Supplementary Material

***Enterococcus faecalis* bacteriophage 156 is an effective biotechnological tool for reducing the presence of tyramine and putrescine in an experimental cheese model**

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**Supplementary Table 1:** Features of *Enterococcus faecalis* bacteriophage 156. The *Orfs*, gene number, and gene position in the phage 156 genome are shown, as are the predicted functions, molecular weights and isoelectric points of the encoded products. The top BLAST hit and E-value are also indicated.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Orf | Gene | Start (bp) | Stop (bp) | Length (aa) | MW (kDa) | pI | Predicted function | BLAST\_HIT | E-VALUE |
| 001 | phi156\_001 | 47 | 316 | 89 | 10.10 | 9.84 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.08E-57 |
| 002 | phi156\_002 | 337 | 615 | 92 | 10.28 | 9.87 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 7.04E-59 |
| 003 | phi156\_003 | 619 | 1047 | 142 | 16.17 | 4.39 |  | *Enterococcus* phage EFLK1\_ORF203; hypothetical protein; | 1.74E-95 |
| 004 | phi156\_004 | 1047 | 1415 | 122 | 13.82 | 9.59 | Phage terminase, Large subunit | *Enterococcus* phage phiEF24C\_NC\_009904: putative large terminase; | 3.25E-88 |
| 005 | phi156\_005 | 1679 | 2638 | 319 | 37.14 | 9.15 | VSR homing endonuclease | Select seq YP\_009195904.1  VSR homing endonuclease [*Staphylococcus* phage phiIPLA-RODI] | 1E-55 |
| 006 | phi156\_006 | 2702 | 2995 | 97 | 10.89 | 7.92 | Phage terminase, large subunit | *Enterococcus* phage phiEF24C\_NC\_009904: putative large terminase; | 1.41E-57 |
| 007 | phi156\_007 | 3286 | 4215 | 309 | 36.25 | 9 | VSR homing endonuclease | VSR homing endonuclease [*Staphylococcus* phage Quidividi] | 1E-51 |
| 008 | phi156\_008 | 4370 | 5473 | 367 | 41.47 | 6.54 | Phage terminase, large subunit | *Enterococcus* phage phiEF24C\_NC\_009904: putative large terminase; | 0.00E+00 |
| 009 | phi156\_009 | 5573 | 6361 | 262 | 29.54 | 7.58 |  | structural protein [*Staphylococcus* phage pSco-10 | 5E-26 |
| 010 | phi156\_010 | 6466 | 7182 | 238 | 27.49 | 4.65 |  | hypothetical protein EFLK1\_ORF198 [*Enterococcus* phage EFLK1]; | 1.62E-169 |
| 011 | phi156\_011 | 7172 | 7516 | 114 | 12.87 | 6.58 |  | hypothetical protein EFLK1\_ORF197 [*Enterococcus* phage EFLK1]; | 2.00E-77 |
| 012 | phi156\_012 | 7610 | 8479 | 289 | 31.42 | 7.55 | Phage lysin, N-acetylmuramoyl-L-alanine amidase (EC 3.5.1.28) | *Enterococcus* phage phiEF24C\_NC\_009904: putative N-acetylmuramoyl-L-alanine amidase; | 0.00E+00 |
| 013 | phi156\_013 | 8653 | 9291 | 212 | 23.11 | 4.42 | peptidoglycan-binding LysM | putative peptidoglycan-binding LysM [*Enterococcus* phage phiM1EF22] | 1.00E-149 |
| 014 | phi156\_014 | 9435 | 9779 | 114 | 13.51 | 5.9 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.31E-79 |
| 015 | phi156\_015 | 9794 | 11515 | 573 | 64.80 | 5.63 | Portal protein | *Enterococcus* phage phiEF24C\_NC\_009904: putative portal protein; | 0.00E+00 |
| 016 | phi156\_016 | 11525 | 11638 | 37 | 3.94 | 7.95 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.51E-12 |
| 017 | phi156\_017 | 11700 | 12416 | 238 | 26.73 | 5.37 | Putative prohead protease | *Enterococcus* phage phiEF24C\_NC\_009904: putative prohead protease; | 0.00E+00 |
| 018 | phi156\_018 | 12423 | 13367 | 314 | 35.55 | 4.32 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 019 | phi156\_019 | 13508 | 14902 | 464 | 51.18 | 5.39 | Phage major capsid protein | *Enterococcus* phage phiEF24C\_NC\_009904: putative major capsid protein; | 0.00E+00 |
| 020 | phi156\_020 | 15007 | 15270 | 87 | 9.66 | 6.74 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.00E-55 |
