Table S1. Names of phylum/superphylum level groupsa in different sequence databasesb

| **SILVA 132** |  **Greengenes (Aug 2013)** | **RDP 11** | **NCBI (Taxonomy browser)** | **Alternative names** |
| --- | --- | --- | --- | --- |
| Acetothermia | OP1 | Acetothermia | Candidatus Bipolaricaulota | KB1, OP1, MSBL6, Fraserbacteria |
| Acidobacteria | Acidobacteria | Acidobacteria | Acidobacteria |  |
| Acidobacteria;Aminicenantia | OP8 | Aminicenantes | Candidatus Aminicenantes | OP8 |
| Acidobacteria;Fischerbacteria |  |  | Candidatus Fischerbacteria |  |
| Acidobacteria;Thermoanaerobaculales;Thermoanaerobaculaceae;TPD-58 | TPD-58 |  | Acidobacteria;Acidobacteria subdivision 23 |  |
| Actinobacteria | Actinobacteria | Actinobacteria | Actinobacteria |  |
| Aegiribacteria |  |  | Candidatus Aegiribacteria | Hyd24-12 |
| Aerophobetes | CD12 |  | Candidatus Aerophobetes | CD12 |
| AncK6 | AncK6 |  |  |  |
| Aquificae | Aquificae | Aquificae | Aquificae |  |
| Armatimonadetes | Armatimonadetes |  | Armatimonadetes | OP10 |
| Atribacteria | OP9 | Atribacteria | Candidatus Atribacteria | JS1, OP9 |
| Bacteriodetes;Ignavibacteria |  | Ignavibacteriae |  | Includes ZB1 |
| Bacteroidetes | Bacteroidetes | Bacteroidetes | Bacteroidetes |  |
| Bacteroidetes;Chlorobia | Chlorobi | Chlorobi |  |  |
| Bacteroidetes;OC31 | OC31 |  |  |  |
| Bacteroidetes;Rhodothermia |  |  | Rhodothermaeota |  |
| Bacteroidetes;Rhodothermia;Balneolales |  |  | Balneolaeota |  |
| BHI80-139 | BHI80-139 |  | Candidate division BHI80-139 |  |
| BRC1 | BRC1 | BRC1 |  |  |
| Caldiserica | Caldiserica | Caldiserica | Caldiserica | OP5, WCHB1-03 |
| Calditrichaeota | Caldithrix |  | Calditrichaeota | KSB1 |
| Calescamantes |  | Candidatus Calescamantes | Candidatus Calescamantes | EM19 |
| Chlamydiae | Chlamydiae | Chlamydiae | Chlamydiae | Includes GN13 |
| Chloroflexi | Chloroflexi | Chloroflexi | Chloroflexi | Includes MSBL5 |
| Chloroflexi;AD3 | AD3 |  | Candidate division AD3 |  |
| Chloroflexi;Ktedonobacteria;MVP-21 | MVP-21 |  |  | GN14 |
| Chrysiogenetes | Chrysiogenetes | Chrysiogenetes | Chrysiogenetes |  |
| CK-2C2-2 |  |  |  |  |
| Cloacimonetes | WWE1 | Cloacimonetes | Candidatus Cloacimonetes | WWE1, MSBL2 |
| Coprothermobacterota |  |  | Coprothermobacterota |  |
| Cyanobacteria | Cyanobacteria | Cyanobacteria | Cyanobacteria | Oxyphotobacteria |
| Cyanobacteria;Melainabacteria |  |  | Candidatus Melainabacteria |  |
| Dadabacteria | SBR1093 |  | Candidatus Dadabacteria | SBR1093 |
| Deferribacteres | Deferribacteres | Deferribacteres | Deferribacteres |  |
| Deinococcus-Thermus | Thermi | Deinococcus-Thermus | Deinococcus-Thermus |  |
| Dependentiae | TM6 |  | Candidatus Dependentiae | TM6 |
| Desantisbacteria |  |  | Candidatus Desantisbacteria |  |
| Dictyoglomi | Dictyoglomi | Dictyoglomi | Dictyoglomi |  |
| Edwardsbacteria |  |  | Candidatus Edwardsbacteria |  |
| Elusimicrobia | Elusimicrobia | Elusimicrobia | Elusimicrobia | TG1 |
| Entotheonellaeota |  |  | Candidatus Tectomicrobia;Candidatus Entotheonella | Tectomicrobia |
| Epsilonbacteraeota |  |  |  |  |
| FBP | FBP |  | Abditibacteriota |  |
| FCPU426 | FCPU426 |  | Candidate division FCPU426 |  |
| Fervidibacteria | OctSpa1-106 |  | Candidatus Fervidibacteria | OctSpa1-106 |
| Fibrobacteres | Fibrobacteres | Fibrobacteres | Fibrobacteres | Includes GN09 and GOUTA4 |
| Fibrobacteres;Fibrobacteria;Fibrobacterales;Candidatus Raymondbacteria |  |  | Candidatus Raymondbacteria |  |
| Firestonebacteria |  |  | Candidatus Firestonebacteria |  |
| Firmicutes | Firmicutes | Firmicutes | Firmicutes | Bacillota |
| Fusobacteria | Fusobacteria | Fusobacteria | Fusobacteria |  |
