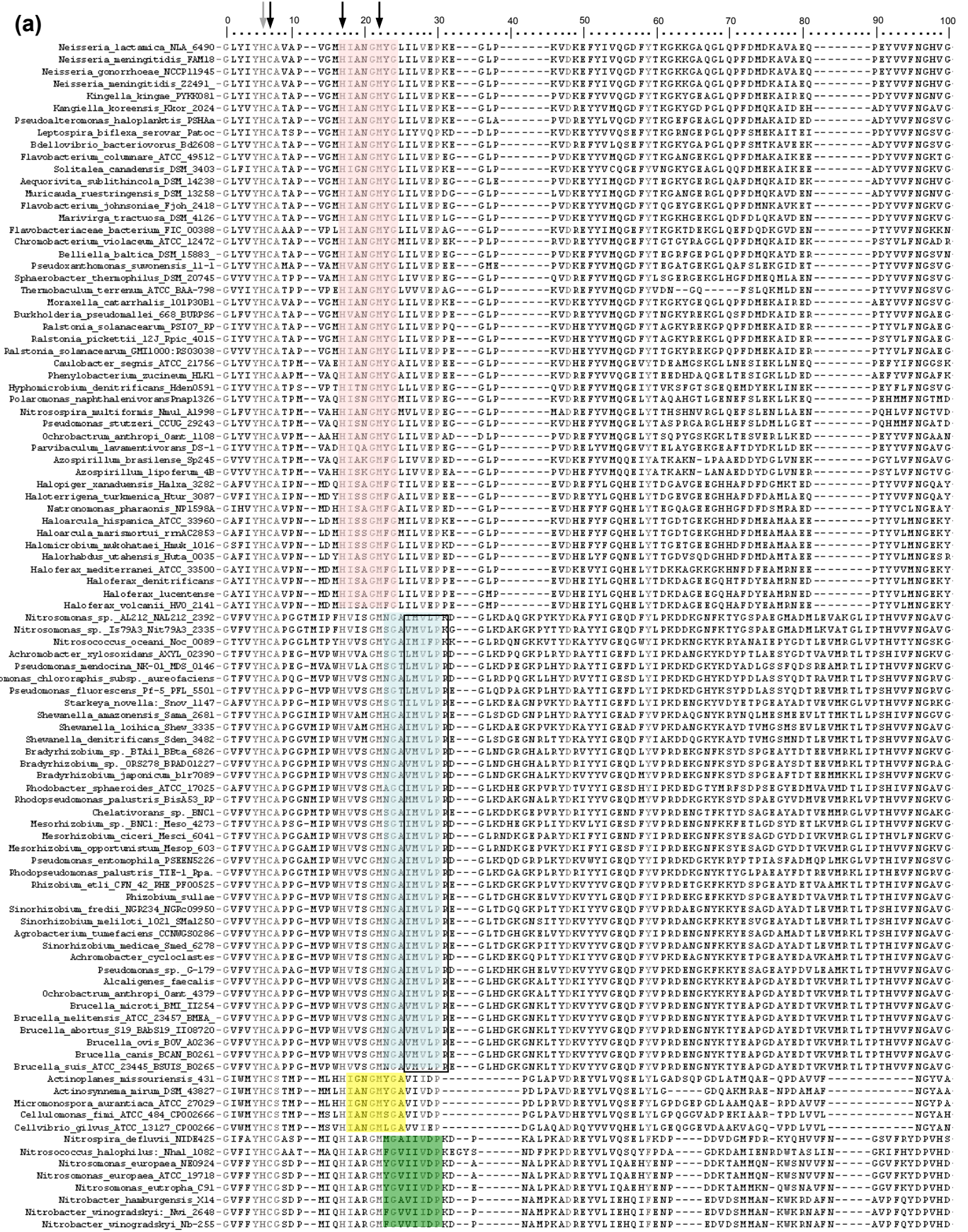


(a)



Cluster I Cluster II Cluster III Cluster IV

Figure S1, Wei et al.

(c)