| 021 | phi156\_021 | 15283 | 16182 | 299 | 34.02 | 4.89 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 022 | phi156\_022 | 16199 | 17068 | 289 | 32.55 | 6.48 | Phage capsid protein | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; capsid protein; | 0.00E+00 |
| 023 | phi156\_023 | 17061 | 17684 | 207 | 23.73 | 10.46 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.37E-149 |
| 024 | phi156\_024 | 17688 | 18533 | 281 | 31.86 | 4.67 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 025 | phi156\_025 | 18533 | 18772 | 79 | 9.06 | 9.27 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.70E-32 |
| 026 | phi156\_026 | 18776 | 20485 | 569 | 61.89 | 5.27 | Phage major tail sheath protein | *Enterococcus* phage phiEF24C\_NC\_009904: putative tail sheath protein; | 0.00E+00 |
| 027 | phi156\_027 | 20546 | 20968 | 140 | 15.49 | 5.37 | Tail tube subunit | *Enterococcus* phage EFDG1; tail tube subunit; | 3E-96 |
| 028 | phi156\_028 | 21060 | 22157 | 365 | 42.56 | 8.97 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein; | 0.00E+00 |
| 029 | phi156\_029 | 22154 | 22300 | 48 | 5.81 | 4.78 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.44E-23 |
| 030 | phi156\_030 | 22437 | 22910 | 157 | 18.29 | 4.87 | Tail assembly chaperone | Bacillus phage Troll; Tail assembly chaperone; | 1e-37 |
| 031 | phi156\_031 | 22978 | 23553 | 191 | 22.42 | 4.37 | Putative RNA polymerase | *Enterococcus* phage phiEF24C\_NC\_009904: putative RNA polymerase; | 1.76E-135 |
| 032 | phi156\_032 | 23631 | 27254 | 1207 | 128.44 | 8.45 | Putative Tail Lysin | *Enterococcus* phage EFLK1; putative tail lysin;  (endo-beta-N-acetylglucosamidase) | 0.00E+00 |
| 033 | phi156\_033 | 27293 | 30478 | 1061 | 118.14 | 5.27 | Putative tail lysin | *Enterococcus* phage phiM1EF22; putative tail lysin;  (Cell wall associated hydrolase) | 0.00E+00 |
| 034 | phi156\_034 | 30573 | 36041 | 1822 | 202.63 | 4.7 | Putative tail fibre | *Enterococcus* phage EFLK1\_NC\_029026: putative tail fibre; | 0.00E+00 |
| 035 | phi156\_035 | 36264 | 38552 | 762 | 83.90 | 8.46 | Putative minor structural protein | *Enterococcus* phage ECP3\_NC\_027335: putative minor structural protein; | 0.00E+00 |
| 036 | phi156\_036 | 38546 | 39271 | 241 | 27.93 | 4.38 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.48E-171 |
| 037 | phi156\_037 | 39303 | 39449 | 48 | 5.66 | 4.93 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 4.70E-27 |
| 038 | phi156\_038 | 39586 | 40275 | 229 | 25.55 | 9.11 | Structural protein | *Staphylococcus* phage vB\_SauM\_Romulus: structural protein; | 5e-44 |
| 039 | phi156\_039 | 40279 | 40815 | 178 | 20.09 | 4.71 |  | *Enterococcus* phage phiM1EF22: hypothetical protein; | 1E-125 |
| 040 | phi156\_040 | 40802 | 41506 | 234 | 26.36 | 4.69 | Putative baseplate protein | *Enterococcus* phage ECP3\_NC\_027335: putative baseplate; | 3E-173 |
| 041 | phi156\_041 | 41522 | 42574 | 350 | 39.54 | 5.22 | Phage baseplate J protein | *Enterococcus* phage phiEF24C\_NC\_009904: putative structural protein; | 0.00E+00 |
| 042 | phi156\_042 | 42593 | 43993 | 466 | 53.09 | 4.73 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 043 | phi156\_043 | 44099 | 44644 | 181 | 20.35 | 6.61 | Structural phage protein | *Enterococcus* phage phiEF24C\_NC\_009904: structural protein (Virion protein 3); ; Sequence ID: P85227.2 | 4E-131 |
| 044 | phi156\_044 | 44659 | 48123 | 1154 | 128.92 | 4.99 | Putative phage tail adsoption protein | *Enterococcus* phage phiEF24C\_NC\_009904: putative adsorption associated tail protein; | 0.00E+00 |
| 045 | phi156\_045 | 48200 | 48406 | 68 | 7.78 | 5.67 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 5.16E-41 |
| 046 | phi156\_046 | 48661 | 51705 | 1014 | 114.60 | 5.92 | DNA helicase, phage-associated | *Enterococcus* phage phiM1EF22: putative helicase; | 0.00E+00 |
