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APPENDICES

APPENDIX A

Media and solutions

Media / solutions	Composition
PBS pH 7.0 for IVIAT	500 mM KH_2PO4 500 mM K_2HPO4
PBST for IVIAT	PBS containing 0.025% Tween
TAE buffer	40 mM Tris-HCl pH 8.5 5 mM NaOAc 1 mM EDTA
Electrophoresis loading buffer	50 mM EDTA pH 7.0 50% (w/v) sucose 0.05% (w/v) bromphenol blue
12.5% Acrylamide gel for Protein electrophoresis	Acrylamide 30 : 0.8 1.5 M Tris pH 8.8 50% glycerol
Acrylamide stacking gel for protein electrophoresis	Acrylamide 30 : 0.8 0.5 M Tris pH 8.8
30% acrylamide stock solution	29.2% (w/v) acrylamide 0.8% (w/v) NN′ – methylene-bis-acrylamide
Electrophoresis buffer	25 mM Tris 192 mM glycine 0.1% (w/v) SDS

Media / solutions	Composition
5X sample buffer	60 mM Tris-HCl pH 6.8
	25% (w/v) glycerol
	2% (w/v) SDS
	14.4 mM 2-mercaptoethanol
	0.1% (w/v) bromphenol blue
Coomassie blue gel stain	0.1% (w/v) coomassie blue R-250
	45% (v/v) methanol
	45% (v/v) H_2O
	10% (v/v) glacial acetic acid
Coomassie blue gel destain	10% (v/v) methanol
	10% (v/v) glacial acetic acid
	80% (v/v) H_2O
IB buffer for Inclusion Body preparation	100 mM Nacl
	1 mM EDTA
	50 mM Tris-HCl pH 8.0
Dialysis buffer for Inclusion Body preparation	50 mM Tris-HCl pH 8.0
	50 mM KCl
	5 mM Mg Cl_2
	1 mM DTT
	50% glycerol
Lysozyme for Inclusion Body preparation	1% (w/v) lysozyme in
	10 mM Tris-HCl pH 7.5

Media / solutions	Composition
PBS for IVIAT	500 mM KH_2PO4 500 mM K_2HPO4 pH 7.5
PBST for IVIAT	PBS containing 0.025% Tween
Western blot transfer buffer	48 mM Tris 39 mM glycine 0.05% SDS
TBS	20 mM Tris-HCl pH 7.5 150 mM Nacl
TBST	TBS containing 0.05% Tween
10X Assay buffer	200 mM Tris-HCl pH 9.8 10 mM $Mgcl_2$
SM	0.58% (w/v) Nacl 0.2% (w/v) $MgSO_4.7H_2O$ 50 mM Tris-HCl pH 7.5 0.01% (w/v) gelatin
LB broth	1% (w/v) Nacl 1% (w/v) tryptone 0.5% (w/v) yeast extract pH 7.0
NZY broth	0.5% (w/v) Nacl 0.2% (w/v) $MgSO_4.7H_2O$ 0.5% (w/v) yeast extract 1% (w/v) NZ amine, pH 7.5

Media / solutions	Composition
NZY agar	NZY broth containing 1% (w/v) agar
SOC	2% (w/v) tryptone
	0.5% (w/v) yeast extract
	0.05% (w/v) Nacl
	2.5 mM Kcl
	20 mM $MgCl_2$
	20 mM glucose
2YT	1.6% (w/v) tryptone
	1% (w/v) yeast extract
	0.5% (w/v) Nacl, pH 7.0
Top agar	NZY broth containing 0.7% agarose

APPENDIX B

DNA Sequence of isolated clones and genes

1. Clone Bp1 whole inserted DNA sequence (1378 bp).

1 ACGATGCTCA GATATCCCAA CGCCTTGGCG GCTCCGGCAA GCTCGAAAAT
51 TCCGTCCAGA AAGACAAATT TCTCGATCTC GAAAACATAG CCGTCGTCGC
101 GATTGATCAC CCCATCGCGA TCCAGGAACA ACGCGCGATT CTTCACTTGC
151 AGATTCCGGA AAGCTCGTCT TGAGCGCGGT AAAAGTCCTC GGGAACGCCG
201 ATATCGATAA ACTGCCCACG CGTCACGAAA ACGTCGAACC TGCGAGACTG
251 GACTGCGGAC GACATGAAAT CGGTTTCGAA CGAGAACGCC TCCGCCGTCT
301 CGCCGGCAAG AATGTCCTTC GGCAGGACAT AGCAACCTGC GTTGATCAAG
351 CCCGGTCCCG AAACGCCCTT TTCGGCAAAA CCCGTCACCC GACCGCCGTC
401 GACGACGAGG CGGCCGTATC GCCCCGTATC CGGCACCTGC CGGGCCACGA
451 TCGTCGGGAA TCCACCCGTC TGCCAACCGT CGTCCAGTTC GTCGACTTCG
501 AGATCCAGAT ACGTATCGCC GTTGAACACG AACGCGTGGT CGCCCTCGCA
551 GTACGGCAAC GTTGCCTTCA GTGCGCCTCC CGTACCCAAC GGATCGCTCT
601 CGACTGAATA CGCGAGGTCG ATTCCGGCGA AGCGATCACC GAAATGGCTC
651 ATGATTTTCT CGGCCATGAA GCCAACGGAC AGGACCACCC GAGAAAACTT
701 CTTTTCGCTC AAACGCGTCA AGAGGATTTC AAGAAATGGC CTGCCGGCAA
751 TAGGCGCCAT CGGCTTGGGA ACGTCGGAGA CGACCGTGCG CAAGCGCGTA
801 CCGAACCCTC CGGCCAAGAT GATCGCTTCT CTCATTTCAC TGCTTCCCGA
851 AAATGGAGTG CTCGACCAGC CCGCAAACGA TATGTCCGAG AACCAGGTGC
901 CCCTCCTGGA TCTTCGGGGT GTCGGCCGAC GGGACTTCGA GCAGCAAGTC
951 GCACAGCTCG CGCATTTCTC CGCCGCGATT GCCGGTGAAG CCGACGCACG
1001 TCATCCCCTT TGCCTTCGCT TCGCGAAAAG CCGCCAGTAT GTTCGGGGAC
1051 TTTCCGGAAG TCGAATAACC GATCAGCACG TCGCCCTCGT TGCCGAGCGC
1101 CTGAACCTGA CGGGAAAACA GTTTCTCGTA GCCGTAATCG TTTCCGATCG
1151 CCGTGAGAAT GGACGTGTCC GTCGTCAACG CCACTGCCGG CAGCCCGGGC
1201 CGATCGAAAG CAAACCGGCT GACGAACTCC CCTGCGATAT GCTGCGCATC
1251 AGCCGCGCTT CCTCCGTTAC CGGCGAGCAA CACCTTGCCG CCTTGAGCGA
1301 TGGATGCAAT GCAGGCATCG GCAACTTTCC GAACCGTCGC AAGCAACCGT
1351 TCGTCTGCCA GCATCGCGGC CATTACCC

2. *gmhA* gene (594 bp).