Halomonas_alimentaria_FJ686149-EFIVNFKETQKVRLVNYENLDA--LS TVEIDTSRFLHDGG--WDAS---GRYFLTAANESNQIVVIDAQERLEAIVDVG--KIPHPGRG
Halomonas_sp_PBN3-EFIVNFKETQKVRLVNYENLDA--LS TVEIDTSRFLHDGG--WDAS---GRYFLTAANESNQIVVIDAQERLEAIVDVG--KIPHPGRG
Halomonas_shengliensis_FJ686158-EFIVNFKETQKVRLVNYENLDA--LS TVEIDTSRFLHDGG--WDAS---GRYFLTAANESNQIVVIDAQERLEAIVDVG--KIPHPGRG
Halomonas_denitrificans_GQ384047-EFIVNFKETQKVQLVNYENLEA--LS TVEIETSRLFLHDGG--WDAS---GRYFLTAANESNQIVVIDAQERLEAIVDVG--KIPHPGRG
Halomonas_fontilapidosi_FJ686147-EFIVNFKETQKVQLVNYENLDA--LS TVEIETSRLFLHDGG--WDAS---GRYFLTAANESNQIVVIDALERLEAIVDVG--KIPHPGRG
Halomonas_cerina_GQ384052-EFIVNFKETQKVQLVNYEDLDA--LS TVEIDTSRFLHDGG--WDST---GRYFLTAANESNQIVVIDAQERLEAIVDVG--KIPHPGRG
Halomonas_nitroreducens_FJ686148-EFIVNFKETQKVQLVNYEDLDA--LS TVEIDTSRFLHDGG--WDST---GRYFLTAANESNQIVVIDAQERLEAIVDVG--KIPHPGRG
Kangiella_koreensis_DSM_16069-EFIVNFKETQKIKLVNYSIDIN--LQVTTIDAAPFLHDGG--WDS S---RRYFLTAANENDTIAVVDAEDRELEAIVDVG--KIPHPGRG
Marinobacter_aquaeolei_VT8-EFIVNFKETQKIMLVNYEDMEN--MNITSIDAAYFLHDGG--WDAS---MRYFLTAANNSNKIAVVDAQDRNLEAIVDVG--KIPHPGRG
Marinobacter_sp_ATCC49840-EFIVNFKETQKIMLVNYEDMEN--MNITSIDAARFLHDGG--WDAS---MRYFLTAANNSNKIAVVDAQDRNLEAIVDVG--KIPHPGRG
Marinobacter_sp_C1870-EFIVNFKETQKIMLVNYEDMEN--MNITSIDAARFLHDGG--WDAS---MRYFLTAANNSNKIAVVDAQDRNLEAIVDVG--KIPHPGRG
Hahella_chejuensis_KCTC_2396-EFIVNFKETQKILLVNYEDINA--LKVTITDAARFLHDGG--WDNT---HRYFLTAANQSNKVAIVDSKDGALVLDVG--AIPHPGRG
Pseudomonas_stutzeri_ATCC_17588-EFIVNFKETQKVMLVNYEDINN--LTTTMITGAPFLHDGG--WDVS---HRYFMTAANNSNKVAIVDSKERKMAALVLDVG--KIPHPGRG
Pseudomonas_stutzeri_CCUG_29243-EFIVNFKETQKVLVNYEDINN--LTTTMITGAPFLHDGG--WDVS---HRYFMTAANNSNKVAIVDSKERKMAALVLDVG--KIPHPGRG
Pseudomonas_fluorescens_Q8r1-96-EFIVNFKETQKVMLVNYQDIKN--LTTITSIDAAPFLHDGG--WDS S---HRYFMTAANNSNKVAIVDSKERKLTALVLDVG--KIPHPGRG
Pseudomonas_sp_I-Bh25-14-EFIVNFKETQKILLVNYKMDIN--LTTTINAAAPFLHDGG--WDST---HRYFMTAANNSNKVAIVDSKERKLSALVLDVG--KIPHPGRG
Pseudomonas_aeruginosa_PA7-EFIVNFKETQKVLVNYKIDIN--LTTTSIGAAPFLHDGG--WDS S---HRYFMTAANNSNKVAIVDSKERKMAALVLDVG--KIPHPGRG
Pseudomonas_aeruginosa_PA01-EFIVNFKETQKVLVNYKIDIN--LTTTSIGAAPFLHDGG--WDS S---HRYFMTAANNSNKVAIVDSKDRRLSALVLDVG--KIPHPGRG
Pseudomonas_aeruginosa_LE8B58-EFIVNFKETQKVLVNYKIDIN--LTVTSIGAAPFLHDGG--WDS S---HRYFMTAANNSNKVAIVDSKDRRLSALVLDVG--KIPHPGRG
Achromobacter_sp_DBTN3-EFIVNFKETQKVLVNYKIDIN--LTVTSIGAAPFLHDGG--WDS S---HRYFMTAANNSNKVAIVDSKDRRLSALVLDVG--KIPHPGRG
Burkholderia_cepacia_AB092344-EFIVNFKETQKVLVNYKIDIN--LTVTSIGAAPFLHDGG--WDS S---HRYFMTAANNSNKVAIVDSKDRRLSALVLDVG--KIPHPGRG
Hiobacillus_denitrificans_ATCC_25259-EFIVNFKETQKVLVNYEDINN--LKMTIEAARFLHDGG--WDST---HRYFMSAANASNKIAVVDAKDRKLAAMVLDVG--KIPHPGRG
Dechloromonas_aromatica_RCB-EFIVNFKETQMVYSVDYRDLNN--LKIKMIEAARFLHDGG--FEST---HRYFMDAANASNKIAVIDTKEGKLEKLVLDVG--KIPHPGRG
Dechlorosoma_suilum_PS-EFIVNFKETQMVYSVDYRDLNN--LKIKMIEAARFLHDGG--FEST---HRYFMDAANASNKIAVIDTKEGKLEKLVLDVG--KIPHPGRG
Aromatoleum_aromaticum_EbN1-EFIVNFKETQKTLMVYSDIQN--LKTEIGSAPFLHDGG--WDAS---KRYFMAAANQSNKVAIVDAKDGKLAGLVLDVG--KIPHPGRG
Azococcus_sp_KH32C-EFIVNFKETQKTLMVYSDIKN--LKMTIEGSAARFLHDGG--WDS S---KRYFLVAANQSNKVAIVDAKDGKLAGLVLDVG--KIPHPGRG
Rubrivivax_gelatinosus_IL144-EFIVNFKETQKTLMVYSDINLA--LKMTIEGSAARFLHDGG--WDAT---KRYFVAANQSNKIAVIDAKEDKLAALVLDVG--KIPHPGRG
