcggctcca gcgcgtgctg ggcagccagg agacggacct gggcaagcta	1020
ctgcccgcct tcttcaccat ggatgacgcc aacttcgaca cgcgctacca gcagttctac	1080

21191\_PCT SeqList\_ST25.txt

tccgagctgg cgacgctgct cgacctgtac cgcattccgca tcggggacga cctcaccatc	1140
accgcattct cgcgcaccgg ctatgtgcag agcgtgaacg tgaagatcta cggcacctac	1200
cagttcgacg ggctggagaa gtccgcggtc gccggagccc tcaacctgct ggacctgatg	1260
tccttccgcg agctgtacgg ctatctcacc gctgagaaga aggccgagct cgcgggcctg	1320
cagaaggcca gcgggggtgca gcaggtgaag cgcgaggacg ccgagacggc gctctttggc	1380
gagcagggca gcgcctcgct ggtggccgag gggaccgccg gccagatcga cgaggacaag	1440
caactcgacg ggctcgccca gaagctgcac cgcgaggagc tcgcctcccg ggtgtacacg	1500
cagcaggaaa tcgaaagcgg cgtggtgctc agcaccgcgg ttctgctgaa gcatccggag	1560
aagctggagc agaccctggc cgagctgcgg aaatcggcgg acgacgcgaa actacccttg	1620
cggatcatct cctggcagaa ggcctccggc acgatcggcc agttcgtcct ggtcgccaag	1680
ctggtgctct acttcgccgt cttcatcatc ttcgtggtgg cgctcgtcat catcaacaac	1740
gcgatgatga tggccacgct gcagcgggtg cgcgaggtgg gcaccctgcg ggccatcggc	1800
gcgcagcgct cgttcgtgct gagcatggtg ctggtggaaa cgggtggtgct ggggctcgtc	1860
ttcggcgtgc tgggagccgc catgggaggt gccatcatga acatgctcgg ccacgtgggc	1920
atccccgccg gcaacgaggc gctctacttc ttcttctcgg gaccccgccct cttccccagt	1980
ctccacctgt caaacctcgt ggcggccttc gtcacgtgc tcgtggtgct cgcctctcc	2040
accttctacc ccgcgtacct cgcgaccgg gtctcgctc tccaggcgat gcagacggac	2100
gagtga	2106

<210> 31  
 <211> 762  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(762)  
 <223> ORF10

<400> 31	
atgagccagg tcaactgccct ccccggcagc acccagccga tcgtctccct caccgaggtt	60
accaagacgt actccctggg taaggtgcag gtgcccgcac tccgaggcgt gacgctagag	120
gtgtacccgg gagagttcat ctccatcgcc ggcccatcgg gcagtggcaa gacgacggcg	180
ctcaatctca tcggctgcgt ggacacggcc tcctcgggcg tggtagcgt ggatggccag	240
gacaccaaga agctcaccga gcggcagctc acccacttgc ggctgcacac catcggttc	300
atcttccaga gcttcaacct cgtctcgggtg ctcagcgtct tccagaacgt agagttcccc	360
ctgctgctgc agcgcaagct caacgcctcc gagcgccgca cgcgcgtgat gacgctgctg	420
gagcaggtgg gcctggagaa gcacgcaaaa caccgcccc atgagctgtc tggaggccag	480
cgccagcgcg tggccgtggc gcgcgctctc gtcaccggc ccaagctggt gctcgccgac	540
gagcccaccg ccaacctcga ctccgtcacc ggccagaaca tcatcgacct gatgaaggag	600

21191\_PCT SeqList\_ST25.txt

ctcaaccgca aggagggcac caccttcac ttctccaccc acgacgcaa ggtgatgacc	660
cacgccaacg ccgtggtgcg cctggcggac gggaagatcc tcgaccgat cacgccggcc	720
gaggcccaga aggtcatggc cgtgagcgag gggggccact aa	762

<210> 32  
 <211> 1194  
 <212> DNA  
 <213> Cystobacter velatus

<220>  
 <221> misc\_feature  
 <222> (1)..(1194)  
 <223> ORF11

<400> 32 atgccgcaga agttcgtggg gaagtggaag ggcgggcggg tcaagctcgt cgatggtcgg	60
aaggtgtggc tcctcgagaa gatggtctcc ggggcccggt tctcggcttc cttggcggtc	120
tccaacgagg aggacgcgct ggccgagctg gccctgttcc ggcgcgaccg ggacgcctac	180
ctggccaagg tgaaggccga caggtcggag gaagtccagg catccactgt agccggggca	240
gttcctctgt cgggggatgt ggggcctcgg ctcgatgccg attctgtccg ggagttcctc	300
cgacacttga cccagcgggg gcgaacggag gggtaccggc gggacgcccg aacctacctg	360
tcgcaatggg ccgaggttct ggccggaagg gacctgagta ccgtcagcct cctcgagttg	420
cgccgcgccc tgagccaatg gccacggcc aggaagatgc ggatcatcac gctcaagagc	480
ttcttctcgt ggctgaggga agaggatcgc ctcaaggctg ctgaagacc caggtgtcc	540
ctcaagggtc cggccgcggt cgcggagaag gggagacggg ccaaggggta ttcgatggcc	600
caagtggaga agctctacgc ggccatcggc tcccagacgg tgagggacgt gctgtgtctg	660
cgggccaaga ccggcatgca cgactcggag atcgcccgcc tggcatcggg caagggggaa	720
ctgcgcgtcg tcaatgaccc ctccggcatc gccggtactg cgcggtttct gcacaagaac	780
ggccgcgttc acatcctcag tctggatgcc caggcccttg ctgccgcgca gcggctccag	840
gttcggggca gggcgcccat caggaacacc gtccgggagt ccatcgggta tgcgtcggcg	900
cgcattgggc agtcgcccac ccatcccagc gagctccgcc acagcttcac cacctgggcc	960
acgaatgagg gccaggctcg gagggcaacc cggggcggag tgccactcga tgtcgttgcc	1020
tcggttcttg gccatcagtc cacacgggcg accaagaagt tctatgacgg gaccgaaatt	1080
ccccgatga tcaccgtccc gctcaagctg catcatccac aggaccagc ggtgatgcag	1140
ctgaggcgta actgctcgcc ggaccccgctc gtgacgagag aggcagaggc gtga	1194

<210> 33  
 <211> 375  
 <212> DNA  
 <213> Cystobacter velatus

<220>

# 21191\_PCT SeqList\_ST25.txt

<221> misc\_feature  
<222> (1)..(375)  
<223> ORF12

<400> 33  
gtgctcctcg cattccccctc cggcctcctg tcgctggcgc tcctgtccac taccaccgaa 60  
atctctgcgg ctcttcccgt ggacgagtgc gagtcggcga gcctgcgcat cgagctgccc 120  
gctacgccag ggggaaagcc acccgtggtg tgtctcggtc caggtctgcc cattcatttc 180  
cgcttcgact ccgcgctcca acagaagtcc ctgaggattc aggatcgggg ctggttcgag 240  
gattgggctt tgggccagca gacgctcgta ctgactcctc acgacaacct ggtggctggg 300  
aagcgatctg aagtggaggt gtgcttcgcg gatggtgccg ccccggcgtg cgcttccttc 360  
gtgctccggc gctga 375

<210> 34  
<211> 339  
<212> DNA  
<213> Cystobacter velatus

<220>  
<221> misc\_feature  
<222> (1)..(339)  
<223> ORF13

<400> 34  
atgcacacga aggtgccctc cgtcttcgag gcaacgccc agtctctcag tgacgtggac 60  
taccagttct ggcatgagga cttcccagg gtgttcgagc ggcagcacat cgacgcgcac 120  
gcggtgcccc ccattggcgc gtacttgggc gaggtgctgg tgcgtaacct gggcggcaag 180  
tggatacctc gccagaaact cgacgaggcc caggtgctcg tcggcaaccg tgtgtggttg 240  
ccgtttgcgc gggctcacca ctacatgcgc tcgtgcgaat cgttgctgga ctactccctc 300  
accagctct accgcgtggc cgagcggtac cggggttga 339

<210> 35  
<211> 915  
<212> DNA  
<213> Cystobacter velatus

<220>  
<221> misc\_feature  
<222> (1)..(915)  
<223> ORF 14

<400> 35  
atgaaggcgc tggggcttgg tgacgtgaag tcggaggaca gtctccggct cacttttgag 60  
ggtgcgcttg atccgcaggc tgcgcttgag aaagtctctg agccattttt ccaggcgcctg 120  
gaggaatatg caggcgattg gatgccggaa gtcgtcagtg gcaggcggcg actcaaatac 180  
tcccagagcca atatctggaa ggctctggag gagcggcgcg atgaacgaag cacagacacc 240  
tggctctacc gcacacagcg gccgacactg gagatgtcgc tgcatctctg gtttccgccg 300  
cttccgcccc ctttgacgt aatgactacg gtgcaaccgc tcacccgctt cgcggagaag 360

21191\_PCT SeqList\_ST25.txt

gagcgctgcc gccaatcgt agaaatggtg cgcacctggg cctcttgcta cccggtcact	420
cacgccgcag cccacagcgt ggctgacagg gcgttgccag gtgcgcccga ttttgacgc	480
gatgcgcgga ccgcacggag agacgggttc gacagaatct acgagatctt ctggctcaac	540
gtcttcggcc ccaagtgtgt ggaagccgtg ggccgcgagc gcatgctgtc cacgccagct	600
caccgggtgg aggaactgcc caatggctcc atcctcctgg tgacgtggcc caccgtgcg	660
gacttcgcgg gcgccgaggc acggcacgca caggcgcgcg cgcacgttca cctccggccg	720
gacctccgct tcgacacggt gctgcgaacc ctgcacgagc gtagcgccgc gctcgtcccc	780
gttgagccct gcttcaccc ggatgtagcg ccactcctct ctcacgtggt ggatagcgtc	840
gccatccgga tgtggaaaac ctggagcgcg ctaacgagca ttacagaact ctggctgagc	900
acctcgtggc gctga	915

<210> 36  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Primer

<220>  
 <221> misc\_feature  
 <222> (1)..(32)  
 <223> CysL KO For

<400> 36	
tgattgattg atcggcgcgga ttcggcctct gg	32

<210> 37  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Primer

<220>  
 <221> misc\_feature  
 <222> (1)..(32)  
 <223> CysL KO Rev

<400> 37	
tcaatcaatc atcggggtcgc ggtctcaggc tc	32

<210> 38  
 <211> 37  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Primer

<220>



21191\_PCT SeqList\_ST25.txt

<221> misc\_feature  
<222> (1)..(37)  
<223> CysK KO For

<400> 38  
tgattgattg aaaaacagtc ggaggagttt cttgtcc

37

<210> 39  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<220>  
<221> misc\_feature  
<222> (1)..(32)  
<223> CysK KO Rev

<400> 39  
tcaatcaatc aactcccagt gccctcagcc tc

32

<210> 40  
<211> 70  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(70)  
<223> CysA

<400> 40

Met Ser Met Asn Gly Asp Glu Ala Glu Tyr Val Val Leu Ile Asn Gly  
1 5 10 15

Glu Glu Gln Tyr Ser Leu Trp Pro Val His Arg Glu Ile Pro Gly Gly  
20 25 30

Trp Lys Thr Val Gly Pro Lys Gly Ser Lys Glu Thr Cys Gln Ser Tyr  
35 40 45

Ile Gln Glu Val Trp Thr Asp Met Arg Pro Lys Ser Leu Arg Glu Ala  
50 55 60

Leu Thr Arg Ser Asn Cys  
65 70

<210> 41  
<211> 317  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(317)

21191\_PCT SeqList\_ST25.txt

<223> CysB

<400> 41

```

Met Ser Thr Pro Ala Ala Gly Ala Lys Pro Ser Tyr Leu Ala Gly Ile
1      5      10      15
Glu Thr Val Met Val Glu Pro Glu Leu Glu Glu Val Arg Tyr Leu Thr
20      25      30
Val Glu Ser Gly Asp Gly Arg Gln Ser Thr Leu Tyr Glu Phe Gly Pro
35      40      45
Lys Asp Ala Glu Lys Val Val Val Leu Pro Pro Tyr Gly Val Thr Phe
50      55      60
Leu Leu Val Ala Arg Leu Ala Arg Leu Leu Ser Gln Arg Phe His Val
65      70      75      80
Leu Ile Trp Glu Ser Arg Gly Cys Pro Asp Ser Ala Ile Pro Val Tyr
85      90      95
Asp Thr Asp Leu Gly Leu Ala Asp Gln Ser Arg His Phe Ser Glu Val
100     105     110
Leu Lys Gln Gln Gly Phe Glu Ala Phe His Phe Val Gly Trp Cys Gln
115     120     125
Ala Ala Gln Leu Ala Val His Ala Thr Ala Ser Gly Gln Val Lys Pro
130     135     140
Arg Thr Met Ser Trp Ile Ala Pro Ala Gly Leu Gly Tyr Ser Leu Val
145     150     155     160
Lys Ser Glu Phe Asp Arg Cys Ala Leu Pro Ile Tyr Leu Glu Ile Glu
165     170     175
Lys His Gly Leu Leu His Ala Glu Lys Leu Gly Arg Leu Leu Asn Lys
180     185     190
Tyr Asn Gly Val Pro Ala Thr Ala Gln Asn Ala Ala Glu Lys Leu Thr
195     200     205
Met Arg His Leu Ala Asp Pro Arg Met Thr Tyr Val Phe Ser Arg Tyr
210     215     220
Met Lys Ala Tyr Glu Asp Asn Arg Leu Leu Ala Lys Gln Phe Val Ser
225     230     235     240
Thr Ala Leu Asp Ser Val Pro Thr Leu Ala Ile His Cys Arg Asp Asp
245     250     255

```

21191\_PCT SeqList\_ST25.txt

Thr Tyr Ser His Phe Ser Glu Ser Val Gln Leu Ser Lys Leu His Pro  
260 265 270

Ser Leu Glu Leu Arg Leu Leu Gly Lys Gly Gly His Leu Gln Ile Phe  
275 280 285

Asn Asp Pro Ala Thr Leu Ala Glu Tyr Val Leu Gly Phe Ile Asp Thr  
290 295 300

Arg Ala Ser Gln Ala Ala Ala Pro Ala Val Ala Gly Ala  
305 310 315

<210> 42  
<211> 459  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(459)  
<223> CysC

<400> 42

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

Arg Gln Ile Ser Ser Tyr Gln Lys Lys Phe His Val Trp Trp Arg Glu  
20 25 30

Arg Gly Pro Thr Glu Phe Leu Asp Arg Gln Met Arg Leu Arg Thr Pro  
35 40 45

Thr Gly Ala Val Ser Gly Val Asp Trp Ala Glu Tyr Lys Thr Met Arg  
50 55 60

Pro Asp Glu Tyr Arg Trp Gly Leu Phe Met Val Pro Met Asp Gln Asp  
65 70 75 80

Glu Ile Ala Phe Gly Asp His Arg Gly Lys Lys Ala Trp Glu Glu Val  
85 90 95

Pro Ser Glu Tyr Arg Thr Leu Leu Leu Gln His Ile Cys Val Gln Ala  
100 105 110

Asp Val Glu Asn Ala Ala Val Glu Gln Ser Arg Leu Leu Thr Gln Met  
115 120 125

Ala Pro Ser Asn Pro Asp Leu Glu Asn Val Phe Gln Phe Phe Leu Glu  
130 135 140

Glu Gly Arg His Thr Trp Ala Met Val His Leu Leu Leu Ala His Phe  
145 150 155 160

21191\_PCT SeqList\_ST25.txt

Gly Glu Asp Gly Val Val Glu Ala Glu Ala Leu Leu Glu Arg Leu Ser  
165 170 175

Gly Asp Pro Arg Asn Pro Arg Leu Leu Glu Ala Phe Asn Tyr Pro Thr  
180 185 190

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

Gly Lys Tyr Gln Ile His Ala Val Thr Glu Ala Ser Phe Ala Pro Leu  
210 215 220

Ala Arg Ala Ala Lys Phe Met Met Phe Glu Glu Pro Leu His Ile Ala  
225 230 235 240

Met Gly Ala Val Gly Leu Glu Arg Val Leu Ala Arg Thr Ala Glu Val  
245 250 255

Thr Leu Arg Glu Gly Thr Phe Asp Thr Phe His Ala Gly Ala Ile Pro  
260 265 270

Phe Pro Val Val Gln Lys Tyr Leu Asn Tyr Trp Ala Pro Lys Val Tyr  
275 280 285

Asp Leu Phe Gly Asn Asp Gly Ser Glu Arg Ser Asn Glu Leu Phe Arg  
290 295 300

Ala Gly Leu Arg Arg Pro Arg Asn Phe Val Gly Ser Glu Ser Gln Ile  
305 310 315 320

Val Arg Ile Asp Glu Arg Met Gly Asp Gly Leu Thr Val Val Glu Val  
325 330 335

Glu Gly Glu Trp Ala Ile Asn Ala Ile Met Arg Arg Gln Phe Ile Ala  
340 345 350

Glu Val Gln Thr Leu Ile Asp Arg Trp Asn Ala Ser Leu Arg Ala Leu  
355 360 365

Gly Val Asp Phe Gln Leu Tyr Leu Pro His Glu Arg Phe Ser Arg Thr  
370 375 380

Tyr Gly Pro Cys Ala Gly Leu Pro Phe Asp Val Asp Gly Lys Leu Leu  
385 390 395 400

Pro Arg Gly Thr Glu Ala Lys Leu Ala Glu Tyr Phe Pro Thr Pro Arg  
405 410 415

Glu Leu Ala Asn Val Arg Ser Leu Met Gln Arg Glu Leu Ala Pro Gly  
420 425 430

21191\_PCT SeqList\_ST25.txt

Gln Tyr Ser Ser Trp Ile Ala Pro Ser Ala Thr Arg Leu Ser Ala Leu  
435 440 445

Val Gln Gly Arg Asn Thr Pro Lys Glu His Glu  
450 455

<210> 43  
<211> 732  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(732)  
<223> CysD

<400> 43

Met Arg Cys Leu Ile Ile Asp Asn Tyr Asp Ser Phe Thr Trp Asn Leu  
1 5 10 15

Ala Asp Tyr Val Ala Gln Thr Phe Gly Ser Glu Pro Leu Val Val Arg  
20 25 30

Asn Asp Gln His Thr Trp Gln Glu Ile Lys Ala Leu Gly Ser Phe Gly  
35 40 45

Cys Ile Leu Val Ser Pro Gly Pro Gly Ser Val Thr Asn Pro Lys Asp  
50 55 60

Phe Asn Val Ser Arg Asp Ala Leu Glu Gln Asp Glu Phe Pro Val Phe  
65 70 75 80

Gly Val Cys Leu Gly His Gln Gly Leu Ala Tyr Ile Tyr Gly Gly Glu  
85 90 95

Ile Thr His Ala Pro Val Pro Phe His Gly Arg Thr Ser Thr Ile Tyr  
100 105 110

His Asp Gly Thr Gly Val Phe Gln Gly Leu Pro Pro Ser Phe Asp Ala  
115 120 125

Val Arg Tyr His Ser Leu Val Val Arg Pro Glu Ser Leu Pro Ala Asn  
130 135 140

Leu Val Val Thr Ala Arg Thr Glu Cys Gly Leu Ile Met Gly Leu Arg  
145 150 155 160

His Val Ser Arg Pro Lys Trp Gly Val Gln Phe His Pro Glu Ser Ile  
165 170 175

Leu Thr Ala His Gly Leu Gln Leu Ile Ser Asn Phe Arg Asp Glu Ala  
180 185 190

21191\_PCT SeqList\_ST25.txt

Tyr Arg Tyr Ala Gly Lys Glu Val Pro Ser Arg Arg Pro His Ser Thr  
 195 200 205  
 Ala Gly Asn Gly Val Gly Ala Gly Ala Ala Arg Arg Asp Pro Ser Ala  
 210 215 220  
 Arg Arg Thr Pro Glu Arg Arg Arg Glu Leu Gln Thr Phe Thr Arg Arg  
 225 230 235 240  
 Leu Ala Thr Ser Leu Glu Ala Glu Thr Val Phe Leu Gly Leu Tyr Ala  
 245 250 255  
 Gly Arg Glu His Cys Phe Trp Leu Asp Ser Gln Ser Val Arg Glu Gly  
 260 265 270  
 Ile Ser Arg Phe Ser Phe Met Gly Cys Val Pro Glu Gly Ser Leu Leu  
 275 280 285  
 Thr Tyr Gly Ala Ala Glu Ala Ala Ser Glu Gly Gly Ala Glu Arg Tyr  
 290 295 300  
 Leu Ala Ala Leu Glu Arg Ala Leu Glu Ser Arg Ile Val Val Arg Pro  
 305 310 315 320  
 Val Asp Gly Leu Pro Phe Glu Phe His Gly Gly Tyr Ile Gly Phe Met  
 325 330 335  
 Thr Tyr Glu Met Lys Glu Ala Phe Gly Ala Ala Thr Thr His Lys Asn  
 340 345 350  
 Thr Ile Pro Asp Ala Leu Trp Met His Val Lys Arg Phe Leu Ala Phe  
 355 360 365  
 Asp His Ser Thr Arg Glu Val Trp Leu Val Ala Ile Ala Glu Leu Glu  
 370 375 380  
 Glu Ser Ala Ser Val Leu Ala Trp Met Asp Glu Thr Ala Asp Ala Leu  
 385 390 395 400  
 Lys Ser Leu Pro Arg Gly Thr Arg Ser Pro Gln Ser Leu Gly Leu Lys  
 405 410 415  
 Ser Ile Ser Val Ser Met Asp Cys Gly Arg Asp Asp Tyr Phe Ala Ala  
 420 425 430  
 Ile Glu Arg Cys Lys Glu Lys Ile Val Asp Gly Glu Ser Tyr Glu Val  
 435 440 445  
 Cys Leu Thr Asn Gly Phe Ser Phe Asp Leu Lys Leu Asp Pro Val Glu  
 450 455 460

21191\_PCT SeqList\_ST25.txt

Leu Tyr Val Thr Met Arg Arg Gly Asn Pro Ala Pro Phe Gly Ala Phe  
465 470 475 480

Ile Lys Thr Gly Lys Thr Cys Val Leu Ser Thr Ser Pro Glu Arg Phe  
485 490 495

Leu Lys Val Asp Glu Asp Gly Thr Val Gln Ala Lys Pro Ile Lys Gly  
500 505 510

Thr Cys Ala Arg Ser Asp Asp Pro Ala Thr Asp Ser Thr Asn Ala Ala  
515 520 525

Arg Leu Ala Ala Ser Glu Lys Asp Arg Ala Glu Asn Leu Met Ile Val  
530 535 540

Asp Leu Met Arg Asn Asp Leu Gly Arg Val Ser Val Pro Gly Ser Val  
545 550 555 560

