Supplementary Materials

**Table S1.** Hemolytic activity on blood agar plates.

|  |  |  |  |
| --- | --- | --- | --- |
| Strain | Hemolysis | Strain | Hemolysis |
| MV2 | α | MV19 | β |
| MV3 | β | MV20 | γ |
| MV4 | γ | MV21 | α |
| MV5 | α | MV22 | α |
| MV6 | γ | MV23 | α |
| MV7 | α | MV24 | γ |
| MV8 | α | MV25 | α |
| MV9 | α | MV26 | γ |
| MV10 | α | MV27 | α |
| MV11 | γ | MV28 | α |
| MV12 | α | MV29 | α |
| MV13 | α | MV30 | γ |
| MV14 | γ | MV31 | α |
| MV15 | γ | MV32 | α |
| MV16 | α | MV33 | α |
| MV17 | γ |  |  |

**Table S2.** Toxin genes present in the genomes of MV4, MV11, MV24 and MV30.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Toxin** | **Related genes** | **MV4** | **MV11** | **MV24** | **MV30** | ***B.cereus* ATCC 14579** | ***B.clausii* KSM-K16** | ***B.subtilis* 168** |
|
| **Anthrax toxin** | ***cya*** | **-** | **-** | **-** | **-** | **-** | **-** | - |
| *lef* | - | - | - | - | - | - | - |
| *pagA* | - | - | - | - | - | - | - |
| **Anthrolysin O/Cereolysin O/Hemolysin I** | *alo* | - | - | - | - | + | - | - |
| **Cereulide** | *cesA* | - | - | - | - | - | - | - |
| *cesB* | - | - | - | - | - | - | - |
| *cesC* | - | - | - | - | - | - | - |
| *cesD* | - | - | - | - | - | - | - |
| *cesH* | - | - | - | - | - | - | - |
| *cesP* | - | - | - | - | - | - | - |
| *cesT* | - | - | - | - | - | - | - |
| **Certhrax** | *cer* | - | - | - | - | - | - | - |
| **Cytotoxin K (Hemolysin IV)** | *cytK* | - | - | - | - | + | - | - |
| **Hemolysin II** | *hlyII* | - | - | - | - | + | - | - |
| **Hemolysin III** | *hlyIII* | + | + | + | + | + | + | + |
| **Hemolytic enterotoxin HBL** | *hblA* | - | - | - | - | + | - | - |
| *hblC* | - | - | - | - | + | - | - |
| *hblD* | - | - | - | - | + | - | - |
| **Insecticidal crystalline toxins** | *cry* | - | - | - | - | - | - | - |
| *cyt* | - | - | - | - | - | - | - |
| *vip* | - | - | - | - | - | - | - |
| **Non-hemolytic enterotoxin (Nhe)** | *nheA* | - | - | - | - | + | - | - |
| *nheB* | - | - | - | - | + | - | - |
| *nheC* | - | - | - | - | + | - | - |
| **Phytotoxin phaseolotoxin (*Pseudomonas*)** | *cysC1* | + | + | - | + | - | - | - |
| **Cytolysin (*Enterococcus*)** | cylR2 | - | - | - | + | - | - | - |

**Table S3.** List of the most similar known clusters of NRPs found in the genomes of MV4, MV11, MV24, MV30.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Type** | **Lenght (bp)** | **Most similar known cluster** | **Similarity** |
| **MV4** | [transAT-PKS](https://docs.antismash.secondarymetabolites.org/glossary/#transat-pks) | 87,827 | [macrolactin H](https://mibig.secondarymetabolites.org/go/BGC0000181/1) | Polyketide | 100% |