Alicyclophilius_denitrificans_R601-EFIVNFKETQKTMVYSDINLA--LKMTIEGSAARFLHDGG--WDS S---KRYFMAAANQSNKVAIVDAKDGKLAGLVLDVG--KIPHPGRG
Acidovorax_ebreus_TPSY-EFIVNFKETQKTMVYSDINLA--LKMTIEGSAARFLHDGG--WDAS---KRYFMAAANQSNKIAVIDAKEDKLAGLVLDVG--KIPHPGRG
Acidovorax_sp_US42-EFIVNFKETQKTMVYSDINLA--LKMTIEGSAARFLHDGG--WDAS---KRYFMAAANQSNKIAVIDAKEDKLAGLVLDVG--KIPHPGRG
Aquadspirillum_sp_DSM_12823-EFIVNFKETQKVMVYDIDLNN--LKTQIDTAKYLDGG--FDAS---GRYFMTAANASDKIAVVDTKESKLEAIVDVG--KIPHPGRG
Comamonas_denitrificans_DQ865926-EFIVNFKETQKVMVYDIDLNN--LKTQIDTAKYLDGG--FDAS---GRYFMTAANASDKIAVVDTKESKLEAIVDVG--KIPHPGRG
Comamonas_nitratorans_FN55565-EFIVNFKETQKVMVYDIDLNN--LKTQIDTAKYLDGG--FDAS---GRYFLTAANASDKIAVVDTKESKLEAIVDVG--KIPHPGRG
Brachymonas_denitrificans_ABI96831-EFIVNFKETQKIMVYDIDLNN--LKTTLDSAKFLHDGG--FDS T---GRYFMTAANASNKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Brachymonas_denitrificans_CB992409-EFIVNFKETQKIMVYDIDLNN--LKTTLDSAKFLHDGG--FDS T---GRYFMTAANASNKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Sideroxydans_lithotrophicus_LMG_19424-EFIVNFKETQKIMVYSDLTN--LKMTVIDAARFLHDGG--FDS T---GRYFMAAANASNKIAVVDTKEDKLAAMVLDVG--KIPHPGRG
Pseudogulbenkiana_sp_NHB8-EFIVNFKETQKIMVYSDLTN--LKTTLINAAARFLHDGG--FDR T---GRYFVAANASNKIAVVDTKEDKLAGLVLDVG--KIPHPGRG
Herbaspirillum_sp_I-Bh15-17-EFIVNFKETQKIMVYQDLKN--LKTTLIDAAARFLHDGG--FDS T---GRYFMAAANASNKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Cupriavidus_metallicurans_CH34-EFIVNFKETQKILMVYSDIKN--LKTTLIDAAARFLHDGG--FDS T---GRYFLVAANASNKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Cupriavidus_necator_location_1_778-EFIVNFKETQKILMVYSDIKN--LKTTLIDAAARFLHDGG--FDS T---GRYFLVAANASDKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Burkholderiaceae_bacterium_N2-EFIVNFKETQKILMVYADLNN--LKTTLIDAAARFLHDGG--FDAT---GRYFLVAANASNKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Cupriavidus_sp_M24-EFIVNFKETQKIMMVYADLNN--LKTTLIDAAARFLHDGG--FDAT---GRYFLVAANASNKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Ralstonia_eutropha_JMP134-EFIVNFKETQKIMMVYADLNN--LKTTLIDAAARFLHDGG--FDAT---GRYFLVAANASNKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Cupriavidus_taiwanensis_LMG_19424-EFIVNFKETQKILMVYSDLAN--LKTTLIDAAARFLHDGG--FDS T---GRYFLVAANASDKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Ralstonia_pickettii_DTP0602-EFIVNFKETQKILMVYSDLAN--LKTTLIDAAARFLHDGG--FDS T---GRYFLVAANASDKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Cupriavidus_necator_N_1-EFIVNFKETQKILMVYSDLAN--LKTTLIDAAARFLHDGG--FDAT---GRYFLVAANASDKIAVVDTKENKLAALVLDVG--KIPHPGRG
Ralstonia_eutropha_H16-EFIVNFKETQKILMVYSDLAN--LKTTLIDAAARFLHDGG--FDAT---GRYFLVAANASDKIAVVDTKENKLAALVLDVG--KIPHPGRG
Accumulibacter_phosphatis_UW-1-EFIVNFKETQMIRLVYSDLAN--LKTTLIDAAARFLHDGG--WDS S---KRYFLVAANASNKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Dechlorospirillum_sp_I-Bh37-22-EFIVNFKETQKILVYSDIKN--LKTTLIDAAARFLHDGG--WDS T---KRYFLVAANASNKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Thaueria_sp_M21T-EFIVNFKETQKILLVYSDIKN--LKSIAEAEARFLHDGG--WDS S---KRYFMAAANQSNKVAIVDAKEDKLAGLVLDVG--KIPHPGRG
Pseudomonas_stutzeri_DSM_10701-EFIVNFKETQKIMLVYDIDLNN--LKTTLIDAAARFLHDGG--WDS S---HRYFMAAANQSNKVAIVDAKEDKLAGLVLDVG--KIPHPGRG