His Val Ser Asn Leu Met Asp Ile Glu Ser Phe Lys Thr Val His Gln  
565 570 575

Met Val Ser Thr Val Glu Ser Thr Leu Thr Pro Glu Cys Ser Leu Val  
580 585 590

Asp Leu Leu Arg Ala Val Phe Pro Gly Gly Ser Ile Thr Gly Ala Pro  
595 600 605

Lys Ile Arg Thr Met Glu Ile Ile Asp Arg Leu Glu Lys Ser Pro Arg  
610 615 620

Gly Ile Tyr Cys Gly Thr Ile Gly Tyr Leu Gly Tyr Asn Arg Ile Ala  
625 630 635 640

Asp Leu Asn Ile Ala Ile Arg Thr Leu Ser Tyr Asp Gly Thr Leu Val  
645 650 655

Lys Phe Gly Ala Gly Gly Ala Ile Thr Tyr Leu Ser Gln Pro Glu Gly  
660 665 670

Glu Phe Gln Glu Ile Leu Leu Lys Ala Glu Ser Ile Leu Arg Pro Ile  
675 680 685

Trp Gln Tyr Ile Asn Gly Ala Gly Ala Pro Phe Glu Pro Gln Leu Arg  
690 695 700

Asp Arg Val Leu Cys Leu Glu Glu Lys Pro Arg Arg Val Ile Arg Gly  
705 710 715 720

His Gly Ser Ala Ile Asp Ala Val Glu Pro Ser Ala  
725 730

21191\_PCT SeqList\_ST25.txt

<210> 44  
 <211> 243  
 <212> PRT  
 <213> Cystobacter velatus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(243)  
 <223> CySE

<400> 44

Met Ile Ala Phe Asn Pro Gln Ala Arg Pro Arg Leu Arg Leu Phe Cys  
 1 5 10 15

Phe Pro Tyr Ala Gly Gly Asp Ala Asn Ile Phe Arg Asp Trp Ala Ala  
 20 25 30

Ala Met Pro Glu Gly Val Glu Val Leu Gly Val Gln Tyr Pro Gly Arg  
 35 40 45

Gly Thr Asn Leu Ala Leu Pro Pro Ile Ser Asp Cys Asp Glu Met Ala  
 50 55 60

Ser Gln Leu Leu Ala Val Met Thr Pro Leu Leu Gly Ile Asn Phe Ala  
 65 70 75 80

Phe Phe Gly His Ser Asn Gly Ala Leu Ile Ser Phe Glu Val Ala Arg  
 85 90 95

Arg Leu His Asp Glu Leu Lys Gly Arg Met Arg His His Phe Leu Ser  
 100 105 110

Ala Lys Ser Ala Pro His Tyr Pro Asn Asn Arg Ser Lys Ile Ser Gly  
 115 120 125

Leu Asn Asp Glu Asp Phe Leu Arg Ala Ile Arg Lys Met Gly Gly Thr  
 130 135 140

Pro Gln Glu Val Leu Asp Asp Ala Arg Leu Met Gln Ile Leu Leu Pro  
 145 150 155 160

Arg Leu Arg Ala Asp Phe Ala Leu Gly Glu Thr Tyr Val Phe Arg Pro  
 165 170 175

Gly Pro Thr Leu Thr Cys Asp Val Ser Ile Leu Arg Gly Glu Ser Asp  
 180 185 190

His Leu Val Asp Gly Glu Phe Val Gln Arg Trp Ser Glu Leu Thr Thr  
 195 200 205

Gly Gly Ala Ser Gln Tyr Ala Ile Asp Gly Gly His Phe Phe Leu Asn  
 210 215 220 225 230 235 240 243



21191\_PCT SeqList\_ST25.txt

210

215

220

Ser His Lys Ser Gln Val Val Ala Leu Val Arg Ala Ala Leu Leu Glu  
225 230 235 240

Cys Val Leu

<210> 45  
<211> 345  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(345)  
<223> CysF

<400> 45

Met Thr Ala Gln Asn Gln Ala Ser Ala Phe Ser Phe Asp Leu Phe Tyr  
1 5 10 15

Thr Thr Val Asn Ala Tyr Tyr Arg Thr Ala Ala Val Lys Ala Ala Ile  
20 25 30

Glu Leu Gly Val Phe Asp Val Val Gly Glu Lys Gly Lys Thr Leu Ala  
35 40 45

Glu Ile Ala Lys Ala Cys Asn Ala Ser Pro Arg Gly Ile Arg Ile Leu  
50 55 60

Cys Arg Phe Leu Val Ser Ile Gly Phe Leu Lys Asn Ala Gly Glu Leu  
65 70 75 80

Phe Phe Leu Thr Arg Glu Met Ala Leu Phe Leu Asp Lys Lys Ser Pro  
85 90 95

Gly Tyr Leu Gly Gly Ser Ile Asp Phe Leu Leu Ser Pro Tyr Ile Met  
100 105 110

Asp Gly Phe Lys Asp Leu Ala Ser Val Val Arg Thr Gly Glu Leu Thr  
115 120 125

Leu Pro Glu Lys Gly Val Val Ala Pro Asp His Pro Gln Trp Val Thr  
130 135 140

Phe Ala Arg Ala Met Ala Pro Met Met Ser Leu Pro Ser Leu Leu Leu  
145 150 155 160

Ala Glu Leu Ala Asp Arg Gln Ala Asn Gln Pro Leu Lys Val Leu Asp  
165 170 175

21191\_PCT SeqList\_ST25.txt

Val Ala Ala Gly His Gly Leu Phe Gly Leu Ala Ile Ala Gln Arg Asn  
180 185 190

Pro Lys Ala His Val Thr Phe Leu Asp Trp Glu Asn Val Leu Gln Val  
195 200 205

Ala Arg Glu Asn Ala Thr Lys Ala Gly Val Leu Asp Arg Val Glu Phe  
210 215 220

Arg Pro Gly Asp Ala Phe Ser Val Asp Phe Gly Lys Glu Leu Asp Val  
225 230 235 240

Ile Leu Leu Thr Asn Phe Leu His His Phe Asp Glu Ala Gly Cys Glu  
245 250 255

Lys Ile Leu Lys Lys Ala His Ala Ala Leu Lys Glu Gly Gly Arg Val  
260 265 270

Leu Thr Phe Glu Phe Ile Ala Asn Glu Asp Arg Thr Ser Pro Pro Leu  
275 280 285

Ala Ala Thr Phe Ser Met Met Met Leu Gly Thr Thr Pro Gly Gly Glu  
290 295 300

Thr Tyr Ala Tyr Ser Asp Leu Glu Arg Met Phe Lys Asn Thr Gly Tyr  
305 310 315 320

Asp Gln Val Glu Leu Lys Ala Ile Pro Pro Ala Met Glu Lys Val Val  
325 330 335

Val Ser Ile Lys Gly Lys Ala Gln Leu  
340 345

<210> 46  
<211> 1992  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(1992)  
<223> CysG

<400> 46

Met Ala Thr Lys Leu Ser Asp Phe Ala Leu Leu Asp Ser Glu Asp Ala  
1 5 10 15

Asn Val Ile Ser Arg Ser Asn Glu Thr Gly Ile Ser Leu Asp Leu Ser  
20 25 30

Lys Ser Val Val Asp Leu Phe Asn Leu Gln Val Glu Arg Ala Pro Asp  
35 40 45

21191\_PCT SeqList\_ST25.txt

Ala Thr Ala Cys Leu Gly Arg Gln Gly Arg Leu Thr Tyr Gly Glu Leu  
50 55 60

Asn Arg Arg Thr Asn Gln Leu Ala His His Leu Ile Ala Arg Gly Val  
65 70 75 80

Gly Pro Asp Val Pro Val Gly Val Leu Phe Glu Arg Ser Ala Glu Gln  
85 90 95

Leu Ile Ala Ile Leu Gly Val Leu Lys Ala Gly Gly Cys Tyr Val Pro  
100 105 110

Leu Asp Pro Gln Tyr Pro Ala Asp Tyr Met Gln Gln Val Leu Thr Asp  
115 120 125

Ala Arg Pro Arg Met Val Val Ser Ser Arg Ala Leu Gly Glu Arg Leu  
130 135 140

Arg Ser Gly Glu Glu Gln Ile Val Tyr Leu Asp Asp Glu Gln Leu Leu  
145 150 155 160

Ala Arg Glu Thr Arg Asp Pro Pro Val Lys Val Leu Pro Glu Gln Leu  
165 170 175

Ala Tyr Val Met Tyr Thr Ser Gly Ser Ser Gly Val Pro Lys Gly Val  
180 185 190

Met Val Pro His Arg Gln Ile Leu Asn Trp Leu His Ala Leu Leu Ala  
195 200 205

Arg Val Pro Phe Gly Glu Asn Glu Val Val Ala Gln Lys Thr Ser Thr  
210 215 220

Ser Phe Ala Ile Ser Val Lys Glu Leu Phe Ala Gly Leu Val Ala Gly  
225 230 235 240

Val Pro Gln Val Phe Ile Asp Asp Ala Thr Val Arg Asp Val Ala Ser  
245 250 255

Phe Val Arg Glu Leu Glu Gln Trp Arg Val Thr Arg Leu Tyr Thr Phe  
260 265 270

Pro Ser Gln Leu Ala Ala Ile Leu Ser Ser Val Asn Gly Ala Tyr Glu  
275 280 285

Arg Leu Arg Ser Leu Arg His Leu Tyr Ile Ser Ile Glu Pro Cys Pro  
290 295 300

Thr Glu Leu Leu Ala Lys Leu Arg Ala Ala Met Pro Trp Val Thr Pro  
305 310 315 320

21191\_PCT SeqList\_ST25.txt

Trp Tyr Ile Tyr Gly Cys Thr Glu Ile Asn Asp Val Thr Tyr Cys Asp  
325 330 335

Pro Gly Asp Gln Ala Gly Asn Thr Gly Phe Val Pro Ile Gly Arg Pro  
340 345 350

Ile Arg Asn Thr Arg Val Phe Val Leu Asp Glu Glu Leu Arg Met Val  
355 360 365

Pro Val Gly Ala Met Gly Glu Met Tyr Val Glu Ser Leu Ser Thr Ala  
370 375 380

Arg Gly Tyr Trp Gly Leu Pro Glu Leu Thr Ala Glu Arg Phe Ile Ala  
385 390 395 400

Asn Pro His Ala Glu Asp Gly Ser Arg Leu Tyr Lys Thr Gly Asp Leu  
405 410 415

Ala Arg Tyr Leu Pro Asp Gly Ser Leu Glu Phe Leu Gly Arg Arg Asp  
420 425 430

Tyr Glu Val Lys Ile Arg Gly Tyr Arg Val Asp Val Arg Gln Val Glu  
435 440 445

Lys Val Leu Gly Ala His Pro Asp Ile Leu Glu Val Ala Val Val Gly  
450 455 460

Trp Pro Leu Gly Gly Ala Asn Pro Gln Leu Val Ala Tyr Val Val Pro  
465 470 475 480

Arg Ala Lys Gly Ala Ala Pro Ile Gln Glu Ile Arg Asp Tyr Leu Ser  
485 490 495

Ala Ser Leu Pro Ala Tyr Met Val Pro Thr Ile Phe Gln Val Leu Ala  
500 505 510

Ala Leu Pro Arg Leu Pro Asn Asp Lys Val Asp Arg Leu Ser Leu Pro  
515 520 525

Asp Pro Lys Val Glu Glu Gln Thr Glu Gly Tyr Val Ala Pro Arg Thr  
530 535 540

Glu Thr Glu Lys Val Leu Ala Glu Ile Trp Ser Asp Val Leu Ser Gln  
545 550 555 560

Gly Arg Ala Pro Leu Thr Val Gly Ala Thr His Asn Phe Phe Glu Leu  
565 570 575

Gly Gly His Ser Leu Leu Ala Ala Gln Met Phe Ser Arg Ile Arg Gln  
580 585 590

21191\_PCT SeqList\_ST25.txt

Lys Phe Asp Leu Glu Leu Pro Ile Asn Thr Leu Phe Glu Thr Pro Val  
 595 600 605  
 Leu Glu Gly Phe Ala Ser Ala Val Asp Ala Ala Leu Ala Glu Arg Asn  
 610 615 620  
 Gly Pro Ala Gln Arg Leu Ile Ser Met Thr Asp Arg Gly Gln Ala Leu  
 625 630 635 640  
 Pro Leu Ser His Val Gln Glu Arg Leu Trp Phe Val His Glu His Met  
 645 650 655  
 Val Glu Gln Arg Ser Ser Tyr Asn Val Ala Phe Ala Cys His Met Arg  
 660 665 670  
 Gly Lys Gly Leu Ser Met Pro Ala Leu Arg Ala Ala Ile Asn Gly Leu  
 675 680 685  
 Val Ala Arg His Glu Thr Leu Arg Thr Thr Phe Val Val Ser Glu Gly  
 690 695 700  
 Gly Gly Asp Pro Val Gln Arg Ile Ala Asp Ser Leu Trp Ile Glu Val  
 705 710 715 720  
 Pro Leu Tyr Glu Val Asp Ala Ser Glu Val Pro Ala Arg Met Ala Ala  
 725 730 735  
 His Ala Gly His Val Phe Asp Leu Ala Lys Gly Pro Leu Leu Lys Thr  
 740 745 750  
 Ser Val Leu Arg Val Thr Pro Asp His His Val Phe Leu Met Asn Met  
 755 760 765  
 His His Ile Ile Cys Asp Gly Trp Ser Ile Asp Ile Leu Leu Arg Asp  
 770 775 780  
 Leu Tyr Glu Phe Tyr Lys Ala Ala Glu Thr Gly Ser Gln Pro Asn Leu  
 785 790 795 800  
 Pro Val Leu Pro Ile Gln Tyr Ala Asp Tyr Ser Val Trp Gln Arg Gln  
 805 810 815  
 Gln Asp Leu Ser Ser His Leu Asp Tyr Trp Lys Lys Thr Leu Glu Gly  
 820 825 830  
 Tyr Gln Glu Gly Leu Ser Leu Pro Tyr Asp Phe Ala Arg Pro Ser Asn  
 835 840 845  
 Arg Thr Trp Arg Ala Ala Ser Val Arg His Gln Tyr Pro Ala Glu Leu  
 850 855 860

21191\_PCT SeqList\_ST25.txt

Ala Thr Arg Leu Ser Glu Val Ser Lys Ser His Gln Ala Thr Val Phe  
865 870 875 880

Met Thr Leu Met Ala Ser Thr Ala Ile Val Leu Asn Arg Tyr Thr Gly  
885 890 895

Arg Asp Asp Leu Cys Val Gly Ala Thr Val Ala Gly Arg Asp His Phe  
900 905 910

Glu Leu Glu Asn Leu Ile Gly Phe Phe Val Asn Ile Leu Ala Ile Arg  
915 920 925

Leu Asp Leu Ser Gly Asn Pro Thr Ala Glu Thr Val Leu Gln Arg Ala  
930 935 940

Arg Ala Gln Val Leu Glu Gly Met Lys His Arg Asp Leu Pro Phe Glu  
945 950 955 960

His Ile Leu Ala Ala Leu Gln Lys Gln Arg Asp Ser Ser Gln Ile Pro  
965 970 975

Leu Val Pro Val Met Val Arg His Gln Asn Phe Pro Thr Val Thr Ser  
980 985 990

Gln Glu Gln Gly Leu Asp Leu Gly Ile Gly Glu Ile Glu Phe Gly Glu  
995 1000 1005

Arg Thr Thr Pro Asn Glu Leu Asp Ile Gln Phe Ile Gly Glu Gly  
1010 1015 1020

Ser Thr Leu Glu Val Val Val Glu Tyr Ala Lys Asp Leu Phe Ser  
1025 1030 1035

Glu Arg Thr Ile Gln Arg Leu Ile Thr His Leu Gln Gln Val Leu  
1040 1045 1050

Gln Thr Leu Val Asp Lys Pro Asp Cys Arg Leu Thr Asp Phe Pro  
1055 1060 1065

Leu Val Ala Gly Asp Ala Leu Gln Gly Gly Val Ser Gly Ser Gly  
1070 1075 1080

Gly Ala Thr Lys Thr Gly Lys Leu Asp Val Ser Lys Ser Pro Val  
1085 1090 1095

Glu Leu Phe Asn Glu Arg Val Glu Ala Ser Pro Asp Ala Val Ala  
1100 1105 1110

Cys Met Gly Ala Asp Gly Ser Leu Thr Tyr Arg Glu Leu Asp Arg  
1115 1120 1125

21191\_PCT SeqList\_ST25.txt

Arg Ala Asn Gln Val Ala Arg His Leu Met Gly Arg Gly Val Gly  
1130 1135 1140

Arg Glu Thr Arg Val Gly Leu Trp Phe Glu Arg Ser Pro Asp Leu  
1145 1150 1155

Leu Val Ala Leu Leu Gly Ile Leu Lys Ala Gly Gly Cys Phe Val  
1160 1165 1170

Pro Leu Asp Pro Ser Tyr Pro Gln Glu Tyr Ile Asn Asn Ile Val  
1175 1180 1185

Ala Asp Ala Gln Pro Leu Leu Val Met Ser Ser Arg Ala Leu Gly  
1190 1195 1200

Ser Arg Leu Ser Leu Glu Ala Gly Arg Leu Val Tyr Leu Asp Asp  
1205 1210 1215

Ala Leu Ala Ala Ser Thr Asp Ala Ser Asp Pro Gln Val Arg Ile  
1220 1225 1230

Asp Pro Glu Gln Leu Ile Tyr Val Met Tyr Thr Ser Gly Ser Thr  
1235 1240 1245

Gly Leu Pro Lys Gly Val Leu Val Pro His Arg Gln Ile Leu Asn  
1250 1255 1260

Trp Leu Tyr Pro Leu Trp Ala Met Val Pro Phe Gly Gln Asp Glu  
1265 1270 1275

Val Val Ala Gln Lys Thr Ser Thr Ala Phe Ala Val Ser Met Lys  
1280 1285 1290

Glu Leu Phe Thr Gly Leu Leu Ala Gly Val Pro Gln Val Phe Ile  
1295 1300 1305

Asp Gly Thr Val Val Lys Asp Ala Ala Ala Phe Val Leu His Leu  
1310 1315 1320

Glu Arg Trp Arg Val Thr Arg Leu Tyr Thr Leu Pro Ser His Leu  
1325 1330 1335

Asp Ala Ile Leu Ser His Val Asp Gly Ala Ala Glu Arg Leu Arg  
1340 1345 1350

Ser Leu Arg His Val Ile Leu Ala Gly Glu Pro Cys Pro Val Glu  
1355 1360 1365

Leu Met Glu Lys Leu Arg Glu Thr Leu Pro Ser Cys Thr Ala Trp  
1370 1375 1380

21191\_PCT SeqList\_ST25.txt

Phe Asn Tyr Gly Cys Thr Glu Val Asn Asp Ile Ser Tyr Cys Val  
 1385 1390 1395  
 Pro Asn Glu Gln Phe His Ser Ser Gly Phe Val Pro Ile Gly Arg  
 1400 1405 1410  
 Pro Ile Gln Tyr Thr Arg Ala Leu Val Leu Asp Asp Glu Leu Arg  
 1415 1420 1425  
 Thr Val Pro Val Gly Ile Met Gly Glu Ile Tyr Val Glu Ser Pro  
 1430 1435 1440  
 Gly Thr Ala Arg Gly Tyr Trp Arg Gln Pro Asp Leu Thr Ala Glu  
 1445 1450 1455  
 Arg Phe Ile Pro Asn Pro Phe Gly Glu Pro Gly Ser Arg Leu Tyr  
 1460 1465 1470  
 Arg Thr Gly Asp Met Ala Arg Cys Leu Glu Asp Gly Ser Leu Glu  
 1475 1480 1485  
 Phe Leu Gly Arg Arg Asp Tyr Glu Val Lys Ile Arg Gly His Arg  
 1490 1495 1500  
 Val Asp Val Arg Gln Val Glu Lys Ile Leu Ala Ser His Pro Glu  
 1505 1510 1515  
 Val Leu Glu Ser Ala Val Leu Gly Trp Pro Arg Gly Ala Lys Asn  
 1520 1525 1530  
 Pro Gln Leu Leu Ala Tyr Ala Ala Thr Lys Pro Gly Arg Pro Leu  
 1535 1540 1545  
 Ser Thr Glu Asn Val Arg Glu Tyr Leu Ser Ala Arg Leu Pro Thr  
 1550 1555 1560  
 Tyr Met Val Pro Thr Leu Tyr Gln Phe Leu Pro Ala Leu Pro Arg  
 1565 1570 1575  
 Leu Pro Asn Gly Lys Leu Asp Arg Phe Gly Leu Pro Asp His Lys  
 1580 1585 1590  
 Lys Val Glu Val Gly Gly Val Tyr Val Ala Pro Gln Thr Pro Thr  
 1595 1600 1605  
 Glu Lys Val Leu Ala Gly Leu Trp Ala Glu Cys Leu Lys Gln Gly  
 1610 1615 1620  
 Asp Met Pro Ala Pro Gln Val Gly Arg Leu His Asn Phe Phe Asp  
 1625 1630 1635



21191\_PCT SeqList\_ST25.txt

Leu	Gly	Gly	His	Ser	Leu	Leu	Ala	Asn	Arg	Val	Leu	Met	Gln	Val
	1640					1645					1650			
Gln	Arg	His	Phe	Gly	Val	Ser	Leu	Gly	Ile	Ser	Ala	Leu	Phe	Gly
	1655					1660					1665			
Ser	Pro	Val	Leu	Asn	Asp	Phe	Ala	Ala	Ala	Ile	Asp	Lys	Ala	Leu
	1670					1675					1680			
Gly	Thr	Glu	Glu	Pro	Gly	Glu	Glu	Gly	Ser	Ser	Asp	Ala	Arg	Glu
	1685					1690					1695			
Val	Ala	Ala	Lys	Asp	Thr	Ser	Val	Leu	Val	Pro	Leu	Ser	Thr	His
	1700					1705					1710			
Gly	Thr	Leu	Pro	Ser	Leu	Phe	Cys	Val	His	Pro	Val	Gly	Gly	Gln
	1715					1720					1725			
Val	His	Ala	Tyr	Arg	Glu	Leu	Ala	Gln	Ala	Met	Glu	Lys	His	Ala
	1730					1735					1740			
Ser	Met	Tyr	Ala	Leu	Gln	Ser	Glu	Gly	Ala	Arg	Glu	Phe	Asp	Thr
	1745					1750					1755			
Ile	Glu	Thr	Leu	Ala	Arg	Phe	Tyr	Ala	Asp	Ala	Ile	Arg	Gly	Ala
	1760					1765					1770			
Gln	Pro	Asp	Gly	Ser	Tyr	Arg	Leu	Leu	Gly	Trp	Ser	Ser	Gly	Gly
	1775					1780					1785			
Leu	Ile	Thr	Leu	Ala	Ile	Ala	Arg	Glu	Leu	Glu	His	Gln	Gly	Cys
	1790					1795					1800			
Ala	Val	Glu	Tyr	Val	Gly	Leu	Val	Asp	Ser	Lys	Pro	Ile	Pro	Arg
	1805					1810					1815			
Leu	Ala	Gly	Glu	Arg	Gly	Trp	Ala	Ser	Leu	Ile	Ala	Ala	Thr	Asn
	1820					1825					1830			
Ile	Leu	Gly	Ala	Met	Arg	Gly	Arg	Gly	Phe	Ser	Val	Ala	Glu	Val
	1835					1840					1845			
Asp	Ala	Ala	Gly	Lys	Ile	Leu	Glu	Ser	Arg	Gly	Trp	Thr	Glu	Glu
	1850					1855					1860			
Ser	Phe	Asp	Ser	Glu	Gly	His	Ala	Ala	Leu	Glu	Glu	Leu	Ala	Arg
	1865					1870					1875			
His	Phe	Gly	Ile	Thr	Val	Ala	Gln	Glu	Ser	Ser	Glu	Tyr	Leu	Leu
	1880					1885					1890			