1ATGGAGAATC GCGAATTGAC GTACATCACG AACAGCATCG CCGAGGCCCA GCGGGTAATG
61 GCCGCGATGC TGGCAGACGA ACGGTTGCTT GCGACGGTTC AGAAAGTTGC CGATGCCTGC
121 ATTGCGTCCA TCGCTCAAGG CGGCAAGGTA TTGCTCGCCG GTAACGGCGG AAGCGCGGCT
181 GATGCGCAGC ATATCGCAGG GGAGTTCGTC AGCCGGTTTG CTTTCGATCG GCCCGGGCTG
241 CCGGCAGTGG CGTTGACGAC GGACACGTCC ATTCTCACGG CGATCGGAAA CGATTACGGC
301 TACGAGAAAC TGTTTTCCCG TCAGGTTCAG GCGCTCGGCA ACAAGGGCGA CGTGCTGATC
361 GGTTATTCGA CTTCCGGAAA GTCCCCGAAC ATACTGGCGG CTTTTCGCGA AGCCAAGGCA
421 AAGGGGATGA CGTGCGTCGG CTTCACCGGC AATCGCGGCG GAGAAATGCG CGAGCTGTGC
481 GACTTGCTGC TCGAAGTCCC GTCGGCCGAC ACCCCGAAGA TCCAGGAGGG GCACCTGGTT
541 CTCGGACATA TCGTTTGCGG GCTGGTCGAG CACTCCATTT TCGGGAAGCA GTGA

3. *wcbM* gene (693 bp).

1 ATGAGAGAAG CGATCATCTT GGCCGGAGGG TTCGGTACGC GCTTGCGCAC
51 GGTCGTCTCC GACGTTCCCA AGCCGATGGC GCCTATTGCC GGCAGGCCAT
101 TTCTTGAAAT CCTCTTGACG CGTTTGAGCG AAAAGAAGTT TTCTCGGGTG
151 GTCCTGTCCG TTGGCTTCAT GGCCGAGAAA ATCATGAGCC ATTTCGGTGA
201 TCGCTTCGCC GGAATCGACC TCGCGTATTC AGTCGAGAGC GATCCGTTGG
251 GTACGGGAGG CGCACTGAAG GCAACGTTGC CGTACTGCGA GGGCGACCAC
301 GCGTTCGTGT TCAACGGCGA TACGTATCTG GATCTCGAAG TCGACGAACT
351 GGACGACGGT TGGCAGACGG GTGGATTCCC GACGATCGTG GCCCGGCAGG
401 TGCCGGATAC GGGGCGATAC GGCCGCCTCG TCGTCGACGG CGGTCGGGTG
451 ACGGGTTTTG CCGAAAAGGG CGTTTCGGGA CCGGGCTTGA TCAACGCAGG
501 TTGCTATGTC CTGCCGAAGG ACATTCTTGC CGGCGAGACG GCGGAGGCGT
551 TCTCGTTCGA AACCGATTTC ATGTCGTCCG CAGTCCAGTC TCGCAGGTTC
601 GACGTTTTCG TGACGCGTGG GCAGTTTATC GATATCGGCG TTCCCGAGGA
651 CTTTTACCGC GCTCAAGACG AGCTTTCCGG AATCTGCAAG TGA

4. Clone Bp3 whole inserted DNA sequence (1738 bp).

1 CGACGGCGTG CTGTTCTACC ATTCGAGCTG CCCCGAACCC GGTATCGCCG
51 GGCTCGCGCG AGTCTCGTCG ACGCCCTACC CCGACCCCAC GCAGTTCGAT
101 TCGCGCAGTC CGTACCACGA TCCGAAGTCG ACGCGGGAAG CGCCGCGCTG
151 GGTACTCGTC GACGTGCGCT TCGTCAGGAA ATCGCCGCTC GTTCCCCTCG
201 CCGCGCTGCG CGAGCACGAG GCGCTCGCGA ACATGCGCGT GCTCGCGAAG
251 GGCAACCGGC TGTCGATCAC GCCCGTCACG CCAAACGAGT GGCGCTTCAT
301 CACGCAGCGC CTGATGAAGT GACGCGGCCC GCCACGTCAA ACATTGTCAG
351 AGCCGGCGCG GCAAGCCGCG TCGGCCGGAA CCTCCGCCCG CTTTCGGCGG
401 CCTAACGGGC GCTCGACGAA TGCCGTGCCG CGTTCGCCGG GCGTTTCGAG
451 GAAAGCGCGG CGTCCGTCCG CGCGCCGCAC GCCCTCAAGC GCGTGCGCGC
501 TTACGCTCAA GGAGTCAACA ATGACGAAAA AATCCGCTCT TGCCGTTGCC
551 GTCACGCTCG CGGCGGCGCT GCCGATCGCG CTCGCGCTCG CCCCGTCCGC
601 CGCGCGCGCG CAAAGCATGG GGCAGATGCA GCCGCCCGCG GGCGTGCTGT
651 CGCTGTCCGC GCAGGCGAGC ACCGACGTCC CGCAGGACGT CGTCGATATC
701 ACGCTGTTCT ACGAACAACA GGCGAAGGAC CCGGGCACGC TGACCGCGGA
751 GCTGAACAAG CGCGCGGATA CGGCGCTCGC GCAGGCGCGC GGGGTCACGG
801 GCGTCACGGC CCGCACGGGC GAATTCTCGG TGTCGCCGAG CGTCGATCGC
851 GACGGCAAGA TCTCCGCGTG GCGCGGCCGC ACCGAGGTCG TGCTCGAGTC
901 GCACGACTTC GCGGCCGCAT CGAAGCTCGC CGGCCAGTTG AGCCCGATGA
951 TGCAGGTGGG CAACGTGTCG TTCTCGCTGT CGCCCGAGGC GCAGCGCGCC
1001 GCCGAGCAGA AACTCACGTC GGAGGCGATC AAGGCGTTCC GCGCGCGCGC
1051 CGAGGAAGCG ACGCGCGCGT TCGGCTACAG CAACTACTCG ATCCGCGAGG
1101 TGAACGTCGG CAGCGGCCGC AACGTGCAGC CGTACCCGCG GATGTTCGCG
1151 ATGGCCGCGC CCGCGATGGA CAGTGCGAAG ATGAGCGCGC CGATCGCCGT
1201 CGAAGGCGGC AAGACGACCG TGACCGTCAA TGTGAACGGC TCGGTGCAGA
1251 TGAAGTGACA CACGTCGGCG CGGCGCGTTT GCGCCTCGCG ATCGATGCAA
1301 AACGCCGGCG ATGCGCCGGC GTTTTTTCTT GGGGGCCGTG TGCGTCGGGA
1351 TTCGCGGCCC TGTGTCGCAC GGACTCGGCC AAGCGCGGTT GCCGGCGCGT
1401 GGCCGCTCAT CGCACGGGCG ATCGCGCCAG CGCAGCGTCC TGTCGTGCCC
1451 CGTGTCCGTG TCCGTGTCCG TGTCCGTGTC CGTGTCCGTG TCCGTGCTCC
1501 GTGCTCCGTG CTCCGTGCTC CGCAGCCAGT ATGCAGGCAC ACGCGGGACA
1551 CGTTTGACCG CACGCGCCGC ACCGCCCGCT CCACCGCCCG CCGGCCGAGC
1601 AACCGTGCGC AATCGCGCCG AACGATCAGG CCTGCTTCGC GACGCCGCCG
1651 CGCCGATACG CCCAGATCAT CATCAGCACG CCGGCGACGA TCATCGGCAG
1701 CGACAGCCAC TGCCCCATCG ACAGGCCGAA CGTCAGCA