Bordetella_petrii_AM902716-EFIVNFKETQKILLVYDIDLNN--LKTTLIDAAARFLHDGG--WDS S---GRYFMAAANQSNKVAIVDAKEDKLAGLVLDVG--KIPHPGRG
Comamonadaceae_bacterium_I-Bh25-7-EFIVNFKETQKILLVYSDIKN--LKTTLIDAAARFLHDGG--WDS S---KRYFLVAANASNKIAVVDTKEDKLAALVLDVG--KIPHPGRG
Magnetospirillum_magneticum_AMB-1-EFIVNFKETQLLLVYSDIKN--LKVTSIEAERFLHDGG--FDAS---KRYFLVAANASNKIAVVDTKEDKLVGMVLDVG--AIPHPGRG
Rhodanobacter_sp_D206a-EFIVNFKETQKILLVYDIDLNN--LKTVEIAERFLHDGG--FDT---GRYFLVAANASNKIAVVDTKEDKLVGMVLDVG--AIPHPGRG
occus_pantotrophus_location_1_1791-EFIVNFKETQKILLVYDIDLNN--LKTVEIAERFLHDGG--LDGS---HRYFITAANARNKLVVDTKEDKLVAVLDVG--KIPHPGRG
Paracoccus_sp_62-EFIVNFKETQKILLVYDIDLNN--LKTVEIAERFLHDGG--LDGS---HRYFITAANARNKLVVDTKEDKLVAVLDVG--KIPHPGRG
Paracoccus_sp_I-Bh37-1-EFIVNFKETQKILLVYDIDLNN--LKTVEIAERFLHDGG--LDGS---HRYFITAANARNKLVVDTKEDKLVAVLDVG--KIPHPGRG
Polymorphum_gilvum_S1003B-26A1-EFIVNFKETQKILLVYSDIKN--LKTVEIAERFLHDGG--LDST---HRYFLVAANARNKIAVVDTKEDKLVAVLDVG--KIPHPGRG
Labrenzia_sp_C1B10-EFIVNFKETQKILLVYSDIKN--LKTVEIAERFLHDGG--FDS T---KRYFLVAANARGKVAIVDTKEDKLVAVLDVG--KIPHPGRG
Stappia_aggregata_IAM_12614-EFIVNFKETQKILLVYSDIKN--LKTVEIAERFLHDGG--FDS T---KRYFLVAANARGKVAIVDTKEDKLVAVLDVG--KIPHPGRG
Ruegeria_pomeroyi_DSS-3-EFIVNFKETQKILMIDYSDIKN--LKVTEIEAERFLHDGG--FDS S---KRYFLVAANARGKVAIVDTKEDKLVAVLDVG--KIPHPGRG
Dinoroseobacter_shibae_DFL_12-EFIVNFKETQKILLVYSDIKN--LKVTEIEAERFLHDGG--LDST---KRYFLTAANARNKIAVVDTKEDKLVAVLDVG--KIPHPGRG
Roseobacter_denitrificans_Och_114-EFIVNFKETQKIMMVYSDIDA--LKITEINAEARFLHDGG--LDST---QRYFLTAANARGKVAIVDTKEDKLVAVLDVG--KIPHPGRG
Roseobacter_litoralis_Och_149-EFIVNFKETQKIMMVYSDMDA--LKITEINAEARFLHDGG--LDST---QRYFLTAANARGKVAIVDTKEDKLVAVLDVG--KIPHPGRG
Rhodothermus_marinus_DSM_4252-EFIVNFKETQKILLVYSDIKN--LKTVEIAERFLHDGG--WDHT---KRYFLVAANNSNKVAIVDTKEDKLVAVLDVG--KIPHPGRG
Methylomirabilis_oxifera_FT565575-EFIVNFKETQLLWVYSDIKN--LKTMTQIGERFLHDGG--WDS T---KRYFMAAANMANKVAIVDTKEDKLVAVLDVG--KIPHPGRG
Kuenenia_stuttgartiensis_CTS73071-EFIVNFKETQLLLVYSDIKN--LKVTTIESERFLHDGG--WDS S---HRYFLVAANNSNKVAIVDTKEDKLVAVLDVG--KIPHPGRG
Nitratiruptor_sp_SB155-2-EFIVNFKETQKILLVYSDIKN--LKTVEIAERFLHDGG--WDLT---KRYFLVAANARNKVAIVDTKEDKLVAVLDVG--KIPHPGRG
Methylomonas_methanica_MC09-IFAIALENAGQVWIVDYKEDGFP-VT-KIEKVGRLHDAF--LTHG---GKLMVAS YDSS IVAAIDLKRLIKLQLPAG--CVPHVGGG
Methylomonas_sp_16a_GQ241349-VFAIALENAGQVWIVDYKEDGFP-VT-KIEKVGRLHDAF--LTHG---GKLMVAS YDSS IVAAIDLKRLIKLQLPAG--CVPHVGGG
Methylobacter_tundripaludum_SV96-IFAIALENAGQVWVVDLK-EGFP-VT-KIENVGRHLHDAF--LSHG---GKLMVAS YDSS IVTAIDLKRIKLEAG--CVPHVGGG
Methylomicrobium_album_BG8-VLVVALENAGQVWVVDLK-DDFP-VT-KIENVGRHLHDAF--LTHN---GKLMVAS YDSS IVTAIDLKRIKLEAG--CVPHVGGG
Nitratifactor_salsuginis_DSM_16511-YFSAALKDGGHVYIVDYKEDGFP-VG-IDGIPNIGILHDAF--ENEGVDEGFRVYVAS QGSDLMGVVDLKTCKLAAKLYTGPGRKPHGQG
Sulfurovum_sp_NBC37-1-YFSAALKDAGHVYIVDYKEDGFP-IVGDIPNIGILHDAF-ENEGVDEGFRVYVAS QGSDLMGVVDLKTCKLAAKLYTGPGRKPHGQG
Sulfurimonas_autotrophica_DSM_16294-YIAPALKDAGHVYIVDYKEDGFP-IVGDIPNIGILHDAF-ENEGVDEGFRVYVAS QGSDLMGVVDLKTCKLAAKLYTGPGRKPHGQG
Sulfurimonas_denitrificans_DSM_1251-YFSAALKDGGHVYIVDYKEDGFP-IVGDIPNIGILHDAF-LNEGKEIGRYLF IAS QGSDVGVVDLKTCKLAAKLYTGPGRKPHGQG
Sulfurimonas_gotlandica_GD1-YIAPALKDGGHVYIVDYKEDGFP-IVGDIPNIGILHDAF-LNEGKEIGRYLF IAS QGSDVGVVDLKTCKLAAKLYTGPGRKPHGQG

