Supplementary Material

Comparative Genomics and Biosynthetic Potential Analysis of Two Lichen-Isolated *Amycolatopsis* Strains

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# Supplementary Table 3: Biosynthetic gene clusters predicted by antiSMASH in the genomes of strains CA-126428 (A) and CA-128772 (B). The percentage of homology with known BGCs is indicated, as well as the MIBiG reference.

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| 1. ***Amycolatopsis* sp. CA-126428**
 |
| **Cluster** | **Type** | **Most similar known cluster** | **MIBiG BGC-ID** |
| Cluster 1 | Cf\_putative | Plipastatin (15% of genes show similarity) | BGC0000407\_c1 |
| Cluster 2 | Cf\_putative | Lankacidin (20% of genes show similarity) | BGC0001100\_c1 |
| Cluster 3 | Oligosaccharide-T1PKS | Aculeximycin (50% of genes show similarity) | BGC0000002\_c1 |
| Cluster 4 | Cf\_putative | Kosinostatin (3% of genes show similarity) | BGC0001073\_c1 |
| Cluster 5 | Cf\_putative | Tetarimycin (8% of genes show similarity) | BGC0000274\_c1 |
| Cluster 6 | Cf\_putative | - | - |
| Cluster 7 | Cf\_putative | Thiolactomycin (100% of genes show similarity) | BGC0001353\_c2 |
| Cluster 8 | Cf\_putative | Hedamycin (6% of genes show similarity) | BGC0000233\_c1 |
| Cluster 9 | Ectoine | Ectoine (100% of genes show similarity) | BGC0000853\_c1 |
| Cluster 10 | T1PKS | - | - |
| Cluster 11 | Cf\_putative | Phosphonoglycans (6% of genes show similarity) | BGC0000807\_c1 |
| Cluster 12 | Cf\_putative | - | - |
| Cluster 13 | T1PKS | - | - |
| Cluster 14 | Cf\_putative | Azinomycin\_B (4% of genes show similarity) | BGC0000960\_c1 |
| Cluster 15 | Cf\_putative | - | - |
| Cluster 16 | Cf\_fatty\_acid | - | - |
| Cluster 17 | Cf\_putative | - | - |
| Cluster 18 | Bacteriocin | - | - |
| Cluster 19 | T1PKS | Piericidin\_A1 (50% of genes show similarity) | BGC0001169\_c1 |
| Cluster 20 | Cf\_saccharide | Kinamycin (5% of genes show similarity) | BGC0000236\_c1 |
| Cluster 21 | Cf\_putative | Teicoplanin (9% of genes show similarity) | BGC0000440\_c1 |
| Cluster 22 | Cf\_putative | - | - |
| Cluster 23 | Cf\_putative | - | - |
| Cluster 24 | Cf\_putative | - | - |
| Cluster 25 | Cf\_putative | A54145 (3% of genes show similarity) | BGC0000291\_c1 |
| Cluster 26 | Cf\_putative | K-252a (5% of genes show similarity) | BGC0000814\_c1 |
| Cluster 27 | Cf\_putative | - | - |
| Cluster 28 | Cf\_putative | - | - |
| Cluster 29 | Cf\_putative | Heme\_D1 (12% of genes show similarity) | BGC0000906\_c1 |
| Cluster 30 | Cf\_saccharide | E-492\_/\_E-975 (20% of genes show similarity) | BGC0000049\_c1 |
| Cluster 31 | Cf\_saccharide | Coelimycin (8% of genes show similarity) | BGC0000038\_c1 |
| Cluster 32 | T1PKS | Chalcomycin (12% of genes show similarity) | BGC0000035\_c1 |
| Cluster 33 | Cf\_putative | - | - |
| Cluster 34 | Cf\_putative | - | - |
| Cluster 35 | Cf\_putative | - | - |
| Cluster 36 | Cf\_putative | Landepoxcin (33% of genes show similarity) | BGC0001202\_c1 |
| Cluster 37 | Cf\_putative | - | - |