| GAL15 | GAL15 |  | Candidate division GAL15 | Galena 15 |
| GBS-1 |  |  |  |  |
| Gemmatimonadetes | Gemmatimonadetes | Gemmatimonadetes | Gemmatimonadetes | KS-B, GN12 |
| GN01 | GN01 |  | Candidate division GN01 |  |
| Halanaerobiaeota |  |  | Firmicutes;Clostridia;Halanaerobiales |  |
| Hydrogenedentes | NKB19 | Hydrogenedentes | Candidatus Hydrogenedentes | NKB19 |
| Hydrothermae |  |  | Candidatus Hydrothermae | EM3 |
| Kiritimatiellaeota |  |  | Kiritimatiellaeota | Verrucomicrobia subdivision 5, MSBL3 |
| Latescibacteria | WS3 | Latescibacteria | Candidatus Latescibacteria | WS3, Eisenbacteria, GN03 |
| LCP-89 | LCP-89 |  |  |  |
| Lentisphaerae | Lentisphaerae | Lentisphaerae | Lentisphaerae | vadinBE97 |
| Lindowbacteria |  |  | Candidatus Lindowbacteria |  |
| Margulisbacteria |  |  | Candidatus Margulisbacteria |  |
| Marinimicrobia (SAR406 clade) | SAR406 | Marinimicrobia | Candidatus Marinimicrobia | Marine group A |
| MAT-CR-M4-B07 | MAT-CR-M4-B07 |  |  |  |
| Modulibacteria | KSB3 |  |  | KSB3, GN06 |
| Nitrospinae |  | Nitrospinae | Nitrospinae |  |
| Nitrospirae | Nitrospirae | Nitrospirae | Nitrospirae | Thermodesulfovibrio |
| Omnitrophicaeota | OP3 | Omnitrophica | Candidatus Omnitrophica | OP3, MSBL4 and includes WOR-2  |
| Patescibacteria;ABY1 |  |  |  |  |
| Patescibacteria;ABY1;Candidatus Buchananbacteria |  |  | Candidatus Buchananbacteria |  |
| Patescibacteria;ABY1;Candidatus Falkowbacteria |  |  | Candidatus Falkowbacteria |  |
| Patescibacteria;ABY1;Candidatus Jacksonbacteria |  |  | Candidatus Jacksonbacteria |  |
| Patescibacteria;ABY1;Candidatus Kerfeldbacteria |  |  | Candidatus Kerfeldbacteria | Veblenbacteria |
| Patescibacteria;ABY1;Candidatus Komeilibacteria |  |  | Candidatus Komeilibacteria |  |
| Patescibacteria;ABY1;Candidatus Kuenenbacteria |  |  | Candidatus Kuenenbacteria |  |
| Patescibacteria;ABY1;Candidatus Magasanikbacteria |  |  | Candidatus Magasanikbacteria |  |
| Patescibacteria;ABY1;Candidatus Uhrbacteria |  |  | Candidatus Uhrbacteria |  |
| Patescibacteria;Berkelbacteria |  |  | Candidatus Berkelbacteria | ACD58 |
| Patescibacteria;CPR2 |  |  | Candidate division CPR2 |  |
| Patescibacteria;Gracilibacteria |  |  | Candidatus Gracilibacteria | Includes GN02, GN07, GN08, BD1-5, ACD80 |
| Patescibacteria;Gracilibacteria;Absconditabacteriales (SR1) | SR1 | SR1 | Candidate division SR1 | Absconditabacteria |
| Patescibacteria;Gracilibacteria;Candidatus Abawacabacteria |  |  | Candidatus Abawacabacteria | GN10 |
| Patescibacteria;Gracilibacteria;Candidatus Peregrinibacteria |  |  | Candidatus Peregrinibacteria | PER, includes GN11 |
| Patescibacteria;Kazania | Kazan-3B-28 |  | Candidate division Kazan-3B-28 |  |
| Patescibacteria;MD2896-B216 |  |  |  |  |
| Patescibacteria;Microgenomatia | OP11 | Microgenomates | Candidatus Microgenomates | CPR3 |
| Patescibacteria;Microgenomatia;Candidatus Amesbacteria |  |  | Candidatus Amesbacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Beckwithbacteria |  |  | Candidatus Beckwithbacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Chrisholmbacteria |  |  | Candidatus Chisholmbacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Collierbacteria |  |  | Candidatus Collierbacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Curtissbacteria |  |  | Candidatus Curtissbacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Daviesbacteria |  |  | Candidatus Daviesbacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Gottesmanbacteria |  |  | Candidatus Gottesmanbacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Levybacteria |  |  | Candidatus Levybacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Pacebacteria |  |  | Candidatus Pacebacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Roizmanbacteria |  |  | Candidatus Roizmanbacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Shapirobacteria |  |  | Candidatus Shapirobacteria |  |