| 047 | phi156\_047 | 51733 | 53361 | 542 | 62.91 | 8.56 | Putative transcriptional regulator | *Enterococcus* phage phiEF24C\_NC\_009904: putative transcriptional regulator; | 0.00E+00 |
| 048 | phi156\_048 | 53394 | 55928 | 844 | 94.70 | 5.47 | Helicase/primase | *Enterococcus* phage EFP01: putative helicase; | 0.00E+00 |
| 049 | phi156\_049 | 55928 | 56983 | 351 | 39.85 | 5.41 | Phage recombination exonuclease | *Enterococcus* phage phiEF24C\_NC\_009904: putative exonuclease; | 0.00E+00 |
| 050 | phi156\_050 | 57099 | 58991 | 630 | 71.34 | 5.13 | Putative exonuclease | *Enterococcus* phage EFLK1\_NC\_029026: putative exonuclease; | 0.00E+00 |
| 051 | phi156\_051 | 59000 | 59665 | 221 | 25.86 | 5.2 |  | *Enterococcus* phage phiEF17H\_NC\_029026.1:hypothetical protein; | 2E-157 |
| 052 | phi156\_052 | 59666 | 60724 | 352 | 40.43 | 7.05 | DNA primase | *Enterococcus* phage phiEF24C\_NC\_009904: putative primase; | 0.00E+00 |
| 053 | phi156\_053 | 60741 | 61373 | 210 | 24.24 | 5.08 | Putative cytidine deaminase | *Enterococcus* phage phiEF17H\_NC\_029026.1:putative cytidine deaminase; | 20E-136 |
| 054 | phi156\_054 | 61399 | 62283 | 294 | 32.75 | 6.04 | Putative deoxyuridine 5'-triphosphate nucleotidohydrolase | *Listeria* phage LMTA-148: putative deoxyuridine 5'-triphosphate nucleotidohydrolase;  (Sequence ID: AID17402.1) | 1E-41 |
| 055 | phi156\_055 | 62286 | 62516 | 76 | 8.95 | 8.66 | Putative dUTPase | *Enterococcus* phage EFLK1\_NC\_029026: putative dUTPase; | 4E-48 |
| 056 | phi156\_056 | 62518 | 62826 | 102 | 12.09 | 9.12 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 3.09E-67 |
| 057 | phi156\_057 | 62840 | 63124 | 94 | 11.07 | 4.51 | Putative phosphotransferase/anion transport protein | *Enterococcus* phage phiEF17H\_NC\_029026.1:putative phosphotransferase/anion transport protein; | 6.81E-67 |
| 058 | phi156\_058 | 63117 | 63488 | 123 | 14.31 | 6.18 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.40E-83 |
| 059 | phi156\_059 | 63508 | 64176 | 222 | 25.72 | 4.93 | Putative holliday junction resolvase | *Enterococcus* phage phiEF24C\_NC\_009904: putative resolvase; | 1.07E-165 |
| 060 | phi156\_060 | 64178 | 64477 | 99 | 11.30 | 5.37 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 4.45E-64 |
| 061 | phi156\_061 | 64483 | 64962 | 159 | 18.44 | 6.31 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 3.86E-113 |
| 062 | phi156\_062 | 65055 | 65849 | 264 | 31.60 | 6.97 | Synaptonemal complex 1 domain containing protein | *Enterococcus* phage EFDG1: synaptonemal complex 1 domain containing protein; | 0.00E+00 |
| 063 | phi156\_063 | 65842 | 66153 | 103 | 11.91 | 9.7 | Integration host factor | *Enterococcus* phage EFLK1\_NC\_029026: integration host factor; | 5E-68 |
| 064 | phi156\_064 | 66243 | 68645 | 800 | 92.83 | 7.27 | Putative DNA polymerase I | *Enterococcus* phage EFLK1\_NC\_029026: putative DNA polymerase; | 0.00E+00 |
| 065 | phi156\_065 | 68815 | 69477 | 220 | 25.63 | 9.3 | HTH homing endonuclease | *Bacillus* phage Grass: HTH homing endonuclease; | 2E-46 |
| 066 | phi156\_066 | 69806 | 70330 | 174 | 20.46 | 5.07 | Putative DNA polymerase I | *Enterococcus* phage ECP3\_NC\_027335: putative DNA polymerase; | 1E-123 |
| 067 | phi156\_067 | 70433 | 70975 | 180 | 21.52 | 5.23 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein; | 0.00E+00 |
| 068 | phi156\_068 | 71032 | 72321 | 429 | 48.21 | 4.85 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 069 | phi156\_069 | 72406 | 73653 | 415 | 46.20 | 5.81 | Phage recombinase | *Enterococcus* phage phiEF24C\_NC\_009904: putative recombinase A; | 0.00E+00 |
| 070 | phi156\_070 | 73707 | 74093 | 128 | 14.71 | 8.57 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.39E-91 |
| 071 | phi156\_071 | 74086 | 74700 | 204 | 23.71 | 6.15 | Putative sigma factor | *Enterococcus* phage phiEF24C\_NC\_009904: putative sigma factor; | 2.99E-145 |
