

**Supplemental Table 1(b). Actinobacterial signature proteins which are not present in *Bifidobacterium longum* and *Tropheryma whipplei***  
**Gao, B., Parmanathan, R. and Gupta, R.S. (2006) Antonie van Leeuwenhoek, 90(1):69-91.**

| Protein                            | ML1485<br>[NP_302044]                   | ML2075<br>[NP_302384]               | Lxx03620<br>[YP_061480]         | ML0234<br>[NP_301294] | ML0898<br>[NP_301682]        | ML0904<br>[NP_301687]    | ML0986<br>[NP_301731]    | ML1067<br>[NP_301785]                   | ML1165<br>[NP_301850]             |
|------------------------------------|---|-------------------------------------|---------------------------------|-----------------------|------------------------------|--------------------------|--------------------------|---|-----------------------------------|
| Length                             | 207 aa                                  | 251 aa                              | 51 aa                           | 112 aa                | 134 aa                       | 134 aa                   | 67 aa                    | 75 aa                                   | 108 aa                            |
| Possible function                  | oxidoreductase                          | MerR                                | Unknown                         | Lsr2                  | Unknown                      | Unknown                  | Unknown                  | Unknown                                 | Clp                               |
| <i>Mycobacterium leprae</i>        | 1e-111 (207)                            | 2e-111 (251)                        | ---                             | 7e-45 (112)           | 9e-72 (134)                  | 6e-55 (134)              | 2e-32 (67)               | 8e-37 (75)                              | 3e-58 (108)                       |
| <i>Mycobacterium tuberculosis</i>  | 3e-90 (207)                             | 2e-98 (247)                         | 3e-08 (53)                      | 8e-42 (112)           | 9e-59 (146)                  | 1e-44 (134)              | 3e-27 (68)               | 9e-33 (75)                              | 1e-44 (101)                       |
| <i>Mycobacterium avium</i>         | 7e-86 (207)                             | 9e-95 (250)                         | ---                             | 3e-42 (112)           | 3e-58 (154)                  | 1e-38 (133)              | 6e-27 (68)               | ---                                     | 1e-46 (105)                       |
| <i>Mycobacterium bovis</i>         | 3e-90 (207)                             | 2e-98 (247)                         | 3e-08 (53)                      | 8e-42 (112)           | 1e-57 (146)                  | 1e-44 (134)              | 3e-27 (68)               | 9e-33 (75)                              | 1e-44 (101)                       |
| <i>Nocardia farcinica</i>          | 4e-72 (213)                             | 7e-52 (269)                         | 1e-08 (51)                      | 4e-28 (120)           | 2e-22 (122)                  | 3e-21 (139)              | 2e-13 (64)               | 2e-22 (55)                              | 6e-29 (106)                       |
| <i>Corynebacterium glutamicum</i>  | 4e-53 (203)                             | 4e-40 (252)                         | 6e-08 (51)                      | ---                   | 4e-14 (123)                  | 2e-05 (129)              | 8e-07 (78)               | 3e-11 (55)                              | 6e-24 (124)                       |
| <i>Corynebacterium efficiens</i>   | 1e-47 (206)                             | 5e-40 (260)                         | 7e-08 (51)                      | ---                   | 2e-17 (123)                  | 2e-06 (171)              | 4e-08 (71)               | 3e-11 (55)                              | 1e-23 (101)                       |
| <i>Corynebacterium diphtheriae</i> | 4e-52 (206)                             | 7e-36 (225)                         | 2e-09 (51)                      | 3e-05 (105)           | 4e-15 (122)                  | 2e-05 (134)              | 2e-05 (63)               | 1e-10 (58)                              | 3e-25 (113)                       |
| <i>Corynebacterium jeikeium</i>    | 4e-48 (224)                             | 3e-39 (245)                         | 2e-09 (52)                      | 1e-07 (114)           | ---                          | 4e-04 (136)              | 3e-06 (68)               | ---                                     | 1e-22 (101)                       |
