

# Supporting Information

for

## Marine-derived myxobacteria of the suborder Nannocystineae: An underexplored source of structurally intriguing and biologically active metabolites

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### List of 16S rDNA sequences used for Figure 5

#### >*Nannocystis pusilla* Na p29

1 tgagtttgat cctggctcag gacgaacgtt tgcggcgggc ctaacacatg caagtcgaac  
61 gggctagcaa tagtcagtgg cgcacgggtg cgtaaacacgt aggtaatcaa cccttggtt  
121 cgggataacg ttctgaaaag gacgcctaat accggacgcg tcttcgggag ctfcggctcc  
181 tgctgagaaa gaccgcaag ggttgccgag ggacgagcct gcggccatc agctagtgg  
241 cgaghtaata gctaccaag gcaagacgg gtagctggtc tgagaggatg atcagtcaca  
301 ctggaactga gacacgttcc agactcctac gggaggcagc agtggggaat attgcgcaat  
361 gggcgaaagc ctgacgcagc cacgccgcgt gagcgatgaa ggccttcggg tcgtaaagct  
421 ctgtggggag agacgaagaa agcctgtgaa gagcaggcct tgacggatc tccttagcaa  
481 gcaccggcta actcctgcc agcagccgcg gtaatacggg gggcgcaac gttgctcgga

541 atcattgggc gtaaagcgca cgtaggcggc ggcgtaagcg ggatgtgaaa gcccagggt  
601 caaccctgga agtgcacccc gaactgtgtc gcttgaatct cggaggggga cagagaattc  
661 ccggtgtaga ggtgaaattc gtagatatcg ggaggaatac cagtggcgaa ggcgctgtcc  
721 tggacgaaga ttgacgctga ggtgcgaaag cgtgggggagc aaacaggatt agatacctg  
781 ggtagtccac gctgtaaagc atgagtgtg gacggtggag gatttgacc cttcgtgtc  
841 gaagctaagc cgtaagcac tccgcctggg gagtacggc gcaagactaa aactcaaagg  
901 aattgacggg ggccccaca agcgggtggag catgtggttt aattcgacgc aacgcgcaga  
961 acctacctg ggttaaatec actggaacct ggctgaaagg ctgggggtcc cttcggggag  
1021 ccggtgagaa ggtgctgcat ggctgtgtc agctcgtgtc gtgagatgtt gggtaagtc  
1081 ccgcaacgag cgcaaccct atcgccagtt gccaccattg agttgggaac tctggcgaga  
1141 ctgccggtet aaaccggagg aaggtgggga cgacgtcaag tectcatggc cttatgcc  
1201 agggctacac acgtgtaca atggctggta caaagagccg caagcccgcg agggtagca  
1261 aatctcaaaa aaccagtctc agttcggatt gcagtctgca actcgactgc atgaagctgg  
1321 aatcgctagt aatcggagat cagcacgtc cggtaatac gttcccgggc cttgtacaca  
1381 ccgcccgtca caccatggga gtcggctgtc ccagaagtag gaacctaac cgcaaggtaa  
1441 ggcctacca aggagcggc ggtgactggg gtgaagtcgt aacaaggtag ccgtagggga  
1501 acctcggct ggtcacctc cttta

**>*Nannocystis exedens* Na e571**

1 tttgatcctg gctcagagcg aacgtttgcg gcgggcctaa cacatgcaag tcgaacgggc  
61 tagcaatagt cagtggcgca cgggtgcgta acacgtaggt aatcaacccc ttggtcggg  
121 ataacgttct gaaaggagcg ctaataccgg acgcgtcttc gggagcttcg gctcttctg  
181 agaaagacc gcaaggggtg ccgagggagc agcctgcggc ccatcagcta gttggcgagg  
241 taatagetca ccaaggcgaa gacgggtagc tggctgaga ggatgatcag tcacactgga  
301 actgagacac ggtccagact cctacgggag gcagcagtgg ggaatattgc gcaatgggcg  
361 aaagcctgac gcagccacgc cgcgtgagcg atgaaggcct tcgggtcgta aagctctgtg  
421 gggagagacg aagaaagcct gtgaagagca ggccttgacg gtatctcctt agcaagcacc  
481 ggtaactcc gtccagcag ccgcggtaat acggaggggtg cgaacgttgc tcggaatcat  
541 tgggcgtaaa gcgcacgtag gcggcggcgt aagcgggatg taaagccca gggctcaacc  
601 ctggaagtgc atcccgaact gtgtcgttg aatctcggag ggggacagag aattcccgt  
661 gtagaggtga aattcgtaga tatcgggagg aataccagtg gcgaaggcgc tgcctggac  
721 gaagattgac gctgaggtgc gaaagcgtgg ggagcaaca ggattagata ccctgtagt

781 ccacgctgta aacgatgagt gctggacggt ggaggattg accccttcgc tgcgaagct  
841 aacgcgtaa gcaactccgc tggggagtac ggctgcaaga ctaaaactca aaggaattga  
901 cgggggcccc cacaagcggg ggagcatgtg gtttaattc acgcaacgcg cagaacctta  
961 cctgggtaa atccactgga acctggctga aaggctgggg tgcccttcgg ggagccggtg  
1021 agaaggtgct gcatggctgt cgtcagctcg tgcgtgaga tgttgggta agtcccgcaa  
1081 cgagcgcaac ccctatgcc agttgccacc attgagttgg gaactctggc gagactccc  
1141 gtctaaacc ggaggaaggt ggggacgac tcaagtctc atggccctta tgcccagggc  
1201 tacacacgtg ctacaatggc tggtaaaaag agccgcaagc ccgcgagggt gagcaaatc  
1261 caaaaaacca gtctcagttc ggattgcagt ctgcaactcg actgcatgaa gctggaatc  
1321 ctagtaatc gagatcagca cgctccggtg aatacgttc cgggccttgc acacaccgc  
1381 cgtcacacca tgggagtcgg ctgctccaga agtaggaacc tcaaccgcaa ggaaaggccc  
1441 taccaaggag cggcgggta ctgggggtaa gtcgtaaaa ggttgccgta ggggaacctg  
1501 cggctggatc acctc

>*Nannocystis pusilla* 14622T

1 gtttgatcct ggctcagagc gaacgtttgc ggcgggccta acacatgcaa gtcgaacggg  
61 ctacgaatag tcagtggcgc acgggtgctg aacacgtagg taatcaacc ctggttcgg  
121 gataacgttc taaaaggagc gctaataccg gacgcgtctt cgggagcttc ggctcctgc  
181 gagaaagacc cgcaaggggt gccgagggac gagcctgcgg cccatcagct agttggcgag  
241 gtaatagctc accaaggcga agacgggtag ctggtctgag aggatgatca gtcacactgg  
301 aactgagaca cggctccagc tcctacggga ggcagcagtg gggaatattg cgcaatgggc  
361 gaaagcctga cgcagccacg ccgcgtgagc gatgaaggcc ttcgggtcgt aaagctctgt  
421 ggggagagac gaagaaagcc tgtgaagagc aggccttgac ggtatctct tagcaagc  
481 cggctaactc cgtgccagca gccgcggtaa tacggagggt gcgaacgttg ctcggaatca  
541 ttgggcgtaa agcgcacgta ggcggcggcg taagcgggat gtgaaagccc agggctcaac  
601 cctggaagtg catcccgaac tgtgtcgctt gaatctcgga gggggacaga gaattcccgg  
661 ttagaggtg aaattcgtag atatcgggag gaataccagt ggcgaaggcg ctgtcctgga  
721 cgaagattga cgctgaggtg cgaagcgtg gggagcaaac aggattagat acctggtg  
781 tccacgctgt aaacgatgag tctggacgg tggaggattt gacccttcg ctgtcgaagc  
841 taacgcgta agcactccgc ctggggagta cggctgcaag actaaaactc aaaggaattg  
901 acgggggccc gcacaagcgg tggagcatgt gtttaattc gacgcaacgc gcagaacctt  
961 acctgggta aatccactgg aacctggctg aaaggctggg tgcccttcg gggagccggt

