

Table S2. BLASTn alignment of homologs phages sequences (at the GenBank database) with isolated phages

| Phage (complete genome) | Phage Family | Genome | Isolated Country | Isolation Source | Lab Host | Accession No. | Lenght (bp) | E value | Query coverage | Percent identity |
|------------------------------------|--------------------------|------------|------------------|---|---|---------------|-------------|---------|----------------|------------------|
| <i>Enterobacter</i> phage KKP 3263 | | | | | | | | | | |
| Escherichia phage vB_EcoP_SP7 | <i>Autographiviridae</i> | Linear DNA | Portugal | Waste water from pig farming | No data | MT682707.1 | 39305 | 0.0 | 87% | 92.52% |
| Escherichia phage Peacock | <i>Autographiviridae</i> | Linear DNA | USA | Waste water treatment plant influent sample | <i>Escherichia coli</i> | MK903279.1 | 39233 | 0.0 | 85% | 93.76% |
| Salmonella phage vB_Sej3-1 | <i>Autographiviridae</i> | Linear DNA | China | No data | <i>Salmonella</i> Typhi CMCC50071 | MW416012.1 | 39619 | 0.0 | 85% | 91.58% |
| Hafnia phage vB_HpaA_yong1 | <i>Autographiviridae</i> | Linear DNA | China | River water | <i>Hafnia paralvei</i> strain LY-23 | MK610268.1 | 40286 | 0.0 | 85% | 92.16% |
| Escherichia phage vB_EcoP_GA2A | <i>Autographiviridae</i> | Linear DNA | Canada | Speed River | <i>Escherichia coli</i> O:45 strain C1328 | KT990215.1 | 40470 | 0.0 | 85% | 92.43% |
| Escherichia phage CLB_P1 | <i>Autographiviridae</i> | Linear DNA | France | No data | No data | KC109329.1 | 40218 | 0.0 | 84% | 93.81% |
| Escherichia phage PE3-1 | <i>Autographiviridae</i> | Linear DNA | China | No data | <i>Escherichia coli</i> O153 | KJ748011.1 | 39093 | 0.0 | 84% | 92.70% |
| Escherichia phage JSS1 | <i>Autographiviridae</i> | Linear DNA | China | No data | <i>Escherichia coli</i> O153 | KX689784.2 | 39024 | 0.0 | 84% | 92.66% |

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| Escherichia phage LM33_P1 | <i>Autographiviridae</i> | Linear DNA | France | No data | <i>Escherichia coli</i> LM33 | LT594300.1 | 38979 | 0.0 | 84% | 93.36% |
| Escherichia phage Mt1B1_P3 | <i>Autographiviridae</i> | Linear DNA | France | Sewage water | <i>Escherichia coli</i> Mt1B1 | MT496969.1 | 40313 | 0.0 | 84% | 93.05% |
| Escherichia virus Vec13 | <i>Autographiviridae</i> | Linear DNA | Russian Federation | Farm sewage | <i>Escherichia coli</i> | NC_048023.1 | 39747 | 0.0 | 84% | 93.13% |
| Escherichia phage DY1 | <i>Autographiviridae</i> | Linear DNA | China | Pearl River | <i>Escherichia coli</i> | MT808983.1 | 39817 | 0.0 | 84% | 92.85% |
| Escherichia phage vB_EcoP_F | <i>Autographiviridae</i> | Linear DNA | United Kingdom | No data | <i>Escherichia coli</i> O18ac:K1:H7 ColV+ | NC_047808.1 | 39300 | 0.0 | 84% | 94.05% |
| Escherichia phage ST31 | <i>Autographiviridae</i> | Circular DNA | USA | No data | <i>Escherichia coli</i> ST130 | NC_047829.1 | 39693 | 0.0 | 84% | 93.52% |
| Citrobacter phage SH3 | <i>Autographiviridae</i> | Linear DNA | Canada | No data | <i>Citrobacter freundii</i> CF3 | KU687349.1 | 39444 | 0.0 | 84% | 94.29% |
| Enterobacteria phage EcoDS1 | <i>Autographiviridae</i> | Linear DNA | USA | No data | <i>Escherichia coli</i> | EU734172.1 | 39252 | 0.0 | 84% | 93.79% |
| <i>Serratia</i> phage KKP 3264 | | | | | | | | | | |
| Escherichia phage arall | <i>Myoviridae</i> | Linear DNA | Denmark | Waste water | <i>Escherichia coli</i> K-12 MG1655 | MN850584.1 | 145715 | 0.0 | 95% | 98.02% |
| Escherichia phage vB_vPM_PD06 | <i>Myoviridae</i> | Circular DNA | USA | No data | <i>Escherichia coli</i> | NC_052653.1 | 149506 | 0.0 | 95% | 98.75% |
| Escherichia phage alia | <i>Myoviridae</i> | Linear DNA | Denmark | Waste water | <i>Escherichia coli</i> K-12 MG1655 | NC_052655.1 | 147009 | 0.0 | 95% | 98.03% |