| Patescibacteria;Microgenomatia;Candidatus Woesebacteria |  |  | Candidatus Woesebacteria | Blackburnbacteria |
| Patescibacteria;Microgenomatia;Candidatus Woykebacteria |  |  | Candidatus Woykebacteria |  |
| Patescibacteria;Parcubacteria | OD1 | Parcubacteria | Candidatus Parcubacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Adlerbacteria |  |  | Candidatus Adlerbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Azambacteria |  |  | Candidatus Azambacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Brennerbacteria |  |  | Candidatus Brennerbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Campbellbacteria |  |  | Candidatus Campbellbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Colwellbacteria |  |  | Candidatus Colwellbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Doudnabacteria |  |  | Candidatus Doudnabacteria | SM2F11 |
| Patescibacteria;Parcubacteria;Candidatus Giovannonibacteria |  |  | Candidatus Giovannonibacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Jorgensenbacteria |  |  | Candidatus Jorgensenbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Kaiserbacteria |  |  | Candidatus Kaiserbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Liptonbacteria |  |  | Candidatus Liptonbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Lloydbacteria |  |  | Candidatus Lloydbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Moranbacteria |  |  | Candidatus Moranbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Nealsonbacteria |  |  | Candidatus Nealsonbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Nomurabacteria |  |  | Candidatus Nomurabacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Portnoybacteria |  |  | Candidatus Portnoybacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Ryanbacteria |  |  | Candidatus Ryanbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Spechtbacteria |  |  | Candidatus Spechtbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Staskawiczbacteria |  |  | Candidatus Staskawiczbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Terrybacteria |  |  | Candidatus Terrybacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Vogelbacteria |  |  | Candidatus Vogelbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Wolfebacteria |  |  | Candidatus Wolfebacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Yanofskybacteria |  |  | Candidatus Yanofskybacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Yonathbacteria |  |  | Candidatus Yonathbacteria |  |
| Patescibacteria;Parcubacteria;Candidatus Zambryskibacteria |  |  | Candidatus Zambryskibacteria |  |
| Patescibacteria;Parcubacteria;GWA2-38-13b |  |  | Candidatus Andersenbacteria | Andersenbacteria |
| Patescibacteria;Saccharimonadia | TM7 | Candidatus Saccharibacteria | Candidatus Saccharibacteria | TM7 |
| Patescibacteria;WS6 (Dojkabacteria) | WS6 |  | Candidatus Dojkabacteria | Candidate division WS6 |
| Patescibacteria;WWE3 |  |  | Candidate division WWE3    | Katanobacteria |
| PAUC34f | PAUC34f |  |  |  |
| Planctomycetes | Planctomycetes | Planctomycetes | Planctomycetes |  |
| Poribacteria | Poribacteria | Poribacteria | Candidatus Poribacteria |  |
| Proteobacteria | Proteobacteria | Proteobacteria | Proteobacteria |  |
| Proteobacteria;Deltaproteobacteria;Thermodesulfobacteriales |  | Thermodesulfobacteria | Thermodesulfobacteria |  |
| Rokubacteria |  |  | Candidatus Rokubacteria | CSP1-6, Candidate division SPAM |