21191\_PCT SeqList\_ST25.txt

Ala Arg Phe Lys Thr Thr Lys Tyr Tyr Leu Ser Leu Phe Ala Gly  
1895 1900 1905

Phe Lys Pro Ala Ala Leu Gly Pro Glu Thr Tyr Leu Tyr Glu Ala  
1910 1915 1920

Ser Glu Arg Val Gly Ala Thr Ser Asn Asp Asp Thr Gly Glu Trp  
1925 1930 1935

Gly Asp Ala Leu Asp Arg Lys Ala Leu Arg Ala Asn Ile Val Gln  
1940 1945 1950

Val Pro Gly Asn His Tyr Thr Val Leu Gln Gly Glu Asn Val Leu  
1955 1960 1965

Gln Leu Ala Gly Arg Ile Ala Glu Ala Leu Ser Ala Ile Asp Asn  
1970 1975 1980

Ser Val Val Thr Arg Thr Arg Ala Ser  
1985 1990

<210> 47  
<211> 975  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(975)  
<223> CySH

<400> 47

Met Asp Asn Arg Glu Ile Ala Pro Thr Gln Ser Ala Arg Thr Arg Asp  
1 5 10 15

Ala Tyr Thr Ala Val Pro Pro Ala Lys Ala Glu Tyr Pro Ser Asp Val  
20 25 30

Cys Val His Gln Leu Phe Glu Leu Gln Ala Asp Arg Ile Pro Asp Ala  
35 40 45

Val Ala Ala Arg Ala Gly Asn Glu Ser Leu Thr Tyr Arg Glu Leu Asn  
50 55 60

Phe Arg Ala Asn Gln Leu Ala Arg Tyr Leu Val Ala Lys Gly Val Val  
65 70 75 80

Pro Arg Gly Ser Val Ala Val Leu Met Asn Arg Thr Pro Ala Cys Leu  
85 90 95

Val Ser Leu Leu Ala Ile Ile Lys Ala Gly Ala Ala Tyr Val Pro Val  
100 105 110

21191\_PCT SeqList\_ST25.txt

Asp Ala Gly<sub>115</sub> Leu Pro Ala Lys Arg<sub>120</sub> Val Asp Tyr Ile Leu<sub>125</sub> Thr Asp Ser  
 Gly Ala<sub>130</sub> Thr Cys Val Leu Thr<sub>135</sub> Asp Arg Glu Thr Arg<sub>140</sub> Ser Leu Leu Asp  
 Glu<sub>145</sub> Pro Arg Ser Ala Ser<sub>150</sub> Thr Leu Val Ile Asp<sub>155</sub> Val Asp Asp Pro Ser<sub>160</sub>  
 Ile Tyr Ser Gly Glu<sub>165</sub> Thr Ser Asn Leu Gly<sub>170</sub> Leu Ala Val Asp Pro<sub>175</sub> Glu  
 Gln Gln Val Tyr<sub>180</sub> Cys Ile Tyr Thr Ser<sub>185</sub> Gly Ser Thr Gly Leu<sub>190</sub> Pro Lys  
 Gly Val Met<sub>195</sub> Val Gln His Arg Ala<sub>200</sub> Leu Met Asn Tyr Val<sub>205</sub> Trp Trp Ala  
 Lys Lys<sub>210</sub> Gln Tyr Val Thr Asp<sub>215</sub> Ala Val Glu Ser Phe<sub>220</sub> Ala Leu Tyr Ser  
 Ser<sub>225</sub> Leu Ser Phe Asp Leu<sub>230</sub> Thr Val Thr Ser Ile<sub>235</sub> Phe Val Pro Leu Ile<sub>240</sub>  
 Ser Gly Arg Cys Ile<sub>245</sub> Asp Val Tyr Pro Asp<sub>250</sub> Leu Gly Glu Asp Val<sub>255</sub> Pro  
 Val Ile Asn Arg<sub>260</sub> Val Leu Glu Asp Asn<sub>265</sub> Lys Val Asp Val Val<sub>270</sub> Lys Leu  
 Thr Pro Ala<sub>275</sub> His Leu Ala Leu Leu<sub>280</sub> Arg Asn Thr Asp Leu<sub>285</sub> Ser Gln Ser  
 Arg Leu<sub>290</sub> Lys Val Leu Ile Leu<sub>295</sub> Gly Gly Glu Asp Leu<sub>300</sub> Arg Ala Glu Thr  
 Ala Gly Asp Val His Lys<sub>310</sub> Arg Leu Asp Gly Arg<sub>315</sub> Ala Val Ile Tyr Asn<sub>320</sub>  
 Glu Tyr Gly Pro Thr<sub>325</sub> Glu Thr Val Val Gly<sub>330</sub> Cys Met Ile His Arg<sub>335</sub> Tyr  
 Asp Pro Ala Val<sub>340</sub> Asp Leu His Gly Ser<sub>345</sub> Val Pro Ile Gly Val<sub>350</sub> Gly Ile  
 Asp Asn Met<sub>355</sub> Arg Ile Tyr Leu Leu<sub>360</sub> Asp Asp Arg Arg Arg<sub>365</sub> Pro Val Lys  
 Pro Gly<sub>370</sub> Glu Val Gly Glu Ile<sub>375</sub> Tyr Ile Gly Gly Asp<sub>380</sub> Gly Val Thr Leu

21191\_PCT SeqList\_ST25.txt

Gly Tyr Lys Asp Lys Pro Gln Val Thr Ala Asp His Phe Ile Ser Asn  
 385 390 395 400  
 Pro Phe Val Glu Gly Glu Arg Leu Tyr Ala Ser Gly Asp Leu Gly Arg  
 405 410 415  
 Val Asn Glu Arg Gly Ala Leu Val Phe Leu Gly Arg Lys Asp Leu Gln  
 420 425 430  
 Ile Lys Leu Arg Gly Tyr Arg Ile Glu Leu Gly Glu Ile Glu Ser Ala  
 435 440 445  
 Leu Leu Ser Tyr Pro Gly Ile Lys Glu Cys Ile Val Asp Ser Thr Lys  
 450 455 460  
 Thr Ala Gln Ser Gln Ala Ala Ala Gln Leu Thr Tyr Cys Thr Lys Cys  
 465 470 475 480  
 Gly Leu Ala Ser Ser Phe Pro Asn Thr Thr Tyr Ser Ala Glu Gly Val  
 485 490 495  
 Cys Asn His Cys Glu Ala Phe Asp Lys Tyr Arg Ser Val Val Asp Asp  
 500 505 510  
 Tyr Phe Ser Thr Met Asp Glu Leu Gln Ser Ile Val Thr Glu Met Lys  
 515 520 525  
 Ser Ile His Asn Ser Lys Tyr Asp Cys Ile Val Ala Leu Ser Gly Gly  
 530 535 540  
 Lys Asp Ser Thr Tyr Ala Leu Cys Arg Met Ile Glu Thr Gly Ala Arg  
 545 550 555 560  
 Val Leu Ala Phe Thr Leu Asp Asn Gly Tyr Ile Ser Glu Glu Ala Lys  
 565 570 575  
 Gln Asn Ile Asn Arg Val Val Ala Arg Leu Gly Val Asp His Arg Tyr  
 580 585 590  
 Leu Ser Thr Gly His Met Lys Glu Ile Phe Val Asp Ser Leu Lys Arg  
 595 600 605  
 His Ser Asn Val Cys Asn Gly Cys Phe Lys Thr Ile Tyr Thr Phe Ala  
 610 615 620  
 Ile Asn Leu Ala Gln Glu Val Gly Val Lys His Val Val Met Gly Leu  
 625 630 635 640  
 Ser Lys Gly Gln Leu Phe Glu Thr Arg Leu Ser Ala Leu Phe Arg Thr  
 645 650 655

21191\_PCT SeqList\_ST25.txt

Ser Thr Phe Asp 660 Asn Ala Ala Phe Glu 665 Lys Ser Leu Val Asp 670 Ala Arg

Lys Ile Tyr 675 His Arg Ile Asp 680 Ala Val Ser Arg Leu 685 Leu Asp Thr

Thr Cys 690 Val Lys Asn Asp 695 Val Ile Glu Asn Ile 700 Arg Phe Val Asp

Phe Tyr Arg Tyr Cys His 710 Ala Ser Arg Gln Glu 715 Met Tyr Asp Tyr Ile 720

Gln Glu Arg Val Gly 725 Trp Ala Arg Pro Ile 730 Asp Thr Gly Arg Ser Thr 735

Asn Cys Leu 740 Leu Asn Asp Val Gly Ile 745 Tyr Val His Asn Lys 750 Glu Arg

Arg Tyr His 755 Asn Tyr Ser Leu Pro 760 Tyr Ser Trp Asp Val 765 Arg Met Gly

His Ile 770 Ser Arg Glu Glu Ala 775 Met Arg Glu Leu Asp 780 Asp Ser Ala Asp

Ile Asp Val Glu Arg Val 790 Glu Gly Ile Ile Lys 795 Asp Leu Gly Tyr Glu 800

Leu Asn Asp Gln 805 Val Val Gly Ser Ala Glu 810 Ala Gln Leu Val Ala Tyr 815

Tyr Val Ser 820 Ala Glu Glu Phe Pro Ala 825 Ser Asp Leu Arg Gln 830 Phe Leu

Ser Glu Ile 835 Leu Pro Glu Tyr Met 840 Val Pro Arg Ser Phe 845 Val Gln Leu

Asp Ser Ile 850 Pro Leu Thr Pro 855 Asn Gly Lys Val Asn 860 Arg Gln Ala Leu

Pro Lys Pro Asp Leu 870 Leu Arg Lys Ala Gly Thr 875 Asp Gly Gln Ala Ala 880

Pro Arg Thr Pro 885 Val Glu Lys Gln Leu Ala 890 Glu Leu Trp Lys Glu 895 Val

Leu Gln Val Asp 900 Ser Val Gly Ile His 905 Asp Asn Phe Phe Glu 910 Met Gly

Gly His Ser 915 Leu Pro Ala Leu Met 920 Leu Leu Tyr Lys Ile 925 Asp Ser Gln

21191\_PCT SeqList\_ST25.txt

Phe His Lys Thr Ile Ser Ile Gln Glu Phe Ser Lys Val Pro Thr Ile  
930 935 940

Ser Ala Leu Ala Ala His Leu Gly Ser Asp Thr Glu Ala Val Pro Pro  
945 950 955 960

Gly Leu Gly Glu Val Val Asp Gln Ser Ala Pro Ala Tyr Arg Gly  
965 970 975

<210> 48  
<211> 272  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(272)  
<223> CysI

<400> 48

Val Arg Phe Val Thr Val Asn Gly Glu Asp Ser Ala Val Cys Ser Val  
1 5 10 15

Leu Asp Arg Gly Leu Gln Phe Gly Asp Gly Leu Phe Glu Thr Met Leu  
20 25 30

Cys Val Gly Gly Ala Pro Val Asp Phe Pro Glu His Trp Ala Arg Leu  
35 40 45

Asp Glu Gly Cys Arg Arg Leu Gly Ile Glu Cys Pro Asp Ile Arg Arg  
50 55 60

Glu Val Thr Ala Ala Ile Ala Arg Trp Gly Ala Pro Arg Ala Val Ala  
65 70 75 80

Lys Leu Val Val Thr Arg Gly Ser Thr Glu Arg Gly Tyr Arg Cys Ala  
85 90 95

Pro Ser Val Arg Pro Asn Trp Ile Leu Thr Ile Thr Asp Ala Pro Lys  
100 105 110

Tyr Pro Leu Ala His Glu Asp Arg Gly Val Ala Val Lys Leu Cys Arg  
115 120 125

Thr Leu Val Ser Leu Asp Asp Pro Gln Leu Ala Gly Leu Lys His Leu  
130 135 140

Asn Arg Leu Pro Gln Val Leu Ala Arg Arg Glu Trp Asp Asp Glu Tyr  
145 150 155 160

His Asp Gly Leu Leu Thr Asp His Gly Gly His Leu Val Glu Gly Cys  
Seite 86

21191\_PCT SeqList\_ST25.txt

165

170

175

Thr Ser Asn Leu Phe Leu Val Ala Asp Gly Ala Leu Arg Thr Pro Asp  
180 185 190

Leu Thr Ala Cys Gly Val Arg Gly Ile Val Arg Gln Lys Val Leu Asp  
195 200 205

His Ser Lys Ala Ile Gly Ile Arg Cys Glu Val Thr Thr Leu Lys Leu  
210 215 220

Arg Asp Leu Glu His Ala Asp Glu Val Phe Leu Thr Asn Ser Val Tyr  
225 230 235 240

Gly Ile Val Pro Val Gly Ser Val Asp Gly Met Arg Tyr Arg Ile Gly  
245 250 255

Pro Thr Thr Ala Arg Leu Leu Lys Asp Leu Cys Gln Gly Val Tyr Phe  
260 265 270

<210> 49  
<211> 327  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(327)  
<223> CysJ

<400> 49

Met Thr Gly Asn Leu Asp Ser Ala Ala Trp Pro Val Ile Ile Thr Pro  
1 5 10 15

Gly Gln Gln Pro Ala Ala Leu Glu Asp Trp Val Ser Ala Asn Arg Asp  
20 25 30

Gly Leu Glu Arg Gln Leu Thr Glu Cys Lys Ala Ile Leu Phe Arg Gly  
35 40 45

Phe Arg Ser Arg Asn Gly Phe Glu Ser Ile Ala Asn Ser Phe Phe Asp  
50 55 60

Arg Arg Leu Asn Tyr Thr Tyr Arg Ser Thr Pro Arg Thr Asp Leu Gly  
65 70 75 80

Gln Asn Leu Tyr Thr Ala Thr Glu Tyr Pro Lys Gln Leu Ser Ile Pro  
85 90 95

Gln His Cys Glu Asn Ala Tyr Gln Arg Asp Trp Pro Met Lys Leu Leu  
100 105 110

21191\_PCT SeqList\_ST25.txt

Phe His Cys Val Glu Pro Ala Ser Lys Gly Gly Arg Thr Pro Leu Ala  
115 120 125

Asp Met Thr Lys Val Thr Ala Met Ile Pro Ala Glu Ile Lys Glu Glu  
130 135 140

Phe Ala Arg Lys Lys Val Gly Tyr Val Arg Asn Tyr Arg Ala Gly Val  
145 150 155 160

Asp Leu Pro Trp Glu Glu Val Phe Gly Thr Ser Asn Lys Ala Glu Val  
165 170 175

Glu Lys Phe Cys Val Glu Asn Gly Ile Glu Tyr His Trp Thr Glu Gly  
180 185 190

Gly Leu Lys Thr Ile Gln Val Cys Gln Ala Phe Ala Ser His Pro Leu  
195 200 205

Thr Gly Glu Thr Ile Trp Phe Asn Gln Ala His Leu Phe His Leu Ser  
210 215 220

Ala Leu Asp Pro Ala Ser Gln Lys Met Met Leu Ser Phe Phe Gly Glu  
225 230 235 240

Gly Gly Leu Pro Arg Asn Ser Tyr Phe Gly Asp Gly Ser Ala Ile Gly  
245 250 255

Ser Asp Val Leu Asp Gln Ile Arg Ser Ala Tyr Glu Arg Asn Lys Val  
260 265 270

Ser Phe Glu Trp Gln Lys Asp Asp Val Leu Leu Ile Asp Asn Met Leu  
275 280 285

Val Ser His Gly Arg Asp Pro Phe Glu Gly Ser Arg Arg Val Leu Val  
290 295 300

Cys Met Ala Glu Pro Tyr Ser Glu Val Gln Arg Arg Gly Phe Ala Gly  
305 310 315 320

Ala Thr Asn Ser Gly Arg Ser  
325

<210> 50  
<211> 4545  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(4140)  
<223> CysK

<220>



21191\_PCT SeqList\_ST25.txt

<221> MISC\_FEATURE  
<222> (1)..(4545)  
<223> CysK

<400> 50

Met Leu Leu Glu Gly Glu Leu Glu Gly Tyr Glu Asp Gly Leu Glu Leu  
1 5 10 15

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

Phe Gln His Ser Tyr Pro Pro Glu Leu Ala Arg Lys Val Ala Glu Leu  
35 40 45

Ser Arg Glu Gln Gln Ser Thr Leu Phe Met Ser Leu Val Ala Ser Leu  
50 55 60

Ala Val Val Leu Asn Arg Tyr Thr Gly Arg Glu Asp Val Cys Ile Gly  
65 70 75 80

Thr Thr Val Ala Gly Arg Ala Gln Val Gly Ala Leu Gly Asp Leu Ser  
85 90 95

Gly Ser Thr Val Asp Ile Leu Pro Leu Arg Leu Asp Leu Ser Gly Ala  
100 105 110

Pro Ser Leu His Glu Val Leu Arg Arg Thr Lys Ala Val Val Leu Glu  
115 120 125

Gly Phe Glu His Glu Ala Leu Pro Cys Gln Ile Pro Leu Val Pro Val  
130 135 140

Val Val Arg His Gln Asn Phe Pro Met Ala Arg Leu Glu Gly Trp Ser  
145 150 155 160

Glu Gly Val Glu Leu Lys Lys Phe Glu Leu Ala Gly Glu Arg Thr Thr  
165 170 175

Ala Ser Glu Gln Asp Trp Gln Phe Phe Gly Asp Gly Ser Ser Leu Glu  
180 185 190

Leu Ser Leu Glu Tyr Ala Ala Glu Leu Phe Ser Glu Lys Thr Val Lys  
195 200 205

Arg Met Val Glu His His Gln Arg Val Leu Glu Ala Leu Val Glu Gly  
210 215 220

Leu Glu Glu Val Arg Leu His Glu Val Arg Leu Leu Thr Glu Glu Glu  
225 230 235 240

Glu Gly Leu His Gly Arg Leu Asn Asp Thr Ala Arg Glu Leu Glu Glu  
245 250 255

21191\_PCT SeqList\_ST25.txt

Arg Trp Ser Leu<sub>260</sub> Ala Glu Thr Phe Glu<sub>265</sub> Arg Gln Val Arg Glu<sub>270</sub> Thr Pro  
Glu Ala Val<sub>275</sub> Ala Cys Val Gly<sub>280</sub> Val Glu Val Ala Thr Gly<sub>285</sub> Gly His Ser  
Arg Pro<sub>290</sub> Thr Tyr Arg Gln Leu<sub>295</sub> Thr Tyr Arg Gln Leu<sub>300</sub> Asn Ala Arg Ala  
Asn Gln Val Ala Arg Arg<sub>310</sub> Leu Arg Ala Leu Gly<sub>315</sub> Val Gly Ala Glu Thr<sub>320</sub>  
Arg Val Ala Val<sub>325</sub> Leu Ser Asp Arg Ser Pro<sub>330</sub> Glu Leu Leu Val Ala<sub>335</sub> Met  
Leu Ala Ile Phe<sub>340</sub> Lys Ala Gly Gly Cys<sub>345</sub> Tyr Val Pro Val Asp<sub>350</sub> Pro Gln  
Tyr Pro Gly<sub>355</sub> Ser Tyr Ile Glu Gln<sub>360</sub> Ile Leu Glu Asp Ala<sub>365</sub> Ala Pro Gln  
Val Val<sub>370</sub> Leu Gly Lys Arg Gly<sub>375</sub> Arg Ala Asp Gly Val<sub>380</sub> Arg Val Asp Val  
Trp Leu Glu Leu Asp Gly<sub>390</sub> Ala Gln Arg Leu Thr<sub>395</sub> Asp Glu Ala Leu Ala<sub>400</sub>  
Ala Gln Glu Glu Gly<sub>405</sub> Glu Leu Glu Gly Ala<sub>410</sub> Glu Arg Pro Glu Ser<sub>415</sub> Gln  
Gln Leu Ala Cys<sub>420</sub> Leu Met Tyr Thr Ser<sub>425</sub> Gly Ser Thr Gly Arg<sub>430</sub> Pro Lys  
Gly Val Met<sub>435</sub> Val Pro Tyr Ser Gln<sub>440</sub> Leu His Asn Trp Leu<sub>445</sub> Glu Ala Gly  
Lys Glu Arg Ser Pro Leu Glu<sub>455</sub> Arg Gly Glu Val Met<sub>460</sub> Leu Gln Lys Thr  
Ala Ile Ala Phe Ala Val<sub>470</sub> Ser Val Lys Glu Leu<sub>475</sub> Leu Ser Gly Leu Leu<sub>480</sub>  
Ala Gly Val Ala Gln<sub>485</sub> Val Met Val Pro Glu<sub>490</sub> Thr Leu Val Lys Asp<sub>495</sub> Ser  
Val Ala Leu Ala<sub>500</sub> Gln Glu Ile Glu Arg<sub>505</sub> Trp Arg Val Thr Arg<sub>510</sub> Ile His  
Leu Val Pro<sub>515</sub> Ser His Leu Gly Ala<sub>520</sub> Leu Leu Glu Gly Ala<sub>525</sub> Gly Glu Glu

21191\_PCT SeqList\_ST25.txt

Ala Lys Gly Leu Arg Ser Leu Lys Tyr Val Ile Thr Ala Gly Glu Ala  
530 535 540

Leu Ala Gln Gly Val Arg Glu Glu Ala Arg Arg Lys Leu Pro Gly Ala  
545 550 555 560

Gln Leu Trp Asn Asn Tyr Gly Cys Thr Glu Leu Asn Asp Val Thr Tyr  
565 570 575

His Pro Ala Ser Glu Gly Gly Gly Asp Thr Val Phe Val Pro Ile Gly  
580 585 590

Arg Pro Ile Ala Asn Thr Arg Val Tyr Val Leu Asp Glu Gln Leu Arg  
595 600 605

Arg Val Pro Val Gly Val Met Gly Glu Leu Tyr Val Asp Ser Val Gly  
610 615 620

Met Ala Arg Gly Tyr Trp Gly Gln Pro Ala Leu Thr Ala Glu Arg Phe  
625 630 635 640