1021 gagaaggtgc tgcattggctg tcgtcagctc gtgtcgtgag atgttgggtt aagtcccgca  
1081 acgagcgcaa ccctatcgc cagttgccac cattgagttg ggaactctgg cgagactgcc  
1141 ggtctaaacc ggaggaaggt ggggacgacg tcaagtcctc atggccetta tgcccagggc  
1201 tacacacgtg ctacaatggc tggtaaaaag agccgcaagc ccgcgagggg gagcaaatct  
1261 caaaaaacca gtctcagttc ggattgcagt ctgcaactcg actgcatgaa gctggaatcg  
1321 ctagtaatcg gagatcagca cgctccgggtg aatacgttcc ggggccttgt acacaccgcc  
1381 cgtcacacca tgggagtcgg ctgtccaga agtaggaacc tcaaccgcaa ggaaaggccc  
1441 taccaaggag cggtcgggtga ctgggggtgaa gtcgtaaaa ggtagccgta ggggaacctg  
1501 cggctggatc acctcctt

**>*Nannocystis aggregans* Na a1**

1 tttgatcctg gtcagagcg aacgtttgcg gcgggcctaa cacatgcaag tcgaacgggc  
61 tagcaatagt cagtggcgca cgggtgcgta acacgtaggt aatcaacccc tcggttcggg  
121 ataacgttct gaaaggagcg ctaataccgg acgtgtcttc gagagcttcg gctcttgcg  
181 agaaaagacc tcaagggtg ccgagggacg agcctgcggc ccatcagcta gttggcgagg  
241 taaaagctca ccaaggcgaa gacgggtagc tggctgaga ggatgatcag tcacactgga  
301 actgagacac ggtccagact cctacgggag gcagcagtg ggaatattgc gcaatgggcg  
361 aaagcctgac gcagccacgc cgcgtgagcg atgaaggcct tcgggtcgta aagctctgtg  
421 gggagagacg aagaaagcct gtgaagagca ggccttgacg gtatctcctt agcaagcacc  
481 ggctaactcc gtgccagcag ccgcggtaat acggaggggtg cgaacgttgc tcggaatcat  
541 tgggcgtaaa gcgcacgtag gcggcggcgt aagcggaatg tgaagccca gggctcaacc  
601 ctggaagtgc atcccgaact gcgtcgcttg aatctcggag ggggacagag aattcccggg  
661 gtagaggtga aattcgtaga tatcgggagg aataccactg gcgaaggcgc tgcctggac  
721 gaagattgac gctgaggtgc gaaagcgtgg ggagcaaaca ggattagata ccctggtagt  
781 ccacgtgta aacgatgagt gctggacggg ggaggattg accccttcgc tgcgaagct  
841 aacgcgttaa gactccgcc tggggagtac ggtcgcaaga ctaaaactca aaggaattga  
901 cgggggcccc cacaagcggg ggagcatgtg gtttaattcg acgcaacgcg cagaacctta  
961 cctgggttaa atccactgga acctggctga aaggctgggg tgcccttcgg ggagccgggtg  
1021 agaaggtgct gcatggctgt cgtcagctcg tgcgtgaga tgttgggtta agtcccgcaa  
1081 cgagcgcaac ccctatcgc agttgccacc attgagttgg gaactctggc gagactgccg  
1141 gtctaaaccg gaggaaggtg gggacgacgt caagtcctca tggccctcat gccagggtg  
1201 acacacgtgc tacaatggct ggtacaaaga gtcgcaagct cgcgagagta agcaaatctc

1261 aaaaaccag tctcagttcg gattgcagtc tgcaactcga ctgcatgaag ctggaatcgc  
1321 tagtaatcgg agatcagcac gctccggtga atacgttccc gggccttgta cacaccgccc  
1381 gtcacacat gggagtcggc tgctccagaa gtaggaacct caaccgcaag gaaaggecct  
1441 accaaggagc ggtcgggtgac tgggggtgaag tcgtaacaag gtagccgtag gggaaactgc  
1501 ggctggatca cctc

>*Nannocystis exedens* DSM 71

1 tgatcctggc tcagagcga cgtttcggc gggcctaaca catgcaagtc gaacgggcta  
61 gcaatagtca gtggcgcacg ggtgcgtaac acgtaggtaa tcaaccctc ggttcgggat  
121 aacgttctga aaggagcgt aataccggac gtgtcttcgg gagcttcggc tctgtcgag  
181 aaagaccgc aagggttgc gagggacgac tgcggccat cagctagtgc gcgaggtaat  
241 agtcaccaa ggcgaabacg ggtagctggt ctgagaggat gatcagtcac actggaactg  
301 agacacggc cagactccta cgggaggcag cagtggggaa tattgcgcaa tgggcgaaa  
361 cctgacgcag ccacgccgcg tgagcgatga aggccttcgg gtcgtaaagc tctgtgggga  
421 gagacgaaga aagcctgtga agagcaggcc ttgacgggat ctccttagca agcaccggct  
481 aactcctgc cagcagccgc ggtaatacgg aggggtgcgaa cggtgctcgg aatcattggg  
541 cgtaaagcgc acgtagggc cggcgtaagc gggatgtgaa agcccagggc tcaaccctgg  
601 aagtgcattc cgaactgcgt cgcttgaatc tcggaggggg acagagaatt cccgggtgag  
661 aggtgaaatt cgtagatata gggaggaata ccagtggcga aggcgctgct ctggacgaag  
721 attgacgctg aggtgcgaaa gcgtggggag caaacaggat tagatacct ggtagtccac  
781 gctgtaaagc atgagtgctg gacgggtggag gatttgacc ctcgctgctc gaagctaacg  
841 cgtaagcac tccgctggg gagtacggc gcaagactaa aactcaaagg aattgacggg  
901 ggcccacaca agcgggtggag catgtggtt aattcgacgc aacgcgcaga acctacctg  
961 ggtaaatcc actggaacct ggctgaaagg ctgggggtgcc ctcggggag ccggtgagaa  
1021 ggtgctgcat ggctgctgct agctcgtgct gtgagatgtt gggtaagtc ccgcaacgag  
1081 cgcaaccct atcgcagtt gccaccattg agttgggaac tctggcgaga ctgccgtct  
1141 aaaccggagg aaggtgggga cgacgtcaag tctcatggc cttatgccc agggctacac  
1201 acgtgctaca atggctgta caaagagccg caagcccgcg aggggtgagca aatctcaaaa  
1261 aaccagtctc agttcggatt gcagtctgca actcactgc atgaagctgg aatcgtagt  
1321 aatcggagat cagcagctc cggtaatac gttcccggc cttgtacaca ccgcccgtca  
1381 caccatggga gtcggctgct ccagaagtag gaacctcaac cgcaaggaaa ggcctacca  
1441 aggagcggc ggtgactggg gtgaagctg aacaaggtaa