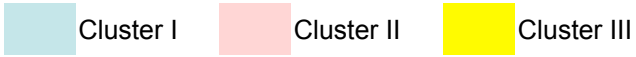


Figure S1, Wei et al.

(d)

Halomonas_alimentaria_FJ686149--ANFVDPFHGPPVWATSHLGDATIQIGTDP----EGHPDPAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Halomonas_sp_PBN3--ANFVDPFHGPPVWATSHLGDATIQIGTDP----EGHPDPAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Halomonas_shengliensis_FJ686158--ANFVDPFHGPPVWATSHLGDATIQIGTDP----EGHPDPAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Halomonas_denitrificans_GQ384047--ANFVDPFHGPPVWATSHLGDATIQIGTDP----EGHPDPAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Halomonas_fontilapidosi_FJ686147--ANFVDAEHGPPVWATSHLGDNTISLIGTDP----EGHPDPAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Halomonas_cerina_GQ384052--ANFVDPFHGPPVWATSHLGDATVQLIGTDP----EGHPDPAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Halomonas_nitroreducens_FJ686148--ANFVDPFHGPPVWATSHLGDNTIQIGTDP----EGHPDPAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Kangiella_koreensis_DSM_16069--ANFIDPDNGPPVWATSLGNANITLIGTDP----EKHKDPAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Marinobacter_aquaeolei_VT8--ANFVDPFHGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--TVDGQGGGSLFIKTHPESDNLVVD
Marinobacter_sp_ATCC49840--ANFVDPFHGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--TVDGQGGGSLFIKTHPESDNLVVD
Marinobacter_sp_C1870--ANFVDPFHGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--TVDGQGGGSLFIKTHPESDNLVVD
Hahella_chejuensis_KCTC_2396--ANFTDAKYGPPVWATSHLGDGSIQIGTDP----DKHGDYAWKQVVR--SLNAQGGGSLFIKTHPESDNLVVD
Pseudomonas_stutzeri_ATCC_17588--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----DKHPKNAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Pseudomonas_stutzeri_CCUG_29243--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----DKHPKNAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Pseudomonas_fluorescens_Q8r1-96--ANFNHPLYGPPVWATSHLGDAGVSLIGTDP----VNHPPQYAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Pseudomonas_sp_I-Bh25-14--ANFNHPLYGPPVWATSHLGDQTIQIGTDP----KHPQYAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Pseudomonas_aeruginosa_PA7--ANFVHPKFGPPVWATSHLGDGSIQIGTDP----KHPQYAWKQVVR--ELQGGGSLFIKTHPESDNLVVD
Pseudomonas_aeruginosa_PA01--ANFVHPKFGPPVWATSHLGDGSIQIGTDP----KHPQYAWKQVVR--ELQGGGSLFIKTHPESDNLVVD
Pseudomonas_aeruginosa_LES858--ANFVHPKFGPPVWATSHLGDGSIQIGTDP----KHPQYAWKQVVR--ELQGGGSLFIKTHPESDNLVVD
Achromobacter_sp_DBN3--ANFVHPKFGPPVWATSHLGDGSIQIGTDP----KHPQYAWKQVVR--ELQGGGSLFIKTHPESDNLVVD
Burkholderia_cepacia_AB092344--ANFVHPKFGPPVWATSHLGDGSIQIGTDP----KHPQYAWKQVVR--ELQGGGSLFIKTHPESDNLVVD
Thiobacillus_denitrificans_ATCC_25259--ANFVDPKFGPPVWATSHLGDGSIQIGTDP----VKHKAQAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Dechloromonas_aromatica_RCB--ANFIDPKFGPPVWATSHLGDGSIQIGTDP----KHPDPAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Dechlorosoma_suillum_PS--ANFVDPKFGPPVWATSHLGDGSIQIGTDP----VKHGDPAWQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Aromatoleum_aromaticum_EbN1--ANFTHPKYGPVWATSHLGDQTIQIGTDP----VKHKQYAWKQVVR--TLKSQGGGSLFIKTHPESDNLVVD
Azoarcus_sp_KH32C--ANFVHPKFGPPVWATSHLGDGSIQIGTDP----EKHKQYAWKQVVR--TLKSQGGGSLFIKTHPESDNLVVD
Rubrivivax_gelatinosus_IL144--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----VKHKQYAFKQVVR--KLTGGGSLFIKTHPESDNLVVD
Alicyclophillus_denitrificans_K601--ANFTHPKYGPVWATSHLGDQTIQIGTDP----KKNKQYAFKQVVR--KLTGGGSLFIKTHPESDNLVVD
Acidovorax_ebreus_TPSY--ANFTHPKYGPVWATSHLGDQTIQIGTDP----KKNKQYAFKQVVR--KLTGGGSLFIKTHPESDNLVVD
Acidovorax_sp_J842--ANFTHPKYGPVWATSHLGDQTIQIGTDP----KKNKQYAFKQVVR--KLTGGGSLFIKTHPESDNLVVD
Aquaspirillum_sp_DSM_12823--ANFKHPKFGPPVWATSHLGDGSIQIGTDP----KKNKDHAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Comamonas_denitrificans_DQ865926--ANFKHPKFGPPVWATSHLGDGSIQIGTDP----KKNKDHAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Comamonas_nitratorans_FN555565--ANFKHPKFGPPVWATSHLGDGSIQIGTDP----KKNKDHAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Brachymonas_denitrificans_AB196831--ANFVHPKFGPPVWATSHLGDGSIQIGTDP----VKHKAQAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Brachymonas_denitrificans_CBG92409--ANFVHPKFGPPVWATSHLGDGSIQIGTDP----VKHKAQAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Sideroxydans_lithotrophicus_ES-1--ANFIDPKFGPPVWATSHLGDGSIQIGTDP----VKHKQNAWQVVR--TITGGGSLFIKTHPESDNLVVD
Pseudogulbenkiania_sp_NH88--ANFVHPKFGPPVWATSHLGDGSIQIGTDP----VKHKQYAWKQVVR--SIQGGGSLFIKTHPESDNLVVD
Herbaspirillum_sp_I-Bh15-17--ANFMHPKFGPPVWATSHLGDGSIQIGTDP----VKHKAQAWKQVVR--TITGGGSLFIKTHPESDNLVVD