| 072 | phi156\_072 | 74761 | 75036 | 91 | 10.22 | 6.18 | Phage holin protein | *Enterococcus* phage phiEF24C\_NC\_009904: putative holin; | 6.27E-62 |
| 073 | phi156\_073 | 75084 | 76028 | 314 | 34.51 | 4.77 | with Ig-like domain | *Enterococcus* phage phiEF24C\_NC\_009904: putative Ig-like protein; | 0.00E+00 |
| 074 | phi156\_074 | 76061 | 76504 | 147 | 16.62 | 4.58 | structural protein | *Enterococcus* phage phiEF24C\_NC\_009904: structural protein; | 1.76E-100 |
| 075 | phi156\_075 | 76610 | 76906 | 98 | 11.38 | 4.66 |  | *Enterococcus* phage phiEF17H\_NC\_029026.1:hypothetical protein; | 1E-62 |
| 076 | phi156\_076 | 76911 | 77864 | 317 | 35.88 | 5.83 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 077 | phi156\_077 | 77918 | 79201 | 427 | 48.81 | 5.72 | Putative DNA repair protein | *Enterococcus* phage EFDG1: putative DNA repair exonuclease; | 0.00E+00 |
| 078 | phi156\_078 | 79213 | 79587 | 124 | 14.14 | 9.64 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 5.86E-82 |
| 079 | phi156\_079 | 79626 | 80246 | 206 | 23.23 | 5.66 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.08E-147 |
| 080 | phi156\_080 | 80246 | 80986 | 246 | 28.31 | 9.32 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 081 | phi156\_081 | 80976 | 81482 | 168 | 19.13 | 10.38 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 3.60E-115 |
| 082 | phi156\_082 | 81496 | 82353 | 285 | 31.54 | 4.94 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 083 | phi156\_083 | 82457 | 83302 | 281 | 32.29 | 5.01 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein; | 0.00E+00 |
| 084 | phi156\_084 | 83295 | 84923 | 542 | 62.98 | 8.86 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 085 | phi156\_085 | 85242 | 85931 | 229 | 26.29 | 4.86 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 4.00E-165 |
| 086 | phi156\_086 | 85942 | 86409 | 155 | 18.17 | 4.78 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein; | 6.31E-109 |
| 087 | phi156\_087 | 86506 | 88788 | 760 | 86.94 | 4.58 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein; | 0.00E+00 |
| 088 | phi156\_088 | 88848 | 89054 | 68 | 7.46 | 5.43 |  | *Enterococcus* phage ECP3\_NC\_027335: hypothetical protein; | 2E-37 |
| 089 | phi156\_089 | 89073 | 89579 | 168 | 18.50 | 5.57 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 3.82E-114 |
| 090 | phi156\_090 | 89654 | 89824 | 56 | 6.69 | 4.41 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.31E-33 |
| 091 | phi156\_091 | 89814 | 90086 | 90 | 10.32 | 4.41 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.47E-56 |
| 092 | phi156\_092 | 90194 | 90445 | 83 | 9.60 | 9.17 | Putative transcriptional regulator | *Enterococcus* phage phiEF24C\_NC\_009904: putative transcriptional regulator; (XRE family) | 3E-52 |
| 093 | phi156\_093 | 90457 | 90744 | 95 | 11.38 | 4.45 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 6.58E-61 |
| 094 | phi156\_094 | 90747 | 91535 | 262 | 29.74 | 7.55 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 095 | phi156\_095 | 91617 | 92690 | 357 | 38.41 | 4.22 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
| 096 | phi156\_096 | 92816 | 93118 | 100 | 11.56 | 10.33 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein; | 3.05E-66 |
| 097 | phi156\_097 | 93120 | 93422 | 100 | 11.71 | 3.96 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.26E-64 |
| 098 | phi156\_098 | 93425 | 93709 | 94 | 10.33 | 9.48 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 4.18E-55 |
| 099 | phi156\_099 | 93731 | 94081 | 116 | 13.55 | 4.03 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.65E-56 |
| 100 | phi156\_100 | 94108 | 94485 | 125 | 14.49 | 8.86 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 9.74E-80 |