| Cluster 38 | OtherKS | Daptomycin (3% of genes show similarity) | BGC0000336\_c1 |
| Cluster 39 | NRPS | Mannopeptimycin (7% of genes show similarity) | BGC0000388\_c1 |
| Cluster 40 | Cf\_putative | - | - |
| Cluster 41 | Cf\_putative | - | - |
| Cluster 42 | Cf\_putative | - | - |
| Cluster 43 | Cf\_putative | Rifamycin (17% of genes show similarity) | BGC0000136\_c1 |
| Cluster 44 | Cf\_putative | Sch47554\_/\_Sch47555 (3% of genes show similarity) | BGC0000268\_c1 |
| Cluster 45 | Cf\_putative | Tetarimycin (5% of genes show similarity) | BGC0000274\_c1 |
| Cluster 46 | Cf\_putative | - | - |
| Cluster 47 | OtherKS | Rifamycin (10% of genes show similarity) | BGC0000136\_c1 |
| Cluster 48 | Cf\_putative | - | - |
| Cluster 49 | Cf\_putative | - | - |
| Cluster 50 | Indole | Streptomycin (2% of genes show similarity) | BGC0000717\_c1 |
| Cluster 51 | Other | - | - |
| Cluster 52 | Cf\_putative | - | - |
| Cluster 53 | Cf\_putative | - | - |
| Cluster 54 | Cf\_putative | - | - |
| Cluster 55 | Cf\_saccharide | Clarexpoxcin (10% of genes show similarity) | BGC0001203\_c1 |
| Cluster 56 | Cf\_putative | - | - |
| Cluster 57 | T1PKS | - | - |
| Cluster 58 | T1PKS-OtherKS | Meilingmycin (4% of genes show similarity) | BGC0000093\_c1 |
| Cluster 59 | Cf\_putative | - | - |
| Cluster 60 | Cf\_putative | - | - |
| Cluster 61 | Cf\_putative | Kosinostatin (9% of genes show similarity) | BGC0001073\_c1 |
| Cluster 62 | Cf\_putative | Nocathiacin (4% of genes show similarity) | BGC0000609\_c1 |
| Cluster 63 | Bacteriocin | - | - |
| Cluster 64 | T1PKS | - | - |
| Cluster 65 | Terpene | Isorenieratene (42% of genes show similarity) | BGC0000664\_c1 |
| Cluster 66 | Cf\_putative | - | - |
| Cluster 67 | Cf\_putative | - | - |
| Cluster 68 | Cf\_putative | - | - |
| Cluster 69 | Cf\_putative | Pyrrolomycin (11% of genes show similarity) | BGC0000130\_c1 |
| Cluster 70 | Cf\_putative | Rifamycin (23% of genes show similarity) | BGC0000136\_c1 |
| Cluster 71 | Cf\_putative | - | - |
| Cluster 72 | Butyrolactone-Cf\_fatty\_acid | Actagardine (9% of genes show similarity) | BGC0000495\_c1 |
| Cluster 73 | Cf\_putative | - | - |
| Cluster 74 | T1PKS | - | - |
| Cluster 75 | Cf\_putative | - | - |
| Cluster 76 | Cf\_putative | Azicemicin (6% of genes show similarity) | BGC0000202\_c1 |
| Cluster 77 | Cf\_saccharide | - | - |
| Cluster 78 | Cf\_putative | Fosfazinomycin (14% of genes show similarity) | BGC0000937\_c1 |
| Cluster 79 | Siderophore | Macrotetrolide (33% of genes show similarity) | BGC0000244\_c1 |
| Cluster 80 | T1PKS | - | - |
| Cluster 81 | Cf\_putative | - | - |
| Cluster 82 | Cf\_putative | - | - |
| Cluster 83 | Cf\_putative | - | - |
| Cluster 84 | Cf\_putative | - | - |
| Cluster 85 | Cf\_putative | Tetronasin (7% of genes show similarity) | BGC0000163\_c1 |
| Cluster 86 | Cf\_putative | - | - |
| Cluster 87 | Cf\_putative | Azicemicin (4% of genes show similarity) | BGC0000202\_c1 |
| Cluster 88 | Cf\_putative | - | - |
| Cluster 89 | Cf\_putative | Frankiamicin (14% of genes show similarity) | BGC0001197\_c1 |