5. Conserved hypothetical protein gene (462 bp).

```
1   ATGCGCTACT GGCTGATGAA ATCCGAACCG GACGAGGCAA GCATCGACGA
51  CCTCGCCGCC GCCCCCGACC AGACCTTGCC GTGGACCGGC GTGCGCAACT
101 ATCAGGCGCG CAACTTCATG CGCGACACGA TGCAGATCGG CGACGGCGTG
151 CTGTTCTACC ATTCGAGCTG CCCCGAACCC GGTATCGCCG GGCTCGCGCG
201 AGTCTCGTCG ACGCCCTACC CCGACCCCAC GCAGTTCGAT TCGCGCAGTC
251 CGTACCACGA TCCGAAGTCG ACGCGGGAAG CGCCGCGCTG GGTACTCGTC
301 GACGTGCGCT TCGTCAGGAA ATCGCCGCTC GTTCCCCTCG CCGCGCTGCG
351 CGAGCACGAG GCGCTCGCGA ACATGCGCGT GCTCGCGAAG GGCAACCGGC
401 TGTCGATCAC GCCCGTCACG CCAAACGAGT GGCGCTTCAT CACGCAGCGC
451 CTGATGAAGT GA
```

6. Hypothetical signal peptide protein gene (738 bp).

```
1   ATGACGAAAA AATCCGCTCT TGCCGTTGCC GTCACGCTCG CGGCGGCGCT
51  GCCGATCGCG CTCGCGCTCG CCCCGTCCGC CGCGCGCGCG CAAAGCATGG
101 GGCAGATGCA GCCGCCCGCG GGCGTGCTGT CGCTGTCCGC GCAGGCGAGC
151 ACCGACGTCC CGCAGGACGT CGTCGATATC ACGCTGTTCT ACGAACAACA
201 GGCGAAGGAC CCGGGCACGC TGACCGCGGA GCTGAACAAG CGCGCGGATA
251 CGGCGCTCGC GCAGGCGCGC GGGGTCACGG GCGTCACGGC CCGCACGGGC
301 GAATTCTCGG TGTCGCCGAG CGTCGATCGC GACGGCAAGA TCTCCGCGTG
351 GCGCGGCCGC ACCGAGGTCG TGCTCGAGTC GCACGACTTC GCGGCCGCAT
401 CGAAGCTCGC CGGCCAGTTG AGCCCGATGA TGCAGGTGGG CAACGTGTCG
451 TTCTCGCTGT CGCCCGAGGC GCAGCGCGCC GCCGAGCAGA AACTCACGTC
501 GGAGGCGATC AAGGCGTTCC GCGCGCGCGC CGAGGAAGCG ACGCGCGCGT
551 TCGGCTACAG CAACTACTCG ATCCGCGAGG TGAACGTCGG CAGCGGCCGC
601 AACGTGCAGC CGTACCCGCG GATGTTCGCG ATGGCCGCGC CCGCGATGGA
651 CAGTGCGAAG ATGAGCGCGC CGATCGCCGT CGAAGGCGGC AAGACGACCG
701 TGACCGTCAA TGTGAACGGC TCGGTGCAGA TGAAGTGA
```