| transAT-PKS,T3PKS,NRPS | 100,368 | [bacillaene](https://mibig.secondarymetabolites.org/go/BGC0001089/1) | Polyketide + NRP | 100% |
| NRPS,transAT-PKS,betalactone | 107,697 | [fengycin](https://mibig.secondarymetabolites.org/go/BGC0001095/1) | NRP | 86% |
| [transAT-PKS](https://docs.antismash.secondarymetabolites.org/glossary/#transat-pks) | 93,789 | [difficidin](https://mibig.secondarymetabolites.org/go/BGC0000176/1) | Polyketide + NRP | 100% |
| NRPS,RiPP-like | 50,498 | [bacillibactin](https://mibig.secondarymetabolites.org/go/BGC0000309/1) | NRP | 100% |
| [other](https://docs.antismash.secondarymetabolites.org/glossary/#other) | 41,418 | [bacilysin](https://mibig.secondarymetabolites.org/go/BGC0001184/1) | Other | 100% |
| [PKS-like](https://docs.antismash.secondarymetabolites.org/glossary/#pks-like) | 41,244 | [butirosin A / butirosin B](https://mibig.secondarymetabolites.org/go/BGC0000693/1) | Saccharide | 7% |
| [NRPS](https://docs.antismash.secondarymetabolites.org/glossary/#nrps) | 65,011 | [surfactin](https://mibig.secondarymetabolites.org/go/BGC0000433/1) | NRP:Lipopeptide | 82% |
| [NRPS](https://docs.antismash.secondarymetabolites.org/glossary/#nrps) | 92,475 | [fengycin](https://mibig.secondarymetabolites.org/go/BGC0001095/1) | NRP | 20% |
| **MV11** | [transAT-PKS](https://docs.antismash.secondarymetabolites.org/glossary/#transat-pks) | 87,827 | macrolactin H | Polyketide | 100% |
| transAT-PKS,T3PKS,NRPS | 100,368 | [bacillaene](https://mibig.secondarymetabolites.org/go/BGC0001089/1) | Polyketide + NRP | 100% |
| RiPP-like,NRPS | 50,498 | [bacillibactin](https://mibig.secondarymetabolites.org/go/BGC0000309/1) | NRP | 100% |
| [other](https://docs.antismash.secondarymetabolites.org/glossary/#other) | 41,418 | [bacilysin](https://mibig.secondarymetabolites.org/go/BGC0001184/1) | Other | 100% |
| [transAT-PKS-like](https://docs.antismash.secondarymetabolites.org/glossary/#transat-pks-like) | 65,218 | [difficidin](https://mibig.secondarymetabolites.org/go/BGC0000176/1) | Polyketide + NRP | 53% |
| [NRPS](https://docs.antismash.secondarymetabolites.org/glossary/#nrps) | 43,212 | [surfactin](https://mibig.secondarymetabolites.org/go/BGC0000433/1) | NRP:Lipopeptide | 39% |
| [transAT-PKS](https://docs.antismash.secondarymetabolites.org/glossary/#transat-pks) | 53,939 | [difficidin](https://mibig.secondarymetabolites.org/go/BGC0000176/1) | Polyketide + NRP | 46% |
| [PKS-like](https://docs.antismash.secondarymetabolites.org/glossary/#pks-like) | 41,244 | [butirosin A / butirosin B](https://mibig.secondarymetabolites.org/go/BGC0000693/1) | Saccharide | 7% |
| NRPS,transAT-PKS,betalactone | 107,806 | [fengycin](https://mibig.secondarymetabolites.org/go/BGC0001095/1) | NRP | 86% |