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| Escherichia phage vB_vPM_PD114 | <i>Myoviridae</i> | Circular DNA | China | No data | <i>Escherichia coli</i> | MH675927.1 | 150354 | 0.0 | 95% | 98.50% |
| Enterobacteria phage ECGD1 | <i>Myoviridae</i> | Linear DNA | China | No data | No data | KU522583.1 | 146647 | 0.0 | 94% | 98.73% |
| Escherichia phage vB_EcoM_PHB05 | <i>Myoviridae</i> | Linear DNA | China | Waste water | Shiga toxin-producing <i>Escherichia coli</i> | NC_052652.1 | 147659 | 0.0 | 94% | 99.03% |
| Escherichia phage inny | <i>Myoviridae</i> | Linear DNA | Denmark | Waste water | <i>Escherichia coli</i> K-12 MG1655 | MN850601.1 | 147483 | 0.0 | 94% | 97.59% |
| Enterobacteria phage phi92 | <i>Myoviridae</i> | Linear DNA | Germany | No data | <i>Escherichia coli</i> K92 | FR775895.2 | 148612 | 0.0 | 94% | 97.96% |
| Escherichia phage outra | <i>Myoviridae</i> | Linear DNA | Denmark | Waste water | <i>Escherichia coli</i> K-12 MG1655 | MN850645.1 | 145482 | 0.0 | 94% | 98.54% |
| Escherichia phage muut | <i>Myoviridae</i> | Linear DNA | Denmark | Waste water | <i>Escherichia coli</i> K-12 MG1655 | NC_052657.1 | 146307 | 0.0 | 94% | 98.41% |
| <i>Enterobacter</i> phage KKP 3262 | | | | | | | | | | |
| Klebsiella phage vB_KaeM_KaAlpha | <i>Myoviridae</i> | Linear DNA | USA | Raw sewage | <i>Klebsiella aerogenes</i> | MN013084.1 | 172334 | 0.0 | 96% | 96.83% |
| Enterobacter phage PG7 | <i>Myoviridae</i> | Linear DNA | China | Fishpond water | <i>Enterobacter cloacae</i> clinial isolate EC7 | KJ101592.1 | 173276 | 0.0 | 95% | 95.32% |

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| Cronobacter phage Pet-CM3-4 | <i>Myoviridae</i> | Linear DNA | Slovakia | Waste water | <i>Cronobacter malonaticus</i> LMG 23826 | NC_055726.1 | 171975 | 0.0 | 94% | 98.29% |
| <i>Citrobacter</i> phage KKP 3664 | | | | | | | | | | |
| Citrobacter phage vB_CfrM_CfP1 | <i>Myoviridae</i> | Linear DNA | Portugal | Waste water plant raw effluent | No data | KX245890.1 | 180219 | 0.0 | 96% | 90.00% |
| Citrobacter phage Miller | <i>Myoviridae</i> | Linear DNA | USA | No data | No data | KM236237.1 | 178171 | 0.0 | 96% | 94.83% |
| Buttiauxella phage vB_ButM_GuL6 | <i>Myoviridae</i> | Linear DNA | Lithuania | No data | <i>Buttiauxella</i> sp. environmental isolate G6 | MT334653.1 | 178039 | 0.0 | 96% | 90.98% |
| Citrobacter phage vB_Cfr_Xman | <i>Myoviridae</i> | Linear DNA | USA | No data | <i>Citrobacter</i> sp. | MW021749.1 | 178331 | 0.0 | 95% | 90.05% |
| Enterobacteria phage RB43, isolate RB43-GVA | <i>Myoviridae</i> | Linear DNA | France | No data | No data | HE858210.2 | 179836 | 0.0 | 95% | 94.70% |
| Enterobacteria phage RB43, isolate RB43-GVA orf057::gfp | <i>Myoviridae</i> | Linear DNA | France | No data | No data | HE981739.1 | 179839 | 0.0 | 95% | 94.70% |
| Enterobacteria phage RB43 | <i>Myoviridae</i> | Linear DNA | USA | No data | No data | AY967407.1 | 180500 | 0.0 | 95% | 94.69% |
| Escherichia phage Lw1 | <i>Myoviridae</i> | Linear DNA | Ukraine | No data | <i>Escherichia coli</i> BL21 (DE3) | KC801932.2 | 176227 | 0.0 | 94% | 90.91% |
| Citrobacter phage IME-CF2 | <i>Myoviridae</i> | Linear DNA | China | Hospital sewage | <i>Citrobacter freundii</i> | KR869820.1 | 177688 | 0.0 | 94% | 91.83% |
| Escherichia phage RB16 | <i>Myoviridae</i> | Linear DNA | USA | No data | <i>Escherichia coli</i> | HM134276.1 | 176788 | 0.0 | 94% | 95.05% |