**>*Haliangium ochraceum* DSM14365**

1 tttgatcctg gctcagagcg aacgttagcg gcgggcttaa cacatgcaag tcgagcgaga  
61 aaggagactt cggctccga gtaaagcggc ggacgggtga gtaacacgtg ggtaacctgc  
121 ctttcagtgg gggacaacta cccgaaaggg tggctaatac cgcatacgtc atacgggacc  
181 gaggtcctgt atgggaaagc tagccaatac ttgtaagctg gcgctgaaag agggggcccg  
241 gtcgcatcag ctagttggtg aggtaacggc tcaccaaggc aaagacgcgt agctggctg  
301 agaggatgat cagccacact gggactgaga cacggcccag actcctacgg gaggcagcag  
361 tggggaatat tggacaatgg gcgaaagcct gatccagcca cgccgcgtga gtgatgaagg  
421 ccctagggtc gtaaagctct gtggagagag acgaaaccta ccaggttaag agctgggtag  
481 ttgacggtat ctcttagca agcaccggct aactccgtgc cagcagccgc ggtaatacgg  
541 agggtgcaaa cggtgctcgg aattattggg cgtaaagcgc acgtaggcgg cgcgataagt  
601 cggatgtgaa agccctgggc ttaacctagg aagtgcattc gaaactgtcg cgcttgagta  
661 cgggagaggg ttgcggaatt cccgggtgag aggtgaaatt cgtagatc gggaggaaca  
721 ccagtggcga aggcggcagc ctggaccgat actgacgctg aggtgcgaaa gcgtggggag  
781 caaacaggat tagatacctt gtagtccac gccgtaaagc atgagtgcta gatgcagcgg  
841 gtattgacce ctgctcgtc gcagctaacg cattaagcac tccgcctggg gactacggcc  
901 gcaaggctaa aactcaagg aattgacggg ggccccaca agcggtgag catgtggtt  
961 aattcgacgc aacgcgcaga acctacctg ggftaatcc accagaatcc ctagagata  
1021 ggggagtgcc ttcggggaat tggtgagaag gtgctgcatg gctgtcgtca gctcgtgctg  
1081 tgagatgtg ggftaagtcc cgcaacgagc gcaacctctg tcgtcagttg ccaacgggta  
1141 agccgggcac tctgacgaga ctgccacgt taagtcggag gaaggtggag atgacgtcaa  
1201 gtctcatgg ccttatgcc cagggtaca cacgtgtac aatggtcggg acaagagca  
1261 gcgatatcgt gaggttaagc taatcctaaa aaaccggcct cagttcggat tgaagtctgc  
1321 aactcgactt catgaagggt gaatcgtag taatcgtaga tcagcacgct acgggtgaata  
1381 cgttcccggg cctgtacac accgcccgtc acaccatgga agtcagttgc tctagaagtc  
1441 ggtgagctaa cctcgtgagg cagccgccta aagagtgact ggtaactggg gtgaagtcgt  
1501 aacaagg

**>*Haliangium tepidum* SMP-10**

1 gatcctgget cagagcgaac gttagcggcg ggcttaacac atgcaagtcg agcgagaaag  
61 gcggcttcgg ctgccgagta cagcggcgga cgggtgagta acacgtgggt aacctgcct  
121 tcagtggggg acaaccacc gaaaggggtg ctaataccgc atacgtcctc gggtgctcgc

181 gcaccggatg ggaaagctag cctctgcaag caagctggcg ctgaaggagg ggccccgcctc  
241 gcatcagcta gttggtgggg taatggctca ccaaggcaaa gacgcgtagc tggctgaga  
301 ggatgatcag ccactgagg actgagacac ggcccagact cctacgggag gcagcagtgg  
361 ggaatattgg acaatgggcg caagcctgat ccagccacgc cgcgtgagtg atgaaggccc  
421 tcgggtcgta aagctctgtg gggagggacg aagcctggcg ggtgaatagn ccggcagatg  
481 acggtacctc cttagcaagc accggctaac tccgtgccag cagccgcggt aatacggagg  
541 gtgcaaactg tgctcggaat tactgggctg aaagcgcacg taggcggcct gataagtcgg  
601 atgtgaaagc cccgggctca acctgggaag tgcattcgaa actgttgggc ttgagtacgg  
661 gagagggtg cggaattccc ggtgtagagg tgaattcgt agatatcggg aggaacacca  
721 gtggcgaagg cggcagcctg gaccgatact gacgctgagg tgcgaaagcg tggggagcaa  
781 acaggattag ataccctggt agtccacgcc gtaaactgat agtgctagat gcagcgggta  
841 ttgaccctg ctgctcgta gtaacgcgt taagcactcc gcctggggag tacggccgca  
901 aggctaaaac taaaggaat tgacggggc cgcacaagc ggtggagcat gtggttcaat  
961 tcgacgcaac gcgcagaacc ttacctgggt taaatccgcc ggaatcccct agagataggg  
1021 gagtgcctt cggggaatcg gtgagaaggt gctgcatggc tgcgtcagc tcgtgctgtg  
1081 agatgttggg ttaagtcccg caacgagcgc aacctctgtc gtcagttgcc aacggggaag  
1141 ccgggcactc tgacgagact gccgactta agtcggagga aggtggagat gacgtcaagt  
1201 cctcatggcc cttatgccc gggctacaca cgtgctaca tggtcggtac aaagagcagc  
1261 gaagccgca ggtggagcca atctcaaaaa accggcctca gttcggattg gagtctgca  
1321 ctgactcca tgaaggtgga atcgctagta atcgtagatc agcacgctac ggtgaatac  
1381 ttcccgggcc ttgtacacac cgcccgtcac accatgggag tcagttgctc tagaagtcgg  
1441 tgagctaacc aagtgaggca gccgcctaaa gactgactgg taactggggt gaagtcgtaa  
1501 caaggtaa

**>Enhygromyxa salina SWB004**

1 tgcagtcgnc gancctctt cggaggggac agtggcgcac ggtgctgtaa cacgtggata  
61 accaaccccc tggttcggga caactgagg aaaccggtgc taataccggc tatggcgat  
121 ggatcatcag ntctgtgca gaaagggccg caagggtcgc caggggacgg gtccgcgtcc  
181 catcagctt tgggtgaggt aatggctcac caaggcaaag acgggtagct ggtctgagag  
241 gatgatcagc cactgga a ctgagacacg gtccagactc ctacgggagg cagcagtggg  
301 gaatattgca caatgggca aagcctgacg cagccacgcc gcgtgagcga tgaagtcct  
361 aggatcgtaa agctctgtg agggagaaga ataaagccgg tgaagagccg gcctgacgg

421 tatcccttta gcaagcaccg gctaactccg tgccagcagc cgcggtaata cggagggtgc  
481 aaacgttgct cggaatcatt gggcgtaaag cgcgcgtagg cggcttggca agttggatgt  
541 gaaagccctg ggctcaacc aggaggtgca tacaaaactg ccaggcttga atctcggagg  
601 gggtcaggga attcccgtg tagaggtgaa attcgtagat atcgggagga acaccagtgg  
661 cgaaggcgct gacctggacg atgattgacg ctgaggcgcg aaagcgtggg gagcaaacag  
721 gattagatac cctggtagtc cagccgtaa acgatgagtg ctaggcgccg gcggattgac  
781 cccgtcgggt ccgaagctaa cgcgtaagc actccgctg gggagtacgg tcgcaagact  
841 aaaactcaaa ggaattgacg ggggcccgca caagcgggtg agcatgtgtt ttaattcgac  
901 gctacgcgca gaaccttacc tgggttaaat ccaccagaat ccggccaaa agctggagtg  
961 ccttcgggg aattggtgag aaggtgctgc atggctgctg tcagctcgtg tcgtgagatg  
1021 ttgggtaag tcccgcaacg agcgaaccc ctgctgctg ttgcatcat ttagtggga  
1081 actcagacgg tactgccgcg ctaaacgga ggaaggtggg gatgacgtca agtctcatg  
1141 gccctcatg ccagggtac acacgtgta caatggctgg tacaagagc cgtaactcg  
1201 cgagagtacg ctaatctcat aaaaccagtc tcagttcgga ttggagtctg caactcgact  
1261 ccatgaagct ggaatcgta gtaatcggag atcagcacgc tccggtgaat acgttcccgg  
1321 gccttgata caccgcccgt cacaccatgg gagtcgattg ctccagaagt gggtagccta  
1381 acctcggga gggcgctnac caaggagtga tcgggactgg gnaa