7. Clone Bp5 whole inserted DNA sequence (1,427 bp).

1 TTGATCCATG TATCCGTATC TTTTCGGAGC GAAGACGGGG CCGCCTTTCG
51 CGTGGGCGCC GCTCGCGCGA CGCAACGTGC GATTCTAACA TGCGCCCCAA
101 CCCGCCCCAA CGCGGGCCCC TCTATATAAG AATGGCGAAA CGCGCGCGCA
151 TGCGGCGCAC GCCCGCCGAT CGACGCGCGC ACAAAAAAAC ACAAAATGGC
201 CGATGAAAGG TTCGCGCCTC AAAAAATCTG CAATTTCCCG CCAACGGACT
251 TGACAATTTT CGAAACATGC GGCAAGCGGT GTTGCACTCG CGCCACATTC
301 GCTAGACCGA TGTTAGGGTG GGGAGGATTT TTTTTCGTGG GAAGGGAACG
351 ATATGGCAAA ATGCCAACGC ACTGAAAGTT AGACGCTGCT CGAAGTCTAC
401 ACAGAGCGGT GCCGCGTTTT TTGTGCCGCA CCAATGTTAT ACTTCGAGCA
451 ATGTATGACT TGTCATCGTC AACAGGCTCG CAGTAAACCT GCGGTAATCT
501 CAATTTCGAG AGGAGAAATA TGAATAAACT TTCAAAGCTC GCGTTCATTG
551 CAGCTACCGC AGTTATGGCT GCATCCGCTT CGGCACAGTC GGTGCCGGCG
601 TCGCGACAAG CCGTGAATGA CAACTGGGTG AATGGCACGG GCGAATGGGT
651 GTGGATGAAC GGCACGAACG AGCTCTGCTG GCGCGATGCG TTCTGGACGC
701 CGGCCACCGC CAACGCCAAG TGCGATGGCG CACTGGTCGC CCAGGCACCG
751 GCACCGGCGC CGGTCGCACC GGTTGCTCCG GCCATCACGA GCCAGAAGAT
801 TACGTACCAA GCCGATACGC TGTTCGACTT CGACAAGGCC GTCCTGAAGC
851 CGGCCGGCAA GCAGAAGCTT GACGAACTGG CCGCGAAGAT CCAGGGCATG
901 AACGTCGAAG TGGTCGTGGC CACGGGCTAC ACGGACCGCA TCGGTTCGGA
951 CAAGTACAAC GACCGTCTGT CGCTGCGCCG CGCGCAAGCC GTCAAGTCGT
1001 ACCTCGTCAG CAAGGGTGTC CCGGCGAACA AGGTCTACAC GGAAGGCAAG
1051 GGCAAGCGCA ACCCGGTCAC GGGCAACACC TGCAAGCAGA AGAACCGCAA
1101 GCAGCTCATC GCCTGCCTCG CACCGGACCG CCGCGTGGAA GTCGAAGTGG
1151 TCGGCACGCA GGAAGTGCAG AAGACGACCG TTCCGGCGCA GTAAGCCGCG
1201 AATCGATCGC ATCTGCTTCA AAAGCCCCGC TCCGGCGGGG CTTTTTCATT
1251 GATGCGGCCC GCCTCACCCG CGGCCGCGTT CCTGGCGACC TCGCCCGCGC
1301 GCTTATATAC TCGTGGCTTG GCGGGCGCGC CGCCGCCCTC TTTCCCGCAT
1351 CCGCTTGCCG ACATGACGAA CGCCGATCCG CACGAACTCC AGAAATTCAG
1401 CGACCTCGCT CACAAATGGT GGGATCC

8. *ompA* gene, clone Bp5 (675 bp).

1 ATGAATAAAC TTTCAAAGCT CGCGTTCATT GCAGCTACCG CAGTTATGGC
51 TGCATCCGCT TCGGCACAGT CGGTGCCGGC GTCGCGACAA GCCGTGAATG
101 ACAACTGGGT GAATGGCACG GGCGAATGGG TGTGGATGAA CGGCACGAAC
151 GAGCTCTGCT GGCGCGATGC GTTCTGGACG CCGGCCACCG CCAACGCCAA
201 GTGCGATGGC GCACTGGTCG CCCAGGCACC GGCACCGGCG CCGGTCGCAC
251 CGGTTGCTCC GGCCATCACG AGCCAGAAGA TTACGTACCA AGCCGATACG
301 CTGTTCGACT TCGACAAGGC CGTCCTGAAG CCGGCCGGCA AGCAGAAGCT
351 TGACGAACTG GCCGCGAAGA TCCAGGGCAT GAACGTCGAA GTGGTCGTGG
401 CCACGGGCTA CACGGACCGC ATCGGTTCGG ACAAGTACAA CGACCGTCTG
451 TCGCTGCGCC GCGCGCAAGC CGTCAAGTCG TACCTCGTCA GCAAGGGTGT
501 CCCGGCGAAC AAGGTCTACA CGGAAGGCAA GGGCAAGCGC AACCCGGTCA
551 CGGGCAACAC CTGCAAGCAG AAGAACCGCA AGCAGCTCAT CGCCTGCCTC
601 GCACCGGACC GCCGCGTGGA AGTCGAAGTG GTCGGCACGC AGGAAGTGCA
651 AGACGACC GTTCCGGCGC AGTAAGA

9. Clone Bp6 whole inserted DNA sequence (2,500 bp).

1 TCGTCTCTAA GATCGGAATT CCGATGGTTG AACGCATGGC GACATACAAG
51 GAACTGAAGG CTCGGGCCGA GGCGCTGAGC GCGCAGGCCG AAGCGGCGCG
101 GCAGGCTGAA TTGCAGGCCG CGATCGAAGA CGTGCGCGCG AAGGTGCGCG
151 AGTACGGTCT CACGGCGTAC GACGTGTTCG GACACCGAAA GAAGCCGGGC
201 GAGCGCCATC GCGGGGCGGT CAGGCCGAAG TACCGCGATC CGGCGACGGG
251 CGCGACCTGG ACCGGACGCG GCATCGAGCC GAAATGGATC CGGGGCCGCA
301 ATCGGGACGA ATTCCTGATC GAATGAAGGC GGGCGCCGCG CATCGCGCGC
351 GCCCTTGGCG AATCCGATAG AACGAAGGTG AACCACGATG AACATGCATG
401 TCGACATGGG ACGCGCGCTG ACCGTGCGCG ATTGGCCGGC GCTCGAGGCG
451 CTCGCGAAGA CGATGCCGGC CGATGCCGGC GCGCGGGCGA TGACCGACGA
501 CGATCTGCGC GCAGCGGGCG TCGATCGCCG CGTGCCGGAG CAAAAGCTCG
551 GCGCGGCGAT CGACGAATTC GCGTCGCTCC GGCTGCCCGA TCGGATCGAC
601 GGGCGCTTCG TCGATGGCCG CCGCGCGAAC CTCACGGTGT TCGACGATGC
651 ACGCGTGGCG GTGCGCGGCC ACGCGCGCGC GCAGCGCAAC CTGCTCGAGC
701 GCCTGGAAAC CGAGCTCCTG GGCGGCACGC TGGACACCGC GGGCGACGAA
751 GGCGGCATCC AGCCGGACCC GATCCTTCAG GGGCTCGTCG ACGTGATCGG
801 CCAGGGCAAA TCCGATATCG ATGCGTACGC AACGATCGTC GAGGGGCTGA