| <i>Streptomyces avermitilis</i>    | 8e-57 (212)                             | 2e-35 (251)                         | 1e-09 (53)                      | 2e-17 (111)           | 2e-14 (121)                  | 9e-14 (130)              | 9e-09 (64)               | 2e-19 (81)                              | 1e-23 (105)                       |
| <i>Streptomyces coelicolor</i>     | 1e-56 (216)                             | 1e-37 (246)                         | 1e-09 (53)                      | 4e-17 (111)           | 6e-16 (121)                  | 8e-13 (135)              | 9e-09 (64)               | 2e-19 (74)                              | 6e-24 (105)                       |
| <i>Thermobifida fusca</i>          | 3e-53 (204)                             | ---                                 | 1e-08 (57)                      | 6e-20 (111)           | 8e-12 (125)                  | 7e-11 (125)              | 1e-07 (82)               | 3e-17 (55)                              | 1e-22 (96)                        |
| <i>Propionibacterium acnes</i>     | ---                                     | 1e-29 (237)                         | ---                             | 1e-11 (105)           | ---                          | ---                      | ---                      | 1e-14 (55)                              | 2e-13 (198)                       |
| <i>Nocardioides sp.</i>            | 9e-56 (208)                             | 8e-40 (246)                         | 5e-07 (51)                      | 1e-15 (108)           | 4e-12 (140)                  | 1e-07 (153)              | 0.062 (64)               | ---                                     | 2e-26 (?)                         |
| <i>Frankia sp. Ccl3</i>            | ---                                     | 2e-33 (258)                         | 1e-09 (79)                      | 1e-16 (113)           | 3e-13 (109)                  | 1e-09 (136)              | 1e-09 (147)              | 1e-18 (55)                              | 5e-26 (119)                       |
| <i>Frankia sp. EAN1pec</i>         | 1e-49 (265)                             | 2e-33 (271)                         | 5e-09 (53)                      | 4e-17 (113)           | 3e-14 (109)                  | 7e-11 (140)              | 2e-09 (69)               | 2e-18 (55)                              | 1e-23 (170)                       |
| <i>Kineococcus radiotolerance</i>  | 1e-59 (215)                             | 6e-38 (425)                         | 6e-12 (53)                      | 4e-14 (121)           | 7e-11 (483)                  | 1e-08 (130)              | ---                      | 3e-17 (55)                              | 2e-21 (99)                        |
| <i>Brevibacterium linens</i>       | 3e-41 (183)                             | ---                                 | 7e-11 (51)                      | 3e-13 (108)           | 3e-11 (116)                  | 4e-04 (136)              | 0.007 (75)               | 1e-14 (56)                              | 2e-17 (84)                        |
| <i>Arthrobacter sp.</i>            | 4e-63 (204)                             | 2e-32 (240)                         | 8e-12 (51)                      | 9e-19 (108)           | 8e-12 (117)                  | 2e-05 (123)              | 3e-04 (74)               | 2e-15 (55)                              | 7e-19 (122)                       |
| <i>Leifsonia xyli</i>              | ---                                     | 2e-29 (230)                         | 2e-26 (55)                      | 9e-14 (114)           | 5e-06 (124)                  | 2e-06 (125)              | 1e-06 (81)               | 1e-12 (57)                              | 4e-18 (97)                        |
| <i>Tropheryma whipplei</i> Twist   | 2e-31 (203)                             | 6e-22 (225)                         | 2e-15 (51)                      | ---                   | ---                          | ---                      | ---                      | ---                                     | ---                               |
| <i>Tropheryma whipplei</i> TW08/27 | 5e-32 (203)                             | 6e-22 (225)                         | ---                             | ---                   | ---                          | ---                      | ---                      | ---                                     | ---                               |