**>Enhygromyxa salina SWB005**

1 tcnngctcc gccgcctggc cgcgggntta gagttgac ctggctcaga gcgaacgttt  
61 gcggcgggccc taacacatgc aagtcgaac agaattcttt cggagaggac agtggcgcac  
121 ggggtcgtaa cacgtgata accaaccgcc tggttcggga caaactggg aaaccggtgc  
181 taataccgta tgtgacgcac agatcgtcag gtttgtcga gaaaggcac caagggtcgc  
241 caggggacgg gtcccgctcc catcagctt ttggtgaggt aatggctcac caaggctaag  
301 acgggtagct ggtctgagag gatgatcagc cacactggaa ctgagacacg gtccagactc  
361 ctacgggagg cagcagtggg gaatattgcg caatgggcga aagcctgacg cagccacgcc  
421 gcgtgagcga tgaaggtcct aggatcgtaa agctctgtgg agggagaaga acaaagccgg  
481 tgaagagccc gccctgacgg tatcccttta gcaagcaccg gctaactccg tgccagcagc  
541 cgcggtaata cggagggtgc aaacgttgct cggaattatt gggcgtaaag cgcgcgtagg  
601 cggttaggca agttgatgt gaaagccctg ggctcaacc aggaggtgca tcaaaaactg  
661 cctggcttga atctcggagg gggtcaggga attcccgtg tagaggtgaa attcgtagat  
721 atcgggagga acaccagtgg cgaaggcgct gacctggacg atgattgacg ctgaggcgcg



781 aaagcgtggg gagcaaacag gattagatac cctggtagtc cacgccgtaa acgatgagtg  
841 ctaggcgccc gcggattgac cccgtcggtg ccgaagctaa cgcgtaagc actccgcctg  
901 gggagtacgg tcgcaagact aaaactcaaa ggaattgacg ggggcccgcg caagcgggtg  
961 agcatgtggt ttaattcgac gctacgcgca gaaccttacc tgggttaaat ccaccagaat  
1021 ccggcccaaa agctggagtg cccttcgggg aattggtgcg aaggtgctgc atggctgctg  
1081 tcagctcgtg tcgtgagatg ttgggttaag tcccgaacg agcgcaacce ctgctgctg  
1141 ttgcatcat tcagttggga actcagacgg tactgccggc ctaaaccgga ggaaggtggg  
1201 gatgacgtca agtctcatg gccctcatgc ccagggtac acacgtgcta caatggctgg  
1261 taaaagagc cgcgaactcg cgagagtaag ctaatctcat aaaaccagtc tcagttcgga  
1321 ttggagtctg caactcgact ccatgaagct ggaatcgcta gtaatcggag atcagcacgc  
1381 tccggtgaat acgttcccgg gccttgata caccgcccgt cacacatgg gagtcgattg  
1441 ctccagaagt gggtagccta accttcggga gggcgcttac caaggagtga tcggtgactg  
1501 ggggtgaagtc gtaacaaggt atccctaccg gaaggtgggg ctggatcacctc

**>Enhygromyxa salina SWB006**

1 gtttgatcct ggctcagagc ggacgtttgc ggcgggctta acacatgcaa gtcgaacgag  
61 aaactcttcg gaggggacag tggcgcacgg gtgcgtaaca cgtggataac caaccctcg  
121 gttcgggaca aactgggaa accggtgcta ataccggcta tggcgcattg atcatcaggt  
181 ctgtgcgaga aaggcccgcg agggtcgcca ggggacgggt ccgctccca tcagcttgtt  
241 ggtgaggtaa tggctacca aggcgaagac gggtagctgg tctgagagga tgatcagcca  
301 cactggaact gagacacggt ccagactcct acgggaggca gcagtgggga atattgcgca  
361 atgggcgaga gctgacgca gccacgccgc gtgagcgatg aaggtcctag gatcgtaaag  
421 ctctgtggag ggagaagaat aaagccggtg aagagccggc cttgacggta tcccttagc  
481 aagcaccggc taactccgtg ccagcagccg cgtaatacag gagggtgcaa acgttgctcg  
541 gaatcattgg gcgtaaagcg cgcgtaggcg gctcggcaag ttggatgtga aagccctggg  
601 ctaaccag gaggtgcata caaaactgcc aggcttgaat ctggaggggg gtcagggaat  
661 tcccgtgta gaggtgaaat tcgtagatat cgggaggaac accagtggcg aagcgctga  
721 cctggacgat gattgacgct gaggcgcgaa agcgtgggga gcgaacagga ttagataccc  
781 tggtagtcca cgccgtaaac gatgagtgtc aggcgccggc ggattgacc cgtcgggtgc  
841 gaagtaacg cgtaagcac tccgctggg gagtacggtc gcaagactaa aactcaaagg  
901 aattgacggg ggcccgcaca agcgggtggag catgtggtt aattcagcg tacgcgcaga  
961 accttacctg ggttaaatcc accagaatcc ggccaaaag ctggagtgcc cttcggggaa

1021 ttggtgagaa ggtgctgcat ggctgtcgtc agctcgtgtc gtgagatggt gggttaagtc  
1081 cegcaacgag cgcaaccct gtcgtctgtt gccatcattt agttgggaac tcagacggta  
1141 ctgccggcct aaaccggagg aaggtgggga tgacgtcaag tectcatggc cctcatgcc  
1201 agggctacac acgtgtaca atggctggta caaagagccg ctaactcgcg agagtacgt  
1261 aatctcataa aaccagtctc agttcggatt ggagtctgca actcgactcc atgaagctgg  
1321 aatcgctagt aatcggagat cagcacgtc cggtgaatac gttcccgggc cttgtacaca  
1381 cegcccgta caccatggga gtcgattgct ccagaagtgg gtagcctaac cttcgggagg  
1441 gcgcttacca aggagtgatc ggtggctggg gtgaagtcgt aacaaggtat ccctaccgga  
1501 aggtggggct ggatcacctc