851 CGAAGTACTT CCAGAGCGTC GCCGACGTGA TGAGCAAGCT GCAGGACTAC
901 ATCTCGGCCA AAGACGACAA GAACATGAAG ATCGACGGCG GCAAGATCAA
951 GGCGTTGATC CAGCAGGTCA TCGACCATCT GCCGACGATG CAGTTGCCGA
1001 AGGGGGCCGA CATCGCGCGC TGGCGCAAGG AGCTCGGCGA TGCCGTCTCG
1051 ATCAGCGATT CGGGCGTCGT GACGATCAAT CCGGACAAGC TGATCAAGAT
1101 GCGCGATTCG CTGCCCCCTG ACGGCACGGT GTGGGACACC GCGCGCTACC
1151 AGGCCTGGAA CACCGCGTTC TCCGGCCAGA AGGACAACAT CCAGAACGAC
1201 GTGCAGACGC TCGTCGAAAA ATACTCGCAC CAGAACTCGA ACTTCGACAA
1251 TCTGGTCAAG GTGCTGAGCG GCGCGATCTC GACGCTCACG GACACCGCCA
1301 AGAGCTATCT GCAGATCTGA ACGAGGGGCC GCGCCCACGC CGCCGCGCAT
1351 CGCCGCGGCG ATGCGCGCGG GCGCGGCCCT TGCCCCGATC CGAAGCAACC
1401 GACAAGAGGA AAAGATTCGC CATGCCGCCG TCCATTCACC GAACTTCGTC
1451 CATCAACAGC ACGCCGGCCG TGACCGCGGC CGGCGCACGG CGCGCGTCCG
1501 GGCCCGGCGG TGTTCTGTCG GCCGACGTCG CGCGCGTGGC GAGCGCGCGC
1551 CGGCACACGA TGCCGGAAAT CGGCGCGCGG CGCGGCGTCG ACGGCGATCG
1601 CGCCGCGCCC GCGCCGCGCG AATCGTTCCG GCGGCGGCTC GAGACCGTAT
1651 CGTCGCGCGC GCCGACGCCG CCGCCCGAGG CGGACTCGCG CGCCGCGAAT
1701 GCGCGCACGA CGGGCGCCGC GGATGGGGCG GGGGCGACGG GCGCGGCGGC
1751 CGGCCCATCG CACGGCGCGA CGTCGCTCGA TGCGGCGCGC GCGTATCTGG
1801 CCGAACTCGC CGGCGACCGT GGCGGCGCGC TGACGACGCT CGTCGCGCAA
1851 CTGAACGGCC ATGATCGCCG CGCGCTCGAC CATCTCGCGC TGACGGTGCA
1901 TGCGCTGCAC CTGAGCGTCG ACGACGCGAG CCACGCGAAG ACGTTCGCCG
1951 GCATCGGCGA CGCGCTCGCG TCGTTTCTCG CGGCCGCCGC GCGCGCGAAC
2001 GCGAAACCCG GCTCGACGCC GCGCGATCTG TGCGTCGAGG GCAACAAGGG
2051 TTACCGCAAG CTTTGCGAGT GCGTCGGCGC GTTGCTGAGG TCCGACGGCA
2101 TCGCGAACGC GCTGTTCGGC CGCGCGCGCG AGCGCGGCGA CGCGGCGGCG
2151 GACACGCTCG TGTCCGAGCG TCTCGGCGGC CGGATGGACG GGCACGTGCG
2201 CACGAACGGG ATGGTGAACC GGCACGGCGG CGACGCGCAG CGCCGGATGG
2251 CGGACGCCGC GCAGCGCTTC GCGCTCGGCG CGCGCCACGC GACGAATCTC
2301 GTCGACATGG TCGGCACCGC GCTGGAGCTG CTCGGGCGCA CCGATCAGTT
2351 GCTCAACGAC GTCTCGCTGA AGCGGCCGGC CGCCGAGCCG GGCGGCCCGC
2401 GCGCGCCGGG CGGCGGCCGC GCCGCGCCCG CCGGGCCCGC GTCGGGCGCG
2451 GCGCAGCAGC CGGCCGCGCC GGTCGTCGTC AACAATCATA ACGAGAACAA
2501 CGTGAACGTG AATCTCGACG GGCTGGAGAG GCTCGTCGGC GATCTCGGCA
2551 AGATGATGGG CGCGCTGCTC GAGCGCATGG

10. *bpH3* gene (291 bp), clone Bp6.

1 ATGGCGACAT ACAAGGAACT GAAGGCTCGG GCCGAGGCGC TGAGCGCGCA

51 GGCCGAAGCG GCGCGGCAGG CTGAATTGCA GGCCGCGATC GAAGACGTGC

101 GCGCGAAGGT GCGCGAGTAC GGTCTCACGG CGTACGACGT GTTCGGACAC

151 CGAAAGAAGC CGGGCGAGCG CCATCGCGGG GCGGTCAGGC CGAAGTACCG

201 CGATCCGGCG ACGGGCGCGA CCTGGACCGG ACGCGGCATC GAGCCGAAAT

251 GGATCCGGGG CCGCAATCGG GACGAATTCC TGATCGAATG A

11. *bipD* gene(933 bp), clone Bp6.