| 101 | phi156\_101 | 94478 | 94708 | 76 | 8.87 | 5.12 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.46E-44 |
| 102 | phi156\_102 | 94712 | 95086 | 124 | 14.23 | 4.58 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.58E-80 |
| 103 | phi156\_103 | 95083 | 95265 | 60 | 7.15 | 4.78 |  | *Enterococcus* phage phiEF17H\_NC\_029026.1:hypothetical protein; | 3E-14 |
| 104 | phi156\_104 | 95266 | 95895 | 209 | 23.79 | 5.18 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.53E-149 |
| 105 | phi156\_105 | 95974 | 96216 | 80 | 9.57 | 5.66 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 5.60E-50 |
| 106 | phi156\_106 | 96233 | 96373 | 46 | 5.53 | 9.33 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 6.68E-24 |
| 107 | phi156\_107 | 96386 | 96718 | 110 | 12.92 | 5.43 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein; | 5E-75 |
| 108 | phi156\_108 | 96783 | 97439 | 218 | 24.61 | 5.07 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.07E-144 |
| 109 | phi156\_109 | 97436 | 97879 | 147 | 16.70 | 5.52 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 7.69E-100 |
| 110 | phi156\_110 | 97932 | 98492 | 186 | 20.97 | 6.83 |  | *Enterococcus* phage EFP01: hypothetical protein; | 1E-113 |
| 111 | phi156\_111 | 98710 | 98946 | 78 | 9.16 | 8.03 |  | *Enterococcus* phage EFDG1: hypothetical protein; | 4E-41 |
| 112 | phi156\_112 | 99008 | 99196 | 62 | 6.86 | 5.19 | XRE family transcriptional regulator | *Enterococcus*: XRE family transcriptional regulator; (HTH motif protein) | 2E-31 |
| 113 | phi156\_113 | 99190 | 99303 | 37 | 4.18 | 4.44 |  | *Enterococcus* phage EFDG1: hypothetical protein; | 5E-16 |
| 114 | phi156\_114 | 99410 | 99652 | 80 | 9.17 | 7.88 |  | *Enterococcus* phage SANTOR1: hypothetical protein; | 7E-51 |
| 115 | phi156\_115 | 99826 | 100275 | 149 | 17.38 | 4.22 |  | *Enterococcus* phage EFP01: hypothetical protein; | 8E-92 |
| 116 | phi156\_116 | 100331 | 100693 | 120 | 13.37 | 12.78 | Putative pyruvate kinase | *Kosakonia oryzae*: pyruvate kinase; | 6E-27 |
| 117 | phi156\_117 | 100894 | 101193 | 99 | 11.15 | 9.03 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.85E-55 |
| 118 | phi156\_118 | 101271 | 101594 | 107 | 12.42 | 4.87 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.08E-63 |
| 119 | phi156\_119 | 101691 | 101831 | 46 | 5.49 | 10.2 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 6.94E-20 |
| 120 | phi156\_120 | 101890 | 102096 | 68 | 7.51 | 9.18 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein\_ORF081; | 4E-38 |
| 121 | phi156\_121 | 102173 | 102424 | 83 | 9.62 | 8.97 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.74E-51 |
| 122 | phi156\_122 | 102491 | 102721 | 76 | 9.02 | 3.76 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.69E-42 |
| 123 | phi156\_123 | 102771 | 102977 | 68 | 7.96 | 6.23 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 6.78E-40 |
| 124 | phi156\_124 | 102996 | 103166 | 56 | 6.84 | 10.13 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 4.78E-30 |
| 125 | phi156\_125 | 103310 | 103639 | 109 | 12.67 | 4.26 |  | *Streptococcus* phage SPQS1]\_NC\_021868: hypothetical protein; | 8E-54 |
| 126 | phi156\_126 | 103721 | 104017 | 98 | 11.33 | 8.87 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 5.05E-67 |
| 127 | phi156\_127 | 104096 | 104308 | 70 | 8.27 | 6.58 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 4.16E-41 |
| 128 | phi156\_128 | 104305 | 104610 | 101 | 11.86 | 6.56 |  | *Enterococcus* phage phiEF17H\_NC\_029026.1:hypothetical protein PHIEF17H\_1280; | 4E-65 |
| 129 | phi156\_129 | 104598 | 104789 | 63 | 7.35 | 4.7 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 4.42E-35 |
| 130 | phi156\_130 | 104801 | 105160 | 119 | 13.95 | 9.99 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 7.09E-74 |