**>Enhygromyxa salina SWB007**

1 tgcagtcgnc gagacctctt cggagggnnn gtggcgcacg ggtgcgtaac acgtggataa  
61 ccaaccctt ggttcgggac aacctggga aaccggtgct aataccggct atggcgcatt  
121 gatcatcagg tctgtcgag aaaggccgc aagggtcgcc aggggacggg tccgcgtccc  
181 atcagcttgt tggtaggta atggctcacc aaggcgaaga cgggtagctg gtctgagagg  
241 atgatcagcc aactggaac tgagacaggg tccagactcc tacgggaggg agcagtgggg  
301 aatattgccc aatgggagaa agcctgacgc agccacgccg cgtgagcgtg gaaggtccta  
361 ggatcgtaaa gctctgtgga gggagaagaa taaagccggt gaagagccgg cttgacggt  
421 atcccttag caagcaccgg ctaactccgt gccagcagcc gcggtataac ggagggtgca  
481 aacgttctc ggaatcattg ggcgtaaagc gcgcgtaggc ggcttgcaa gttgtagtg  
541 aaagccctgg gctcaacca ggaggtgcat aaaaactgc caggctttaa tctcggaggg  
601 ggtcagggaa ttcccgtgt agaggtgaaa ttcgtagata tgggaggaa caccagtggc  
661 gaaggcgtg acctggacga tgattgacgc tgaggcgcga aagcgtgggg agcaaacagg  
721 attagatacc ctgtagtcc acgccgtaaa cgatgagtgc taggcgccgg cggattgacc  
781 ccgtcgtgc cgaagctaac gcgttaagca ctccgcctgg ggagtacggt cgcaagacta  
841 aactcaaag gaattgacgg gggcccgcac aagcgtgga gcatgtggtt taattcgacg  
901 ctacgcgcag aacctacct gggtaaatc caccagaatc cggcccaaaa gctggagtgc  
961 cttcgggga attggtgaga aggtctgca tggctgtctg cagctcgtgt cgtgagatgt  
1021 tgggtaagt cccgcaacga gcgcaacccc tgcgtctgt tccatcatt tagttgggaa  
1081 tcagacggt actgccggcc taaaccggag gaaggtgggg atgacgtcaa gtectcatgg  
1141 cctcatgcc cagggtaca cacgtgtac aatggctggt acaagagcc gctaactcgc  
1201 gaggtacgc taatctcata aaaccagtct cagttcggat tggagtctgc aactcgactc

1261 catgaagctg gaatcgctag taatcggaga tcagcacgct ccggtgaata cgttcccggg  
1321 cettgtacac accgcccgtc acaccatggg agtcgattgc tccagaagtg ggtagcctaa  
1381 ccttcgggag ggcgcntacc aaggagtgat cggnnc

>*Enhygromyxa salina* SHK1T

1 gatcctggct cagagcgaac gtttgcggcg ggcttaacac atgcaagtcg aacgagaacc  
61 tcttcggagg ggacagtggc gcacgggtgc gtaacacgtg gataaccaac cccttggtc  
121 gggacaacac tgggaaaccg gtgctaatac cggctatggc gcatgagtca caaggcttgt  
181 gcgagaaagg cccgcaaggg tcgccagggg acgggtccgc gtcccatcag cttgttggtg  
241 aggtaatggc tcaccaaggc gaagacgggt agctggtctg agaggatgat cagccacact  
301 ggaactgaga cacggtccag actcctacgg gaggcagcag tggggaatat tgcgcaatgg  
361 gcgaaagcct gacgcagcca cgccgcgtga gcgatgaagg tcctaggatc gtaaagctct  
421 gtggagggag aagaataaag ccggtgaaga gccggccttg acggtatccc ttagcaagc  
481 accggctaac tccgtgccag cagccgcggg aatacggagg gtgcaaactg tgctcggaat  
541 cattgggctg aaagcgcgcg taggcggctt ggcaagttgg atgtgaaagc cctgggctca  
601 acccaggagg tgcatacaaa actgccaggc tgaatctcg gaggggggtca ggggaattccc  
661 ggtgtagagg tgaattcgt agatatcggg aggaacacca gtggcgaagg cgctgacctg  
721 gacgatgatt gacgctgagg cgcgaaagcg tggggagcaa acaggattag ataccctggt  
781 agtccacgcc gtaaactgat agtgctaggc gccggcggat tgaccccgtc ggtgccgaag  
841 ctaacgcgtt aagcactccg cctggggagt acggtcgcaa gactaaaact caaaggaatt  
901 gacggggggc cgcaacaagc gtggagcatg tggtttaatt cgacgctacg cgcagaacct  
961 tacctgggtt aaatccacca gaatccggcc caaaagctgg agtgccttc ggggaattgg  
1021 tgagaaggtg ctgcatggct gtcgtcagct cgtgtcgtga gatgttgggt taagtcccgc  
1081 aacgagcgca acccctgtcg tctgttgcca tcatttagtt gggaactcag acggtactgc  
1141 cggcctaaac cggaggaagg tggggatgac gtcaagtctt catggcctc atgcccaggg  
1201 ctacacacgt gctacaatgg ctggtacaaa gagccgctaa ctgcgagag tacgctaact  
1261 tcataaaacc agtctcagtt cggattggag tctgcaactc gactccatga agctggaate  
1321 gctagtaact ggagatcagc acgtccgggt gaatacgttc ccgggccttg tacacaccgc  
1381 ccgtcacacc atgggagtcg attgctccag aagtgggtag cctaacttc gggagggcgc  
1441 ttaccaagga gtgatcgggt actgggggtga agtcgtaaca

**>Enhygromyxa salina SMK13**

1 atcctggctc agagegaacg tttgcggcgg gcttaacaca tgcaagtcga acgagaacct  
61 ctteggaggg gacagtggcg cacgggtgcg taacacgtgg ataaccaacc ccttggttcg  
121 ggacaacact gggaaaccgg tgctaatacc ggctatggcg catgagtcac aaggcttg  
181 cgagaaagge ccgcaagggt cgccagggga cgggtccgcg tcccatcage ttgttggtga  
241 ggtaatggct caccaaggcg aagacgggta gctggtctga gaggatgatc agccacactg  
301 gaactgagac acggtccaga ctctacggg aggcagcagt ggggaatatt gcgcaatggg  
361 cgaaagcctg acgcagccac gccgcgtgag cgatgaaggt cctaggatcg taaagctctg  
421 tggagggaga agaataaagc cgggtaagag ccggccttga cggtatcctt ttagcaagca  
481 ccggctaact ccgtgccagc agccgcggta atacggaggg tgcaaactgt gctcggaatc  
541 attgggcgta aagcgcgctg aggcggcctt gcaagttgga tgtgaaagcc ctgggctcaa  
601 cccaggaggt gcatacaaaa ctgccaggct tgaatctcgg agggggtcag ggaattcccg  
661 gtgtagaggt gaaattcgtg gatatcggga ggaacaccag tggcgaaggc gctgacctgg  
721 acgatgattg acgctgagge gcgaaagcgt ggggagcaaa caggattaga taccctggtg  
781 gtccacgccg taaacgatga gtgctaggcg ccggcggatt gaccccctcg gtgccgaagc  
841 taacgcgta agcactccgc ctggggagta cggtcgcaag actaaaactc aaaggaattg  
901 acggggggccc gcacaagcgg tggagcatgt ggttaattc gacgctacgc gcagaacctt  
961 acctggggtg aatccaccag aatccggccc aaaagctgga gtgcccttcg gggaaattgt  
1021 gagaaggtgc tgcattgctg tcgtcagctc gtgtcgtgag atgttgggtt aagtcccga  
1081 acgagcgaac ccctgtcgt ctgttccat catttagttg ggaactcaga cggtactgcc  
1141 ggctaaacc ggaggaaggt ggggatgacg tcaagtctc atggccctca tgcccagggc  
1201 tacacacgtg ctacaatggc tggtaaaaag agccgctaac tcgagagagt gcgctaact  
1261 cataaaacca gtctcagttc ggattggagt ctgcaactcg actccatgaa gctggaatg  
1321 ctagtaatcg gagatcagca cgctccggtg aatacgttcc cgggccttgt acacaccgcc  
1381 cgtecacca tgggagtcga ttgctccaga agtgggtagc ctaacctcg ggagggcgt  
1441 taccaaggag tgatcgggtg ctgggggtgaa gtcgtaaca

**>Plesiocystis pacifica SIR1<sup>T</sup>**

1 atcctggctc agagegaacg tttgcggcgg gcctaacaca tgcaagtcga acgagaagcc  
61 cttegggggtg gaaagtggcg cacgggtgcg taacacgtgg ataaccaacc cccagtttg  
121 ggacaacacc gggaaactgg tgctaatacc agatgtgtcg cgggagtcgt caggctcct  
181 cgagaaagge acgcaagggt cgctggggga cgggtccgcg tcccatcage tagttggtga