1 ATGAACATGC ATGTCGACAT GGGACGCGCG CTGACCGTGC GCGATTGGCC

51 GGCGCTCGAG GCGCTCGCGA AGACGATGCC GGCCGATGCC GGCGCGCG*GG*

101 CGATGACCGA CGACGATCTG CGCGCAGCGG GCGTCGATCG CCGCGTGCCG

151 GAGCAAAAGC TCGGCGCGGC GATCGACGAA TTCGCGTCGC TCCGGCTGCC

201 CGATCGGATC GACGGGCGCT TCGTCGATGG CCGCCGCGCG AACCTCACGG

251 TGTTCGACGA TGCACGCGTG GCGGTGCGCG GCCACGCGCG CGCGCAGCGC

301 AACCTGCTCG AGCGCCTGGA AACCGAGCTC CTGGGCGGCA CGCTGGACAC

351 CGCGGGCGAC GAAGGCGGCA TCCAGCCGGA CCCGATCCTT CAGGGGCTCG

401 TCGACGTGAT CGGCCAGGGC AAATCCGATA TCGATGCGTA CGCAACGATC

451 GTCGAGGGGC TGACGAAGTA CTTCCAGAGC GTCGCCGACG TGATGAGCAA

501 GCTGCAGGAC TACATCTCGG CCAAAGACGA CAAGAACATG AAGATCGACG

551 GCGGCAAGAT CAAGGCGTTG ATCCAGCAGG TCATCGACCA TCTGCCGACG

601 ATGCAGTTGC CGAAGGGGGC CGACATCGCG CGCTGGCGCA AGGAGCTCGG

651 CGATGCCGTC TCGATCAGCG ATTCGGGCGT CGTGACGATC AATCCGGACA

701 AGCTGATCAA GATGCGCGAT TCGCTGCCCC CTGACGGCAC GGTGTGGGAC

751 ACCGCGCGCT ACCAGGCCTG GAACACCGCG TTCTCCGGCC AGAAGGACAA

801 CATCCAGAAC GACGTGCAGA CGCTCGTCGA AAAATACTCG CACCAGAACT

851 CGAACTTCGA CAATCTGGTC AAGGTGCTGA GCGGCGCGAT CTCGACGCTC

901 ACGGACACCG CCAAGAGCTA TCTGCAGATC TGA

12. Clone Bp7 whole inserted DNA sequence (2,301 bp).

1 GGATCGTCGG CAGCACCTGC TTGCCGGCGA TCGTGTCGCG GCAGGCCGCC
51 ATGAAGCCGA CCGCGATTCC GGGAATGAGC AGCAGCGGCA GCGCCGCGCC
101 GATCACGGGC ACGAGCGACA CCAGCATCAT CGCGAGCAGG TACGTGAAGA
151 ACAGTGTGAC GAATGCGAGC GGATTGCGCC GGAACAGCCA GATGCCTTGG
201 CGGAACCACA CGTAGCCGGT CTTGGCGGAG ACTTCGATCA GTTGCATGCG
251 TGGGTCTCGG GGAGCGCGCC CGCGTGCGCG ATGCGTTCGC GCAGGATGCG
301 TTCGAAATGG CCCGGGTCGT GCGGCTTGAG CATCTGCGCG GCGCGGGGAA
351 GGTGGAAATC ATACAGGCGC GATACCCAGA AGCGGTACGC GCCCGCGCGC
401 AGCATGTCGC CCCAGTGGCG GCGCTCGCCC GCGGTGAACG GGCGCACCGT
451 CTGGTACGCG CGCAGCAGCG CGTCGGCGCG CGCGGCGTCG AGCGCGCCCG
501 TCGGCAGATC GACGCACCAG TCGTTGACCG TCACCGCGAC GTCGAACAGC
551 CATTTGTCGC AGCCGGCGAA GTAGAAATCG AAGAAGCCGC CGAGCCGCAC
601 CGAATGGCCG GTGTCGGGCT CCGCGTGCGC GAAGAGCGCA TTGTCGCGAA
651 ACAGGTCGCA ATGGCACGGG CCTTCCGGCA GCGCCGCGTA ATCGTCCGAT
701 GCGAAGAACG CGGCCTGGTG CGCGAGCTCG CCTTCCAGCA GCGCGCGCTG
751 CTCGCCCGTG ACGAACGGCG CGATCGCGGG CACCGTGTCG CGCCACCACG
801 GCAGGCTGCG CAAGTTGGGC TGATGCCGCG GATAGTCGCG GCCCGCGAGG
851 TGCATGCGCG CGAGCATCTG CCCGACTTCG ACGCAGTGCT CGACGCCCGG
901 CGCGAGCTGC GCCGCGCCCT CGAGCTTGGT GACGATCGCG GCCGGCTTGC
951 CGTGCAACTC GCCGAACAGC GTGCCGTCGT CGCGCGCGAC GGGCGCGGGC
1001 ACGGGCACCC CGTGCTTCGC GAGATGGCTC ATCAGATCGA CGTAGAACGG
1051 CAATTGCCCG GCCGTCAGGT TCTCGAAGAT CGTGAGCACG TATTCGCCGC
1101 GCGTCGTCGT CAGGAAGAAG TTGCTGTTCT CGATGCCGGA CGGAATGCCG
1151 CGGAACGCGA CAACGTCGCC GAGATCGTAG TGGCGCATCC AGAGTGCGAG
1201 GTCAGCGTCG GAAACTGCGG TGAAAACGGC CATGCAGGAA ACGTCGGTTC
1251 GGGTTGGCGC GCCGGCGGCG TGCCGGTGTC GCAAAAGGGC GGAAGGGGGC
1301 CGGCGCCGCG CGGCGCCGGC GGTGCGTCAA TAGTGCAGGT TGACCGACGG
1351 CAGGCGCGTG ACAGGCACGC CGGCGTCGTG CGGGCGCGGC GACGTATCGG
1401 GCGACGCGCT CATCTGATAG CGGGTGCCGA AGTTCGATTT CACGTTGATC
1451 TCGACCGGCT TGCCGCGATC CCGGAATTCG GTGACTTCGG TGCCGTTCTT
1501 GCTTTTTTCG TGAAAGCTCG GCGTGCGCCG CACGTCGTTG AAATCGACCT
1551 TCGAAGTCAC TTCGGCGCCG GGCGGTTGA TCTTCGTGAG ATCGGGCAGC
1601 CCGGCCGCCT CGTTGGCCGC GGCCTGGGCC TTTGCGTCGG CGGCCGCTTG
1651 TGCGGCGTCG GCGGCGCGGG CGGGGCCGAC GAGGGCGAGT GCCGTCAGGG

1701 CGGCGGCGAA AAGGAGCGGC TTCATCGTGT TTCTCCCATT GAACCGTTCG
1751 ATTTTAGCAA ATACCGGCGT CGTGCCGATG CCGTTCGACG ATGCGCGAGC
1801 GGCCTTGCCG CCGCGATGGG CATCGGCTGC GCGAGCGGGT TCCGTGATAA
1851 TGTCGAAACG ATCTGAAGAG GCACTGCTAG ATGAAGAACG ATCCCAACCG
1901 CCGTTCCCGG ACGCGCACGC CGGGTAGCCC GTGCGTCGAA GCGTTCGACG
1951 ACCCGATCGC CGCCGTCGCG CGGCTCTCCG AGATCTACGA GACGAACACC
2001 GCGTTCCTGC GCGACGCGTT CGCGCGCTAT CGCGGCAACG AAGCGTTCGA
2051 CGAGCACGTG CGCGCGTGCT ATCCGTTCGT GCGCATCCGC ACCGACGTCA
2101 ACACGCACAT CGATTCGCGC CGCTCGTACG GCTTCGTCGC CGGCCCGGGC
2151 GTGTTCGAGA CGACCGTCAC GCGCCCGGAC CTGTTCGCGA ACTACTACCG
2201 CGAGCAATTG CGCCTGCTCG CGAAGAACCA TCACGTTCGG ATCGAAGTCG
2251 GCGTATCGGC GCAGCCGATC CCGGTTCACT TCGCGTTCTC CGAAGGCATT
2301 C