| 131 | phi156\_131 | 106037 | 106219 | 60 | 7.28 | 4.06 |  | *Enterococcus* phage VD13\_NC\_024212: hypothetical protein X878\_0078; | 7E-23 |
| 132 | phi156\_132 | 106301 | 106642 | 113 | 13.04 | 4.28 |  | hypothetical; |  |
| 133 | phi156\_133 | 106700 | 106834 | 44 | 5.14 | 4.55 |  | *Enterococcus* phage phiSHEF2: hypothetical protein phiSHEF2\_59; | 3E-19 |
| 134 | phi156\_134 | 106977 | 107204 | 75 | 8.80 | 5.14 |  | *Enterococcus* phage ECP3\_NC\_027335: hypothetical protein; | 7E-45 |
| 135 | phi156\_135 | 107288 | 107563 | 91 | 10.61 | 7.81 |  | *Enterococcus* phage EF-P29: hypothetical protein EFP29\_02; | 4E-52 |
| 136 | phi156\_136 | 107611 | 107790 | 59 | 6.90 | 9.61 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.01E-35 |
| 137 | phi156\_137 | 107744 | 107899 | 51 | 5.87 | 9.52 |  | *Enterococcus* phage ECP3\_NC\_027335: hypothetical protein; | 0.005 |
| 138 | phi156\_138 | 107982 | 108125 | 47 | 5.74 | 3.96 |  | *Enterococcus* phage ECP3\_NC\_027335: hypothetical protein; | 7E-23 |
| 139 | phi156\_139 | 108405 | 108262 | 47 | 5.43 | 9.68 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.76E-16 |
| 140 | phi156\_140 | 109032 | 108712 | 106 | 12.26 | 5.15 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.25E-68 |
| 141 | phi156\_141 | 109397 | 109086 | 103 | 11.27 | 4.93 |  | *Enterococcus* phage phiEF17H\_NC\_029026.1:hypothetical protein PHIEF17H\_1400; | 4.57E-64 |
| 142 | phi156\_142 | 109658 | 109425 | 77 | 8.60 | 9.52 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 3.41E-06 |
| 143 | phi156\_143 | 109853 | 109659 | 64 | 7.36 | 6 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 3.43E-36 |
| 144 | phi156\_144 | 110374 | 110183 | 63 | 6.99 | 6.53 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 3.98E-37 |
| 145 | phi156\_145 | 110636 | 110418 | 72 | 8.15 | 3.82 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 8.49E-44 |
| 146 | phi156\_146 | 110901 | 110650 | 83 | 9.84 | 4.94 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF050; | 2E-55 |
| 147 | phi156\_147 | 111282 | 110902 | 126 | 14.40 | 4.19 |  | *Enterococcus* phage ECP3\_NC\_027335: hypothetical protein; | 7E-60 |
| 148 | phi156\_148 | 111707 | 111510 | 65 | 7.45 | 4.54 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.18E-41 |
| 149 | phi156\_149 | 112222 | 111707 | 171 | 19.59 | 4.57 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF045; | 2E-122 |
| 150 | phi156\_150 | 112483 | 112235 | 82 | 9.37 | 4.82 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 4.68E-50 |
| 151 | phi156\_151 | 113038 | 112496 | 180 | 21.16 | 5.79 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.54E-108 |
| 152 | phi156\_152 | 113427 | 113035 | 130 | 15.65 | 5.1 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.19E-84 |
| 153 | phi156\_153 | 113780 | 113424 | 118 | 13.77 | 4.67 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 8.89E-80 |
| 154 | phi156\_154 | 113954 | 113784 | 56 | 6.37 | 3.73 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.14E-33 |
| 155 | phi156\_155 | 114484 | 113942 | 180 | 20.80 | 8.4 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF039; | 2E-128 |
| 156 | phi156\_156 | 114951 | 114487 | 154 | 18.06 | 8.81 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF038; | 5E-111 |
| 157 | phi156\_157 | 115418 | 114948 | 156 | 18.23 | 8.39 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF037; | 8E-109 |
| 158 | phi156\_158 | 115634 | 115434 | 66 | 7.86 | 6.24 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF036; | 2E-39 |
| 159 | phi156\_159 | 116112 | 115747 | 121 | 13.90 | 5.51 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF034; | 7.05E-84 |