241 ggtaatggct caccaaggct aagacgggta gctggctga gaggatgac agccacactg  
301 gaactgagac acggtccaga ctctacggg aggcagcagt ggggaatatt gcgcaatggg  
361 cгаааgсctg acgcagccac gccgcgtgag cgatgaagg ttcggatcg taaagctctg  
421 tggagggaga agaataaagt cagtgaagag ctggccttga cggtatccct ttagcaagca  
481 ccggctaact ccgtgccagc agccgcggta atacggaggg tgcaaactgt gctcggaatc  
541 attgggcgta aagcgcgct aggcggcctt gcaagttgga tgtgaaagcc ctgggctcaa  
601 cccaggaagt gcatcaaaa ctgcctggct tgaatctcgg agggggtcag ggaattctcg  
661 gtgtagaggt gaaattcgt gatatcggga ggaacaccag tggcgaaggc gctgacctgg  
721 acgatgattg acgtgaggt gcgaaagcat ggggagcga caggattaga taccctggta  
781 gtccatgccg taaacgatga gtgctaggcg ccggcggatg acccgtcgg tgccgaagct  
841 aacgcgtaa gactccgcc tggggagtac ggtcgcaaga ctaaaactca aaggaattga  
901 cggggggccg cacaagcggg ggagcatgtg gtttaattcg acgcaacgcg cagaacctta  
961 cctggggtta gtccacgaga atccggccca aaagctggag tgccctcgg ggaattcgtg  
1021 cgaagtgct gcatggctgt cgtcagctcg tctcgtgaga tgttgggta agtcccga  
1081 cgagcgaac ccctgccgc tttgcccac attagttgg gaactcagac ggtactgccg  
1141 gcctaaaccg gaggaagggt gggatgact caagtcctca tggcctcat gccagggtg  
1201 acacagctgc tacaatggtt ggtacaaaga gtcgtagcc cgcgagggga cgtaacctc  
1261 aaaaaacaa tctcagttcg gattggagtc tgcaactcga ctccatgaag ctggaatcgc  
1321 tagtaatcgg agatcagcac gctccgggtga atacgttccc gggccttga cacaccgcc  
1381 gtcacacat gggagtcgat tctccagaa gtggtagcc taacctcgg gagggcgtt  
1441 accaaggagt gatcggtagc tggggtgag tcgtaacaag gtaa

**>*Plesiocystis pacifica* SHI-1**

1 tgatctggc tcagagcga cgtttcggc gggcctaaca catgcaagtc gaacgagaaa  
61 gccttcgggg tggaaagtgg cgcacgggtg cgtaacacgt ggataacaa cccccagtt  
121 tgggacaaca ccgggaaact ggtgctaata ccagatgtgt cgcgggagtc gtcaggctcc  
181 ctcganaaag gcacgcaagg gtcgctgggg gacgggtccg cgtccatca gctagtgtg  
241 gaggtaatgg ctaccaagg ctaagacggg tagctggtct gagaggatga tcagccacac  
301 tggactgag acacggcca gactctacg ggaggcagca gtggggaata ttgcgcaatg  
361 ggcgaaagcc tgacgcagcc acgccgctg agcgatgaag gtttcggat cgtaaagctc  
421 tgtggaggga gaagaataaa gtcagtgaag agctggcctt gacggtatcc ctttcagca  
481 gcaccggcta actccgtgcc agcagccgcg gtaatacggg gggtgcaaac gttgctcgga

541 atcattgggc gtaaagcgcg cgtaggcggc ttggcaagtt ggatgtgaaa gccctgggct  
601 caaccagga agtgcacca aaactgcctg gcttgaatct cggagggggt caggaattc  
661 tcggtgtaga ggtgaaattc gtagatatcg ggaggaacac cagtggcgaa ggcgctgacc  
721 tggacgatga ttgacgctga ggtgcgaaag catggggagc gaacaggatt agatacctg  
781 gtagtccatg ccgtaaacga tgagtctag gcgccggcgg atgacccctg cggtgccgaa  
841 gtaaacgctg taagcactcc gcctggggag tacggctgca agactaaaac tcaaaggaat  
901 tgacgggggc ccgcacaagc ggtggagcat gtggttaat tcgacgcaac gcgcagaacc  
961 ttacctgggt taaatccacg agaatccggc caaaagctg gtagtctcg gggaattcgt  
1021 gcgaaggtgc tgcattggctg tcgtcagctc gtgtcgtgag atgttgggtt aagtcgcc  
1081 acgagcgaac ccctgccctg ctgttccat catttagttg ggaactcaga cggtactgcc  
1141 ggctaaacc ggaggaaggt ggggatgacg tcaagtctc atggccctca tgcccaggc  
1201 tacacacgtg ctacaatgtt tggtaacaag agtcgctagc ccgcgaggga cgtaacctc  
1261 aaaaaaccaa tctcagttcg gattggagtc tgcaactcga ctccatgaag ctggaatcg  
1321 tagtaatcgg agatcagcac gctccgggtg atacgttccc gggccttga cacaccgcc  
1381 gtcacacat gggagtcgat tgctccagaa gtgggtagcc taacctcgg gagggcgctt  
1441 accaaggagt gatcggtagc tggggtgaag tcgtaacaag gta

**>Myxobacterium SMH-27-4 (*Paraliomyxa miuraensis*)**

1 gagtttgatc ctggtcaga gcgaacgttt gcggcgggcc taacacatgc aagtcgaacg  
61 ataactcggg ctfcggcctg ggggaaagtg gcgcacgggt gcgtaacacg tgggtaatca  
121 accctttgga ctgggacaac ccggggaaac tcgggctaat accggatgtg tcgtgggagt  
181 ctfcgggcac ccacgggaaa ggcccgaag ggctacaaa ggacgagctc gcggcccatc  
241 agcttgttgg tgagtaatg gctaccaag gctaagacgg gtagctggtc tgagaggatg  
301 atcagccaca ctggaactga gacacggctc agactcctac gggaggcagc agtggggaat  
361 attgcgcaat gggcgaaagc ctgacgcagc cacgccgctg gtgcgatgaa ggtcttcgga  
421 tcgtaaagca ctgtgggggg agaagaacaa agccgggtgaa gagccggccc tgacggtatc  
481 cccttagcaa gcaccggcta actccgtgcc agcagccgcg gtaatacggg gggtgcaaac  
541 gttgctcggg atcactgggc gtaaagcgca cgtaggcggc cgtgtaagtt ggatgtgaaa  
601 gccctgggct caaccagga agtgcacca aaactgtcgc gctttagtac cggaggggct  
661 cagagaattc ccggtgtaga ggtgaaattc gtagatatcg ggaggaatac cagtggcgaa  
721 ggcgctgagc tggacggtaa ctgacgctga ggtgcgaaag cgtgggtagc aacaggatt  
781 agatacctg gtagtccacg ccgtaaacga tgagtctag gcggtgggag atttgaccc