| <i>Bifidobacterium longum</i>      | ---                                     | ---                                 | ---                             | ---                   | ---                          | ---                      | ---                      | ---                                     | ---                               |
| Non-Actinobacteria                 | 1e-04 (83)                              | 1e-05 (151)                         | 9.5 (87)                        | See note 1            | 0.078 (180)                  | 4.3 (458)                | 7.6 (374)                | 2.0 (188)                               | 0.001 (74)                        |
|                                    | <i>Magnetospirillum magnetotacticum</i> | <i>Silicibacter sp.</i> 49/87 (56%) | <i>Chloroflexus aurantiacus</i> |                       | <i>Chlamydomypha abortus</i> | <i>Halobacterium sp.</i> | <i>Magnetococcus sp.</i> | <i>Magnetospirillum magnetotacticum</i> | <i>Thiobacillus denitrificans</i> |

  

| Protein                            | ML1166<br>[NP_301851]    | ML1927<br>[NP_302300]     | ML2156<br>[NP_302419]      | Lxx08190<br>[YP_061831] | Lxx10090<br>[YP_061981] | Lxx16410<br>[YP_062531]       | Tfu_0515<br>[YP_288576]          | Tfu_2498<br>[YP_290554]    |
|------------------------------------|--------------------------|---------------------------|----------------------------|-------------------------|-------------------------|-------------------------------|----------------------------------|----------------------------|
| Length                             | 195 aa                   | 102 aa                    | 753 aa                     | 278 aa                  | 141 aa                  | 264 aa                        | 233 aa                           | 203 aa                     |
| Possible function                  | Unknown                  | Unknown                   | Unknown                    | Unknown                 | RDD                     | Abortive infection            | Unknown                          | membrane protein           |
| <i>Mycobacterium leprae</i>        | 2e-96 (195)              | 3e-51 (102)               | 0 (753)                    | ---                     | ---                     | ---                           | ---                              | ---                        |
| <i>Mycobacterium tuberculosis</i>  | 6e-72 (218)              | 2e-47 (102)               | 0 (756)                    | 5e-85 (280)             | 9e-17 (140)             | ---                           | 2e-42 (231)                      | 2e-27 (217)                |
| <i>Mycobacterium avium</i>         | 1e-68 (195)              | 1e-47 (102)               | 0 (752)                    | 7e-84 (277)             | 4e-14 (176)             | ---                           | 6e-40 (239)                      | 2e-23 (217)                |
| <i>Mycobacterium bovis</i>         | 6e-72 (218)              | 2e-47 (102)               | 0 (756)                    | 5e-85 (280)             | 9e-17 (140)             | ---                           | 2e-42 (231)                      | 2e-27 (217)                |
| <i>Nocardia farcinica</i>          | 3e-36 (195)              | 1e-35 (104)               | 1e-152 (765)               | 1e-65 (285)             | 2e-13 (150)             | 7e-40 (263)                   | 4e-46 (206)                      | 4e-11 (344)                |
| <i>Corynebacterium glutamicum</i>  | 3e-14 (179)              | 5e-08 (84)                | 3e-92 (733)                | 4e-54 (281)             | 1e-17 (157)             | 2e-29 (243)                   | ---                              | ---                        |
| <i>Corynebacterium efficiens</i>   | 2e-14 (180)              | 1e-07 (76)                | 4e-92 (767)                | 2e-54 (302)             | 1e-19 (163)             | 1e-32 (242)                   | ---                              | ---                        |
| <i>Corynebacterium diphtheriae</i> | 9e-16 (178)              | 2e-07 (67)                | 4e-76 (772)                | 8e-56 (280)             | 4e-12 (168)             | 2e-27 (238)                   | ---                              | ---                        |
| <i>Corynebacterium jeikeium</i>    | 2e-13 (189)              | 1e-09 (70)                | 1e-24 (861)                | 1e-58 (276)             | 3e-16 (158)             | 9e-29 (244)                   | ---                              | ---                        |
| <i>Streptomyces avermitilis</i>    | 1e-08 (201)              | 3e-11 (81)                | 3e-78 (860)                | 1e-78 (270)             | 3e-23 (163)             | 1e-46 (266)                   | 4e-57 (248)                      | 2e-27 (239)                |