| Cluster 90 | NRPS-T1PKS-TransatPKS | Taromycin (33% of genes show similarity) | BGC0000439\_c1 |
| Cluster 91 | Cf\_saccharide | Endophenazines (13% of genes show similarity) | BGC0000934\_c1 |
| Cluster 92 | Cf\_putative | Tetrocarcin\_A (4% of genes show similarity) | BGC0000162\_c1 |
| Cluster 93 | NRPS | Arginomycin (10% of genes show similarity) | BGC0000883\_c1 |
| Cluster 94 | Cf\_putative | Pimaricin (11% of genes show similarity) | BGC0000125\_c1 |
| Cluster 95 | Cf\_saccharide | - | - |
| Cluster 96 | Cf\_fatty\_acid | - | - |
| Cluster 97 | Cf\_putative | Salinomycin (4% of genes show similarity) | BGC0000144\_c1 |
| Cluster 98 | Cf\_putative | - | - |
| Cluster 99 | Cf\_putative | Nystatin (18% of genes show similarity) | BGC0000115\_c1 |
| Cluster 100 | Cf\_putative | Thiotetronate\_Tu\_3010 (5% of genes show similarity) | BGC0001352\_c1 |
| Cluster 101 | Cf\_putative | - | - |
| Cluster 102 | Cf\_putative | - | - |
| Cluster 103 | Terpene | Actinomycin (17% of genes show similarity) | BGC0000296\_c1 |
| Cluster 104 | Cf\_putative | - | - |
| Cluster 105 | Terpene | Actagardine (9% of genes show similarity) | BGC0000495\_c1 |
| Cluster 106 | Cf\_saccharide | - | - |
| Cluster 107 | Terpene-Cf\_saccharide-NRPS | WS9326 (17% of genes show similarity) | BGC0001297\_c1 |
| Cluster 108 | Cf\_putative | SCO-2138 (14% of genes show similarity) | BGC0000595\_c1 |
| Cluster 109 | Cf\_fatty\_acid | Maklamicin (10% of genes show similarity) | BGC0001288\_c1 |
| Cluster 110 | NRPS | Albachelin (40% of genes show similarity) | BGC0001211\_c1 |
| Cluster 111 | Cf\_putative | - | - |
| Cluster 112 | Cf\_putative | Svaricin (6% of genes show similarity) | BGC0001382\_c1 |
| Cluster 113 | Cf\_putative | - | - |
| Cluster 114 | Bacteriocin | - | - |
| Cluster 115 | Cf\_putative | - | - |
| Cluster 116 | Cf\_putative | Rifamycin (12% of genes show similarity) | BGC0000136\_c1 |
| Cluster 117 | Cf\_putative | Frankiamicin (14% of genes show similarity) | BGC0001197\_c1 |
| Cluster 118 | Cf\_putative | - | - |
| Cluster 119 | Cf\_fatty\_acid | Chlorizidine\_A (7% of genes show similarity) | BGC0001172\_c1 |
| Cluster 120 | Cf\_putative | - | - |
| Cluster 121 | Cf\_putative | - | - |
| Cluster 122 | Cf\_putative | - | - |
| Cluster 123 | Cf\_putative | - | - |
| Cluster 124 | Cf\_fatty\_acid | Asukamycin (4% of genes show similarity) | BGC0000187\_c1 |
| Cluster 125 | T1PKS-Nucleoside-NRPS | Cremimycin (20% of genes show similarity) | BGC0000042\_c1 |
| Cluster 126 | T1PKS | Sporolide (53% of genes show similarity) | BGC0000150\_c1 |
| Cluster 127 | Cf\_saccharide | Meilingmycin (2% of genes show similarity) | BGC0000093\_c1 |
| Cluster 128 | OtherKS | - | - |
| Cluster 129 | Lantipeptide | Paromomycin (5% of genes show similarity) | BGC0000712\_c1 |
| Cluster 130 | Cf\_putative | Mycinamicin (9% of genes show similarity) | BGC0000102\_c1 |
| Cluster 131 | Cf\_putative | - | - |
| Cluster 132 | Butyrolactone | - | - |
| Cluster 133 | NRPS | Stenothricin (9% of genes show similarity) | BGC0000431\_c1 |