841 tctcgtctgc gaagctaacg cgtaaacac tccgcctggg gactacggtc gcaagactaa  
901 aactcaaagg aattgacggg ggccccgaca agcgggtggag catgtggttt aattcgacgc  
961 aacgcgcaga accttacctg ggtaaatcc agcggtaatcc ggccgaaatg ctggagtgcc  
1021 cttcggggaa tcgctgcgaa ggtgctgcat ggctgtcgtc agctcgtgtc gtgagatgtt  
1081 gggtaagtc ccgcaacgag cgcaaccct atcgccagt gcatcattc agttgggaac  
1141 tctggcgaga ctgccggcca aaaccggagg aaggtgggga tgactcaag tctcatggc  
1201 cttatgccc agggctacac acgtgctaca atggctggta caatgagccg cgaaccctg  
1261 agggcaagct aatctcaaaa aaccagtctc agttcggatt ggagtctgca actcgactcc  
1321 atgaagctgg aatcgtagt aatcggagat cagcacgctc cggtaatac gttcccgggc  
1381 cttgtacaca ccgcccgtca cccatggga gtcggtgct ccagaagtag gtatccaac  
1441 ccgcaaggga cggagcttac caaggagtga tcggtgactg ggggtaagtc gtaacaaggt  
1501 agcc

**>*Pseudohygromyxa salsuginis* SYR2T**

1 agagttgat cctggctcag agcgaacgtt tgcggcgggc ctaacacatg caagtcaac  
61 gagaatcccy tgggggagga aagtggcgca cgggtgctga acactggat aaccaacccc  
121 ctggctcggg acaactgga gaaaccgtg ctaataccgg atatggcgag tggatcatca  
181 ggtctgctcg agaaaggcac gcaagggtca ccaggggacg ggtccgcgtc ccatcagctt  
241 gttggtgagg taatggctca ccaaggctaa gacgggtagc tggctgaga ggatgatcag  
301 ccactgga actgagacac ggtccagact cctacgggag gcagcagtgg ggaatattgc  
361 gcaatgggcg aaagcctgac gcagccacgc cgcgtgagcg atgaaggctt taggatcgtg  
421 aagctctgtg gggggagaag acaaaagccg gtgaagagcc ggccctgacg gtatcccctt  
481 agcaagcacc ggctaactcc gtgccagcag ccgcggtaat acggagggtg caaacgttgc  
541 tcggaatcat tgggcgtaaa gcgcgctgag gcggcttggc aagttggatg tgaagccct  
601 gggctcaacc caggatgtgc attcaaaact gccwagcttg aatctcggag ggggacaggg  
661 aattctcggg ttagaggtga aattcgtaga tctcgggagg aacaccagtg gcgaaggcgc  
721 tgtcctggac gatgattgac gctgagggcg gaaagcgtgg ggagcaaaca ggattagata  
781 ccttggtagt ccacgccgta aacgatgagt gctagggccc ggcggattga ccccctcggg  
841 gccgaagcta acgcgtaag cactccgctt ggggagtacg gtcgcaagac taaaactcaa  
901 aggaattgac gggggcccgc acaagcgggt gagcatgtgg ttaattcga cgcaacgcgc  
961 agaacttac ctgggttaaa tccaccagaa tctggccaa aagccggagt gcccttcggg  
1021 gaattggtga gaaggtgctg catggctgtc gtcagctcgt gtcgtgagat gttgggttaa

1081 gtcccgaac gagegcaacc cctaccgtct gttgccagca tttagttggg aactcagacg  
1141 gcaactgccg cctaaaccgg aggaaggtgg ggatgacgtc aagtcctcat ggccctcatg  
1201 cccaggggta cacacgtgct acaatggctg gtacaaagag atgcgagccc gcgaggggaa  
1261 gctaacctca aaaaaccagt ctcaattcgg attggagtct gcaactcgac tccatgaagc  
1321 tggaatcgct agtaatcgga gatcagcacg ctccgggtgaa tacgttcccg ggccttgta  
1381 acaccgccc t

**>Myxococcus xanthus DK1622**

1 caattggaga gtttgatcct ggctcagaac gaacgctggc ggcgtgccta acacatgcaa  
61 gtcgagcgcg aataggggca acccttagta gagcggcgca cgggtgcgta acacgtggat  
121 aatctgctg agtgctcggg ataaccagtc gaaagattgg ctaataccgg ataagcccac  
181 ggtttctcg gagactgagg gaaaaggtgg cctctgtata caagctatca cattcagatg  
241 agtccgcggc ccatcagcta gttggcgggg taatggccca ccaaggcaac gacgggtagc  
301 tggctgaga ggacgatcag ccacactgga actgagacac ggtccagact cctacgggag  
361 gcagcagtgg ggaatttgc gcaatgggcg aaagcctgac gcagcaacgc cgcgtgtgtg  
421 atgaaggtct ttgattgta aagcacttc gaccgggaag aaaaccggtt ggctaacatc  
481 caacggcttg acggtaccgg gagaagaagc accggctaac tctgtgccag cagccgcggt  
541 aatacagagg gtgcaagcgt tttcgggaat tattggcgt aaagcgcgtg taggcggcgt  
601 gacaagtcgg gtgtgaaagc cctcagctca actgaggaag tgcgccgaa actgttgtgc  
661 ttgagtccg gagagggtgg cggaattccc caagtagagg tgaattcgt agatatgggg  
721 aggaacaccg gtggcgaagg cggccacctg gacggtaact gacgctgaga cgcgaaagcg  
781 tggggagcaa acaggattag ataccctggt agtccacgcc gtaaactgat agaactaggt  
841 gtcgtgggag ttgacccccg cggtgccgaa gctaacgcat taagtctcc gcctgggaag  
901 tacggtcgca agactaaaac taaaaggaat tgacgggggc ccgcacaagc ggtggagcat  
961 gtggtttaat tcgacgcaac ggcgagaacc ttacctggtc ttgacatcct cagaatcctt  
1021 cagagatgag ggagtgcccg caagggaact gagagacagg tgctgcatgg ctgtcgtcag  
1081 ctctgtctgt gagatgttgg gtttaagtccc gcaacgagcg caaccctcgc ctttagttgc  
1141 cacgcaagtg gatctctaga gggactgccg gtgttaaacc ggaggaaggt ggggatgacg  
1201 tcaagtctc atggccttta tgaccagggc tacacactg ctacaatggc cggtagagag  
1261 cgttgccaac ccgcgagggg gagctaactg cataaaaccg gtctcagttc agattggagt  
1321 ctgcaactcg actccatgaa ggaggaatcg ctagtaactg cagatcagca cgctgcgggt  
1381 aatacgttcc cgggccttgt acacaccgcc cgtcacacca tgggagtcga ttgctccaga



1441 aatcatctca ccaagagggtg ctcaaggagt ggctcgtaac tgggggtgaag tcgtaacaag  
1501 gtagecctag gggaacctgc ggctggatca cctcctttct