Ile Ala Asn Pro Tyr Ala Ser Gln Pro Gly Ala Arg Leu Tyr Arg Thr  
645 650 655

Gly Asp Met Val Arg Val Leu Ala Asp Gly Ser Leu Glu Tyr Leu Gly  
660 665 670

Arg Arg Asp Tyr Glu Ile Lys Val Arg Gly His Arg Val Asp Val Arg  
675 680 685

Gln Val Glu Lys Val Ala Asn Ala His Pro Ala Ile Arg Gln Ala Val  
690 695 700

Val Ser Gly Trp Pro Leu Gly Ser Ser Asn Ala Gln Leu Val Ala Tyr  
705 710 715 720

Leu Val Pro Gln Ala Gly Ala Thr Val Gly Pro Arg Gln Val Arg Asp  
725 730 735

Tyr Leu Ala Glu Ser Leu Pro Ala Tyr Met Val Pro Thr Leu Tyr Thr  
740 745 750

Val Leu Glu Glu Leu Pro Arg Leu Pro Asn Gly Lys Leu Asp Arg Leu  
755 760 765

Ser Leu Pro Glu Pro Asp Leu Ser Ser Ser Arg Glu Glu Tyr Val Ala  
770 775 780

Pro His Gly Glu Val Glu Arg Lys Leu Ala Glu Ile Phe Gly Asn Leu  
785 790 795 800

21191\_PCT SeqList\_ST25.txt

Leu Gly Leu Glu His Val Gly Val His Asp Asn Phe Phe Ser Leu Gly  
                     805                    810                    815  
 Gly His Ser Leu Leu Ala Ala Gln Leu Ile Ser Arg Ile Arg Ala Thr  
                     820                    825                    830  
 Phe Arg Val Glu Val Ala Met Ala Thr Val Phe Glu Ser Pro Thr Val  
                     835                    840                    845  
 Glu Pro Leu Ala Arg His Ile Glu Glu Lys Leu Lys Asp Glu Ser Arg  
                     850                    855                    860  
 Val Gln Leu Ser Asn Val Val Pro Val Glu Arg Thr Gln Glu Ile Pro  
                     865                    870                    875                    880  
 Leu Ser Tyr Leu Gln Glu Arg Leu Trp Phe Val His Glu His Met Lys  
                     885                    890                    895  
 Glu Gln Arg Thr Ser Tyr Asn Ile Thr Trp Thr Leu His Phe Ala Gly  
                     900                    905                    910  
 Lys Gly Phe Ser Val Glu Ala Leu Arg Thr Ala Phe Asp Glu Leu Val  
                     915                    920                    925  
 Ala Arg His Glu Thr Leu Arg Thr Trp Phe Gln Val Gly Glu Gly Thr  
                     930                    935                    940  
 Glu Gln Ala Val Gln Val Ile Gly Glu Pro Trp Ser Met Glu Leu Pro  
                     945                    950                    955                    960  
 Leu Arg Glu Val Ala Gly Thr Glu Val Thr Ala Ala Ile Asn Glu Met  
                     965                    970                    975  
 Ser Arg Gln Val Phe Asp Leu Arg Ala Gly Arg Leu Leu Thr Ala Ala  
                     980                    985                    990  
 Val Leu Arg Val Ala Glu Asp Glu His Ile Leu Val Ser Asn Ile His  
                     995                    1000                    1005  
 His Ile Ile Thr Asp Gly Trp Ser Phe Gly Val Met Leu Arg Glu  
                     1010                    1015                    1020  
 Leu Arg Glu Leu Tyr Glu Ala Ala Val Arg Gly Lys Arg Ala Glu  
                     1025                    1030                    1035  
 Leu Pro Pro Leu Thr Val Gln Tyr Gly Asp Tyr Ala Val Trp Gln  
                     1040                    1045                    1050  
 Arg Lys Gln Asp Leu Ser Glu His Leu Ala Tyr Trp Lys Gly Lys  
                     1055                    1060                    1065

21191\_PCT SeqList\_ST25.txt

Val	Glu	Glu	Tyr	Glu	Asp	Gly	Leu	Glu	Leu	Pro	Tyr	Asp	Phe	Pro
	1070					1075					1080			
Arg	Thr	Ser	Asn	Arg	Ala	Trp	Arg	Ala	Ala	Thr	Phe	Gln	Tyr	Ser
	1085					1090					1095			
Tyr	Pro	Pro	Glu	Leu	Ala	Arg	Lys	Val	Ala	Glu	Leu	Ser	Arg	Glu
	1100					1105					1110			
Gln	Gln	Ser	Thr	Leu	Phe	Met	Ser	Leu	Val	Ala	Ser	Leu	Ala	Val
	1115					1120					1125			
Val	Leu	Asn	Arg	Tyr	Thr	Gly	Arg	Gln	Asp	Val	Cys	Ile	Gly	Thr
	1130					1135					1140			
Thr	Val	Ala	Gly	Arg	Ala	Gln	Val	Glu	Leu	Glu	Ser	Leu	Ile	Gly
	1145					1150					1155			
Phe	Phe	Ile	Asn	Ile	Leu	Pro	Leu	Arg	Leu	Asp	Leu	Ser	Gly	Ala
	1160					1165					1170			
Pro	Ser	Leu	His	Glu	Val	Leu	Arg	Arg	Thr	Lys	Ala	Val	Val	Leu
	1175					1180					1185			
Glu	Gly	Phe	Glu	His	Gln	Glu	Leu	Pro	Phe	Glu	His	Leu	Leu	Lys
	1190					1195					1200			
Ala	Leu	Arg	Arg	Gln	Arg	Asp	Ser	Ser	Gln	Ile	Pro	Leu	Val	Pro
	1205					1210					1215			
Val	Val	Val	Arg	His	Gln	Asn	Phe	Pro	Met	Ala	Arg	Leu	Glu	Gly
	1220					1225					1230			
Trp	Ser	Glu	Gly	Val	Glu	Leu	Lys	Lys	Phe	Glu	Leu	Ala	Gly	Glu
	1235					1240					1245			
Arg	Thr	Thr	Ala	Ser	Glu	Gln	Asp	Trp	Gln	Phe	Phe	Gly	Asp	Gly
	1250					1255					1260			
Ser	Ser	Leu	Glu	Leu	Ser	Leu	Glu	Tyr	Ala	Ala	Glu	Leu	Phe	Ser
	1265					1270					1275			
Glu	Lys	Thr	Val	Arg	Arg	Met	Val	Glu	His	His	Gln	Arg	Val	Leu
	1280					1285					1290			
Glu	Ala	Leu	Val	Glu	Gly	Leu	Glu	Glu	Gly	Leu	His	Glu	Val	Arg
	1295					1300					1305			
Leu	Leu	Thr	Glu	Glu	Glu	Glu	Gly	Leu	His	Gly	Arg	Leu	Asn	Asp
	1310					1315					1320			

21191\_PCT SeqList\_ST25.txt

Thr	Ala	Arg	Glu	Leu	Glu	Glu	Arg	Trp	Ser	Leu	Ala	Glu	Thr	Phe
	1325					1330					1335			
Glu	Arg	Gln	Val	Arg	Glu	Thr	Pro	Glu	Ala	Val	Ala	Cys	Val	Gly
	1340					1345					1350			
Val	Glu	Val	Ala	Thr	Gly	Gly	His	Ser	Arg	Pro	Thr	Tyr	Arg	Gln
	1355					1360					1365			
Leu	Thr	Tyr	Arg	Gln	Leu	Asn	Ala	Arg	Ala	Asn	Gln	Val	Ala	Arg
	1370					1375					1380			
Arg	Leu	Arg	Ala	Leu	Gly	Val	Gly	Ala	Glu	Thr	Arg	Val	Ala	Val
	1385					1390					1395			
Leu	Ser	Asp	Arg	Ser	Pro	Glu	Leu	Leu	Val	Ala	Met	Leu	Ala	Ile
	1400					1405					1410			
Phe	Lys	Ala	Gly	Gly	Cys	Tyr	Val	Pro	Val	Asp	Pro	Gln	Tyr	Pro
	1415					1420					1425			
Gly	His	Tyr	Ile	Glu	Gln	Ile	Leu	Glu	Asp	Ala	Ala	Pro	Gln	Val
	1430					1435					1440			
Val	Leu	Gly	Lys	Arg	Gly	Arg	Ala	Asp	Gly	Val	Arg	Val	Asp	Val
	1445					1450					1455			
Trp	Leu	Glu	Leu	Asp	Gly	Ala	Gln	Arg	Leu	Thr	Asp	Glu	Ala	Leu
	1460					1465					1470			
Ala	Ala	Gln	Glu	Glu	Gly	Glu	Leu	Glu	Gly	Ala	Glu	Arg	Pro	Glu
	1475					1480					1485			
Ser	Gln	Gln	Leu	Ala	Cys	Leu	Met	Tyr	Thr	Ser	Gly	Ser	Thr	Gly
	1490					1495					1500			
Arg	Pro	Lys	Gly	Val	Met	Val	Pro	Tyr	Ser	Gln	Leu	His	Asn	Trp
	1505					1510					1515			
Leu	Glu	Ala	Gly	Lys	Glu	Arg	Ser	Pro	Leu	Glu	Arg	Gly	Glu	Val
	1520					1525					1530			
Met	Leu	Gln	Lys	Thr	Ala	Ile	Ala	Phe	Ala	Val	Ser	Val	Lys	Glu
	1535					1540					1545			
Leu	Leu	Ser	Gly	Leu	Leu	Ala	Gly	Val	Ala	Gln	Val	Met	Val	Pro
	1550					1555					1560			
Glu	Thr	Leu	Val	Lys	Asp	Ser	Val	Ala	Leu	Ala	Gln	Glu	Ile	Glu
	1565					1570					1575			

21191\_PCT SeqList\_ST25.txt

Arg	Trp	Arg	Val	Thr	Arg	Ile	His	Leu	Val	Pro	Ser	His	Leu	Gly
	1580					1585					1590			
Ala	Leu	Leu	Glu	Gly	Ala	Gly	Glu	Glu	Ala	Lys	Gly	Leu	Arg	Ser
	1595					1600					1605			
Leu	Lys	Tyr	Val	Ile	Thr	Ala	Gly	Glu	Ala	Leu	Ala	Gln	Gly	Val
	1610					1615					1620			
Arg	Glu	Glu	Ala	Arg	Arg	Lys	Leu	Pro	Gly	Ala	Gln	Leu	Trp	Asn
	1625					1630					1635			
Asn	Tyr	Gly	Cys	Thr	Glu	Leu	Asn	Asp	Val	Thr	Tyr	His	Pro	Ala
	1640					1645					1650			
Ser	Glu	Gly	Gly	Gly	Asp	Thr	Val	Phe	Val	Pro	Ile	Gly	Arg	Pro
	1655					1660					1665			
Ile	Ala	Asn	Thr	Arg	Val	Tyr	Val	Leu	Asp	Glu	Gln	Leu	Arg	Arg
	1670					1675					1680			
Val	Pro	Val	Gly	Val	Met	Gly	Glu	Leu	Tyr	Val	Asp	Ser	Val	Gly
	1685					1690					1695			
Met	Ala	Arg	Gly	Tyr	Trp	Gly	Gln	Pro	Ala	Leu	Thr	Ala	Glu	Arg
	1700					1705					1710			
Phe	Ile	Ala	Asn	Pro	Tyr	Ala	Ser	Gln	Pro	Gly	Ala	Arg	Leu	Tyr
	1715					1720					1725			
Arg	Thr	Gly	Asp	Met	Val	Arg	Val	Leu	Ala	Asp	Gly	Ser	Leu	Glu
	1730					1735					1740			
Tyr	Leu	Gly	Arg	Arg	Asp	Tyr	Glu	Ile	Lys	Val	Arg	Gly	His	Arg
	1745					1750					1755			
Val	Asp	Val	Arg	Gln	Val	Glu	Lys	Val	Ala	Asn	Ala	His	Pro	Ala
	1760					1765					1770			
Ile	Arg	Gln	Ala	Val	Val	Ser	Gly	Trp	Pro	Leu	Gly	Ser	Ser	Asn
	1775					1780					1785			
Ala	Gln	Leu	Val	Ala	Tyr	Leu	Val	Pro	Gln	Ala	Gly	Ala	Thr	Val
	1790					1795					1800			
Gly	Pro	Arg	Gln	Val	Arg	Asp	Tyr	Leu	Ala	Glu	Ser	Leu	Pro	Ala
	1805					1810					1815			
Tyr	Met	Val	Pro	Thr	Leu	Tyr	Thr	Val	Leu	Glu	Glu	Leu	Pro	Arg
	1820					1825					1830			

21191\_PCT SeqList\_ST25.txt

Leu Pro Asn Gly Lys Leu Asp Arg Leu Ser Leu Pro Glu Pro Asp  
 1835 1840 1845  
 Leu Ser Ser Ser Arg Glu Glu Tyr Val Ala Pro His Gly Glu Val  
 1850 1855 1860  
 Glu Arg Lys Leu Ala Glu Ile Phe Gly Asn Leu Leu Gly Leu Glu  
 1865 1870 1875  
 His Val Gly Val His Asp Asn Phe Phe Ser Leu Gly Gly His Ser  
 1880 1885 1890  
 Leu Leu Ala Ala Gln Val Val Ser Arg Ile Gly Lys Glu Leu Gly  
 1895 1900 1905  
 Thr Gln Ile Ser Ile Ala Asp Leu Phe Gln Arg Pro Thr Ile Glu  
 1910 1915 1920  
 Gln Leu Cys Glu Leu Ile Gly Gly Leu Asp Asp Gln Thr Gln Arg  
 1925 1930 1935  
 Glu Leu Ala Leu Ala Pro Ser Gly Asn Thr Glu Ala Val Leu Ser  
 1940 1945 1950  
 Phe Ala Gln Glu Arg Met Trp Phe Leu His Asn Phe Val Lys Gly  
 1955 1960 1965  
 Met Pro Tyr Asn Thr Pro Gly Leu Asp His Leu Thr Gly Glu Leu  
 1970 1975 1980  
 Asp Val Ala Ala Leu Glu Lys Ala Ile Arg Ala Val Ile Arg Arg  
 1985 1990 1995  
 His Glu Pro Leu Arg Thr Asn Phe Val Glu Lys Asp Gly Val Leu  
 2000 2005 2010  
 Ser Gln Leu Val Gly Thr Glu Glu Arg Phe Arg Leu Thr Val Thr  
 2015 2020 2025  
 Pro Ile Arg Asp Glu Ser Glu Val Ala Arg Leu Met Glu Ala Val  
 2030 2035 2040  
 Ile Gln Thr Pro Val Asp Leu Glu Arg Glu Leu Met Ile Arg Ala  
 2045 2050 2055  
 Tyr Leu Tyr Arg Val Asp Pro Arg Asn His Tyr Leu Phe Thr Thr  
 2060 2065 2070  
 Ile His His Ile Ala Phe Asp Gly Trp Ser Thr Ser Ile Phe Tyr  
 2075 2080 2085



21191\_PCT SeqList\_ST25.txt

Arg	Glu	Leu	Ala	Ala	Tyr	Tyr	Ala	Ala	Phe	Leu	Arg	Arg	Glu	Asp
	2090					2095					2100			
Ser	Pro	Leu	Pro	Ala	Leu	Glu	Ile	Ser	Tyr	Gln	Asp	Tyr	Ala	Arg
	2105					2110					2115			
Trp	Glu	Arg	Ala	His	Phe	Gln	Asp	Glu	Val	Leu	Ala	Glu	Lys	Leu
	2120					2125					2130			
Arg	Tyr	Trp	Arg	Gln	Arg	Leu	Ser	Gly	Ala	Arg	Pro	Leu	Val	Leu
	2135					2140					2145			
Pro	Thr	Thr	Tyr	His	Arg	Pro	Pro	Ile	Gln	Ser	Phe	Ala	Gly	Ala
	2150					2155					2160			
Val	Val	Asn	Phe	Glu	Ile	Asp	Arg	Ser	Ile	Thr	Glu	Arg	Leu	Lys
	2165					2170					2175			
Thr	Leu	Phe	Ala	Glu	Ser	Gly	Thr	Thr	Met	Tyr	Met	Val	Leu	Leu
	2180					2185					2190			
Gly	Ala	Phe	Ser	Val	Val	Leu	Gln	Arg	Tyr	Ser	Gly	Gln	Asp	Asp
	2195					2200					2205			
Ile	Cys	Ile	Gly	Ser	Pro	Val	Ala	Asn	Arg	Gly	His	Ile	Gln	Thr
	2210					2215					2220			
Glu	Gly	Leu	Ile	Gly	Leu	Phe	Val	Asn	Thr	Leu	Val	Met	Arg	Val
	2225					2230					2235			
Asp	Ala	Ala	Gly	Asn	Pro	Arg	Phe	Ile	Asp	Leu	Leu	Ala	Arg	Ile
	2240					2245					2250			
Gln	Arg	Thr	Ala	Ile	Asp	Ala	Tyr	Ala	Asn	Gln	Glu	Val	Pro	Phe
	2255					2260					2265			
Glu	Lys	Ile	Val	Asp	Asp	Leu	Gln	Val	Ala	Arg	Asp	Thr	Ala	Arg
	2270					2275					2280			
Ser	Pro	Leu	Val	Gln	Val	Ile	Leu	Asn	Phe	His	Asn	Thr	Pro	Pro
	2285					2290					2295			
Gln	Ser	Glu	Leu	Glu	Leu	Gln	Gly	Val	Thr	Leu	Thr	Arg	Met	Pro
	2300					2305					2310			
Val	His	Asn	Gly	Thr	Ala	Lys	Phe	Glu	Leu	Ser	Ile	Asp	Val	Ala
	2315					2320					2325			
Glu	Thr	Ser	Ala	Gly	Leu	Thr	Gly	Phe	Val	Glu	Tyr	Ala	Thr	Asp
	2330					2335					2340			

21191\_PCT SeqList\_ST25.txt

Leu Phe Ser Glu Asn Phe Ile Arg Arg Met Ile Gly His Leu Glu  
 2345 2350 2355  
 Val Val Leu Asp Ala Val Gly Arg Asp Pro Arg Ala Pro Ile His  
 2360 2365 2370  
 Glu Leu Pro Leu Leu Thr Arg Gln Asp Gln Leu Asp Leu Leu Ser  
 2375 2380 2385  
 Arg Ser Gly His Thr Ala Pro Ala Val Glu His Val Glu Leu Ile  
 2390 2400  
 Pro His Thr Phe Glu Arg Arg Val Gln Glu Ser Pro Gln Ala Ile  
 2405 2410 2415  
 Ala Leu Val Cys Gly Asp Glu Arg Val Thr Tyr Ser Ala Leu Asn  
 2420 2425 2430  
 Arg Arg Ala Ser Gln Ile Ala Arg Arg Leu Arg Ala Ala Gly Ile  
 2435 2440 2445  
 Gly Pro Asp Thr Leu Val Gly Leu Cys Ala Gly Arg Ser Ile Glu  
 2450 2455 2460  
 Leu Val Cys Gly Val Leu Gly Ile Leu Lys Ala Gly Gly Ala Tyr  
 2465 2470 2475  
 Val Pro Ile Asp Pro Thr Ser Ser Pro Glu Val Ile Tyr Asp Val  
 2480 2485 2490  
 Leu Tyr Glu Ser Lys Val Arg His Leu Leu Thr Glu Ser Arg Leu  
 2495 2500 2505  
 Val Gly Gly Leu Pro Val Asp Asp Gln Glu Ile Leu Leu Leu Asp  
 2510 2515 2520  
 Thr Pro Ala Asp Gly Glu Gly Asp Lys Ala Val Ala Asp Arg Glu  
 2525 2530 2535  
 Glu Pro Pro Asp Leu Gly Glu Val Ser Leu Thr Pro Glu Cys Leu  
 2540 2545 2550  
 Ala Tyr Val Asn Phe Thr Ser Asp Ser Gly Gly Ala Pro Arg Gly  
 2555 2560 2565  
 Ile Ala Val Arg His Gly Ala Leu Ala Arg Arg Met Ala Ala Gly  
 2570 2575 2580  
 His Ala Gln Tyr Leu Ala Asn Ser Ala Val Arg Phe Leu Leu Lys  
 2585 2590 2595

21191\_PCT SeqList\_ST25.txt

Ala	Pro	Leu	Thr	Phe	Asp	Leu	Ala	Val	Ala	Glu	Leu	Phe	Gln	Trp
	2600					2605					2610			
Ile	Val	Ser	Gly	Gly	Ser	Leu	Ser	Ile	Leu	Asp	Pro	Asn	Ala	Asp
	2615					2620					2625			
Arg	Asp	Ala	Ser	Ala	Phe	Leu	Ala	Gln	Val	Arg	Arg	Asp	Ser	Ile
	2630					2635					2640			
Gly	Val	Leu	Tyr	Cys	Val	Pro	Ser	Glu	Leu	Ser	Thr	Leu	Val	Ser
	2645					2650					2655			
His	Leu	Glu	Arg	Glu	Arg	Glu	Arg	Val	His	Glu	Leu	Asn	Thr	Leu
	2660					2665					2670			
Arg	Phe	Ile	Phe	Cys	Gly	Gly	Asp	Thr	Leu	Ala	Val	Thr	Val	Val
	2675					2680					2685			
Glu	Arg	Leu	Gly	Val	Leu	Val	Arg	Ala	Gly	Gln	Leu	Pro	Leu	Arg
	2690					2695					2700			
Leu	Val	Asn	Val	Tyr	Gly	Thr	Lys	Glu	Thr	Gly	Ile	Gly	Ala	Gly
	2705					2710					2715			
Cys	Phe	Glu	Cys	Ala	Leu	Asp	Ala	Asn	Asp	Pro	Ser	Ala	Glu	Leu
	2720					2725					2730			
Pro	Pro	Gly	Arg	Leu	Ser	His	Glu	Arg	Met	Pro	Ile	Gly	Gly	Pro
	2735					2740					2745			
Ala	Gln	Asn	Leu	Trp	Phe	Tyr	Val	Val	Gln	Pro	Asn	Gly	Gly	Leu
	2750					2755					2760			
Ala	Pro	Leu	Gly	Ile	Pro	Gly	Glu	Leu	Tyr	Val	Gly	Gly	Ala	Gln
	2765					2770					2775			
Leu	Ala	Asp	Ala	Arg	Phe	Gly	Asp	Glu	Pro	Thr	Ala	Thr	His	Pro
	2780					2785					2790			
Gly	Phe	Val	Pro	Asn	Pro	Phe	Arg	Ser	Gly	Ala	Glu	Lys	Asp	Trp
	2795					2800					2805			
Leu	Tyr	Lys	Thr	Gly	Asp	Leu	Val	Arg	Trp	Leu	Pro	Gln	Gly	Pro
	2810					2815					2820			
Leu	Glu	Leu	Val	Ser	Ala	Ala	Arg	Glu	Arg	Asp	Gly	Gly	Gly	Asp
	2825					2830					2835			
His	Arg	Leu	Asp	Arg	Gly	Phe	Ile	Glu	Ala	Arg	Met	Arg	Arg	Val
	2840					2845					2850			