| Cluster 134 | Lantipeptide | - | - |
| Cluster 135 | Cf\_putative | - | - |
| Cluster 136 | Cf\_putative | Neocarzinostatin (4% of genes show similarity) | BGC0000112\_c1 |
| Cluster 137 | Cf\_saccharide | Caprazamycin (28% of genes show similarity) | BGC0000875\_c2 |
| Cluster 138 | T1PKS | Concanamycin\_A (35% of genes show similarity) | BGC0000040\_c1 |
| Cluster 139 | Cf\_putative | Allylmalonyl-CoA (20% of genes show similarity) | BGC0000886\_c1 |
| Cluster 140 | Cf\_putative | Frankiamicin (14% of genes show similarity) | BGC0001197\_c1 |
| 1. ***Amycolatopsis* sp. CA-128772**
 |
| **Cluster** | **Type** | **Most similar known cluster** | **MIBiG BGC-ID** |
| Cluster 1 | Other | Herboxidiene (2% of genes show similarity) | BGC0001065\_c1 |
| Cluster 2 | Cf\_putative | - | - |
| Cluster 3 | Cf\_putative | - | - |
| Cluster 4 | Cf\_putative | Bafilomycin (33% of genes show similarity) | BGC0000028\_c1 |
| Cluster 5 | Cf\_putative | Reveromycin (6% of genes show similarity) | BGC0000135\_c1 |
| Cluster 6 | Cf\_putative | - | - |
| Cluster 7 | Cf\_putative | - | - |
| Cluster 8 | Cf\_putative | - | - |
| Cluster 9 | Indole | Streptomycin (2% of genes show similarity) | BGC0000717\_c1 |
| Cluster 10 | Cf\_putative | - | - |
| Cluster 11 | Cf\_putative | Allylmalonyl-CoA (20% of genes show similarity) | BGC0000886\_c1 |
| Cluster 12 | Cf\_saccharide | Arginomycin (10% of genes show similarity) | BGC0000883\_c1 |
| Cluster 13 | Cf\_putative | - | - |
| Cluster 14 | Cf\_putative | - | - |
| Cluster 15 | Cf\_putative | Plipastatin (15% of genes show similarity) | BGC0000407\_c1 |
| Cluster 16 | Cf\_saccharide | - | - |
| Cluster 17 | NRPS-T1PKS | ECO-02301 (39% of genes show similarity) | BGC0000052\_c1 |
| Cluster 18 | T1PKS | Hitachimycin (22% of genes show similarity) | BGC0001194\_c1 |
| Cluster 19 | Cf\_saccharide | - | - |
| Cluster 20 | Cf\_putative | - | - |
| Cluster 21 | Cf\_putative | - | - |
| Cluster 22 | Cf\_putative | - | - |
| Cluster 23 | Cf\_saccharide | Lividomycin (10% of genes show similarity) | BGC0000708\_c1 |
| Cluster 24 | Cf\_putative | - | - |
| Cluster 25 | Butyrolactone | - | - |
| Cluster 26 | Cf\_putative | - | - |
| Cluster 27 | Terpene-Cf\_fatty\_acid -NRPS | WS9326 (17% of genes show similarity) | BGC0001297\_c1 |
| Cluster 28 | Ladderane-Cf\_fatty\_acid -NRPS | WS9326 (17% of genes show similarity) | BGC0001297\_c1 |
| Cluster 29 | Cf\_saccharide-Cf\_fatty\_acid | - | - |
| Cluster 30 | T1PKS-NRPS-Lantipeptide | Kedarcidin (3% of genes show similarity) | BGC0000081\_c1 |
| Cluster 31 | Cf\_putative | - | - |
| Cluster 32 | T1PKS | Sanglifehrin\_A (11% of genes show similarity) | BGC0001042\_c1 |
| Cluster 33 | NRPS | Galbonolides (6% of genes show similarity) | BGC0000065\_c1 |
| Cluster 34 | Cf\_saccharide | Mycinamicin (9% of genes show similarity) | BGC0000102\_c1 |
| Cluster 35 | Lantipeptide | - | - |
| Cluster 36 | NRPS-Cf\_saccharide-Amglyccycl | Acarbose (10% of genes show similarity) | BGC0000691\_c1 |
| Cluster 37 | Cf\_putative | - | - |