| <i>Streptomyces coelicolor</i>     | 9e-10 (202)              | 9e-13 (84)                | 2e-79 (867)                | 6e-77 (274)             | 6e-24 (155)             | 8e-47 (275)                   | 7e-57 (260)                      | 1e-25 (231)                |
| <i>Thermobifida fusca</i>          | 6e-11 (182)              | 5e-23 (105)               | ---                        | ---                     | ---                     | 8e-39 (437)                   | 6e-125 (233)                     | 3e-111 (203)               |
| <i>Propionibacterium acnes</i>     | ---                      | 3e-04 (94)                | 3e-39 (709)                | 4e-72 (299)             | 3e-15 (155)             | 1e-42 (278)                   | ---                              | ---                        |
| <i>Nocardioides sp.</i>            | 1e-10 (194)              | 4e-29 (97)                | 3e-85 (728)                | 9e-89 (287)             | 1e-09 (150)             | ---                           | 4e-54 (237)                      | ---                        |
| <i>Frankia sp. Ccl3</i>            | 7e-08 (184)              | 2e-16 (117)               | 3e-53 (768)                | 1e-79 (269)             | 4e-11 (134)             | 4e-38 (272)                   | 1e-55 (283)                      | 3e-22 (266)                |
| <i>Frankia sp. EAN1pec</i>         | 1e-08 (177)              | 1e-21 (221)               | 2e-77 (925)                | 2e-78 (271)             | 3e-11 (125)             | 8e-41 (286)                   | 6e-56 (287)                      | 2e-21 (259)                |
| <i>Kineococcus radiotolerance</i>  | 2e-08 (198)              | 3e-28 (425)               | 2e-81 (789)                | 1e-80 (292)             | 8e-18 (144)             | 1e-38 (258)                   | ---                              | 4e-12 (209)                |
| <i>Brevibacterium linens</i>       | 0.005 (191)              | 7e-20 (88)                | 5e-09 (701)                | 4e-69 (285)             | 2e-14 (109)             | 1e-49 (253)                   | 2e-20 (210)                      | 2e-08 (218)                |
| <i>Arthrobacter sp.</i>            | 4e-05 (188)              | 3e-25 (114)               | 6e-61 (851)                | 3e-69 (283)             | 3e-31 (145)             | 2e-61 (255)                   | 2e-42 (224)                      | 8e-19 (245)                |
| <i>Leifsonia xyli</i>              | 1e-06 (167)              | 4e-22 (99)                | 4e-23 (614)                | 6e-151 (278)            | 9e-78 (141)             | 5e-139 (264)                  | 3e-14 (238)                      | 1e-14 (212)                |
| <i>Tropheryma whipplei</i> Twist   | ---                      | ---                       | ---                        | ---                     | ---                     | ---                           | ---                              | ---                        |
| <i>Tropheryma whipplei</i> TW08/27 | ---                      | ---                       | ---                        | ---                     | ---                     | ---                           | ---                              | ---                        |
| <i>Bifidobacterium longum</i>      | ---                      | ---                       | ---                        | ---                     | ---                     | ---                           | ---                              | ---                        |
| Non-Actinobacteria                 | 0.024 (1954)             | 0.76 (435)                | 0.69 (862)                 | See note 2              | 0.012 (220)             | 6e-04 (701)                   | 1e-04 (189)                      | 1e-04 (202)                |
|                                    | <i>Vibrio vulnificus</i> | <i>Erwinia carotovora</i> | <i>Solibacter usitatus</i> |                         | <i>Nostoc sp.</i>       | <i>Rhodopirellula baltica</i> | <i>Bordetella bronchiseptica</i> | <i>Bacillus halodurans</i> |

- Also found in 2 phages, including: Mycobacteriophage Omega with E-value of 2e-09 (118 aa) [AAN12705] and Mycobacteriophage CJW1 with E-value of 1e-05 (128 aa) [AAN01654]; no other hits other than that were found.
- Lxx08190 is also found in *M. magnetotacticum* MS-1 with E-value of 2e-77 (287 aa) [ZP\_00050655]; next non-actinobacterial hit is *Aspergillus fumigatus* (*Eukaryota*) with E-value of 2.0 (405 aa).