21191\_PCT SeqList\_ST25.txt

Ala Ile Val Arg Asp Ala Val Val Ala Tyr Val Pro Asp Arg Gln  
2855 2860 2865

Asp Arg Ala Arg Leu Val Ala Tyr Val Val Leu Lys Glu Ser Pro  
2870 2875 2880

Ala Ala Asp Val Glu Pro Arg Glu Gly Arg Glu Thr Leu Lys Ala  
2885 2890 2895

Arg Ile Ser Ala Glu Leu Gly Ser Thr Leu Pro Glu Tyr Met Leu  
2900 2905 2910

Pro Ala Ala Tyr Val Phe Met Asp Ser Leu Pro Leu Thr Ala Tyr  
2915 2920 2925

Gly Arg Ile Asp Arg Lys Ala Leu Pro Glu Pro Glu Asp Asp Arg  
2930 2935 2940

His Gly Gly Ser Ala Ile Ala Tyr Val Ala Pro Arg Gly Pro Thr  
2945 2950 2955

Glu Lys Ala Leu Ala His Ile Trp Gln Gln Val Leu Lys Arg Pro  
2960 2965 2970

Gln Val Gly Leu Arg Asp Asn Phe Phe Glu Leu Gly Gly His Ser  
2975 2980 2985

Val Ala Ala Ile Gln Leu Val Ser Val Ser Arg Lys His Leu Glu  
2990 2995 3000

Val Glu Val Pro Leu Ser Leu Ile Phe Glu Ser Pro Val Leu Glu  
3005 3010 3015

Ala Met Ala Arg Gly Ile Glu Ala Leu Gln Gln Gln Gly Arg Ser  
3020 3025 3030

Gly Ala Val Ser Ser Ile His Arg Val Glu Arg Thr Gly Pro Leu  
3035 3040 3045

Pro Leu Ala Tyr Val Gln Glu Arg Leu Trp Phe Val His Glu His  
3050 3055 3060

Met Lys Glu Gln Arg Thr Ser Tyr Asn Ile Thr Trp Thr Leu His  
3065 3070 3075

Phe Ala Gly Lys Gly Phe Ser Val Glu Ala Leu Arg Thr Ala Phe  
3080 3085 3090

Asp Glu Leu Val Ala Arg His Glu Thr Leu Arg Thr Trp Phe Gln  
3095 3100 3105

## 21191\_PCT SeqList\_ST25.txt

Val Gly Glu Gly Thr Glu Gln Ala Val Gln Val Ile Gly Glu Pro  
 3110 3115 3120  
 Trp Ser Met Glu Leu Pro Leu Arg Glu Val Ala Gly Thr Glu Val  
 3125 3130 3135  
 Thr Ala Ala Ile Asn Glu Met Ser Arg Gln Val Phe Asp Leu Arg  
 3140 3145 3150  
 Ala Gly Arg Leu Leu Thr Ala Ala Val Leu Arg Val Ala Glu Asp  
 3155 3160 3165  
 Glu His Ile Leu Val Ser Asn Ile His His Ile Ile Thr Asp Gly  
 3170 3175 3180  
 Trp Ser Phe Gly Val Met Leu Arg Glu Leu Arg Glu Leu Tyr Glu  
 3185 3190 3195  
 Ala Ala Val Arg Gly Glu Arg Ala Glu Leu Pro Pro Leu Thr Val  
 3200 3205 3210  
 Gln Tyr Gly Asp Tyr Ala Val Trp Gln Arg Lys Gln Asp Leu Ser  
 3215 3220 3225  
 Glu His Leu Ala Tyr Trp Lys Gly Lys Val Glu Gly Asp Glu Asp  
 3230 3235 3240  
 Gly Leu Glu Leu Pro Tyr Asp Phe Pro Arg Thr Ser Asn Arg Ala  
 3245 3250 3255  
 Trp Arg Ala Ala Thr Phe Gln Tyr Ser Tyr His Pro Glu Leu Ala  
 3260 3265 3270  
 Arg Lys Val Ala Glu Leu Ser Arg Glu Gln Gln Ser Thr Leu Phe  
 3275 3280 3285  
 Met Ser Leu Val Ala Ser Leu Ala Val Val Leu Asn Arg Tyr Thr  
 3290 3295 3300  
 Gly Arg Glu Asp Leu Cys Ile Gly Thr Thr Val Ala Gly Arg Ala  
 3305 3310 3315  
 Gln Val Glu Leu Glu Ser Leu Ile Gly Phe Phe Ile Asn Ile Leu  
 3320 3325 3330  
 Pro Leu Arg Leu Asp Leu Ser Gly Ala Pro Ser Leu His Glu Val  
 3335 3340 3345  
 Leu Arg Arg Thr Lys Val Val Val Leu Glu Gly Phe Glu His Gln  
 3350 3355 3360

21191\_PCT SeqList\_ST25.txt

Glu	Leu	Pro	Phe	Glu	His	Leu	Leu	Lys	Ala	Leu	Arg	Arg	Gln	Arg
	3365					3370					3375			
Asp	Ser	Ser	Gln	Ile	Pro	Leu	Val	Pro	Val	Val	Val	Arg	His	Gln
	3380					3385					3390			
Asn	Phe	Pro	Met	Ala	Arg	Leu	Glu	Gly	Trp	Ser	Glu	Gly	Val	Glu
	3395					3400					3405			
Leu	Lys	Lys	Phe	Glu	Leu	Ala	Gly	Glu	Arg	Thr	Thr	Ala	Ser	Glu
	3410					3415					3420			
Gln	Asp	Trp	Gln	Phe	Phe	Gly	Asp	Gly	Ser	Ser	Leu	Glu	Leu	Ser
	3425					3430					3435			
Leu	Glu	Tyr	Ala	Ala	Glu	Leu	Phe	Ser	Glu	Lys	Thr	Val	Arg	Arg
	3440					3445					3450			
Met	Val	Glu	His	His	Gln	Arg	Val	Leu	Glu	Ala	Leu	Val	Glu	Gly
	3455					3460					3465			
Leu	Glu	Glu	Gly	Leu	His	Glu	Val	Arg	Leu	Leu	Thr	Glu	Glu	Glu
	3470					3475					3480			
Glu	Gly	Leu	His	Gly	Arg	Leu	Asn	Asp	Thr	Ala	Arg	Glu	Leu	Glu
	3485					3490					3495			
Glu	Arg	Trp	Ser	Leu	Ala	Glu	Thr	Phe	Glu	Arg	Gln	Val	Arg	Glu
	3500					3505					3510			
Thr	Pro	Glu	Ala	Val	Ala	Cys	Val	Gly	Val	Glu	Val	Ala	Thr	Gly
	3515					3520					3525			
Gly	His	Ser	Arg	Pro	Thr	Tyr	Arg	Gln	Leu	Thr	Tyr	Arg	Gln	Leu
	3530					3535					3540			
Asn	Ala	Arg	Ala	Asn	Gln	Val	Ala	Arg	Arg	Leu	Arg	Ala	Leu	Gly
	3545					3550					3555			
Val	Gly	Ala	Glu	Thr	Arg	Val	Ala	Val	Leu	Ser	Asp	Arg	Ser	Pro
	3560					3565					3570			
Glu	Leu	Leu	Val	Ala	Met	Leu	Ala	Ile	Phe	Lys	Ala	Gly	Gly	Cys
	3575					3580					3585			
Tyr	Val	Pro	Val	Asp	Pro	Gln	Tyr	Pro	Gly	Ser	Tyr	Ile	Glu	Gln
	3590					3595					3600			
Ile	Leu	Glu	Asp	Ala	Ala	Pro	Gln	Val	Val	Leu	Gly	Lys	Arg	Gly
	3605					3610					3615			

21191\_PCT SeqList\_ST25.txt

Arg Ala Asp Gly Val Arg Val Asp Val Trp Leu Glu Leu Asp Gly  
3620 3625 3630

Ala Gln Arg Leu Thr Asp Glu Ala Leu Ala Ala Gln Glu Glu Gly  
3635 3640 3645

Glu Leu Glu Gly Ala Glu Arg Pro Glu Ser Gln Gln Leu Ala Cys  
3650 3655 3660

Leu Met Tyr Thr Ser Gly Ser Thr Gly Arg Pro Lys Gly Val Met  
3665 3670 3675

Val Pro Tyr Ser Gln Leu His Asn Trp Leu Glu Ala Gly Lys Glu  
3680 3685 3690

Arg Ser Pro Leu Glu Arg Gly Glu Val Met Leu Gln Lys Thr Ala  
3695 3700 3705

Ile Ala Phe Ala Val Ser Val Lys Glu Leu Leu Ser Gly Leu Leu  
3710 3715 3720

Ala Gly Val Ala Gln Val Met Val Pro Glu Thr Leu Val Lys Asp  
3725 3730 3735

Ser Val Ala Leu Ala Gln Glu Ile Glu Arg Trp Arg Val Thr Arg  
3740 3745 3750

Ile His Leu Val Pro Ser His Leu Gly Ala Leu Leu Glu Gly Ala  
3755 3760 3765

Gly Glu Glu Ala Lys Gly Leu Arg Ser Leu Lys Tyr Val Ile Thr  
3770 3775 3780

Ala Gly Glu Ala Leu Ala Gln Gly Val Arg Glu Glu Ala Arg Arg  
3785 3790 3795

Lys Leu Pro Gly Ala Gln Leu Trp Asn Asn Tyr Gly Cys Thr Glu  
3800 3805 3810

Leu Asn Asp Val Thr Tyr His Pro Ala Ser Glu Gly Gly Gly Asp  
3815 3820 3825

Thr Val Phe Val Pro Ile Gly Arg Pro Ile Ala Asn Thr Arg Val  
3830 3835 3840

Tyr Val Leu Asp Glu Gln Leu Arg Arg Val Pro Val Gly Val Met  
3845 3850 3855

Gly Glu Leu Tyr Val Asp Ser Val Gly Met Ala Arg Gly Tyr Trp  
3860 3865 3870

21191\_PCT SeqList\_ST25.txt

Gly	Gln	Pro	Ala	Leu	Thr	Ala	Glu	Arg	Phe	Ile	Ala	Asn	Pro	Tyr
3875						3880					3885			
Ala	Ser	Gln	Pro	Gly	Ala	Arg	Leu	Tyr	Arg	Thr	Gly	Asp	Met	Val
3890						3895					3900			
Arg	Val	Leu	Ala	Asp	Gly	Ser	Leu	Glu	Tyr	Leu	Gly	Arg	Arg	Asp
3905						3910					3915			
Tyr	Glu	Ile	Lys	Val	Arg	Gly	His	Arg	Val	Asp	Val	Arg	Gln	Val
3920						3925					3930			
Glu	Lys	Val	Ala	Asn	Ala	His	Pro	Ala	Ile	Arg	Gln	Ala	Val	Val
3935						3940					3945			
Ser	Gly	Trp	Pro	Leu	Gly	Ser	Ser	Asn	Ala	Gln	Leu	Val	Ala	Tyr
3950						3955					3960			
Leu	Val	Pro	Gln	Ala	Gly	Ala	Thr	Val	Gly	Pro	Arg	Gln	Val	Arg
3965						3970					3975			
Asp	Tyr	Leu	Ala	Glu	Ser	Leu	Pro	Ala	Tyr	Met	Val	Pro	Thr	Leu
3980						3985					3990			
Tyr	Thr	Val	Leu	Glu	Glu	Leu	Pro	Arg	Leu	Pro	Asn	Gly	Lys	Leu
3995						4000					4005			
Asp	Arg	Leu	Ser	Leu	Pro	Glu	Pro	Asp	Leu	Ser	Ser	Ser	Arg	Glu
4010						4015					4020			
Glu	Tyr	Val	Ala	Pro	His	Gly	Glu	Val	Glu	Arg	Lys	Leu	Ala	Glu
4025						4030					4035			
Ile	Phe	Gly	Asn	Leu	Leu	Gly	Leu	Glu	His	Val	Gly	Val	His	Asp
4040						4045					4050			
Asn	Phe	Phe	Asn	Leu	Gly	Gly	His	Ser	Leu	Leu	Ala	Ser	Gln	Leu
4055						4060					4065			
Ile	Ser	Arg	Ile	Arg	Ala	Thr	Phe	Arg	Val	Glu	Val	Ala	Met	Ala
4070						4075					4080			
Thr	Val	Phe	Glu	Ser	Pro	Thr	Val	Glu	Pro	Leu	Ala	Arg	His	Ile
4085						4090					4095			
Glu	Glu	Lys	Leu	Lys	Asp	Glu	Ser	Arg	Val	Gln	Leu	Ser	Asn	Val
4100						4105					4110			
Val	Pro	Val	Glu	Arg	Thr	Gln	Glu	Leu	Pro	Leu	Ser	Tyr	Leu	Gln
4115						4120					4125			



21191\_PCT SeqList\_ST25.txt

Glu Arg Leu Trp Phe Val His Glu His Met Lys Glu Gln Arg Thr  
 4130 4135 4140  
 Ser Tyr Asn Gly Thr Ile Gly Leu Arg Leu Arg Gly Pro Leu Ser  
 4145 4150 4155  
 Ile Pro Ala Leu Arg Ala Thr Phe His Asp Leu Val Ala Arg His  
 4160 4165 4170  
 Glu Ser Leu Arg Thr Val Phe Arg Val Pro Glu Gly Arg Thr Thr  
 4175 4180 4185  
 Pro Val Gln Val Ile Leu Asp Ser Met Asp Leu Asp Ile Pro Val  
 4190 4195 4200  
 Arg Asp Ala Thr Glu Ala Asp Ile Ile Pro Gly Met Asp Glu Leu  
 4205 4210 4215  
 Ala Gly His Ile Tyr Asp Met Glu Lys Gly Pro Leu Phe Met Val  
 4220 4225 4230  
 Arg Leu Leu Arg Leu Ala Glu Asp Ser His Val Leu Leu Met Gly  
 4235 4240 4245  
 Met His His Ile Val Tyr Asp Ala Trp Ser Gln Phe Asn Val Met  
 4250 4255 4260  
 Ser Arg Asp Ile Asn Leu Leu Tyr Ser Ala His Val Thr Gly Ile  
 4265 4270 4275  
 Glu Ala Arg Leu Pro Ala Leu Pro Ile Gln Tyr Ala Asp Phe Ser  
 4280 4285 4290  
 Val Trp Gln Arg Gln Gln Asp Phe Arg His His Leu Asp Tyr Trp  
 4295 4300 4305  
 Lys Ser Thr Leu Gly Asp Tyr Arg Asp Asp Leu Glu Leu Pro Tyr  
 4310 4315 4320  
 Asp Tyr Pro Arg Pro Pro Ser Arg Thr Trp His Ala Thr Arg Phe  
 4325 4330 4335  
 Thr Phe Arg Tyr Pro Asp Ala Leu Ala Arg Ala Phe Ala Arg Phe  
 4340 4345 4350  
 Asn Gln Ser His Gln Ser Thr Leu Phe Met Gly Leu Leu Thr Ser  
 4355 4360 4365  
 Phe Ala Ile Val Leu Arg His Tyr Thr Gly Arg Asn Asp Ile Cys  
 4370 4375 4380

21191\_PCT SeqList\_ST25.txt

Ile Gly Thr Thr Thr Ala Gly Arg Ala Gln Leu Glu Leu Glu Asn  
4385 4390 4395

Leu Val Gly Phe Phe Ile Asn Ile Leu Pro Leu Arg Ile Asn Leu  
4400 4405 4410

Ala Gly Asp Pro Asp Ile Ser Glu Leu Met Asn Arg Ala Lys Lys  
4415 4420 4425

Ser Val Leu Gly Ala Phe Glu His Gln Ala Leu Pro Phe Glu Arg  
4430 4435 4440

Leu Leu Ser Ala Leu Asn Lys Gln Arg Asp Ser Ser His Ile Pro  
4445 4450 4455

Leu Val Pro Val Met Leu Arg His Gln Asn Phe Pro Thr Ala Met  
4460 4465 4470

Thr Gly Lys Trp Ala Asp Gly Val Asp Met Glu Val Ile Glu Arg  
4475 4480 4485

Asp Glu Arg Thr Thr Pro Asn Glu Leu Asp Leu Gln Phe Phe Gly  
4490 4495 4500

Asp Asp Thr Tyr Leu His Ala Val Val Glu Phe Pro Ala Gln Leu  
4505 4510 4515

Phe Ser Glu Val Thr Val Arg Arg Leu Met Gln Arg His Gln Lys  
4520 4525 4530

Val Ile Glu Phe Met Cys Ala Thr Leu Gly Ala Arg  
4535 4540 4545

<210> 51  
<211> 1023  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(1023)  
<223> CysL

<400> 51

Val Asn Val Leu Ala Arg His Ser Thr Gly Ser His Asp Glu Pro Val  
1 5 10 15

Ala Gly Asp Val Glu Leu Arg Val Gly Gly Pro Gly Val Pro Asp Ala  
20 25 30

His Ser Ser Glu Ser Val Glu Val Leu Ala Arg Trp Leu Arg Thr Ala

Glu Glu Lys Tyr Pro Gly Val Met Gly Pro Ile Arg Gln Glu Gly Pro  
 50 55 60  
 Trp Phe Ala Ile Pro Leu Thr Cys Pro Arg Gly Ala Arg Ser Ala Arg  
 65 70 75 80  
 Phe Gly Leu Trp Leu Gly Glu Leu Asp Arg Gln Gly Gln Leu Leu His  
 85 90 95  
 Met Val Ala Ser Tyr Leu Ala Ala Val His His Val Leu Val Ser Val  
 100 105 110  
 Arg Glu Pro Ser Ala Asn Val Leu Glu Val Leu Val Ser Asp Ser Thr  
 115 120 125  
 Thr Pro Ser Gly Leu Asn Arg Phe Leu Asn Gly Leu Asp Ser Val Leu  
 130 135 140  
 Glu Ile Leu Ala His Gly Arg Ser Asp Leu Leu Leu Gln His Leu Thr  
 145 150 155 160  
 Gly Arg Leu Pro Pro Asp Glu Met Pro Phe Val Glu Asp Arg Glu Glu  
 165 170 175  
 Arg Glu Glu His Pro Ala Thr Asp Val Glu Ala Asp Ala Val Val Ser  
 180 185 190  
 Val Leu Phe Gln Pro Val Asp Phe Pro Ser Leu Ala Arg Leu Asp Ala  
 195 200 205  
 Ser Leu Leu Ala Tyr Asp Asp Glu Asp Ala Gly Ala Val Gly Arg Val  
 210 215 220  
 Leu Gly Glu Leu Leu Gln Pro Phe Leu Leu Asp Ser Ala Arg Met Thr  
 225 230 235 240  
 Val Gly Arg Lys Ala Val Arg Val Asp His Ile Cys Leu Pro Gly Leu  
 245 250 255  
 Leu Arg Ala Asp Ser Arg Ala Ala Glu Glu Ser Val Leu Ala Pro Ala  
 260 265 270  
 Leu Arg Leu Ala Thr Lys Pro Gly Arg His Phe Val Ala Leu Cys Arg  
 275 280 285  
 Asn Thr Ala Leu Arg Leu Gly Asp Arg Leu Pro His Leu Leu Ala Gln  
 290 295 300  
 Gly Pro Leu Cys Asp Gly Ala Ser Thr Ala Leu Leu Leu Leu Gln Arg  
 Seite 107

21191\_PCT SeqList\_ST25.txt

305                      310                      315                      320

Val Leu Asp Thr    Leu Ile Gly Ser Gly Gly Leu Lys Asp His Arg Leu  
                         325                                      330                                      335

Thr Leu Glu    Leu Val Gly Ala Asp Pro Arg Thr Glu Ala Ala Phe Arg  
                         340                                      345                                      350

Ala Arg Thr    Pro Trp Leu Val Ala Glu Arg Ala Ala Ser Ala Ala Ser  
                         355                                      360                                      365

Thr Asp Ala    Pro Arg Val Asp Val Val Val Leu Phe Pro Ala Ala Arg  
                         370                                      375                                      380

Pro Ser Ala Leu Glu    Leu Arg Pro Asp Ser Val Val Ile Asp Leu Phe  
385                                      390                                      395                                      400

Gly Thr Trp Ser    Leu Arg Pro Arg Pro Glu Val Leu Ala Lys Asn Ile  
                         405                                      410                                      415

Val Tyr Val    Arg Gly Ala Ser Val Arg Leu Ala Gly Glu Ala Val Val  
                         420                                      425                                      430

Ser Thr Pro    Ser Phe Ala Pro Asp Arg Val Glu Pro Ala Leu Leu Glu  
                         435                                      440                                      445

Ala Leu Leu Arg Glu Leu Asp Ala Glu Ala Ser Ser Asp Gly Leu Ala  
450                                      455                                      460

His Glu His Arg Leu Glu Ile Gly Gly Ile Arg Gly Phe Trp Gly Glu  
465                                      470                                      475                                      480

Ile Arg Arg Ala Glu Trp Asp Ala Phe His Ser Arg Arg Arg Gly Glu  
                         485                                      490                                      495

Leu Ala Arg Phe Gln Val Ser Gly Gln Val Thr Ala Ala Asn Pro Gly  
                         500                                      505                                      510

Leu Ala Ser    Leu Pro Asp Gly Ala Thr Asn Ile Cys Glu Tyr Ile Phe  
                         515                                      520                                      525

Arg Glu Ala His Leu Arg Ser Gly Ser Cys Leu Val Asp Pro Gln Ser  
530                                      535                                      540

Gly Gln Ser Ala Thr Tyr Ala Glu Leu Arg Arg Leu Ala Ala Ala Tyr  
545                                      550                                      555                                      560

Ala Arg Arg Phe Arg Ala Leu Gly Leu Arg Gln Gly Asp Val Val Ala  
                         565                                      570                                      575

Leu Ala Ala Pro Asp Gly Ile Ser Ser Val Ala Val Met Leu Gly Cys

## 21191\_PCT SeqList\_ST25.txt

580

585

590

Phe Leu Gly Gly Trp Val Phe Ala Pro Leu Asn His Thr Ala Ser Ala  
 595 600 605

Val Asn Phe Glu Ala Met Leu Ser Ser Ala Ser Pro Arg Leu Val Leu  
 610 615 620

His Ala Ala Ser Thr Val Ala Arg His Leu Pro Val Leu Ser Thr Arg  
 625 630 635 640