| [NRPS](https://docs.antismash.secondarymetabolites.org/glossary/#nrps) | 47,196 | [surfactin](https://mibig.secondarymetabolites.org/go/BGC0000433/1) | NRP:Lipopeptide | 47% |
| [transAT-PKS-like](https://docs.antismash.secondarymetabolites.org/glossary/#transat-pks-like) | 63,711 | [difficidin](https://mibig.secondarymetabolites.org/go/BGC0000176/1) | Polyketide + NRP | 26% |
|  | [NRPS](https://docs.antismash.secondarymetabolites.org/glossary/#nrps) | 95,735 | [fengycin](https://mibig.secondarymetabolites.org/go/BGC0001095/1) | NRP | 20% |
| **MV24** | [NRPS](https://docs.antismash.secondarymetabolites.org/glossary/#nrps) | 45,583 | [bacillibactin](https://mibig.secondarymetabolites.org/go/BGC0000309/1) | NRP | 100% |
| [other](https://docs.antismash.secondarymetabolites.org/glossary/#other) | 41,418 | [bacilysin](https://mibig.secondarymetabolites.org/go/BGC0001184/1) | Other | 100% |
| [sactipeptide](https://docs.antismash.secondarymetabolites.org/glossary/#sactipeptide) | 21,611 | [subtilosin A](https://mibig.secondarymetabolites.org/go/BGC0000602/1) | RiPP:Thiopeptide | 100% |
| NRPS-like,betalactone,NRPS | 50,754 | [fengycin](https://mibig.secondarymetabolites.org/go/BGC0001095/1) | NRP | 100% |
| [NRPS](https://docs.antismash.secondarymetabolites.org/glossary/#nrps) | 54,627 | [surfactin](https://mibig.secondarymetabolites.org/go/BGC0000433/1) | NRP:Lipopeptide | 78% |
| **MV30** | [terpene](https://docs.antismash.secondarymetabolites.org/glossary/#terpene) | 19,989 | [carotenoid](https://mibig.secondarymetabolites.org/go/BGC0000645/1) | Terpene | 50% |
| [RiPP-like](https://docs.antismash.secondarymetabolites.org/glossary/#ripp-like) | 11,436 | [surfactin](https://mibig.secondarymetabolites.org/go/BGC0000433/1) | NRP:Lipopeptide | 13% |

**Table S4.** Matrix-related proteins putatively encoded by the genomes of MV4, MV11, MV24 and MV30.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Protein**  | **Protein found in MV4****(% identity)** | **Protein found in MV11****(% identity)** | **Protein found in MV24****(% identity)** | **Protein found in MV30****(% identity)** |
| **TasA** | MV4\_1282 (83.5) | Contig\_2\_93 (83.5) | MV24\_1447 (99.2) | MV30\_0609 (37.3) |
| **SipW** | MV4\_1283 (70.0) | Contig\_2\_94 (70.0) | MV24\_1446 (100) | MV30\_0424 (29.8) |
| **TapA** | MV4\_1284 (48.2) | Contig\_2\_95 (48.2) | MV24\_1445 (98.4) | MV30\_4765 (37.9) |
| **SinI** | MV4\_1280 (71.9) | Contig\_2\_91 (71.9) | MV24\_1449 (100) | MV30\_2683 (52.9) |
| **SinR** | MV4\_1281 (97.6) | Contig\_2\_92 (97.6) | MV24\_1448 (100) | MV30\_2684 (43.2) |
| **Spo0A** | MV4\_1243 (97.0) | Contig\_2\_54 (97.0) | MV24\_1487 (100) | MV30\_1811 (84.3) |
