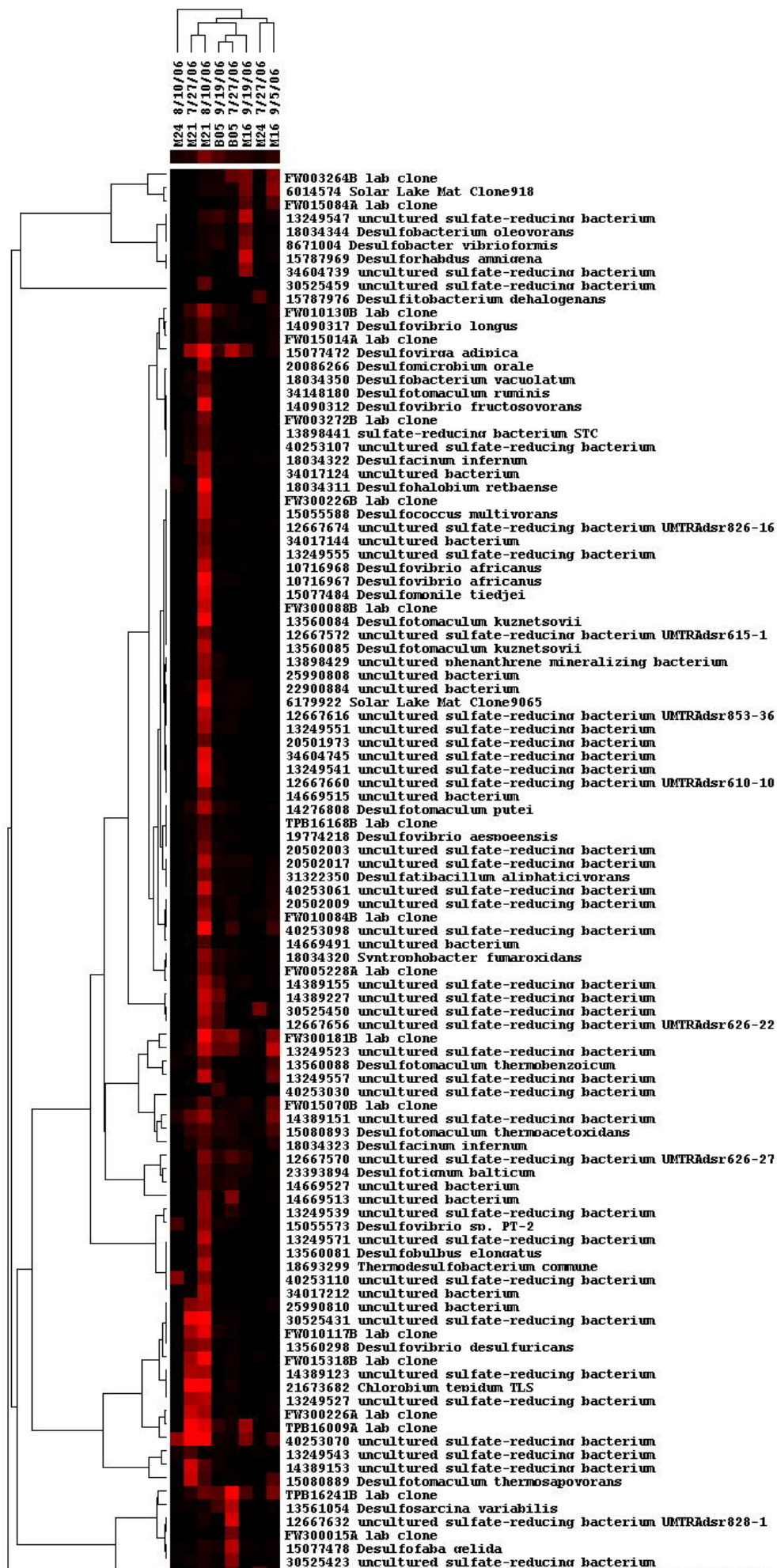
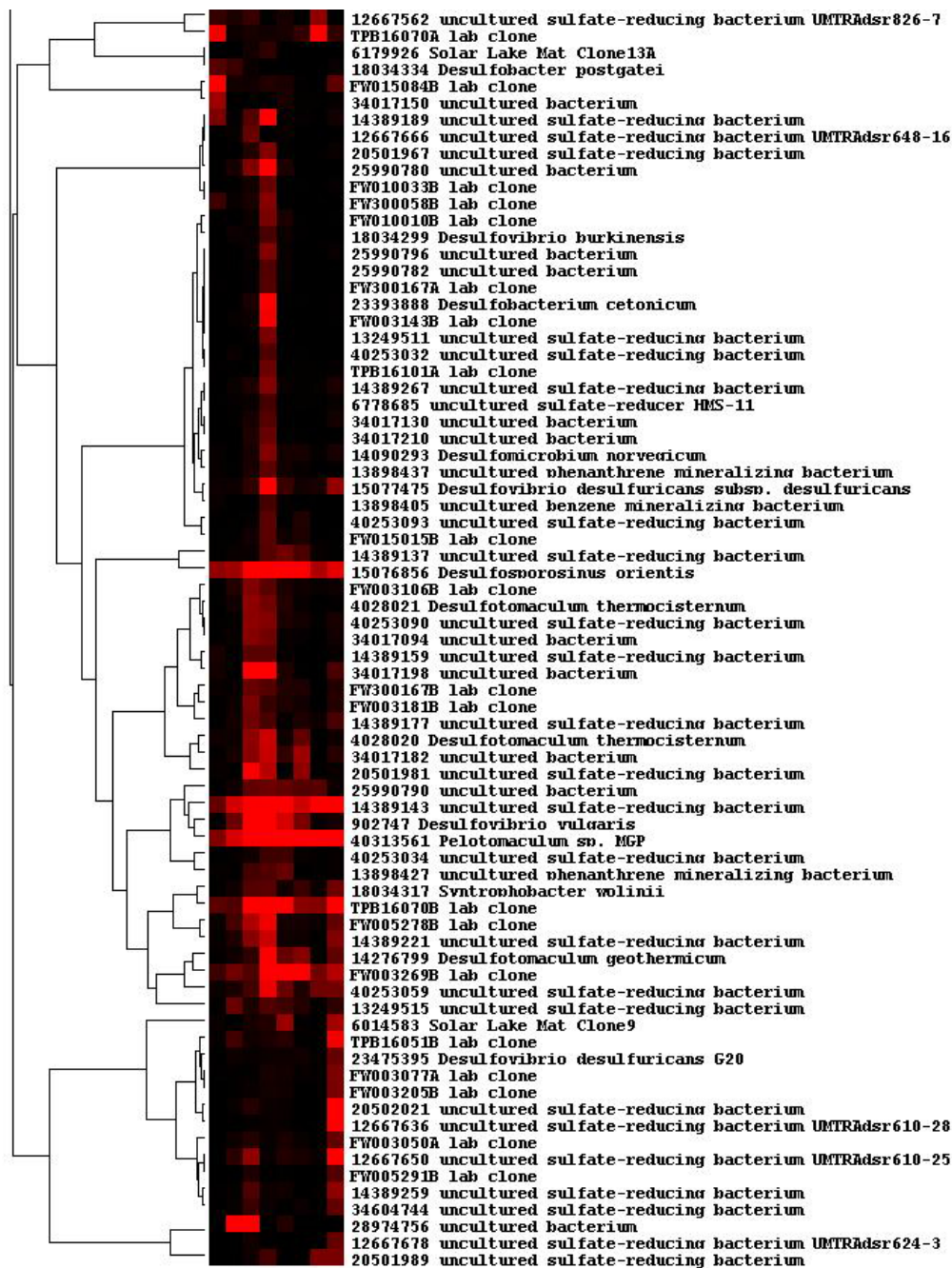


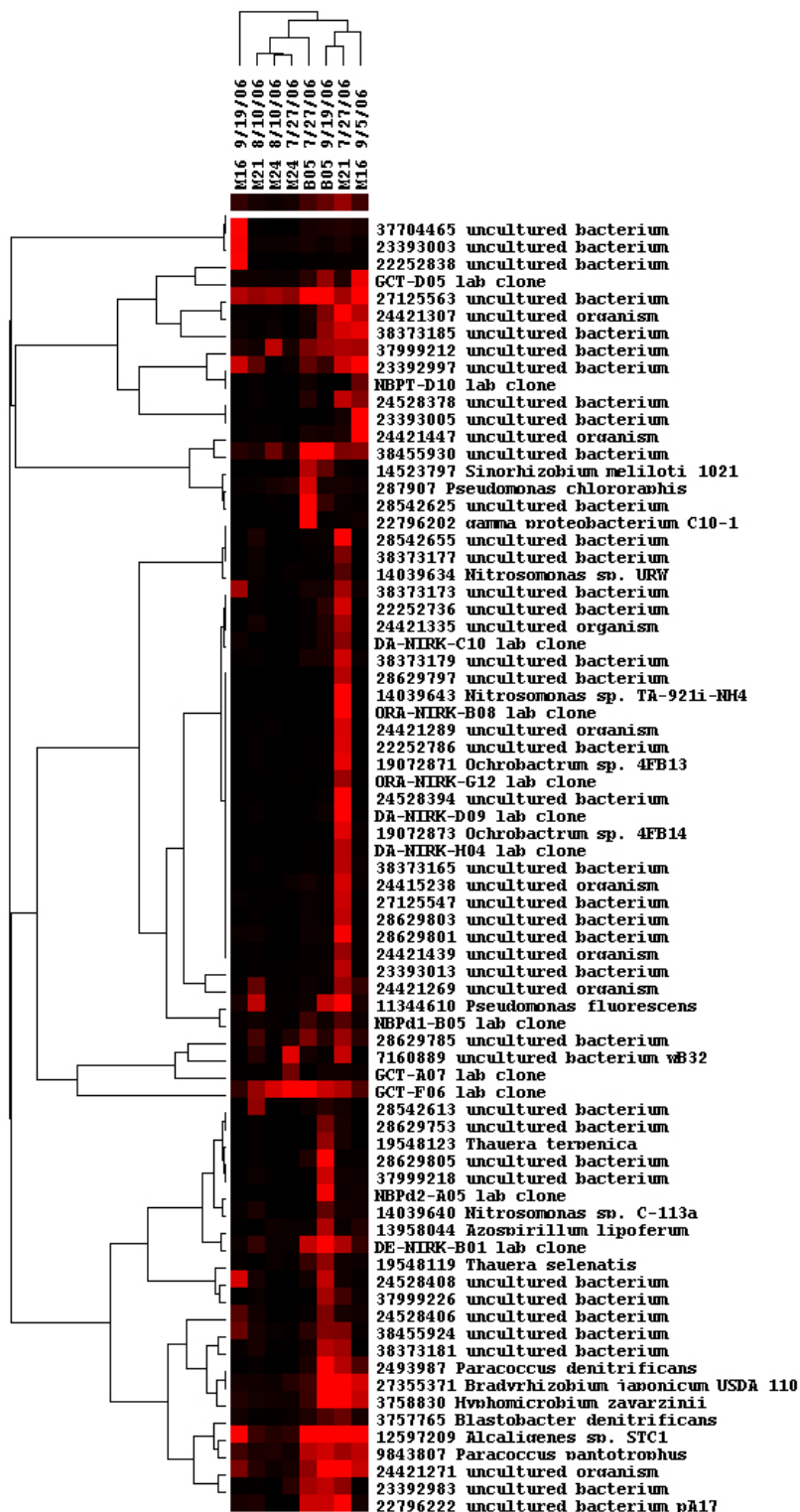
Supplementary Figure 1 Hierarchical cluster of sulfate reduction related *dsrAB* functional genes. Red indicates signal intensities above background while black indicates signal intensities below background. Brighter red colouring indicates higher signal intensities. The bar of colors below the sample names indicates the average signal intensities of each sample.