Arg Cys Ala Glu Leu Ala Ser Phe Leu Pro Pro Asp Ala Leu Asp Gly  
 645 650 655

Val Glu Gly Asp Val Thr Pro Leu Pro Val Ser Pro Glu Ala Pro Ala  
 660 665 670

Val Met Leu Phe Thr Ser Gly Ser Thr Gly Gly Pro Lys Ala Val Thr  
 675 680 685

His Thr His Ala Asp Phe Ile Thr Cys Ser Arg Asn Tyr Ala Pro Tyr  
 690 695 700

Val Val Glu Leu Arg Pro Asp Asp Arg Val Tyr Thr Pro Ser Pro Thr  
 705 710 715 720

Phe Phe Ala Tyr Gly Leu Asn Asn Leu Leu Leu Ser Leu Ser Ala Gly  
 725 730 735

Ala Thr His Val Ile Ser Val Pro Arg Asn Gly Gly Met Gly Val Ala  
 740 745 750

Glu Ile Leu Ala Arg Asn Glu Val Thr Val Leu Phe Ala Val Pro Ala  
 755 760 765

Val Tyr Lys Leu Ile Ile Ser Lys Asn Asp Arg Gly Leu Arg Leu Pro  
 770 775 780

Lys Leu Arg Leu Cys Ile Ser Ala Gly Glu Lys Leu Pro Leu Lys Leu  
 785 790 795 800

Tyr Arg Glu Ala Arg Ser Phe Phe Ser Val Asn Val Leu Asp Gly Ile  
 805 810 815

Gly Cys Thr Glu Ala Ile Ser Thr Phe Ile Ser Asn Arg Glu Ser Tyr  
 820 825 830

Val Ala Pro Gly Cys Thr Gly Val Val Val Pro Gly Phe Glu Val Lys  
 835 840 845

Leu Val Asn Pro Arg Gly Glu Leu Cys Arg Val Gly Glu Val Gly Val  
 Seite 109

21191\_PCT SeqList\_ST25.txt

850

855

860

Leu Trp Val Arg Gly Gly Ala Leu Thr Arg Gly Tyr Val Asn Ala Pro  
865 870 875 880

Asp Leu Thr Glu Lys His Phe Val Asp Gly Trp Phe Asn Thr Gln Asp  
885 890 895

Met Phe Phe Met Asp Ala Glu Tyr Arg Leu Tyr Asn Val Gly Arg Ala  
900 905 910

Gly Ser Val Ile Lys Ile Asn Ser Cys Trp Phe Ser Pro Glu Met Met  
915 920 925

Glu Ser Val Leu Gln Ser His Pro Ala Val Lys Glu Cys Ala Val Cys  
930 935 940

Val Val Ile Asp Asp Tyr Gly Leu Pro Arg Pro Lys Ala Phe Ile Val  
945 950 955 960

Thr Gly Glu His Glu Arg Ser Glu Pro Glu Leu Glu His Leu Trp Ala  
965 970 975

Glu Leu Arg Val Leu Ser Lys Glu Lys Leu Gly Lys Asp His Tyr Pro  
980 985 990

His Leu Phe Ala Thr Ile Lys Thr Leu Pro Arg Thr Ser Ser Gly Lys  
995 1000 1005

Leu Met Arg Ser Glu Leu Ala Lys Leu Leu Thr Ser Gly Pro Pro  
1010 1015 1020

<210> 52  
<211> 38  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(38)  
<223> CysM

<400> 52

Met Asn Pro Lys Phe Leu Gly Gly Leu Gly Ala Gly Val Cys Ile Ala  
1 5 10 15

Ser Leu Phe Gln Thr Val Met Arg Thr Val Pro Leu Lys Asp Ala Gly  
20 25 30

Ser Gly Asp Arg Ala Cys  
35

21191\_PCT SeqList\_ST25.txt

<210> 53  
 <211> 357  
 <212> PRT  
 <213> Cystobacter velatus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(357)  
 <223> CysN

<400> 53

```

Met Ser Thr Arg Thr Lys Asn Phe Asn Val Met Gly Ile Asp Trp Met
1      5      10      15

Pro Ser Ser Ala Glu Phe Lys Arg Arg Val Pro Arg Thr Gln Arg Ala
20     25     30

Ala Glu Ala Val Leu Ala Gly Arg Arg Cys Leu Met Asp Ile Leu Asp
35     40     45

Arg Gly Asp Pro Arg Leu Phe Val Ile Val Gly Pro Cys Ser Ile His
50     55     60

Asp Pro Val Ala Gly Leu Asp Tyr Ala Lys Arg Leu Arg Lys Leu Ala
65     70     75     80

Asp Glu Val Arg Glu Thr Leu Phe Val Val Met Arg Val Tyr Phe Glu
85     90     95

Lys Pro Arg Thr Thr Thr Gly Trp Lys Gly Phe Ile Asn Asp Pro Arg
100    105    110

Met Asp Gly Ser Phe His Ile Glu Glu Gly Met Glu Arg Gly Arg Arg
115    120    125

Phe Leu Leu Asp Val Ala Glu Glu Gly Leu Pro Ala Ala Thr Glu Ala
130    135    140

Leu Asp Pro Ile Ala Ser Gln Tyr Tyr Gly Asp Leu Ile Ser Trp Thr
145    150    155    160

Ala Ile Gly Ala Arg Thr Ala Glu Ser Gln Thr His Arg Glu Met Ala
165    170    175

Ser Gly Leu Ser Thr Pro Val Gly Phe Lys Asn Gly Thr Asp Gly Ser
180    185    190

Leu Asp Ala Ala Val Asn Gly Ile Ile Ser Ala Ser His Pro His Ser
195    200    205

Phe Leu Gly Val Ser Glu Asn Gly Ala Cys Ala Ile Ile Arg Thr Arg
210    215    220
    
```

21191\_PCT SeqList\_ST25.txt

Gly Asn Thr Tyr Gly His Leu Val Leu Arg Gly Gly Gly Gly Arg Pro  
225 230 235 240

Asn Tyr Asp Ala Val Ser Val Ala Leu Ala Glu Lys Ala Leu Ala Lys  
245 250 255

Ala Arg Leu Pro Thr Asn Ile Val Val Asp Cys Ser His Ala Asn Ser  
260 265 270

Trp Lys Asn Pro Glu Leu Gln Pro Leu Val Met Arg Asp Val Val His  
275 280 285

Gln Ile Arg Glu Gly Asn Arg Ser Val Val Gly Leu Met Ile Glu Ser  
290 295 300

Phe Ile Glu Ala Gly Asn Gln Pro Ile Pro Ala Asp Leu Ser Gln Leu  
305 310 315 320

Arg Tyr Gly Cys Ser Val Thr Asp Ala Cys Val Asp Trp Lys Thr Thr  
325 330 335

Glu Lys Met Leu Tyr Ser Ala His Glu Glu Leu Leu His Ile Leu Pro  
340 345 350

Arg Ser Lys Val Ala  
355

<210> 54  
<211> 203  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(203)  
<223> Cys0

<400> 54

Met Pro Ala Arg Ser Thr Pro Ser Leu Glu Ser Gly Asp Phe Phe Ala  
1 5 10 15

Asp Val Thr Phe Ser Asp Leu Ser Ile Glu Ser Ala Asp Leu Ser Gly  
20 25 30

Lys Glu Phe Glu Arg Cys Thr Phe Arg Arg Cys Lys Leu Pro Glu Ser  
35 40 45

Arg Trp Val Arg Ser Arg Leu Glu Asp Cys Val Phe Glu Gly Cys Asp  
50 55 60

Leu Leu Arg Met Val Pro Glu Lys Leu Ala Leu Arg Ser Val Thr Phe  
65 70 75 80



21191\_PCT SeqList\_ST25.txt

Lys Asp Thr Arg Leu Met Gly Val Asp Trp Ser Gly Leu Gly Thr Met  
85 90 95

Pro Asp Val Gln Phe Glu Gln Cys Asp Leu Arg Tyr Ser Ser Phe Leu  
100 105 110

Lys Leu Asn Leu Arg Lys Thr Arg Phe Val Gly Cys Ser Ala Arg Glu  
115 120 125

Ala Asn Phe Ile Asp Val Asp Leu Ala Glu Ser Asp Phe Thr Gly Thr  
130 135 140

Asp Met Pro Gly Cys Thr Met Gln Gly Cys Val Leu Thr Lys Thr Asn  
145 150 155 160

Phe Ala Arg Ser Thr Asn Phe Ile Phe Asp Pro Lys Ala Asn Gln Val  
165 170 175

Lys Gly Thr Arg Val Gly Val Glu Thr Ala Val Ala Leu Ala Gln Ala  
180 185 190

Leu Gly Met Val Val Asp Gly Tyr Gln Thr Pro  
195 200

<210> 55  
<211> 233  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(233)  
<223> CysP

<400> 55

Met Lys Arg Phe Phe Lys Leu Gln Leu Arg Thr Thr Asn Val Pro Ala  
1 5 10 15

Ala Arg Ala Phe Tyr Thr Ala Leu Phe Gly Glu Gly Ala Ala Asn Ala  
20 25 30

Asp Ile Val Pro Leu Pro Glu Gln Ala Ile Ala Arg Gly Ala Pro Ala  
35 40 45

His Trp Leu Gly Tyr Val Gly Val Glu Asp Val Asp Glu Ala Val Arg  
50 55 60

Ser Phe Val Gly Arg Gly Ala Thr Gln Leu Gly Pro Thr His Pro Thr  
65 70 75 80

Asn Asp Gly Gly Arg Val Ala Ile Leu Arg Asp Pro Gly Gly Ala Thr  
Seite 113

21191\_PCT SeqList\_ST25.txt

85

90

95

Phe Ala Val Ala Thr Ala Pro Ala Thr Thr Arg Ala Leu Gln Pro Glu  
100 105 110

Val Val Trp Gln Gln Leu Tyr Ala Ala Asn Val Gln Gln Thr Ala Ala  
115 120 125

Ser Tyr Cys Asp Leu Phe Gly Trp Arg Leu Ser Asp Arg Arg Asp Leu  
130 135 140

Gly Ala Leu Gly Val His Gln Glu Phe Thr Trp Arg Ser Asp Glu Pro  
145 150 155 160

Ser Ala Gly Ser Val Val Asp Val Ala Gly Leu Lys Gly Val His Ser  
165 170 175

His Trp Leu Phe His Phe Arg Val Ala Ala Leu Asp Pro Ala Met Glu  
180 185 190

Val Val Arg Lys Ala Gly Gly Val Val Ile Gly Pro Met Glu Leu Pro  
195 200 205

Asn Gly Asp Arg Ile Ala Val Cys Glu Asp Pro Gln Arg Ala Ala Phe  
210 215 220

Ala Leu Arg Glu Ser Ser His Gly Arg  
225 230

<210> 56  
<211> 264  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(264)  
<223> CysQ

<400> 56

Met Gln Glu Ile Gly Gln Thr Ala Leu Trp Val Ala Gly Met Arg Ala  
1 5 10 15

Leu Glu Thr Glu Arg Ser Asn Pro Leu Phe Arg Asp Pro Phe Ala Arg  
20 25 30

Arg Leu Ala Gly Asp Thr Leu Val Glu Glu Leu Arg Arg Arg Asn Ala  
35 40 45

Gly Glu Gly Ala Met Pro Pro Ala Ile Glu Val Arg Thr Arg Trp Leu  
50 55 60

21191\_PCT SeqList\_ST25.txt

Asp Asp Gln Ile Thr Leu Gly Leu Gly Arg Gly Ile Arg Gln Ile Val  
65 70 75 80

Ile Leu Ala Ala Gly Met Asp Ala Arg Ala Tyr Arg Leu Ala Trp Pro  
85 90 95

Gly Asp Thr Arg Leu Phe Glu Leu Asp His Asp Ala Val Leu Gln Asp  
100 105 110

Lys Glu Ala Lys Leu Thr Gly Val Ala Pro Lys Cys Glu Arg His Ala  
115 120 125

Val Ser Val Asp Leu Ala Asp Asp Trp Pro Ala Ala Leu Lys Lys Ser  
130 135 140

Gly Phe Asp Pro Gly Val Pro Thr Leu Trp Leu Ile Glu Gly Leu Leu  
145 150 155 160

Val Tyr Leu Thr Glu Ala Gln Val Thr Leu Leu Met Ala Arg Val Asn  
165 170 175

Ala Leu Ser Val Pro Glu Ser Ile Val Leu Ile Asp Val Val Gly Arg  
180 185 190

Ser Ile Leu Asp Ser Ser Arg Val Lys Leu Met His Asp Leu Ala Arg  
195 200 205

Gln Phe Gly Thr Asp Glu Pro Glu Val Ile Leu Arg Pro Ile Gly Trp  
210 215 220

Asp Pro His Val Tyr Thr Thr Ala Ala Ile Gly Lys Gln Leu Gly Arg  
225 230 235 240

Trp Pro Phe Pro Val Ala Pro Arg Gly Thr Pro Gly Val Pro Gln Gly  
245 250 255

Tyr Leu Val His Gly Val Lys Arg  
260

<210> 57  
<211> 333  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(333)  
<223> CysR

<400> 57

Val Asn Gly Thr Thr Gly Lys Thr Gly Leu Val Ala Glu Arg Ser Gly  
1 5 10 15

21191\_PCT SeqList\_ST25.txt

Ala Ile Ser Pro Arg Asp Tyr Lys Ser Lys Glu Leu Val Trp Asp Ser  
20 25 30

Leu Ala Ala Thr Arg Ser Lys Pro Arg Arg Val Leu Pro Glu Gly Asp  
35 40 45

Val Val Gly His Leu Tyr Pro Pro Ala Lys Ala Ala Leu Leu Thr His  
50 55 60

Pro Leu Met Lys Asn Leu Pro Pro Glu Thr Leu Arg Leu Phe Phe Ile  
65 70 75 80

His Ser Ala Tyr Lys Phe Met Gly Asp Ile Ala Ile Phe Glu Thr Glu  
85 90 95

Thr Val Asn Glu Val Ala Met Lys Ile Ala Asn Gly His Thr Pro Ile  
100 105 110

Thr Phe Pro Asp Asp Ile Arg His Asp Ala Leu Thr Val Ile Ile Asp  
115 120 125

Glu Ala Tyr His Ala Tyr Val Ala Arg Asp Phe Met Arg Gln Ile Glu  
130 135 140

Gln Arg Thr Gly Val Lys Pro Leu Pro Leu Gly Thr Glu Thr Asp Leu  
145 150 155 160

Ser Arg Ala Met Ala Phe Gly Lys His Arg Leu Pro Glu Thr Leu His  
165 170 175

Gly Leu Trp Glu Ile Ile Ala Val Cys Ile Gly Glu Asn Thr Leu Thr  
180 185 190

Lys Asp Leu Leu Asn Leu Thr Gly Glu Lys Ser Phe Asn Glu Val Leu  
195 200 205

His Gln Val Met Glu Asp His Val Arg Asp Glu Gly Arg His Ala Val  
210 215 220

Leu Phe Met Asn Val Leu Lys Leu Val Trp Ser Glu Met Glu Glu Ser  
225 230 235 240

Ala Arg Leu Ala Ile Gly Gln Leu Leu Pro Glu Phe Ile Arg Glu Tyr  
245 250 255

Leu Ser Pro Lys Met Met Ala Glu Tyr Glu Arg Val Val Leu Glu Gln  
260 265 270

Leu Gly Leu Ala Ala Glu His Ile Glu Arg Ile Leu Ser Glu Thr Tyr  
275 280 285

21191\_PCT SeqList\_ST25.txt

Ser Glu Pro Pro Leu Glu Asp Phe Arg Ala Arg Tyr Pro Leu Ser Gly  
290 295 300

Tyr Leu Val Tyr Val Leu Met Gln Cys Asp Val Leu Ser His Ala Pro  
305 310 315 320

Thr Arg Glu Ala Phe Arg Arg Phe Lys Leu Leu Ala His  
325 330

<210> 58  
<211> 642  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(642)  
<223> CySS

<400> 58

Met Ala Asn Gln Arg Val Ala Phe Ile Glu Leu Thr Val Phe Ser Gly  
1 5 10 15

Val Tyr Pro Leu Ala Ser Gly Tyr Met Arg Gly Val Ala Glu Gln Asn  
20 25 30

Pro Leu Ile Arg Glu Ser Cys Ser Phe Glu Ile His Ser Ile Cys Ile  
35 40 45

Asn Asp Asp Arg Phe Glu Asp Lys Leu Asn Lys Ile Asp Ala Asp Val  
50 55 60

Tyr Ala Ile Ser Cys Tyr Val Trp Asn Met Gly Phe Val Lys Arg Trp  
65 70 75 80

Leu Pro Thr Leu Thr Ala Arg Lys Pro Asn Ala His Ile Ile Leu Gly  
85 90 95

Gly Pro Gln Val Met Asn His Gly Ala Gln Tyr Leu Asp Pro Gly Asn  
100 105 110

Glu Arg Val Val Leu Cys Asn Gly Glu Gly Glu Tyr Thr Phe Ala Asn  
115 120 125

Tyr Leu Ala Glu Leu Cys Ser Pro Gln Pro Asp Leu Gly Lys Val Lys  
130 135 140

Gly Leu Ser Phe Tyr Arg Asn Gly Glu Leu Ile Thr Thr Glu Pro Gln  
145 150 155 160

Ala Arg Ile Gln Asp Leu Asn Thr Val Pro Ser Pro Tyr Leu Glu Gly  
165 170 175

21191\_PCT SeqList\_ST25.txt

Tyr Phe Asp Ser<sub>180</sub> Glu Lys Tyr Val<sub>185</sub> Trp Ala Pro Leu Glu Thr<sub>190</sub> Asn Arg  
 Gly Cys Pro<sub>195</sub> Tyr Gln Cys Thr<sub>200</sub> Cys Phe Trp Gly<sub>205</sub> Ala Ala Thr Asn  
 Ser Arg<sub>210</sub> Val<sub>210</sub> Phe Lys Ser Asp<sub>215</sub> Met Asp Arg Val<sub>220</sub> Lys Ala Glu Ile Thr  
 Trp<sub>225</sub> Leu Ser Gln His Arg<sub>230</sub> Ala Phe Tyr Ile Phe<sub>235</sub> Ile Thr Asp Ala Asn<sub>240</sub>  
 Phe Gly Met Leu Thr<sub>245</sub> Arg Asp Ile Glu Ile<sub>250</sub> Ala Gln His Ile Ala<sub>255</sub> Glu  
 Cys Lys Arg Lys<sub>260</sub> Tyr Gly Tyr Pro Leu<sub>265</sub> Thr Ile Trp Leu Ser<sub>270</sub> Ala Ala  
 Lys Asn Ser<sub>275</sub> Pro Asp Arg Val<sub>280</sub> Thr Gln Ile Thr Arg Ile<sub>285</sub> Leu Ser Gln  
 Glu Gly<sub>290</sub> Leu Ile Ser Thr Gln<sub>295</sub> Pro Val Ser Leu Gln<sub>300</sub> Thr Met Asp Ala  
 Asn Thr Leu Lys Ser Val<sub>310</sub> Lys Arg Gly Asn Ile<sub>315</sub> Lys Glu Ser Ala Tyr<sub>320</sub>  
 Leu Ser Leu Gln Glu<sub>325</sub> Glu Leu His Arg Ser<sub>330</sub> Lys Leu Ser Ser Phe<sub>335</sub> Val  
 Glu Met Ile Trp<sub>340</sub> Pro Leu Pro Gly Glu<sub>345</sub> Thr Leu Glu Thr Phe<sub>350</sub> Arg Glu  
 Gly Ile Gly<sub>355</sub> Lys Leu Cys Ser Tyr<sub>360</sub> Asp Ala Asp Ala Ile<sub>365</sub> Leu Ile His  
 His Leu<sub>370</sub> Leu Leu Ile Asn Asn<sub>375</sub> Val Pro Met Asn Ser<sub>380</sub> Gln Arg Glu Glu  
 Phe<sub>385</sub> Lys Leu Glu Val Ser<sub>390</sub> Asn Asp Glu Asp Pro<sub>395</sub> Asn Ser Glu Ala Gln<sub>400</sub>  
 Val Val Val Ala Thr<sub>405</sub> Lys Asp Val Thr Arg<sub>410</sub> Glu Glu Tyr Lys Glu<sub>415</sub> Gly  
 Val Arg Phe Gly<sub>420</sub> Tyr His Leu Thr Ser<sub>425</sub> Leu Tyr Ser Leu Arg<sub>430</sub> Ala Leu  
 Arg Phe Val<sub>435</sub> Gly Arg Tyr Leu Asp<sub>440</sub> Lys Gln Gly Arg Leu<sub>445</sub> Ala Phe Lys

21191\_PCT SeqList\_ST25.txt

Asp Leu Ile Ser Ser Phe Ser Glu Tyr Cys Lys Arg Asn Pro Asp His  
450 455 460

Pro Tyr Thr Gln Tyr Ile Thr Ser Val Ile Asp Gly Thr Ser Gln Ser  
465 470 475 480

Lys Phe Ser Ala Asn Gly Gly Ile Phe His Val Thr Leu His Glu Phe  
485 490 495

Arg Arg Glu Phe Asp Gln Leu Leu Phe Gly Phe Ile Gln Thr Leu Gly  
500 505 510

Met Met Asn Asp Glu Leu Leu Glu Phe Leu Phe Glu Met Asp Leu Leu  
515 520 525

Asn Arg Pro His Val Tyr Ser Asn Thr Pro Ile Asn Asn Gly Glu Gly  
530 535 540

Leu Leu Lys His Val Thr Val Val Ser Lys Glu Lys Asp Ala Ile Val  
545 550 555 560

Leu Arg Val Pro Glu Lys Tyr Ala Gln Leu Thr Ser Glu Leu Leu Gly  
565 570 575

Leu Glu Gly Ala Pro Ser Thr Ser Leu Arg Val Lys Tyr Arg Gly Thr  
580 585 590

Gln Met Pro Phe Met Ala Asn Lys Pro Tyr Glu Asp Asn Leu Ser Tyr  
595 600 605

Cys Glu Ala Lys Leu His Lys Met Gly Ser Ile Leu Pro Val Trp Glu  
610 615 620

Ser Ala Val Pro Ser Arg Thr Pro Val Arg Arg Pro Gln Val Ala Val  
625 630 635 640

Ala Gly

<210> 59  
<211> 1267  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(1267)  
<223> Cyst