| 160 | phi156\_160 | 116288 | 116109 | 59 | 6.75 | 3.63 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF033; | 8E-32 |
| 161 | phi156\_161 | 116820 | 116302 | 172 | 19.92 | 9.62 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF032; | 3E-125 |
| 162 | phi156\_162 | 117294 | 116821 | 157 | 18.23 | 6.44 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF031; | 7.50E-92 |
| 163 | phi156\_163 | 117998 | 117291 | 235 | 26.30 | 5.26 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF030; | 6E-174 |
| 164 | phi156\_164 | 118467 | 118027 | 146 | 16.86 | 5.02 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 8.46E-102 |
| 165 | phi156\_165 | 118705 | 118517 | 62 | 7.66 | 5.17 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 5.62E-35 |
| 166 | phi156\_166 | 119163 | 118702 | 153 | 16.79 | 4.05 |  | *Enterococcus* phage phiM1EF22: hypothetical protein PHIM1EF22\_1620 | 9E-105 |
| 167 | phi156\_167 | 119353 | 119177 | 58 | 6.69 | 4.09 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 7.17E-25 |
| 168 | phi156\_168 | 119544 | 119350 | 64 | 7.72 | 6.26 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.67E-32 |
| 169 | phi156\_169 | 119978 | 119541 | 145 | 17.53 | 9.84 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.10E-96 |
| 170 | phi156\_170 | 120810 | 120070 | 246 | 27.73 | 5.06 | Serine/threonine protein phosphatase (EC 3.1.3.16) | *Enterococcus* phage phiEF24C\_NC\_009904: putative serine/threonine protein phosphatase; | 2.05E-177 |
| 171 | phi156\_171 | 121286 | 120807 | 159 | 18.12 | 9.4 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 4.63E-107 |
| 172 | phi156\_172 | 121541 | 121290 | 83 | 10.27 | 9.82 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 9.79E-53 |
| 173 | phi156\_173 | 122149 | 121538 | 203 | 23.54 | 6.87 | putative metallo-dependent phosphatase1 | *Enterococcus* phage EFLK1\_NC\_029026: putative metallo-dependent phosphatase1 | 4E-144 |
| 174 | phi156\_174 | 122512 | 122162 | 116 | 13.44 | 8.67 |  | *Enterococcus* phage phiEF17H\_NC\_029026.1:hypothetical protein PHIEF17H\_1720; | 3E-77 |
| 175 | phi156\_175 | 122625 | 122509 | 38 | 4.22 | 3.84 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.00E-20 |
| 176 | phi156\_176 | 122851 | 122639 | 70 | 7.96 | 4.53 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.22E-42 |
| 177 | phi156\_177 | 123350 | 122937 | 137 | 15.97 | 4.89 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 5.77E-99 |
| 178 | phi156\_178 | 123738 | 123355 | 127 | 14.52 | 4.81 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.30E-85 |
| 179 | phi156\_179 | 124015 | 123740 | 91 | 11.07 | 4.82 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF014; | 3E-60 |
| 180 | phi156\_180 | 124205 | 123978 | 75 | 9.00 | 4.94 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF013; | 5E-47 |
| 181 | phi156\_181 | 124467 | 124294 | 57 | 6.57 | 9.22 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 6.83E-33 |
| 182 | phi156\_182 | 124801 | 124457 | 114 | 13.39 | 4.96 |  | *Enterococcus* phage phiEF17H\_NC\_029026.1:hypothetical protein PHIEF17H\_1790; | 5E-73 |
| 183 | phi156\_183 | 125043 | 124801 | 80 | 9.14 | 4.58 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 6.69E-52 |
| 184 | phi156\_184 | 125290 | 125036 | 84 | 9.97 | 5.03 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 9.99E-54 |
| 185 | phi156\_185 | 125636 | 125301 | 111 | 12.84 | 4.57 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 6.19E-77 |
| 186 | phi156\_186 | 126048 | 125611 | 145 | 17.27 | 5.69 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 3.34E-99 |
| 187 | phi156\_187 | 126525 | 126064 | 153 | 17.40 | 4.84 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF006; | 3.26E-108 |
| 188 | phi156\_188 | 126745 | 126518 | 75 | 8.45 | 5 |  | *Enterococcus* phage EFLK1\_NC\_029026: hypothetical protein EFLK1\_ORF005; | 1E-44 |