**>*Sorangium cellulosum* Soce56**

1 ctacgaagt acgtgggtcc caaaggcgag cgcaagctcg acctcgcacg tcataaagac  
61 gagcaagtca ggcggtctta gccaccgtct gatgcaacag gatttaactg gagagtttga  
121 tcttggtca gaacgaactg tagcggcgcg cttaacacat gcaagtcgag cgagaaaggg  
181 ctteggcccc ggtaaagcgg cgcacgggtg agtaacacgt aggtaactg cccccaggtg  
241 gtggataacg ttccgaaagg agcgtaata cagcatgaga ccacgccttc gaaaggaggt  
301 gaggtcaaag ccggcctctt catgaaagct ggcgccaggg gatgagcctg cggcccatca  
361 gctagttggt agggtaatgg cctaccaagg cgaagacggg tagctggtct gagaggatga  
421 tcagccacac tggaactgag acacgggtcca gactcctacg ggaggcagca gtggggaatc  
481 ttgcgcaatg ggcgaaagcc tgacgcagcg acgccgcgtg agtgatgaag gccttcgggt  
541 tgtaaagctc tgtggagggg gacgaataag ggttggttaa catccagctc gatgacggta  
601 ccctttagc aagcaccggc taactctgtg ccagcagccg cggtaagaca gagggtgcaa  
661 acgttgctc gaattactgg gcgtaaagcg cgtgtaggcg gttcgtaaag tcaggtgtga  
721 aagccctggg cftaacccag gaagtgcact tgaactcac gaacttgagt cccggagagg  
781 aaggcggat tctcgggtga gaggtgaaat tcgtagatat cgagaggaac atcgggtggcg  
841 aaggcggcct tctggacggt gactgacgct gagacgcgaa agcgtgggga gcaaacagga  
901 ttagataccc tgtagtcca cgccgtaaac gatgggtgct aggtgtcgcg ggctttgact  
961 cctgcggtgc cgtagctaac gattaagca cccgcctgg ggagtacggc cgcaaggcta  
1021 aaactcaaag gaattgacgg gggcccgcac aagcgggtga gcatgtggtt caattcgacg  
1081 caacgcgcag aaccttacct gggctagaaa atgcaggaac ctggtgaaa gatcgggggtg  
1141 ctcttcggag aacctgtagt taggtgctgc atggctgctg tcagctcgtg tcgtgagatg  
1201 ttgggttaag tcccgcaacg agcgcaacc ctatcgtag ttgccagcgg ttcggccggg  
1261 cactctagcg agactgccga tatttaaatc ggaggaaggt ggggatgacg tcaagtctc  
1321 atggccctta tgtccagggc tacacacgtg ctacaatggg cggtacagac ggctcgcgaac  
1381 ccgcgagggg aagccaatcc gaaaaaacg tctcagtag ggataagagt ctgcaactcg  
1441 actcttgaa gttggaatcg ctagtaatcc ctgacagca ggcaggggtg aatacgttc  
1501 cgggccttgt acacaccgcc cgtcacacca tgggagtcga ttgctccaga agtggtcgcg  
1561 ccaacccgca agggagggcag gcccccaagg agtggttgg aactgggggtg aagtcgtaac  
1621 aaggtagccg taggggaacc tgcggctgga tcacctctt tctaaggaag cgcttagcgcg

1681 ttacctgaac gtcaaaaccc acgcac

**>Escherichia albertii DM104**

1 cagtcgaacg gtaacaggaa gaagcttgct tctttgctga cgagtggcgg acgggtgagt  
61 aatgtctggg aaactgcccg atggaggggg ataactactg gaaacggtag ctaataccgc  
121 ataacgtcgc aagaccaaag agggggacct tggggcctct tgccatcgga tgtgccaga  
181 tgggattagc ttgttgatga ggtaacggct caccaaggcg acgatcccta gctggtctga  
241 gaggatgacc agccacactg gaactgagac acggtccaga ctctacggg aggcagcagt  
301 ggggaatatt gcacaatggg cgcaagcctg atgcagccat gccgcgtgta tgaagaaggc  
361 ctccgggttg taaagtactt tcagcgggga ggaagggagt aaagtaata cctttgctca  
421 ttgacgttac ccgcagaaga agcaccggct aactccgtgc cagcagccgc ggtaatacgg  
481 aggggtcaag cgtaatacgg aattactggg cgtaaagcgc acgcaggcgg ttgattaagt  
541 cagatgtgaa atccccgggc tcaacctggg aactgcatct gatactggtc agcttgagtc  
601 tcgtagaggg gggtagaatt ccaggtgtag cggtgaaatg cgtagagatc tggaggaata  
661 ccggtggcga aggcggcccc ctggacgaag actgacgctc aggtgcgaaa gcgtggggag  
721 caaacaggat tagataccct ggtagtccac gccgtaaacg atgtcgactt ggaggttgg  
781 cccttgaggc gtggctccg gagctaactg gtaagtcca ccgctgggg agtacggccg  
841 caaggttaa actcaaatga atgacgggg gcccgcaaa gcggtggagc atgtggtta  
901 atcgatgca acgcgaagaa ccttacctgg tcttgacatc cacggaagt ttacagatg  
961 agaatgtgcc ttcgggaacc gtgagacagg tgctgcatgg ctgctgcag ctcgtgtgt  
1021 gaaatgttg gtaagtccc gcaacgagcg caaccctat cctttgttgc cagcgattcg  
1081 gtcgggaact caaaggagac tgccagtgat aaactggagg aaggtgggga tgactcaag  
1141 tcatcatggc cttacgacc agggctacac acgtgctaca atggcgcata caaagagaag  
1201 cgacctcgc agagcaagcg gacctcataa agtgcgtcgt agtccggatt ggagtctgca  
1261 actcgactcc atgaagtcgg aatcgctagt aatcgtgat cagaatgcca cggtaatac  
1321 gttcccgggc cttgtacaca ccgcccgtca cccatggga gtgggttgca aaagaagtag  
1381 gtagctta

**>Myxococcus fulvus HW-1**

1 tggagagttt gatcctggct cagaacgaac gctggcggcg tgcctaacac atgcaagtcg  
61 agcgcgaata ggggcaacc ttagtagagc ggcgcacggg tgcgtaacac gtggataac  
121 tgctgagtg ctcgggataa ccagtcgaaa gattggctaa taccggataa gcccacggtt

181 tcttcggaga ctgagggaaa aggtggcctc tgtatacaag ctatcacatt cagatgagtc  
241 cgcggcccat cagctagttg gcggggtaat ggcccacaa ggcgacgacg ggtagctggt  
301 ctgagaggac gatcagccac actggaactg agacacggtc cagactccta cgggaggcag  
361 cagtggggaa tttgcgcaa tgggcgaaag cctgacgcag caacgccgcg tgtgtgatga  
421 aggtctttgg attgtaaagc actttcgacc gggaaagaaa cccgttggt aacatccaac  
481 ggcttgacgg taccgggaga agaagcaccg gctaactctg tgccagcagc cgcgtaata  
541 cagaggggtgc aagcgttgtt cggaattatt gggcgtaaag cgcgtgtagg cggcgtgaca  
601 agtcgggtgt gaaagccctc agtcaactg aggaagtgcg cccgaaactg tcgtgcttga  
661 gtgccggaga gggtgccgga attcccaag tagagtgaa attcgtagat atggggagga  
721 acaccggtgg cgaaggcggc cacctggacg gtaactgacg ctgagacgcg aaagcgtggg  
781 gagcaaacag gattagatac cctggtagtc cacgccgtaa acgatgagaa ctaggtgtcg  
841 tgggagttga ccccccggt gccgaagcta acgattaag ttctccgct gggaagtacg  
901 gtcgcaagac taaaactcaa aggaattgac gggggcccg cacaagcggtg gagcatgtgg  
961 ttaattcga cgcaacgcgc agaaccttac ctggtcttga catcctcgga atccttcaga  
1021 gatgagggag tgcccgaag ggaaccgaga gacaggtgct gcatggctgt cgtcagctcg  
1081 tgtcgtgaga tgttgggtta agtcccgcaa cgagcgcaac cctcgcttt agttgccag  
1141 caagtggatc tctagagga ctgccggtgt taaaccggag gaaggtgggg atgacgcaa  
1201 gtctcatgg ctttatgac cagggtaca cacgtgctac aatggccgt acagagcgtt  
1261 gccaacccgc gagggggagc taatgcata aaaccgtct cagttcagat tggagtctgc  
1321 aactcgactc catgaaggcg gaatcgctag taatgcaga tcagcacgct gcggtgaata  
1381 cgttcccggg cttgtacac accgcccgtc acaccatggg agtcgattgc tccagaagtc  
1441 atctaccaa gagtgccca aggagtggtc ggtaactggg gtgaagtcgt aacaaggtag  
1501 ccgtagggga acctgcggt ggatcacctc ctttcaagg a