Cupriavidus_metallidurans_CH34--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----INHKAQAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Cupriavidus_necator_location_1.778--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----INHKAQAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Burkholderiaceae_bacterium_N52--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----VAHKAQAWKQVVR--TLEGQGGGSLFIKTHPESDNLVVD
Cupriavidus_sp_N24--ANFAHPKFGPPVWATSHLGDQTIQIGTDP----VGHKAQAWKQVVR--TVKGGGSLFIKTHPESDNLVVD
Ralstonia_eutropha_JMP134--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----VGHKAQAWKQVVR--TVKGGGSLFIKTHPESDNLVVD
Cupriavidus_taiwanensis_LMG_19424--ANFTHPQFGPPVWATSHLGDQTIQIGTDP----AGHPAQAWKQVVR--TVKGGGSLFIKTHPESDNLVVD
Ralstonia_pickettii_DTP0602--ANFTHPQFGPPVWATSHLGDQTIQIGTDP----AGHPAQAWKQVVR--TVKGGGSLFIKTHPESDNLVVD
Cupriavidus_necator_N-1--ANFTHPQFGPPVWATSHLGDQTIQIGTDP----VGHKAQAWKQVVR--TVKGGGSLFIKTHPESDNLVVD
Ralstonia_eutropha_H16--ANFMHPKFGPPVWATSHLGDQTIQIGTDP----AGHPAQAWKQVVR--TVKGGGSLFIKTHPESDNLVVD
Accumulibacter_phosphatis_UW-1--ANFKHPKFGPPVWATSHLGDQTIQIGTDP----AGNPPQAWKQVVR--ELKNGGSLFIKTHPESDNLVVD
Dechlorospirillum_sp_I-Bh37-22--ANFTHPQFGPPVWATSHLGDQTIQIGTDP----EKHPQYAWKQVVR--ELKNGGSLFIKTHPESDNLVVD
Thaueria_sp_M21T--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----QKMPGAGNLFVKTHPESDNLVVD
Pseudomonas_stutzeri_DSM_10701--ANFVHPQFGPPVWATSHLGDQTIQIGTDP----ELKMPGAGNLFVKTHPESDNLVVD
Bordetella_petrii_AM902716--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----ELKMPGAGNLFVKTHPESDNLVVD
Comamonadaceae_bacterium_I-Bh25-7--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----EIKKHV-PGNLFVKTHPESDNLVVD
Magnetospirillum_magneticum_AMB-1--TNFVHPKFGPPVWATSHLGDQTIQIGTDP----KHPKQAWKQVVR--SLTGGGSLFIKTHPESDNLVVD
Rhodanobacter_sp_D206a--ANFTHPQFGPPVWATSHLGDQTIQIGTDP----EKKNQNAWQVVR--KVNQGGGSLFIKTHPESDNLVVD
occus_pantotrophus_location_1.1791--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--SFPALGGGSLFIKTHPESDNLVVD
Paracoccus_sp_62--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--SFPALGGGSLFIKTHPESDNLVVD
Paracoccus_denitrificans_PD1222--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--SFPALGGGSLFIKTHPESDNLVVD
Paracoccus_sp_I-Bh37-1--ANFVHPKFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--SFPALGGGSLFIKTHPESDNLVVD
Polymorphum_gilvum_SL0038-26A1--ANFTHPQFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--SFPALGGGSLFIKTHPESDNLVVD
Labrenzia_sp_C1B10--ANLHPKFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--TLYGLGGGSLFIKTHPESDNLVVD
Stappia_aggregata_IAM_12614--ANLHPKFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--TLYGLGGGSLFIKTHPESDNLVVD
Ruegeria_pomeroyi_D88-3--ANLHPKFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--TLYGLGGGSLFIKTHPESDNLVVD
Dinoroseobacter_shibae_DFL_12--ANLHPKFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--QLYAMGGGSLFIKTHPESDNLVVD
Roseobacter_denitrificans_Och_114--ANLHPKFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--QLYAMGGGSLFIKTHPESDNLVVD
Roseobacter_litoralis_Och_149--ANLHPKFGPPVWATSHLGDQTIQIGTDP----EGHPDPAWQVVR--QLYAMGGGSLFIKTHPESDNLVVD
Rhodothermus_marinus_DSM_4252--ANFYNPYGHVWATSHLGDQTIQIGTDP----GPNQMKVVKLELPGVGGGSLFIKTHPESDNLVVD
Methylomirabilis_oxifera_FP565575--ANWIDPKFGPPVWATSHLGDQTIQIGTDP----AKHK-ESAWKQVVR--DLKTLGGGSLFIKTHPESDNLVVD
Kuenenia_stuttgartiensis_CT573071--TNFKDPEYGVWYATPHLGEAAVLCVTKP----RHDKTENRWKQVVR--KLVAGDGGSLFIKTHPESDNLVVD
Nitratiruptor_sp_SB155-2--ANVSHPKYGIWCTGHIIGSDVVCIGTDP----TYHPQYAWRVVADIKLPGNGGSLFIKTHPESDNLVVD
Methylomonas_methanica_MC09--SAVKVDGRTLFGFTNFGDCDKMVSVWDL-----DKMEVVKQ--VPVSGGTESPAAHANAPYVAVDII
Methylomonas_sp_16a_GQ241349--AAVVVDGRTLFGFTNFGDCDKMVSVWDL-----DKMEVVKQ--VPVSGGTESPAAHANAPYVAVDII
Methylobacter_tundripaludum_SV96--SVVEVDGRTLFGFTNFGDCDKMVSVWDL-----DKMEVVKQ--VPVSGGTESPAAHANAPYVAVDII
Methylomicrobium_album_BG8--AAVQVDGRTLFGFTNFGDCDKMVSVWDL-----DKMEVVKQ--VPVSGGTESPAAHANAPYVAVDII
Nitratiraptor_salsuginis_DSM_16511--SSWYNDKYG-QLNATN-SMNVGDVVIWNNM-----DN-KVVAN--VPTAGGGLFVGTGSEHTPFIWSD
Sulfurovum_sp_NBC37-1--SSWFNKKMGKQLNATN-SMNVGDVVIWNNM-----PSWKIVK--IKTSGGGLFVGTGSEHTPFIWSD
Sulfurimonas_autotrophica_DSM_16294--SSWYNDRYG-QLYATN-SMNVGDVVIWNNM-----SNWDDVAH--VRTAGGGLFVGTGSEHTPFIWSD
Sulfurimonas_denitrificans_DSM_1251--SSWYNETLGGQLGATV-NMNLGQVTIWD-----DHFVDVIRQ--IPTGGGGLFVGTGSEHTPFIWSD
Sulfurimonas_gotlandica_GD1--SSWYNEQLGGQLGATV-NMNLGQVTIWD-----DNFVDVIRQ--IPIGGGGLFVGTGSEHTPFIWSD