| **EpsA** | MV4\_2261 (65.2) | Contig\_3\_210 (65.2) | MV24\_0888 (98.8) | MV30\_0512 (38.5) |
| **EpsB** | MV4\_2262 (85.9) | Contig\_3\_211 (85.9) | MV24\_0889 (99.4) | MV30\_0513 (59.3) |
| **EpsC** | MV4\_2263 (82.6) | Contig\_3\_212 (82.6) | MV24\_0890 (99.8) | MV30\_5596 (25.2) |
| **EpsD** | MV4\_2264 (74.5) | Contig\_3\_213 (74.5) | MV24\_0891 (99.2) | MV30\_0500 (25.4) |
| **EpsE** | MV4\_2265 (83.9) | Contig\_3\_214 (83.9) | MV24\_0892 (100) | MV30\_0496 (33.0) |
| **EpsF** | MV4\_2266 (62.5) | Contig\_3\_215 (62.5) | MV24\_0893 (99.4) | MV30\_0500 (27.9) |
| **EpsG** | MV4\_2267 (85.9) | Contig\_3\_216 (85.9) | MV24\_0894 (99.0) | MV30\_0502 (23.5) |
| **EpsH** | MV4\_2268 (70.2) | Contig\_3\_217 (70.2) | MV24\_0895 (98.9) | MV30\_0501 (27.6) |
| **EpsI** | MV4\_2269 (76.0) | Contig\_3\_218 (76.0) | MV24\_0896 (99.7) | MV30\_1501 (21.8) |
| **EpsJ** | MV4\_2270 (64.1) | Contig\_3\_219 (64.1) | MV24\_0897 (89.2) | MV30\_0501 (36.7) |
| **EpsK** | MV4\_2271 (77.2) | Contig\_3\_220 (77.2) | MV24\_0898 (98.2) | MV30\_1993 (22.0) |
| **EpsL** | MV4\_2272(79.4) | Contig\_3\_221 (78.7) | MV24\_0899 (97.0) | MV30\_0495 (42.9) |
| **EpsM** | MV4\_2273 (69.2) | Contig\_3\_222 (69.2) | MV24\_0900 (96.6) | MV30\_5613 (33.8) |
| **EpsN** | MV4\_2274 (73.2) | Contig\_3\_223 (73.2) | MV24\_0901 (97.8) | MV30\_5605 (31.3) |
| **EpsO** | MV4\_2275 (65.2) | Contig\_3\_224 (65.2) | MV24\_0902 (99.6) | MV30\_5942 (28.9) |
| **PurA** | MV4\_3474 (97.7) | Contig\_4\_74 (97.7) | MV24\_2773 (99.5) | MV30\_4676 (91.1) |
| **PurB** | MV4\_3088 (96.9) | Contig\_7\_55 (96.9) | MV24\_1260 (100) | MV30\_4850 (84.7) |
| **PurC** | MV4\_3087 (88.7) | Contig\_7\_56 (88.7) | MV24\_1259 (97.7) | MV30\_4849 (59.9) |
| **PurD** | MV4\_3079 (86.1) | Contig\_7\_64 (86.1) | MV24\_1251 (99.7) | MV30\_4841 (66.7) |
| **PurE** | MV4\_3090 (88.0) | Contig\_7\_53 (88.0) | MV24\_1262 (98.9) | MV30\_4852 (73.9) |
| **PurF** | MV4\_3083 (98.3) | Contig\_7\_60 (98.3) | MV24\_1255 (100) | MV30\_4845 (79.4) |
| **PurH** | MV4\_3080 (92.6) | Contig\_7\_63 (92.6) | MV24\_1252 (99.8) | MV30\_4842 (73.8) |
| **PurK** | MV4\_3089 (83.0) | Contig\_7\_54 (83.0) | MV24\_1261 (98.2) | MV30\_4851 (51.6) |
| **PurL** | MV4\_3084 (96.0) | Contig\_7\_59 (96.0) | MV24\_1256 (99.4) | MV30\_4846 (76.6) |
| **PurM** | MV4\_3082 (95.0) | Contig\_7\_61 (95.0) | MV24\_1254 (99.6) | MV30\_4844 (73.0) |
| **PurN** | MV4\_3081 (84.6) | Contig\_7\_62 (84.6) | MV24\_1253 (99.5) | MV30\_4843 (60.8) |
| **PurQ** | MV4\_3085 (93.0) | Contig\_7\_58 (93.4) | MV24\_1257 (99.1) | MV30\_4847 (73.7) |
| **PurS** | MV4\_3086 (100) | Contig\_7\_57 (100.0) | MV24\_1258 (100) | MV30\_4848 (92.9) |