13. Transmembrane protein gene (813 bp), clone Bp7.

1 ATGCAACTGA TCGAAGTCTC CGCCAAGACC GGCTACGTGT GGTTCCGCCA
51 AGGCATCTGG CTGTTCCGGC GCAATCCGCT CGCATTCGTC ACACTGTTCT
101 TCACGTACCT GCTCGCGATG ATGCTGGTGT CGCTCGTGCC CGTGATCGGC
151 GCGGCGCTGC CGCTGCTGCT CATTCCCGGA ATCGCGGTCG GCTTCATGGC
201 GGCCTGCCGC GACACGATCG CCGGCAAGCA GGTGCTGCCG ACGATCCTGA
251 TCGACGGCTT CCGCTCGTAC GGCCCGACCG TCACGCAGCG GCTGCTCGCG
301 CTCGGCGGGC TCTACATCGT TTCGATGGCG GCCGTGTTCG CGTGCTCGGC
351 GCTCGGCGAC GGCGGCACGC TGCTGAAGAT CATGTTCGGT CTCGGCGCCG
401 AGAACCTCGG GCCGGAGGCG CTCGATTCGC CGGGCGTCAG GATCGCGGTA
451 CTGATCGCGG CCGCGCTGTA CGCGCCGGTC GCGATGATGT TCTGGTTCGC
501 GCCGGTGCTG ACCGCGTGGC ACGACGTGCC GCCCGTGAAA GCGCTGTTCT
551 TCAGCGTCGT GAGCTGCTGG CGCAACAAGG GCGCGTTCAC CGTCTATGGA
601 CTGCTGTGGT TCGCGCTAGC GCTCGGCGTG TCGTTCGGGC TCGCCGCGCT
651 GATGCAGGCG CTCGGCGCCA GCGCCTACGC GCTCACGGTG ATGATGCCGG
701 CCTCGATCGT CATCACCGCG ATGCTCTACT GCTCCTTCTA TGCAACCTAT
751 CGCGGCTGCT TCGGCGTGCA GGAGCCGGGG GCGCAGAATC CGCCGAACGC
801 ATCCGGCCGT TGA

14. Homoserine kinase protein gene (996 bp), clone Bp 7.

1 ATGGCTGTTT TCACCCCGGT CACCAACGCC GAGATCGCCC TCTGGCTGGA GCAATACGAC
61 GTGGGCACGG TCCGCGCGCT GCGCGGCATT CCCTCGGGGA TCGAAAACAC CAACTTCTTC
121 CTGACCACGG AGAAGGACGG CGCCACGCAC GAGTACGTCG TCACGCTGTT CGAGCGGCTG
181 ACCAGCGAGC AACTGCCGTT CTACCTGTAC CTGATGCAGC ATCTGGCGCA GCACGGCATC
241 TGCGTGCCGG CGCCGATTCC CGGCCGCGAC GGCGCGATCC TGCGCCCGCT CAAGGGCAAG
301 CCGGCGACCA TCGTGACGCG CCTGCCCGGA CGCTCGAACC TGGCGCCCAC GACGAGCGAA
361 TGCGCCATCG TCGGCGACAT GCTGGCGCGC ATGCACCTGG CCGGCCGCGA CTACCCGCGG
421 CACCAGCCCA ACCTGCGCAG CCTGCCGTGG TGGAACGAAG TGGTGCCCGA CATCCAGCCC
481 TTCGTGCAGG GCGCCACGCG CGAGCTGCTG GTCGCCGAGC TGGCCCACCA GCAGCGCTTC
541 TTCGGCAGCG CCGACTATGC CGCCCTGCCC GAGGGCCCGT GCCACTGCGA CCTGTTCCGC
601 GACAACGTGC TGTTCGAGCC GGCCACTGAC AGCCAGCCCG AGCGCCTGGG CGGGTTCTTC
661 GATTTCTATT TCGCCGGCGT CGACAAATGG CTGTTCGACG TGGCCGTGAC CGTCAACGAC
721 TGGTGCGTCG ACCTCGCCAC GGGTGCGCTC GATGCCGAAC GGATGCGCGC CATGCTGCGC
781 GCCTATCACG CGGTGCGGCC TTTCACCGAC GCGGAGGCCC GTCACTGGCG GGACATGCTG
841 CGCGCCGCGG CCTATCGCTT CTGGGTATCG CGCCTGTGGG ACTTCCACCT GCCGCGCGAC
901 GCCGAACTGC TGCAGCCGCA TGATCCGACC CACTTCGAGC GCGTGCTGCG CGAACGGGTG
961 CGCGCCGAGG GGCTGACATT GGATATTCCC GAACCATGCA ACTGA

15. Transmembrane protein gene 2 (399 bp), clone Bp7.

1 ATGAAGCCGC TCCTTTTCGC CGCCGCCCTG ACGGCACTCG CCCTCGTCGG
51 CCCCGCCCGC GCCGCCGACG CCGCACAAGC GGCCGCCGAC GCAAAGGCCC
101 AGGCCGCGGC CAACGAGGCG GCCGGGCTGC CCGATCTCAC GAAGATCAAC
151 CGCCCCGGCG CCGAAGTGAC TTCGAAGGTC GATTTCAACG ACGTGCGGCG
201 CACGCCGAGC TTTCACGAAA AAAGCAAGAA CGGCACCGAA GTCACCGAAT
251 TCCGGGATCG CGGCAAGCCG GTCGAGATCA ACGTGAAATC GAACTTCGGC
301 ACCCGCTATC AGATGAGCGC GTCGCCCGAT ACGTCGCCGC GCCCGCACGA
351 CGCCGGCGTG CCTGTCACGC GCCTGCCGTC GGTCAACCTG CACTATTGA