Cluster I Cluster II Cluster III

Figure S1 Wei et al.

(a)

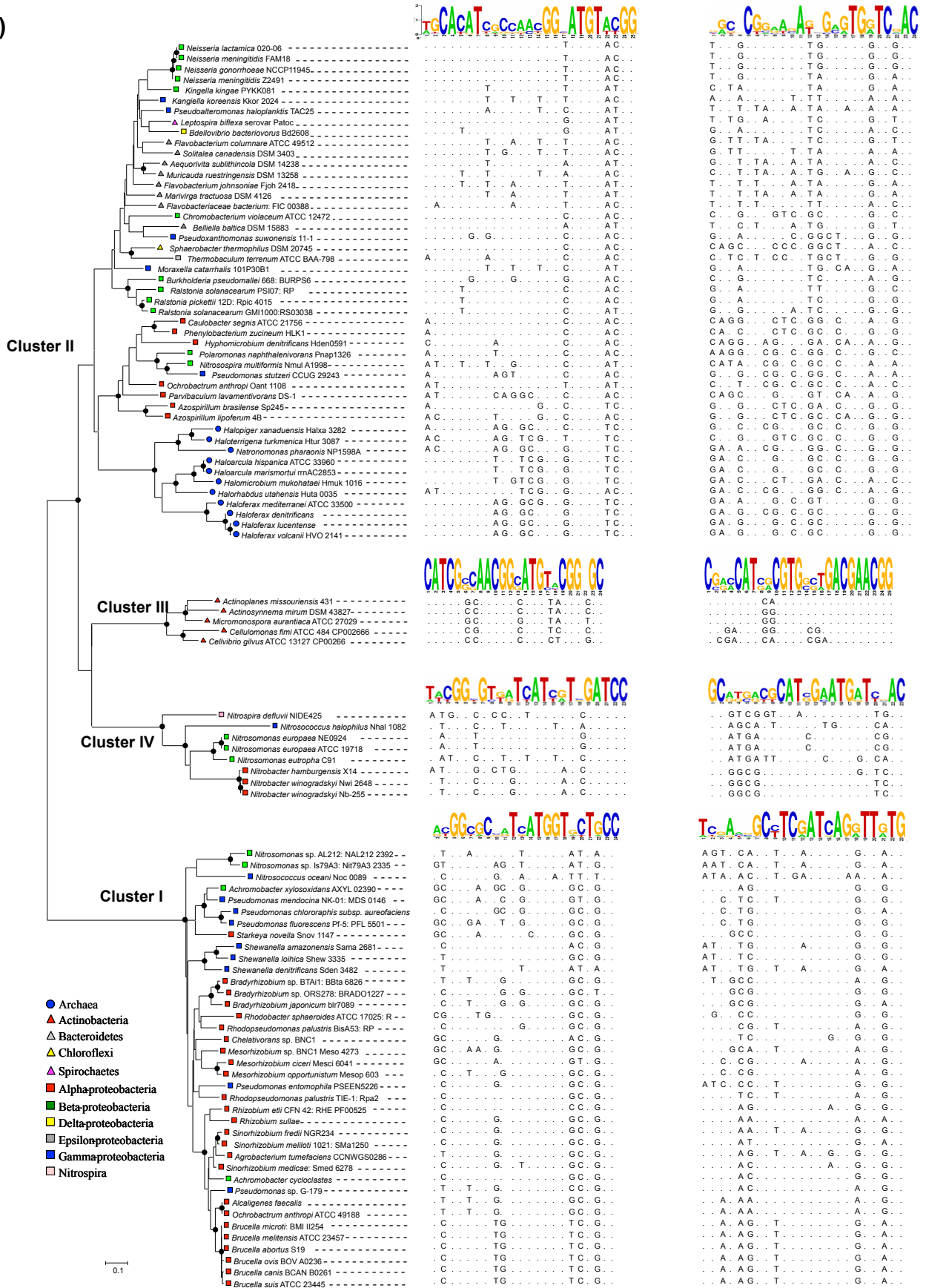


Figure S2, Wei et al.

(b)

- △ Bacteroidetes
- ▲ Candidate division NC10
- ▲ Planctomycetes
- Alpha-proteobacteria
- Beta-proteobacteria
- Epsilon-proteobacteria
- Gamma-proteobacteria

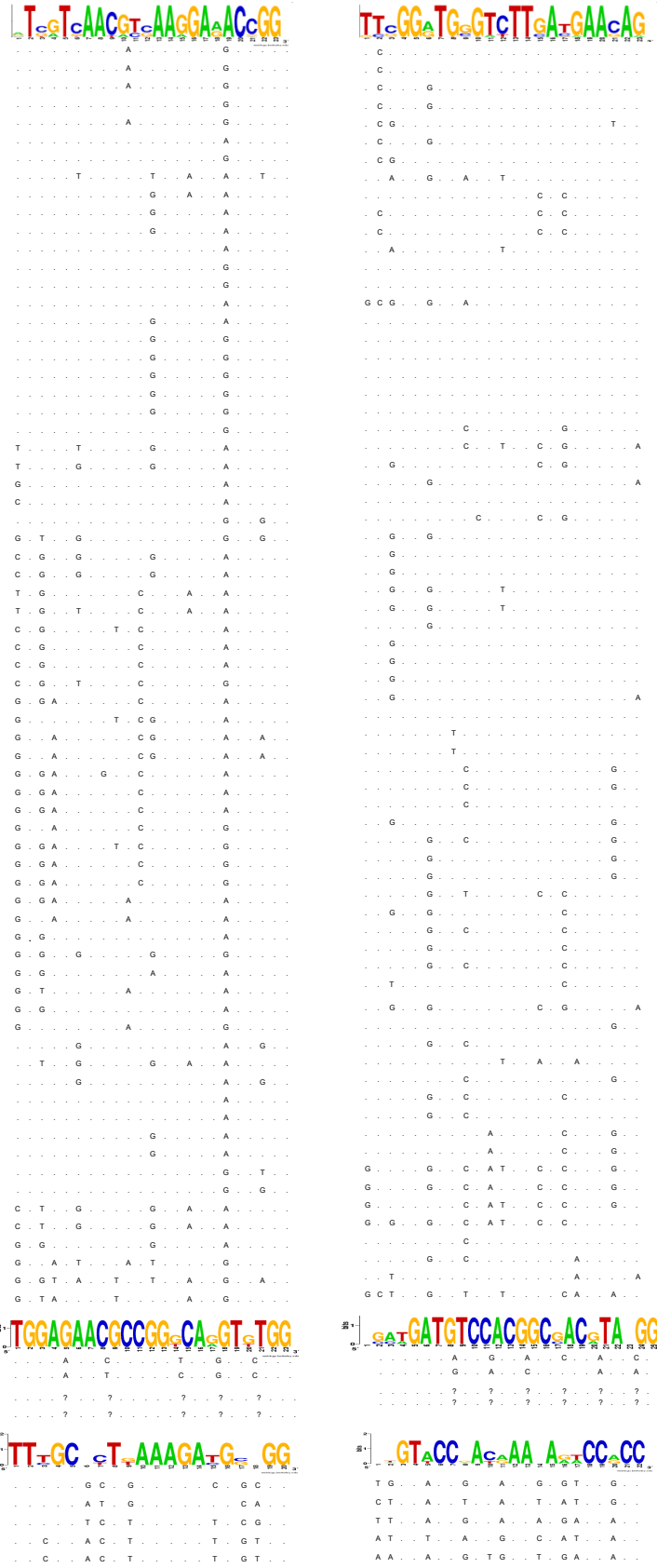
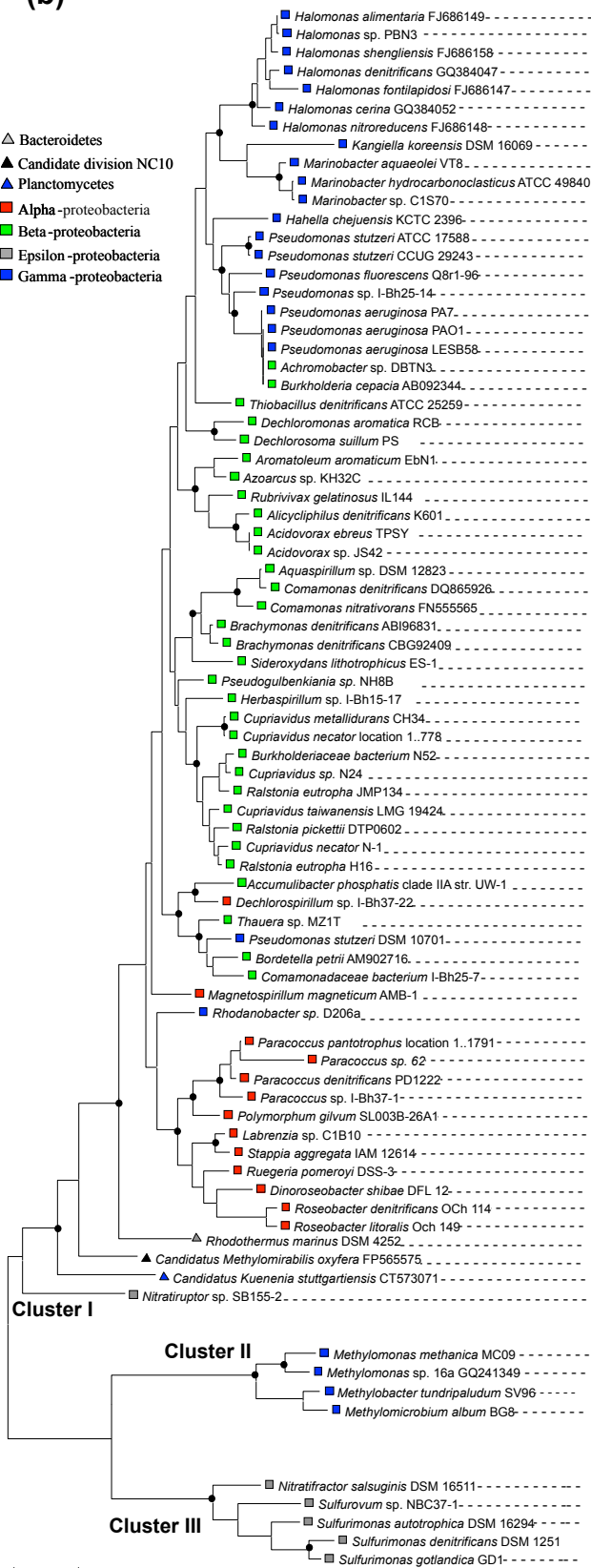