| 189 | phi156\_189 | 127164 | 126733 | 143 | 16.69 | 4.66 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 3.26E-102 |
| 190 | phi156\_190 | 127400 | 127167 | 77 | 8.78 | 3.85 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.39E-45 |
| 191 | phi156\_191 | 127828 | 127397 | 143 | 16.47 | 4.74 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 9.23E-96 |
| 192 | phi156\_192 | 128254 | 127832 | 140 | 16.09 | 8.74 | DNA methyltransferase | *Enterococcus* faecalis: DNA (cytosine-5-)-methyltransferase | 2E-81 |
| 193 | phi156\_193 | 128555 | 128325 | 76 | 8.86 | 6.57 | DNA methyltransferase | *Enterococcus* faecalis: DNA (cytosine-5-)-methyltransferase | 6E-45 |
| 194 | phi156\_194 | 129006 | 128677 | 109 | 12.20 | 4.14 | Ribonucleotide reductase class 1b (aerobic), beta subunit | *Enterococcus* phage phiEF24C\_NC\_009904: putative ribonucleotide reductase; | 5.99E-73 |
| 195 | phi156\_195 | 129231 | 129085 | 48 | 5.47 | 8.8 | Putative protein | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; .2; | 1.00E-07 |
| 196 | phi156\_196 | 130003 | 129374 | 209 | 24.35 | 8.82 | HTH homing endonuclease | PHAGE\_Lactoc\_WRP3\_NC\_027341: HTH homing endonuclease; | 3.16E-35 |
| 197 | phi156\_197 | 130705 | 130118 | 195 | 22.43 | 4.83 | Ribonucleotide reductase of class 1b (aerobic), beta subunit (EC 1.17.4.1) | *Enterococcus* phage phiEF24C\_NC\_009904: putative ribonucleotide reductase; | 1.49E-140 |
| 198 | phi156\_198 | 132868 | 130718 | 716 | 80.72 | 5.15 | Ribonucleotide reductase class 1b (aerobic), alpha subunit (EC 1.17.4.1) | *Enterococcus* phage phiEF24C\_NC\_009904: putative ribonucleotide reductase; | 0.00E+00 |
| 199 | phi156\_199 | 133113 | 132871 | 80 | 8.99 | 5.74 | Glutaredoxin-like protein NrdH, required for reduction of Ribonucleotide reductase class Ib | *Enterococcus* phage phiEF24C\_NC\_009904: putative ribonucleotide reductase; | 1.85E-53 |
| 200 | phi156\_200 | 133509 | 133243 | 88 | 9.91 | 4.73 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 1.27E-54 |
| 201 | phi156\_201 | 133820 | 133515 | 101 | 11.90 | 8.65 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.23e-65 |
| 202 | phi156\_202 | 134141 | 133911 | 76 | 8.93 | 8.01 | Putative phage transcriptional regulator protein | *Enterococcus* phage phiEF24C\_NC\_009904: putative transcriptional regulator; (XRE-family transcriptional regulator) | 1e-45 |
| 203 | phi156\_203 | 134429 | 134205 | 74 | 8.44 | 9.81 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2.10e-47 |
| 204 | phi156\_204 | 134824 | 134540 | 94 | 11.07 | 5.03 |  | *Enterococcus* phage phiEF17H\_NC\_029026.1:hypothetical protein PHIEF17H\_2010; | 6e-62 |
|  |  | 134947 | 134876 |  |  |  | tRNA-Thr-TGT | tRNA-Thr-TGT |  |
| 205 | phi156\_205 | 136064 | 134973 | 363 | 41.82 | 4.96 | with ATP binding motive | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 0.00E+00 |
|  |  | 136508 | 136435 |  |  |  | tRNA-Met-CAT | tRNA-Met-CAT |  |
|  |  | 136640 | 136567 |  |  |  | tRNA-Ile-GAT | tRNA-Ile-GAT |  |
|  |  | 137663 | 137590 |  |  |  | tRNA-Arg-TCT | tRNA-Arg-TCT |  |
|  |  | 138220 | 138149 |  |  |  | tRNA-Trp-CCA | tRNA-Trp-CCA |  |
|  |  | 138543 | 138471 |  |  |  | tRNA-Pseudo-GTC | tRNA-Pseudo-GTC |  |
| 206 | phi156\_206 | 139347 | 139213 | 44 | 4.97 | 8.93 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 3E-20 |
| 207 | phi156\_207 | 140360 | 140022 | 112 | 12.66 | 4.99 |  | *Enterococcus* phage phiEF17H\_NC\_029026.1: putative structural protein | 4E-63 |
| 208 | phi156\_208 | 140768 | 140424 | 114 | 13.27 | 4.91 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 8E-76 |
| 209 | phi156\_209 | 141063 | 140803 | 86 | 9.93 | 7.7 |  | *Enterococcus* phage phiEF24C\_NC\_009904: hypothetical protein; | 2E-53 |