| Rokubacteria;NC10 | NC10 |  | Candidate division NC10    |  |
| RsaHF231 |  |  |  |  |
| Schekmanbacteria |  |  | Candidatus Schekmanbacteria |  |
| Spirochaetes | Spirochaetes | Spirochaetes | Spirochaetes | Includes GN05 |
| Synergistetes | Synergistetes | Synergistetes | Synergistetes |  |
| TA06 | TA06 |  | Candidate division TA06    |  |
| Tenericutes | Tenericutes | Tenericutes | Tenericutes |  |
| Thermosulfidibacteraeota |  |  | Aquificae;Aquificales;Thermosulfidibacter |  |
| Thermotogae | Thermotogae | Thermotogae | Thermotogae |  |
| Verrucomicrobia | Verrucomicrobia |  | Verrucomicrobia |  |
| WOR-1 |  |  |  |  |
| WPS-2 | WPS-2 | Candidate division WPS-2    | Candidate division WPS-2    |  |
| WS1 | WS1 |  | Candidate division WS1 |  |
| WS2 | WS2 |  | Candidate division WS2    |  |
| WS4 | WS4 |  | Candidate division WS4    |  |
| Zixibacteria |  |  | Candidate division Zixibacteria | RBG-1, GN04, GN15 |
|  | AC1 |  | Candidate division AC1 |  |
|  |  |  | Candidate division CAB-I |  |
|  |  |  | Candidate division JL-ETNP-Z39 |  |
|  |  |  | Candidate division KD3-62 |  |
|  |  |  | Candidate division kpj58rc    |  |
|  |  |  | Candidate division KSA1    |  |
|  |  |  | Candidate division KSA2    |  |
|  |  |  | Candidate division KSB2    |  |
|  |  |  | Candidate division KSB4    |  |
| Polyphyletic  | NPL-UPA2 |  | Candidate division NPL-UPA2    |  |
|  |  |  | Candidate division NT-B4    |  |
|  |  |  | Candidate division OP2    |  |
|  |  |  | Candidate division OP4    |  |
|  |  |  | Candidate division OP6    |  |
|  |  |  | Candidate division OP7    |  |
|  |  |  | Candidate division OS-K    |  |
|  |  |  | Candidate division RF3    |  |
|  |  |  | Candidate division SAM    |  |
|  |  |  | Candidate division Sediment-1    |
|  |  |  | Candidate division Sediment-2    |
|  |  |  | Candidate division Sediment-3    |
|  |  |  | Candidate division Sediment-4    |
|  |  |  | Candidate division TG2    |  |
|  |  |  | Candidate division VC2    |  |
|  |  |  | Candidate division WOR-3    |  |
|  |  | Candidate division WPS-1    | Candidate division WPS-1    |  |
|  | WS5 |  | Candidate division WS5    |  |
|  |  |  | Candidate division WYO    |  |
|  | ZB3 | Candidate division ZB3 | Candidatus Margulisbacteria;Candidatus Marinamargulisbacteria |  |
|  |  |  | Candidatus Abyssubacteria | SURF-CP-1 |
|  |  |  | Candidatus Aureabacteria  |  |
|  |  |  | Candidatus Coatesbacteria |  |
|  |  |  | Candidatus Delongbacteria |  |
|  |  |  | Candidatus Fermentibacteria |  |
|  |  |  | Candidatus Glassbacteria |  |
|  |  |  | Candidatus Goldbacteria |  |
|  |  |  | Candidatus Handelsmanbacteria |  |
| Polyphyletic |  |  | Candidatus Niyogibacteria |  |
|  |  |  | Candidatus Riflebacteria |  |
|  |  |  | Candidatus Sumerlaeota |  |
| Polyphyletic |  |  | Candidatus Sungbacteria |  |
|  |  |  | Candidatus Tagabacteria |  |
| Polyphyletic |  |  | Candidatus Taylorbacteria |  |
| Polyphyletic |  |  | Candidatus Wildermuthbacteria |  |
|  |  |  | Candidate division CPR1 |  |
|  | H-178 |  |  |  |
|  |  |  | Candidatus Kryptonia |  |
|  | LDI |  |  |  |
|  | MVS-104 |  |  |  |
|  | SC4 |  |  |  |
|  | VHS-B3-43 |  |  |  |
|  |  |  | Candidatus Wallbacteria |  |
|   |   |   | Candidatus Wirthbacteria |   |

a The following phylum-level groups have been proposed but the names are not listed in any of the four databases: Guyamas1 (Teske et al., 2002) and SC3 (Dunbar et al., 2002).

b References for databases used: SILVA 132 (Quast et al., 2013;Yilmaz et al., 2014), RDP (Cole et al., 2014), GreenGenes (DeSantis et al., 2006), NCBI Taxonomy Browser (Benson et al., 2009;Sayers et al., 2009).

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