Figure S2, Wei et al.

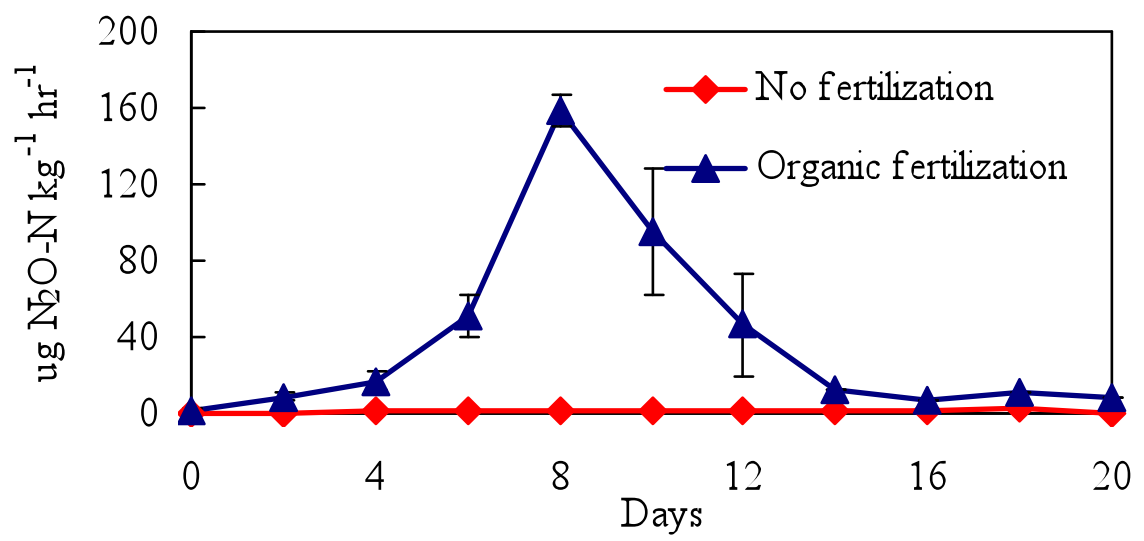
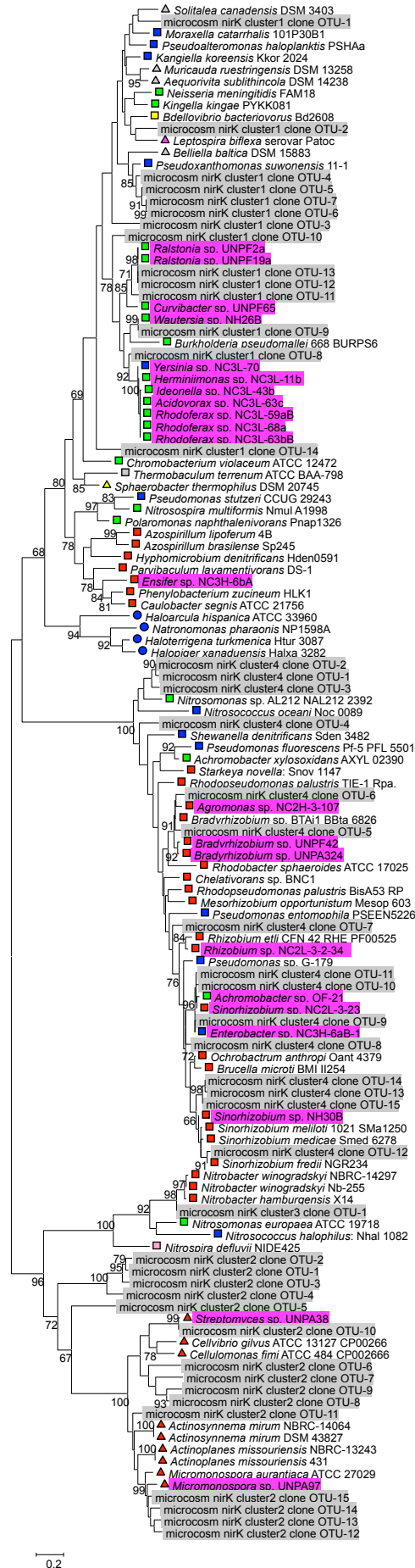


Figure S3, Wei et al.

(a)

- Archaea
- ▲ Actinobacteria
- △ Bacteroidetes
- ▲ Chloroflexi
- ▲ Spirochaetes
- Alpha-proteobacteria
- Beta-proteobacteria
- Delta-proteobacteria
- Epsilon-proteobacteria
- Gamma-proteobacteria
- Nitrospira



Cluster II

Cluster I

Cluster IV

Cluster III

Figure S4, Wei et al.

(b)

- △ Bacteroidetes
- ▲ Candidate division NC10
- ▲ Planctomycetes
- Alpha -proteobacteria
- Beta -proteobacteria
- Epsilon -proteobacteria
- Gamma -proteobacteria



Cluster I

Cluster III

Cluster II

Figure S4 Wei et al.