16. Clone Bp9 whole inserted DNA sequence (1300 bp).

1 AGCGCAGCTT CGGCGGCCCG ACGGTCACGA AGGACGGTGT GTCGGTCGCG
51 AAGGAAATCG AGCTGAAGGA CAAGCTCCAG AACATGGGCG CGCAGATGGT
101 CAAGGAAGTC GCTTCCAAGA CCAGCGACAA CGCCGGCGAC GGCACGACGA
151 CGGCCACCGT CCTCGCGCAA TCGATCGTCC GCGAAGGCAT GAAGTACGTC
201 GCATCGGGCA TGAACCCGAT GGACCTGAAG CGCGGCATCG ACAAGGCAGT
251 CGCCGCGGCA GTCGAAGAGC TGAAGAAGAT CAGCAAGCCG TGCACGACGA
301 ACAAGGAAAT CGCGCAAGTC GGCGCGATCT CGGCGAACAG CGATTCGTCG
351 ATCGGCGATC GCATCGCTGA AGCGATGGAC AAGGTCGGCA AGGAAGGCGT
401 GATCACCGTC GAAGACGGCA AGTCGCTCGC CGACGAGCTC GACGTCGTCG
451 AAGGCATGCA GTTCGACCGC GGCTACCTGT CGCCGTACTT CATCAACAAC
501 CCGGACAAGC AAGTCGCCGT CCTCGAGAAC CCGTTCGTGC TGCTGCACGA
551 CAAGAAGGTG TCGAACATCC GCGACCTGTT GCCGGTGCTC GAGCAAGTCG
601 CGAAGGCTGG CCGTCCGCTG CTGATCATCG CCGAAGACGT CGAAGGCGAA
651 GCGCTCGCAA CGCTGGTCGT CAACAACATC CGCGGCATCC TGAAGACCGT
701 TGCGGTCAAG GCGCCGGGCT TCGGCGATCG TCGCAAGGCG ATGCTGGAAG
751 ACATCGCGAT CCTGACGGGC GGCCAGGTCA TCGCGGAAGA AACCGGCCTC
801 ACGCTCGAGA AGGCAACGCT GGCAGAACTG GGCCAGGCGA AGCGCATCGA
851 AGTGGGCAAG GAAAACACGA CGATCATCGA CGGCGCGGGC GAAGCCGTGA
901 ACATCGAAGC GCGCGTCAAG CAAATCCGCA CGCAAATCGA AGAAGCGACA
951 TCGGACTACG ACCGTGAAAA GCTGCAAGAG CGCGTGGCCA AGCTGGCAGG
1001 CGGCGTGGCG GTGATCAAGG TTGGCGCTGC GACCGAAGTC GAAATGAAGG
1051 AAAAGAAGGC ACGTGTCGAG GACGCGCTGC ACGCCACCCG CGCTGCCGTT
1101 GAAGAAGGCA TCGTCCCGGG CGGCGGCGTC GCGCTGATCC GCGCACGCAC
1151 CGCGATCGCG GGCCTGACCG GCGTGAACGC CGACCAGAAC GCCGGCATCA
1201 AGATCGTGCT GCGCGCGATG GAAGAGCCGC TGCGCCAGAT CGTCACGAAC
1251 GGCGGCGAAG AAGCGAGCGT CGTGGTGGCG GCAGTTGCTG CGGGCAAGGG

17. *groEL* gene(1596 bp), clone Bp9.

1 ATGGTCGAAG GCGTGAACAT TCTCGCCAAC GCTGTGAAGG TCACGCTGGG
51 TCCGAAGGGC CGCAACGTGG TGCTCGAGCG CAGCTTCGGC GGCCCGACGG
101 TCACGAAGGA CGGTGTGTCG GTCGCGAAGG AAATCGAGCT GAAGGACAAG
151 CTCCAGAACA TGGGCGCGCA GATGGTCAAG GAAGTCGCTT CCAAGACCAG
201 CGACAACGCC GGCGACGGCA CGACGACGGC CACCGTCCTC GCGCAATCGA
251 TCGTCCGCGA AGGCATGAAG TACGTCGCAT CGGGCATGAA CCCGATGGAC
301 CTGAAGCGCG GCATCGACAA GGCAGTCGCC GCGGCAGTCG AAGAGCTGAA
351 GAAGATCAGC AAGCCGTGCA CGACGAACAA GGAAATCGCG CAAGTCGGCG
401 CGATCTCGGC GAACAGCGAT TCGTCGATCG GCGATCGCAT CGCTGAAGCG
451 ATGGACAAGG TCGGCAAGGA AGGCGTGATC ACCGTCGAAG ACGGCAAGTC
501 GCTCGCCGAC GAGCTCGACG TCGTCGAAGG CATGCAGTTC GACCGCGGCT
551 ACCTGTCGCC GTACTTCATC AACAACCCGG ACAAGCAAGT CGCCGTCCTC
601 GAGAACCCGT TCGTGCTGCT GCACGACAAG AAGGTGTCGA ACATCCGCGA
651 CCTGTTGCCG GTGCTCGAGC AAGTCGCGAA GGCTGGCCGT CCGCTGCTGA
701 TCATCGCCGA AGACGTCGAA GGCGAAGCGC TCGCAACGCT GGTCGTCAAC
751 AACATCCGCG GCATCCTGAA GACCGTTGCG GTCAAGGCGC CGGGCTTCGG
801 CGATCGTCGC AAGGCGATGC TGGAAGACAT CGCGATCCTG ACGGGCGGCC
851 AGGTCATCGC GGAAGAAACC GGCCTCACGC TCGAGAAGGC AACGCTGGCA
901 GAACTGGGCC AGGCGAAGCG CATCGAAGTG GGCAAGGAAA ACACGACGAT
951 CATCGACGGC GCGGGCGAAG CCGTGAACAT CGAAGCGCGC GTCAAGCAAA
1001 TCCGCACGCA AATCGAAGAA GCGACATCGG ACTACGACCG TGAAAAGCTG
1051 CAAGAGCGCG TGGCCAAGCT GGCAGGCGGC GTGGCGGTGA TCAAGGTTGG
1101 CGCTGCGACC GAAGTCGAAA TGAAGGAAAA GAAGGCACGT GTCGAGGACG
1151 CGCTGCACGC CACCCGCGCT GCCGTTGAAG AAGGCATCGT CCCGGGCGGC
1201 GGCGTCGCGC TGATCCGCGC ACGCACCGCG ATCGCGGGCC TGACCGGCGT
1251 GAACGCCGAC CAGAACGCCG GCATCAAGAT CGTGCTGCGC GCGATGGAAG
1301 AGCCGCTGCG CCAGATCGTC ACGAACGGCG GCGAAGAAGC GAGCGTCGTG
1351 GTGGCGGCAG TTGCTGCGGG CAAGGGCAAC TACGGCTACA ACGCGGCGAC
1401 GGGCGAGTAC GTCGACATGG TCGAAGCCGG CGTCGTCGAT CCGACGAAGG
1451 TCACCCGTAC CGCGCTGCAG AACGCGGCTT CGGTCGCCGG CCTGCTGCTG
1501 ACGACGGACG CAGCCGTTGC CGAACTGCCG AAGGAAGACG CTCCGATGCC
1551 GGGCGGCATG CCGGGCGGCA TGGGCGGCAT GGGCATGGAC ATGTAA

BIOGRAPHY

Mr.Siroj Jitsurong was born on September 21, 1957 in Lumpang, Thailand. He received his Bachelor degree of Science (Med Tech) in 1980, Chiangmai University and Master's degree of Tropical Medicine in 1985 from Faculty of Tropical Medicine, Mahidol University. His current position is Assistant Professor, Department of Pathology, Faculty of medicine, Prince of Songkhla university. He has enrolled the Royal Golden Jubilee Scholar (RGJ) in graduate program for the Degree of Doctor of Philosophy in Medical Microbiology, Inter-departmental program in Medical Microbiology, Chulalongkorn University since 1998.