<400> 59

Met His Arg Val Lys Pro Leu Ile Gly Pro Val Leu Ser Ala Leu Leu

21191\_PCT SeqList\_ST25.txt

1	5	10	15
Leu Cys Ala	Leu Pro Ala Arg Ala	Gln Ile Ala Ala Ala	His Val Tyr
20		25	30
His Asn	His Met Pro Asn Phe	Trp Ala Tyr Tyr Asp	Leu Gly Gln Tyr
35		40	45
Ala Ser	Thr Pro Thr Gly	Gly Pro Ile Arg Tyr	Met Tyr Asp Ala Gln
50		55	60
Val Ile Asn	Leu Lys	Lys Asn Pro Pro Ser	Asn Tyr Thr Tyr Tyr
65		70	75
Pro Ser Gly	Ala Pro Met Pro His	Asp Asp	Leu Val Thr Tyr Tyr Ser
	85	90	95
His Asn Ala	Lys Thr Gly Ala Tyr	Leu Tyr Trp Pro Pro	Ser Val Ala
	100	105	110
Ser Asp	Met Lys Thr Asn Ala	Pro Thr Gly Gln Val	His Val Thr Met
	115	120	125
Ser Gly	Ala Val Val Asn	Asn Val Gln Asp	Leu Val Thr Leu Lys Asn
	130	135	140
Val Pro Gly	Tyr Asp Asn Pro Asn Trp	Gly Ala Ser Trp Lys	Asp Arg
145		150	155
Tyr Ser Ala	Leu Leu Thr Pro Ala	Gly Asn Arg Thr	Leu Asp Leu Ile
	165	170	175
His Phe Thr	Gly His His Ser Met	Gly Pro Leu Val	Gly Pro Asp Tyr
	180	185	190
Phe Leu	Lys Asp Leu Ile Tyr	Gln Ser Ala Thr	Leu Ala Gln Pro Tyr
	195	200	205
Phe Leu	Gly Gly Ser Phe	Gln Ser Ser Lys	Gly Phe Phe Pro Thr Glu
	210	215	220
Leu Gly	Phe Ser Glu Arg	Leu Ile Pro Thr	Leu Ser Lys Leu Gly Val
225		230	235
Gln Trp Ala	Val Ile Gly Asp Asn His	Phe Ser Arg Thr	Leu Lys Asp
	245	250	255
Tyr Pro Tyr	Leu Asn Asp Pro Gly	Ser Asp Thr Leu Val	Ser Pro Pro
	260	265	270
Asn Arg Ala	Asp Leu Gln Asn Thr	Ser Ser Val Gly	Ser Trp Val Ser



21191\_PCT SeqList\_ST25.txt

275

280

285

Ala Gln Met Ala His Glu Gln Gln Val Ile Lys Asn Lys Tyr Pro Phe  
290 295 300

Ala Ser Thr Pro His Trp Val Arg Tyr Val Asp Pro Ala Thr Gly Ala  
305 310 315 320

Glu Ser Arg Val Val Gly Ile Pro Val Asn Gln Asn Gly Ser Trp Leu  
325 330 335

Glu Gly Trp Glu Gly Glu Ala Thr Val Asp Val Val Asn Leu Lys Ser  
340 345 350

Phe Glu Gly Leu Val Pro Gln Arg Gln Phe Phe Val Ile Ala His Asp  
355 360 365

Gly Asp Asn Ser Ser Gly Arg Ala Gly Ser Asp Ser Thr Trp Tyr Asn  
370 375 380

Gly Arg Ser Val Thr Cys Ala Asn Gly Val Gln Cys Val Gly Ile Ser  
385 390 395 400

Glu Tyr Leu Val His His Thr Pro Ala Ser Thr Asp Val Val His Val  
405 410 415

Gln Asp Gly Ser Trp Val Asp Thr Arg Asp Ser Ser Ser Asp Pro Gln  
420 425 430

Trp His His Trp Lys Leu Pro Phe Gly Ile Trp Lys Gly Gln Phe Pro  
435 440 445

Ala Phe Asn Ala Ala Thr Gly Leu Asn Leu Ser Pro Lys Thr Asn Leu  
450 455 460

Ser Gly Val Gln Glu Gly Met Thr Val Ser Leu Glu His Gly Trp His  
465 470 475 480

Tyr Leu Glu Arg Asn Phe Ala Leu Leu Gln Ala Ala Leu Asn Tyr Ala  
485 490 495

Lys Thr Ala Glu Gln Ile Trp Leu Asp Ala His Pro Asn His Trp Ser  
500 505 510

Pro Thr Thr Ala Ile Asp Lys Gln Ile Thr His Thr Gly Asn Gln Leu  
515 520 525

Asn Pro Trp Met Met Ser Phe Pro Val Lys Gly Asp Val Asn Asn Asp  
530 535 540

Trp Ala Gly Gly Ala Asn Pro Ala Glu Leu Ala Trp Tyr Phe Leu Leu  
Seite 121

## 21191\_PCT SeqList\_ST25.txt

545					550					555					560
Pro	Ala	Met	Asp	Ser 565	Gly	Phe	Gly	Tyr	Tyr 570	Asp	Glu	Asn	Gln	Asp 575	Asp
Asn	Val	Lys	Pro 580	Thr	Leu	Ser	Phe	Asn 585	Gln	Ser	Leu	Tyr	Phe 590	Ser	Lys
Pro	Tyr	Val 595	Gln	Gln	Arg	Ile	Ala 600	Gln	Asp	Lys	Thr	Gly 605	Pro	Ser	Val
Trp	Trp 610	Ala	Gln	Arg	Trp	Pro 615	Tyr	Asn	Pro	Gly	Ser 620	Ala	Asn	Thr	Asp
Lys 625	Ser	Glu	Gly	Trp	Thr 630	Leu	His	Phe	Phe	Asn 635	Asn	His	Phe	Ala	Leu 640
Tyr	Thr	Tyr	Ala	Tyr 645	Asp	Ala	Ser	Gly	Ile 650	Ser	Ser	Ile	Lys	Ala 655	Arg
Val	Arg	Val	His 660	Thr	His	Lys	Ser	Ile 665	Asp	Pro	Leu	Asp	Asn 670	Thr	His
Lys	Val	Tyr 675	Asp	Pro	Ala	Ala	Arg 680	Lys	Ala	Ala	Gly	Val 685	Pro	Asn	Ile
Asp	Pro 690	Ala	Arg	Val	Gly	Ala 695	Trp	Val	Asp	Tyr	Pro 700	Leu	Thr	Arg	Arg
Asp 705	Leu	Lys	Pro	Val	Met 710	Asn	Gly	Val	Ser	Trp 715	Gln	Pro	Ala	Tyr	Leu 720
Pro	Val	Met	Ala	Lys 725	Val	Pro	Ala	Gln	Glu 730	Ile	Gly	Asp	Leu	Tyr 735	Tyr
Val	Tyr	Leu	Gly 740	Asn	Tyr	Arg	Asp	Gln 745	Leu	Leu	Asp	Tyr	Tyr 750	Ile	Glu
Ala	Thr	Asp 755	Ser	Arg	Gly	Asn	Ile 760	Thr	Arg	Gly	Glu	Ile 765	Gln	Ser	Val
Tyr	Val 770	Gly	Ser	Gly	Arg	Tyr 775	Asn	Leu	Val	Gly	Gly 780	Lys	Tyr	Ile	Glu
Asp 785	Pro	Asn	Gly	Thr	Val 790	Gln	Gly	Thr	His	Pro 795	Phe	Leu	Val	Val	Asp 800
Thr	Thr	Ala	Pro	Ser 805	Val	Pro	Ser	Gly	Leu 810	Thr	Ala	Lys	Ala	Lys 815	Thr
Asp	Arg	Ser	Val	Thr	Leu	Ser	Trp	Ser	Ala	Ala	Ser	Asp	Asn	Val	Ala

21191\_PCT SeqList\_ST25.txt

820

825

830

Val Ser Gly Tyr Asp Val Phe Arg Asp Gly Thr Gln Val Gly Ser Ser  
835 840 845

Thr Ser Thr Ala Tyr Thr Asp Ser Gly Leu Ser Pro Ser Thr Gln Tyr  
850 855 860

Ser Tyr Thr Val Arg Ala Arg Asp Ala Ala Gly Asn Ala Ser Ala Gln  
865 870 875 880

Ser Thr Ala Leu Ser Val Ala Thr Leu Thr Pro Asp Thr Thr Pro Pro  
885 890 895

Ser Val Pro Ser Gly Leu Thr Ala Ser Gly Thr Thr Ser Ser Ser Val  
900 905 910

Ala Leu Ala Trp Thr Ala Ser Thr Asp Asn Tyr Gly Val Ala Asn Tyr  
915 920 925

Glu Val Leu Arg Asn Gly Thr Gln Val Ala Ser Val Thr Gly Thr Thr  
930 935 940

Tyr Ser Asp Thr Gly Leu Ser Pro Ser Thr Thr Tyr Ser Tyr Thr Val  
945 950 955 960

Arg Ala Arg Asp Ala Ala Gly Asn Val Ser Ser Pro Ser Thr Ala Leu  
965 970 975

Ser Val Thr Thr Gln Thr Gly Asn Ser Ala Thr Val Tyr Tyr Phe Asn  
980 985 990

Asn Asn Phe Ala Leu Lys Tyr Ile His Phe Arg Ile Gly Gly Gly Thr  
995 1000 1005

Trp Thr Thr Val Pro Gly Asn Val Met Ala Thr Ser Glu Val Pro  
1010 1015 1020

Gly Tyr Ala Lys Tyr Thr Val Asn Leu Gly Ala Ala Thr Gln Leu  
1025 1030 1035

Glu Cys Val Phe Asn Asp Gly Lys Gly Thr Trp Asp Asn Asn Lys  
1040 1045 1050

Gly Asn Asn Tyr Leu Leu Pro Ala Gly Thr Ser Thr Val Lys Asp  
1055 1060 1065

Gly Val Val Ser Ser Gly Ala Pro Ala Leu Asp Thr Thr Ala Pro  
1070 1075 1080

Ser Val Pro Ser Gly Leu Thr Ala Ala Ser Lys Thr Ser Ser Ser  
Seite 123

21191\_PCT SeqList\_ST25.txt

1085

1090

1095

Val Ser Leu Ser Trp Ser Ala Ser Thr Asp Ala Ser Gly Ile Ala  
 1100 1105 1110  
 Gly Tyr Asp Val Tyr Arg Asp Gly Ser Leu Val Gly Ser Pro Val  
 1115 1120 1125  
 Ser Thr Ser Tyr Thr Asp Ser Asp Leu Ser Ala Gly Thr Thr Tyr  
 1130 1135 1140  
 Arg Tyr Thr Val Arg Ala Arg Asp Thr Ala Gly Asn Ala Ser Ala  
 1145 1150 1155  
 Gln Ser Thr Ala Leu Ser Val Thr Thr Ser Thr Ser Ser Ala Thr  
 1160 1165 1170  
 Ser Val Thr Phe Asn Val Thr Ala Ser Thr Val Val Gly Gln Asn  
 1175 1180 1185  
 Val Tyr Leu Val Gly Asn His Ala Ala Leu Gly Asn Trp Asn Thr  
 1190 1195 1200  
 Gly Ala Ala Ile Leu Leu Ser Pro Ala Ser Tyr Pro Lys Trp Ser  
 1205 1210 1215  
 Val Thr Leu Ser Leu Pro Gly Ser Thr Ala Leu Glu Tyr Lys Tyr  
 1220 1225 1230  
 Ile Lys Lys Asp Gly Ser Gly Asn Val Thr Trp Glu Ser Gly Ala  
 1235 1240 1245  
 Asn Arg Ser Thr Thr Ile Pro Ala Ser Gly Thr Ala Thr Leu Asn  
 1250 1255 1260  
 Asp Thr Trp Lys  
 1265

<210> 60  
 <211> 276  
 <212> PRT  
 <213> Cystobacter velatus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(276)  
 <223> ORF1

<400> 60

Val Pro His Pro Ser Glu Gln Ser Ala Pro Ser Gly Leu Arg Ala Arg  
 1 5 10 15

21191\_PCT SeqList\_ST25.txt

Leu His Glu Ile Ile Phe Glu Ser Asp Thr Pro Ala Gly Arg Ala Phe  
20 25 30

Asp Val Ala Leu Leu Trp Ala Ile Val Leu Ser Val Leu Ala Val Met  
35 40 45

Leu Glu Ser Val Glu Ser Ile Ser Val Gln His Gly Gln Thr Ile Arg  
50 55 60

Val Leu Glu Trp Cys Phe Thr Gly Leu Phe Thr Leu Glu Tyr Val Leu  
65 70 75 80

Arg Leu Leu Ser Val Lys Arg Pro Leu Arg Tyr Ala Leu Ser Phe Phe  
85 90 95

Gly Leu Val Asp Leu Leu Ala Ile Leu Pro Ser Val Leu Ser Leu Met  
100 105 110

Leu Pro Gly Met Gln Ser Leu Leu Val Val Arg Val Phe Arg Leu Leu  
115 120 125

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

Val Leu Leu Thr Ala Leu Arg Ala Ser Arg Arg Lys Ile Ile Val Phe  
145 150 155 160

Leu Gly Ala Val Leu Ser Thr Val Val Ile Met Gly Ala Val Met Tyr  
165 170 175

Met Val Glu Gly Arg Ala Asn Gly Phe Asp Ser Ile Pro Arg Gly Met  
180 185 190

Tyr Trp Ala Ile Val Thr Met Thr Thr Val Gly Tyr Gly Asp Leu Ser  
195 200 205

Pro Lys Thr Val Pro Gly Gln Phe Ile Ala Ser Val Leu Met Ile Met  
210 215 220

Gly Tyr Gly Ile Leu Ala Val Pro Thr Gly Ile Val Ser Val Glu Leu  
225 230 235 240

Ala Gln Ala Thr Arg Gln His Ala Ile Asp Pro Arg Ala Cys Pro Gly  
245 250 255

Cys Gly Leu Gln Gly His Asp Leu Asp Ala His His Cys Lys His Cys  
260 265 270

Gly Thr Ala Leu  
275

21191\_PCT SeqList\_ST25.txt

<210> 61  
 <211> 78  
 <212> PRT  
 <213> Cystobacter velatus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(78)  
 <223> ORF2

<400> 61

Met Ala Gln Asp Gln Asp Arg Glu Lys Leu His Ser Asp Ala Asp Lys  
 1 5 10 15

Glu Arg Leu His Pro Lys Val Asp Ser Gly Asp Val Ser Gly Arg Gly  
 20 25 30

Arg Glu Arg Arg Pro Asp Glu Glu Tyr Pro Lys Gln Arg Asn Ala Gly  
 35 40 45

Glu Phe Gly Thr His Gly Gly Pro Asn Lys Gly Gly Lys Glu Asp Arg  
 50 55 60

Arg Gln Leu His Ala Pro Gly Ser Ser Lys Ala Gly Ser Gln  
 65 70 75

<210> 62  
 <211> 162  
 <212> PRT  
 <213> Cystobacter velatus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(162)  
 <223> ORF3

<400> 62

Met Gly Arg Thr Tyr Ser Phe Glu Pro Phe Leu Ser Gln Gln Pro Ala  
 1 5 10 15

Gln Thr Tyr Lys Gly Ser Gly Pro Arg Leu Gly Asn Glu Glu His Lys  
 20 25 30

Ile Ala Leu Thr Lys Glu Glu Glu Lys Ala Ala Leu Pro Asp Thr Pro  
 35 40 45

Thr Gly Tyr Gly Gln Ala His Ala Glu Thr Val Lys Arg Tyr Arg Ala  
 50 55 60

Arg Ala Glu Lys Lys Arg Thr Glu Pro Lys Thr Pro Ala Thr Arg Ala  
 65 70 75 80

Lys Lys Ala Ala Pro Lys Ala Lys Pro Thr Arg Lys Val Ala Thr Gln  
 85 90 95

21191\_PCT SeqList\_ST25.txt

Glu Ala Thr Ala Lys Ala Pro Thr Arg Gln Ala Arg Glu Glu Thr Glu  
100 105 110

Pro Lys Ala Pro Ala Arg Lys Lys Leu Ser Ala Thr Gly Leu Val Gly  
115 120 125

Ser Ile Gly Arg Lys Val Val Thr Arg Ala Ala Val Ala Ala Lys Lys  
130 135 140

Thr Val Ala Arg Ala Val Lys Thr Ala Ala Ala Arg Lys Ser Ala Lys  
145 150 155 160

Lys Arg

<210> 63  
<211> 87  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(87)  
<223> ORF4

<400> 63

Met Ser Pro Ala Arg Arg Lys Glu Ser Lys Gln His Glu Val Gly Ser  
1 5 10 15

Ala Thr His Ala Arg Arg Val Ile Val Ala Thr Asp Gly Arg Gly Trp  
20 25 30

Tyr Val Arg Phe Glu Gly Asn Arg Gln Leu Gly Arg Tyr Ser Asn Val  
35 40 45

Thr Gln Ala Ile His Gly Gly Arg Arg Leu Ala Arg Gln His Lys Pro  
50 55 60

Ala Gly Leu Val Val Arg Tyr Leu Asp Gly Glu Glu Glu Glu Ser Trp  
65 70 75 80

Tyr Gly Asp Arg Glu Ala Pro  
85

<210> 64  
<211> 149  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(149)

21191\_PCT SeqList\_ST25.txt

<223> ORF5

<400> 64

Met Lys His Ile Lys Ala Val Val Val Gly Ala Leu Ser Ala Ala Leu  
1 5 10 15

Leu Phe Gly Val Gly Cys Gln Thr Thr Gly Gly Ala Gly Asn Gln Gly  
20 25 30

Thr Gly Gly Ser Asp Thr Ser Gln Gly Gly Thr Met Thr Gly Ser Glu  
35 40 45

Thr Thr Gly Thr Gly Thr Thr Gly Gly Thr Thr Glu Gly Gly Asp Thr  
50 55 60

Thr Gly Gly Gly Thr Gly Gly Thr Gly Ala Gly Asp Ile Asp Gly Ser  
65 70 75 80

Ser Ser Gly Ser Thr Gly Ser Gly Ser Asp Val Gly Gly Ser Gly Gly  
85 90 95

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

Val Asp Ser Asp Leu Gly Gly Ser Gly Thr Gly Ser Asp Val Asp Gly  
115 120 125

Ser Gly Ser Thr Asp Ser Ser Gly Asn Met Ser Gly Thr Gly Ser Glu  
130 135 140

Asp Asp Thr Ser Arg  
145

<210> 65

<211> 525

<212> PRT

<213> Cystobacter velatus

<220>

<221> MISC\_FEATURE

<222> (1)..(525)

<223> ORF6

<400> 65

Met Ser Thr Arg Thr Ser Leu Ala Leu Ala Ala Ser Leu Ala Ala Leu  
1 5 10 15

Pro Ala Leu Ala Gln Glu Arg Pro Ser Glu Gly Asp Leu Phe Gly Gly  
20 25 30

Asp Thr Pro Glu Thr Lys Pro Ala Pro Ala Asp Ala Pro Arg Pro Asp  
35 40 45



21191\_PCT SeqList\_ST25.txt

Glu Ser Ser Leu Phe Gly Asp Thr Pro Ala Ser Thr Pro Ala Ala Gln  
 50 55 60  
 Ser Ala Ala Ala Thr Ala Ala Pro Asp Lys Pro Ser Ala Thr Pro Gln  
 65 70 75 80  
 Asp Arg Asp Ala Gln Ala Leu Gly Gly Pro Ser Ala Thr Asn Ala Phe  
 85 90 95  
 Asp Thr Glu Glu Ala Val Glu Asp Pro Leu Lys Ile Gly Gly Arg Phe  
 100 105 110  
 Tyr Leu Arg Ala Tyr Ser Gln Ala Asn Glu Gly Val Ser Phe Ser Asn  
 115 120 125  
 Thr Thr Phe Ser Ala Pro Met Leu Val Asp Gly Tyr Phe Asp Ala Arg  
 130 135 140  
 Pro Thr Glu Arg Leu Arg Gly Phe Val Leu Gly Arg Leu Thr Phe Asp  
 145 150 155 160  
 Pro Thr Arg Lys Ala Gly Ser Leu Gly Ile Val Pro Thr Ser Thr Ser  
 165 170 175  
 Thr Ser Asn Val Ala Ala Asp Pro Val Val Leu Leu Asp Gln Ala Trp  
 180 185 190  
 Leu Arg Phe Asp Leu Asp His Lys Leu Phe Ile Thr Val Gly Lys Gln  
 195 200 205  
 His Val Lys Trp Gly Thr Ser Arg Phe Trp Asn Pro Thr Asp Phe Leu  
 210 215 220  
 Ser Pro Gln Arg Arg Asp Pro Leu Ala Leu Leu Asp Thr Arg Thr Gly  
 225 230 235 240  
 Ala Thr Met Leu Lys Met His Met Pro Trp Glu Ala Lys Gly Trp Asn  
 245 250 255  
 Phe Tyr Val Leu Gly Leu Leu Asp Asn Ala Gly Pro Ala Asn Thr Leu  
 260 265 270  
 Gly Arg Val Gly Gly Ala Ala Arg Ala Glu Val Val Leu Gly His Thr  
 275 280 285  
 Glu Leu Gly Val Asp Ala Val Leu Gln His Gly Arg Lys Pro Arg Phe  
 290 295 300  
 Gly Leu Asp Leu Ser Ser Gly Leu Gly Pro Ile Asp Ile Tyr Gly Glu  
 305 310 315 320

21191\_PCT SeqList\_ST25.txt

Leu Ala Leu Lys Lys Gly Ser Asp Ala Pro Met Phe Arg Met Pro Gln  
325 330 335

Gly Val Ser Leu Gly Asp Leu Leu Gly Gln Phe Gln Gly Asn Gly Gly  
340 345 350

Met Pro Pro Asp Leu Gly Ala Leu Pro Ile Glu Ala Tyr Tyr Pro Glu  
355 360 365

Gly Tyr Thr Pro Gln Val Ser Gly Gly Ala Thr Trp Thr Phe Ala Tyr  
370 375 380

Ser Glu Ser Asp Thr Ala Thr Val Gly Val Glu Tyr Phe Tyr Asn Ser  
385 390 395 400

Met Gly Tyr Pro Gly Ser Leu Ala Tyr Pro Tyr Leu Ile Leu Gln Gly  
405 410 415

Gln Tyr Gln Pro Phe Tyr Leu Gly Arg His Tyr Ala Ala Val Tyr Ala  
420 425 430

Phe Leu Ser Gly Pro Gly Ser Trp Asp Asn Thr Asn Phe Ile Leu Ser  
435 440 445

Asn Leu Gly Asn Leu Ser Asp Arg Ser Phe Ile Thr Arg Leu Asp Val  
450 455 460

Thr His Arg Ala Leu Arg Tyr Leu Ser Ile Glu Ala Phe Ile Ala Ala  
465 470 475 480

Asn Tyr Gly Gln Arg Gly Gly Glu Phe Arg Phe Ala Leu Asn Leu Pro  
485 490 495

Ala Leu Arg Met Gly Glu Gln Val Thr Pro Pro Ile Ala Val Ala Pro  
500 505 510

Pro Thr Ile Gln Ala Gly Val Gly Leu Arg Ile Asp Leu  
515 520 525

<210> 66  
<211> 261  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(261)  
<223> ORF7