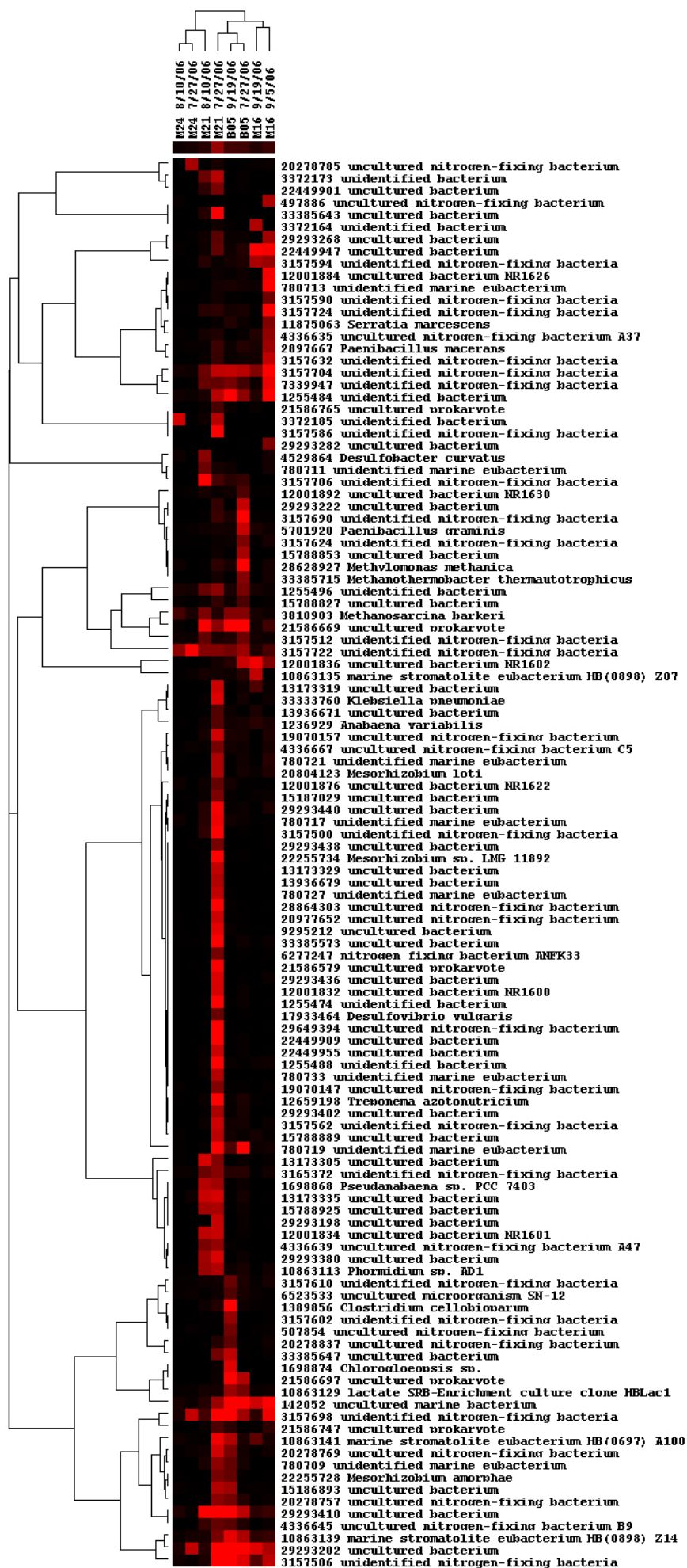




Supplementary Figure 3 Hierarchical cluster of denitrification related *nirS/K* functional genes. Red indicates signal intensities above background while black indicates signal intensities below background. Brighter red colouring indicates higher signal intensities. The bar of colors below the sample names indicates the average signal intensities of each sample.



Supplementary Figure 4 Hierarchical cluster of nitrogen fixation related *nifH* functional genes. Red indicates signal intensities above background while black indicates signal intensities below background. Brighter red colouring indicates higher signal intensities. The bar of colors below the sample names indicates the average signal intensities of each sample.



Supplementary Figure 5 Hierarchical cluster of carbon degradation related functional genes. Red indicates signal intensities above background while black indicates signal intensities below background. Brighter red colouring indicates higher signal intensities. The bar of colors below the sample names indicates the average signal intensities of each sample.