<400> 66

Met Thr Leu Arg Asn Leu Leu Gly Ala Leu Phe Ala Ala Leu Leu Leu  
1 5 10 15

21191\_PCT SeqList\_ST25.txt

Ala Ala Pro Thr Ala Arg Ala Asp Leu Thr Asp Pro Ala Glu Ile Lys  
20 25 30

Lys Leu Leu Glu Thr Leu Asp Asn Arg Gln Arg Asn Gly Gly Asp Tyr  
35 40 45

Lys Ser Leu Val Tyr Ile Glu Gln Lys Glu Lys Asp Lys Thr Asp Val  
50 55 60

Val Arg Glu Ala Val Val Tyr Arg Arg Asp Glu Lys Asp Gln Leu Met  
65 70 75 80

Ile Leu Met Thr Lys Pro Lys Gly Glu Ala Gly Lys Gly Tyr Leu Arg  
85 90 95

Leu Asp Lys Asn Leu Trp Ser Tyr Asp Pro Asn Thr Gly Lys Trp Asp  
100 105 110

Arg Arg Thr Glu Arg Glu Arg Ile Ala Gly Thr Asp Ser Arg Arg Ala  
115 120 125

Asp Phe Asp Glu Ser Arg Leu Ala Glu Glu Leu Asp Gly Lys Phe Glu  
130 135 140

Gly Glu Glu Lys Leu Gly Lys Phe Thr Thr Trp Lys Leu Val Leu Thr  
145 150 155 160

Ala Lys Pro Asn Val Asp Val Ala Tyr Pro Val Val His Leu Trp Val  
165 170 175

Glu Lys Asp Thr Asn Asn Ile Leu Lys Arg Gln Glu Phe Ala Leu Ser  
180 185 190

Gly Arg Leu Met Arg Thr Ser Tyr Phe Pro Lys Trp Met Lys Leu Phe  
195 200 205

Ser Glu Ser Lys Lys Ala Asp Val Trp Tyr Pro Gln Glu Met Arg Phe  
210 215 220

Tyr Asp Glu Val Glu Lys Thr Asn Ser Thr Val Ile Val Val Lys Ser  
225 230 235 240

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

Glu Ser Lys Ser Arg  
260

<210> 67  
<211> 433

21191\_PCT SeqList\_ST25.txt

<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(433)  
<223> ORF8

<400> 67

Met Gln Gln Leu Leu Leu Ile Ala Val Arg Asn Leu Gly Thr His Lys  
1 5 10 15

Arg Arg Thr Leu Leu Leu Gly Gly Ala Ile Ala Gly Val Thr Ala Leu  
20 25 30

Leu Val Ile Leu Met Gly Leu Ser Asn Gly Met Lys Asp Thr Met Leu  
35 40 45

Arg Ser Ala Thr Thr Leu Val Thr Gly His Val Asn Val Ala Gly Phe  
50 55 60

Tyr Lys Val Thr Ala Gly Gln Ser Ala Pro Val Val Thr Ser Tyr Pro  
65 70 75 80

Lys Leu Leu Glu Gln Leu Arg Lys Glu Val Pro Glu Leu Asp Phe Ser  
85 90 95

Val Gln Arg Thr Arg Gly Trp Val Lys Leu Val Ser Glu Ser Gly Ser  
100 105 110

Val Gln Thr Gly Ile Gly Gly Ile Asp Val Ala Ala Glu Thr Gly Ile  
115 120 125

Arg Lys Val Leu Gln Leu Arg Glu Gly Arg Leu Glu Asp Leu Ala Gln  
130 135 140

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

Lys Val Gly Asp Ser Val Thr Leu Ser Ala Ser Thr Met Arg Gly Ile  
165 170 175

Ser Asn Thr Val Asp Val Arg Val Val Ala Ile Ala Ala Asn Val Gly  
180 185 190

Met Leu Ser Ser Phe Asn Val Leu Val Pro Asn Ala Thr Leu Arg Ala  
195 200 205

Leu Tyr Gln Leu Arg Glu Asp Ser Thr Gly Ala Leu Met Leu His Leu  
210 215 220

Lys Asp Met Ser Ala Ile Pro Ser Val Gln Ala Arg Leu Tyr Lys Arg  
Seite 132

## 21191\_PCT SeqList\_ST25.txt

225					230											240
Leu	Pro	Glu	Leu	Gly 245	Tyr	Gln	Val	Leu	Glu 250	His	Asp	Pro	Arg	Ala 255	Phe	
Phe	Met	Lys	Phe 260	Gln	Thr	Val	Asn	Arg 265	Glu	Ala	Trp	Thr	Gly 270	Gln	Lys	
Leu	Asp	Ile 275	Thr	Asn	Trp	Glu	Asp 280	Glu	Ile	Ser	Phe	Ile 285	Lys	Trp	Thr	
Val	Ser 290	Ala	Met	Asp	Ala	Leu 295	Thr	Gly	Val	Leu	Ile 300	Phe	Val	Leu	Leu	
Ile 305	Ile	Ile	Ala	Val	Gly 310	Ile	Met	Asn	Thr	Leu 315	Trp	Ile	Ala	Ile	Arg 320	
Glu	Arg	Thr	Arg	Glu 325	Ile	Gly	Thr	Leu	Arg 330	Ala	Ile	Gly	Met	Gln 335	Arg	
Trp	Tyr	Val	Leu 340	Val	Met	Phe	Leu	Leu 345	Glu	Ala	Leu	Val	Leu 350	Gly	Leu	
Leu	Gly	Thr 355	Thr	Val	Gly	Ala	Leu 360	Val	Gly	Met	Gly	Val 365	Cys	Leu	Leu	
Ile	Asn 370	Ala	Val	Asp	Pro	Ser 375	Val	Pro	Val	Pro	Val 380	Gln	Leu	Phe	Ile	
Leu 385	Ser	Asp	Lys	Leu	His 390	Leu	Ile	Val	Lys	Pro 395	Gly	Ser	Val	Met	Arg 400	
Ala	Ile	Ala	Phe	Ile 405	Thr	Leu	Cys	Thr	Thr 410	Phe	Ile	Ser	Leu	Ile 415	Pro	
Ser	Phe	Leu	Ala 420	Ala	Arg	Met	Lys	Pro 425	Ile	Thr	Ala	Met	His 430	His	Ile	

Gly

<210> 68  
<211> 701  
<212> PRT  
<213> Cystobacter velatus

```
<220>
<221> MISC_FEATURE
<222> (1)..(701)
<223> ORF9
```

<400> 68

## 21191\_PCT SeqList\_ST25.txt

Met Gly Gln Leu Lys Leu Leu Leu Gln Val Ala Leu Arg Asn Leu Phe  
 1 5 10 15  
 Val Ser Arg Ile Asn Leu Leu Ile Gly Gly Ile Ile Phe Phe Gly Thr  
 20 25 30  
 Val Leu Val Val Val Gly Gly Ser Leu Val Asp Ser Val Asp Glu Ala  
 35 40 45  
 Met Ser Arg Ser Ile Ile Gly Ser Val Ala Gly His Leu Gln Val Tyr  
 50 55 60  
 Ser Ala His Ser Lys Asp Glu Leu Ser Leu Phe Gly Gln Met Gly Arg  
 65 70 75 80  
 Glu Pro Asp Leu Ser Ala Leu Asp Asp Phe Ser Arg Ile Lys Gln Leu  
 85 90 95  
 Val Gln Gln His Pro Asn Val Lys Thr Val Val Pro Met Gly Thr Gly  
 100 105 110  
 Ala Thr Phe Ile Asn Ser Gly Asn Thr Ile Asp Leu Thr Leu Ala Arg  
 115 120 125  
 Leu Arg Asp Leu Tyr Lys Lys Ala Ala Gln Gly Asp Thr Pro Glu Leu  
 130 135 140  
 Arg Gly Gln Ile His Ser Leu Gln Ala His Val Arg His Ile Ile Thr  
 145 150 155 160  
 Leu Leu Glu Glu Asp Met Lys Arg Arg Arg Glu Ile Ile Asp Asp Lys  
 165 170 175  
 Thr Thr Asp Pro Ala Asp Ala Glu Ala Met Ala Arg Ala Arg Ser Glu  
 180 185 190  
 Ala Phe Trp Ala Asp Phe Asp Glu Lys Pro Phe Asp Ser Leu Glu Phe  
 195 200 205  
 Leu Glu Asn Arg Ile Ala Pro Tyr Met Thr Asp Gly Asp Met Leu Ser  
 210 215 220  
 Leu Arg Tyr Val Gly Thr Asp Leu Val Asn Phe Gln Lys Thr Phe Asp  
 225 230 235 240  
 Arg Met Arg Ile Val Glu Gly Thr Pro Val Pro Pro Gly His Arg Gly  
 245 250 255  
 Met Met Leu Ser Lys Phe Thr Tyr Glu Asn Asp Phe Lys Leu Lys Thr  
 260 265 270

21191\_PCT SeqList\_ST25.txt

Ala His Arg Leu Asp Leu Ile Lys Glu Ala Arg Asp Thr Asn His Lys  
275 280 285

Thr Ile Ala Met Asp Pro Gln Leu Gln Arg Trp Val Lys Glu Asn Gln  
290 295 300

Thr Gln Thr Arg Glu Ile Leu Phe Gln Leu Asp Asp Leu Lys Thr Lys  
305 310 315 320

Gln Ala Val Glu Arg Leu Gln Arg Val Leu Gly Ser Gln Glu Thr Asp  
325 330 335

Leu Gly Lys Leu Leu Pro Ala Phe Phe Thr Met Asp Asp Ala Asn Phe  
340 345 350

Asp Thr Arg Tyr Gln Gln Phe Tyr Ser Glu Leu Ala Thr Leu Leu Asp  
355 360 365

Leu Tyr Arg Ile Arg Ile Gly Asp Asp Leu Thr Ile Thr Ala Phe Ser  
370 375 380

Arg Thr Gly Tyr Val Gln Ser Val Asn Val Lys Ile Tyr Gly Thr Tyr  
385 390 395 400

Gln Phe Asp Gly Leu Glu Lys Ser Ala Val Ala Gly Ala Leu Asn Leu  
405 410 415

Leu Asp Leu Met Ser Phe Arg Glu Leu Tyr Gly Tyr Leu Thr Ala Glu  
420 425 430

Lys Lys Ala Glu Leu Ala Gly Leu Gln Lys Ala Ser Gly Val Gln Gln  
435 440 445

Val Lys Arg Glu Asp Ala Glu Thr Ala Leu Phe Gly Glu Gln Gly Ser  
450 455 460

Ala Ser Leu Val Ala Glu Gly Thr Ala Gly Gln Ile Asp Glu Asp Lys  
465 470 475 480

Gln Leu Asp Gly Leu Ala Gln Lys Leu His Arg Glu Glu Leu Ala Ser  
485 490 495

Arg Val Tyr Thr Gln Gln Glu Ile Glu Ser Gly Val Val Leu Ser Thr  
500 505 510

Ala Val Leu Leu Lys His Pro Glu Lys Leu Glu Gln Thr Leu Ala Glu  
515 520 525

Leu Arg Lys Ser Ala Asp Asp Ala Lys Leu Pro Leu Arg Ile Ile Ser  
530 535 540

21191\_PCT SeqList\_ST25.txt

Trp Gln Lys Ala Ser Gly Thr Ile Gly Gln Phe Val Leu Val Ala Lys  
545 550 555 560

Leu Val Leu Tyr Phe Ala Val Phe Ile Ile Phe Val Val Ala Leu Val  
565 570 575

Ile Ile Asn Asn Ala Met Met Met Ala Thr Leu Gln Arg Val Arg Glu  
580 585 590

Val Gly Thr Leu Arg Ala Ile Gly Ala Gln Arg Ser Phe Val Leu Ser  
595 600 605

Met Val Leu Val Glu Thr Val Val Leu Gly Leu Val Phe Gly Val Leu  
610 615 620

Gly Ala Ala Met Gly Gly Ala Ile Met Asn Met Leu Gly His Val Gly  
625 630 635 640

Ile Pro Ala Gly Asn Glu Ala Leu Tyr Phe Phe Phe Ser Gly Pro Arg  
645 650 655

Leu Phe Pro Ser Leu His Leu Ser Asn Leu Val Ala Ala Phe Val Ile  
660 665 670

Val Leu Val Val Ser Ala Leu Ser Thr Phe Tyr Pro Ala Tyr Leu Ala  
675 680 685

Thr Arg Val Ser Pro Leu Gln Ala Met Gln Thr Asp Glu  
690 695 700

<210> 69  
<211> 253  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(253)  
<223> ORF10

<400> 69

Met Ser Gln Val Thr Ala Leu Pro Gly Ser Thr Gln Pro Ile Val Ser  
1 5 10 15

Leu Thr Glu Val Thr Lys Thr Tyr Ser Leu Gly Lys Val Gln Val Pro  
20 25 30

Ala Leu Arg Gly Val Thr Leu Glu Val Tyr Pro Gly Glu Phe Ile Ser  
35 40 45

Ile Ala Gly Pro Ser Gly Ser Gly Lys Thr Thr Ala Leu Asn Leu Ile  
50 55 60



21191\_PCT SeqList\_ST25.txt

Gly Cys Val Asp Thr Ala Ser Ser Gly Val Val Ser Val Asp Gly Gln  
65 70 75 80

Asp Thr Lys Lys Leu Thr Glu Arg Gln Leu Thr His Leu Arg Leu His  
85 90 95

Thr Ile Gly Phe Ile Phe Gln Ser Phe Asn Leu Val Ser Val Leu Ser  
100 105 110

Val Phe Gln Asn Val Glu Phe Pro Leu Leu Leu Gln Arg Lys Leu Asn  
115 120 125

Ala Ser Glu Arg Arg Thr Arg Val Met Thr Leu Leu Glu Gln Val Gly  
130 135 140

Leu Glu Lys His Ala Lys His Arg Pro Asn Glu Leu Ser Gly Gly Gln  
145 150 155 160

Arg Gln Arg Val Ala Val Ala Arg Ala Leu Val Thr Arg Pro Lys Leu  
165 170 175

Val Leu Ala Asp Glu Pro Thr Ala Asn Leu Asp Ser Val Thr Gly Gln  
180 185 190

Asn Ile Ile Asp Leu Met Lys Glu Leu Asn Arg Lys Glu Gly Thr Thr  
195 200 205

Phe Ile Phe Ser Thr His Asp Ala Lys Val Met Thr His Ala Asn Ala  
210 215 220

Val Val Arg Leu Ala Asp Gly Lys Ile Leu Asp Arg Ile Thr Pro Ala  
225 230 235 240

Glu Ala Gln Lys Val Met Ala Val Ser Glu Gly Gly His  
245 250

<210> 70  
<211> 397  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(397)  
<223> ORF11

<400> 70

Met Pro Gln Lys Phe Val Gly Lys Trp Lys Gly Gly Arg Val Lys Leu  
1 5 10 15

Val Asp Gly Arg Lys Val Trp Leu Leu Glu Lys Met Val Ser Gly Ala  
20 25 30

21191\_PCT SeqList\_ST25.txt

Arg Phe Ser Val Ser Leu Ala Val Ser Asn Glu Glu Asp Ala Leu Ala  
35 40 45

Glu Leu Ala Leu Phe Arg Arg Asp Arg Asp Ala Tyr Leu Ala Lys Val  
50 55 60

Lys Ala Asp Arg Ser Glu Glu Val Gln Ala Ser Thr Val Ala Gly Ala  
65 70 75 80

Val Pro Leu Ser Gly Asp Val Gly Pro Arg Leu Asp Ala Asp Ser Val  
85 90 95

Arg Glu Phe Leu Arg His Leu Thr Gln Arg Gly Arg Thr Glu Gly Tyr  
100 105 110

Arg Arg Asp Ala Arg Thr Tyr Leu Ser Gln Trp Ala Glu Val Leu Ala  
115 120 125

Gly Arg Asp Leu Ser Thr Val Ser Leu Leu Glu Leu Arg Arg Ala Leu  
130 135 140

Ser Gln Trp Pro Thr Ala Arg Lys Met Arg Ile Ile Thr Leu Lys Ser  
145 150 155 160

Phe Phe Ser Trp Leu Arg Glu Glu Asp Arg Leu Lys Ala Ala Glu Asp  
165 170 175

Pro Thr Leu Ser Leu Lys Val Pro Pro Ala Val Ala Glu Lys Gly Arg  
180 185 190

Arg Ala Lys Gly Tyr Ser Met Ala Gln Val Glu Lys Leu Tyr Ala Ala  
195 200 205

Ile Gly Ser Gln Thr Val Arg Asp Val Leu Cys Leu Arg Ala Lys Thr  
210 215 220

Gly Met His Asp Ser Glu Ile Ala Arg Leu Ala Ser Gly Lys Gly Glu  
225 230 235 240

Leu Arg Val Val Asn Asp Pro Ser Gly Ile Ala Gly Thr Ala Arg Phe  
245 250 255

Leu His Lys Asn Gly Arg Val His Ile Leu Ser Leu Asp Ala Gln Ala  
260 265 270

Leu Ala Ala Ala Gln Arg Leu Gln Val Arg Gly Arg Ala Pro Ile Arg  
275 280 285

Asn Thr Val Arg Glu Ser Ile Gly Tyr Ala Ser Ala Arg Ile Gly Gln  
290 295 300

21191\_PCT SeqList\_ST25.txt

Ser Pro Ile His Pro Ser Glu Leu Arg His Ser Phe Thr Thr Trp Ala  
305 310 315 320

Thr Asn Glu Gly Gln Val Val Arg Ala Thr Arg Gly Gly Val Pro Leu  
325 330 335

Asp Val Val Ala Ser Val Leu Gly His Gln Ser Thr Arg Ala Thr Lys  
340 345 350

Lys Phe Tyr Asp Gly Thr Glu Ile Pro Pro Met Ile Thr Val Pro Leu  
355 360 365

Lys Leu His His Pro Gln Asp Pro Ala Val Met Gln Leu Arg Arg Asn  
370 375 380

Cys Ser Pro Asp Pro Val Val Thr Arg Glu Ala Glu Ala  
385 390 395

<210> 71  
<211> 124  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(124)  
<223> ORF12

<400> 71

Val Leu Leu Ala Phe Pro Ser Gly Leu Leu Ser Leu Ala Leu Leu Ser  
1 5 10 15

Thr Thr Thr Glu Ile Ser Ala Ala Leu Pro Val Asp Glu Cys Glu Ser  
20 25 30

Ala Ser Leu Arg Ile Glu Leu Pro Ala Thr Pro Gly Gly Lys Pro Pro  
35 40 45

Val Val Cys Leu Gly Pro Gly Leu Pro Ile His Phe Arg Phe Asp Ser  
50 55 60

Ala Leu Gln Gln Lys Ser Leu Arg Ile Gln Asp Arg Gly Trp Phe Glu  
65 70 75 80

Asp Trp Ala Leu Gly Gln Gln Thr Leu Val Leu Thr Pro His Asp Asn  
85 90 95

Leu Val Ala Gly Lys Arg Ser Glu Val Glu Val Cys Phe Ala Asp Gly  
100 105 110

Ala Ala Pro Ala Cys Ala Ser Phe Val Leu Arg Arg  
Seite 139

115

<210> 72  
<211> 112  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(112)  
<223> ORF13

<400> 72

Met His Thr Lys Val Pro Ser Val Phe Glu Ala Thr Pro Glu Ser Leu  
1 5 10 15

Ser Asp Val Asp Tyr Gln Phe Trp His Glu Asp Phe Pro Arg Val Phe  
20 25 30

Glu Arg Gln His Ile Asp Ala His Ala Val Pro Ala Ile Gly Ala Tyr  
35 40 45

Leu Gly Glu Val Leu Val Arg Asn Leu Gly Gly Lys Trp Ile Pro Arg  
50 55 60

Gln Lys Leu Asp Glu Ala Gln Val Leu Val Gly Asn Arg Val Trp Leu  
65 70 75 80

Pro Phe Ala Arg Ala His His Tyr Met Arg Ser Cys Glu Ser Leu Leu  
85 90 95

Asp Tyr Ser Leu Thr Gln Leu Tyr Arg Val Ala Glu Arg Tyr Arg Gly  
100 105 110

<210> 73  
<211> 304  
<212> PRT  
<213> Cystobacter velatus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(304)  
<223> ORF 14

<400> 73

Met Lys Val Leu Gly Leu Gly Asp Val Lys Ser Glu Asp Ser Leu Arg  
1 5 10 15

Leu Thr Phe Glu Gly Ala Leu Asp Pro Gln Ala Ala Leu Glu Lys Val  
20 25 30

Leu Glu Pro Phe Phe Gln Ala Leu Glu Glu Tyr Ala Gly Asp Trp Met  
35 40 45

21191\_PCT SeqList\_ST25.txt

Pro Glu Val Val Ser Gly Arg Arg Arg Leu Lys Tyr Ser Arg Ala Asn  
50 55 60

Ile Trp Lys Ala Leu Glu Glu Arg Arg Asp Glu Arg Ser Thr Asp Thr  
65 70 75 80

Trp Leu Tyr Arg Thr Gln Arg Pro Thr Leu Glu Met Ser Leu His Leu  
85 90 95

Trp Phe Pro Pro Leu Pro Pro Ala Leu Asp Val Met Thr Thr Val Gln  
100 105 110

Pro Leu Thr Arg Phe Ala Glu Lys Glu Arg Cys Arg Gln Phe Val Glu  
115 120 125

Met Val Arg Thr Trp Ala Ser Cys Tyr Pro Val Thr His Ala Ala Ala  
130 135 140

His Ser Val Ala Asp Arg Ala Leu Ala Gly Ala Pro Asp Phe Gly Arg  
145 150 155 160

Asp Ala Arg Thr Ala Arg Arg Asp Gly Phe Asp Arg Ile Tyr Glu Ile  
165 170 175

Phe Trp Leu Asn Val Phe Gly Pro Lys Leu Val Glu Ala Val Gly Arg  
180 185 190

Glu Arg Met Leu Ser Thr Pro Ala His Arg Val Glu Glu Leu Pro Asn  
195 200 205

Gly Ser Ile Leu Leu Val Thr Trp Pro Thr Ala Ala Asp Phe Ala Gly  
210 215 220

Ala Glu Ala Arg His Ala Gln Ala Arg Ala His Val His Leu Arg Pro  
225 230 235 240

Asp Leu Arg Phe Asp Thr Val Leu Arg Thr Leu His Glu Arg Ser Ala  
245 250 255

Ala Leu Ala Pro Val Glu Pro Cys Phe His Pro Asp Val Ala Pro Leu  
260 265 270

Leu Ser His Val Val Asp Ser Val Ala Ile Arg Met Trp Lys Thr Trp  
275 280 285

Ser Ala Leu Thr Ser Ile Thr Glu Leu Trp Leu Ser Thr Ser Trp Arg  
290 295 300