| Cluster 38 | Cf\_putative | - | - |
| Cluster 39 | Cf\_putative | - | - |
| Cluster 40 | Cf\_saccharide | Macrotetrolide (33% of genes show similarity) | BGC0000244\_c1 |
| Cluster 41 | Cf\_putative | - | - |
| Cluster 42 | Bacteriocin | - | - |
| Cluster 43 | Cf\_putative | - | - |
| Cluster 44 | Siderophore | - | - |
| Cluster 45 | T1PKS | Rifamycin (54% of genes show similarity) | BGC0000136\_c1 |
| Cluster 46 | Cf\_saccharide | - | - |
| Cluster 47 | Cf\_putative | Frankiamicin (14% of genes show similarity) | BGC0001197\_c1 |
| Cluster 48 | Cf\_saccharide | A201A (6% of genes show similarity) | BGC0000873\_c1 |
| Cluster 49 | Cf\_putative | - | - |
| Cluster 50 | OtherKS | A54145 (3% of genes show similarity) | BGC0000291\_c1 |
| Cluster 51 | Cf\_fatty\_acid | Chlorizidine\_A (7% of genes show similarity) | BGC0001172\_c1 |
| Cluster 52 | Bacteriocin | - | - |
| Cluster 53 | Ectoine | Ectoine (100% of genes show similarity) | BGC0000853\_c1 |
| Cluster 54 | Terpene | 2-methylisoborneol (100% of genes show similarity) | BGC0000657\_c1 |
| Cluster 55 | Cf\_saccharide | - | - |
| Cluster 56 | Cf\_putative | - | - |
| Cluster 57 | Cf\_putative | Rifamycin (10% of genes show similarity) | BGC0000136\_c1 |
| Cluster 58 | Cf\_putative | Frankiamicin (14% of genes show similarity) | BGC0001197\_c1 |
| Cluster 59 | Cf\_putative | - | - |
| Cluster 60 | Cf\_putative | - | - |
| Cluster 61 | Cf\_saccharide | Coelimycin (8% of genes show similarity) | BGC0000038\_c1 |
| Cluster 62 | Cf\_saccharide | - | - |
| Cluster 63 | Cf\_putative | - | - |
| Cluster 64 | Cf\_saccharide | - | - |
| Cluster 65 | Cf\_putative | - | - |
| Cluster 66 | Cf\_putative | Landepoxcin (27% of genes show similarity) | BGC0001202\_c1 |
| Cluster 67 | Cf\_putative | - | - |
| Cluster 68 | Cf\_putative | - | - |
| Cluster 69 | Cf\_putative | - | - |
| Cluster 70 | Cf\_saccharide | - | - |
| Cluster 71 | NRPS | Mannopeptimycin (7% of genes show similarity) | BGC0000388\_c1 |
| Cluster 72 | Cf\_putative | - | - |
| Cluster 73 | Cf\_putative | - | - |
| Cluster 74 | Cf\_saccharide | - | - |
| Cluster 75 | T1PKS | Kedarcidin (13% of genes show similarity) | BGC0000081\_c1 |
| Cluster 76 | Oligosaccharide-T1PKS-NRPS | Maduropeptin (22% of genes show similarity) | BGC0001008\_c1 |
| Cluster 77 | Cf\_putative | - | - |
| Cluster 78 | Cf\_putative | - | - |
| Cluster 79 | Cf\_saccharide-NRPS-T1PKS | Daptomycin (6% of genes show similarity) | BGC0000336\_c1 |
| Cluster 80 | Cf\_putative | - | - |
| Cluster 81 | Cf\_saccharide | - | - |
| Cluster 82 | Cf\_putative | Nystatin (9% of genes show similarity) | BGC0000115\_c1 |
| Cluster 83 | Cf\_putative | - | - |
| Cluster 84 | Cf\_putative | - | - |
| Cluster 85 | Cf\_putative | - | - |
| Cluster 86 | Cf\_saccharide | Caprazamycin (28% of genes show similarity) | BGC0000875\_c2 |
| Cluster 87 | Cf\_saccharide | - | - |
| Cluster 88 | Cf\_saccharide | SCO-2138 (14% of genes show similarity) | BGC0000595\_c1 |
| Cluster 89 | Cf\_putative | - | - |
| Cluster 90 | T1PKS | - | - |
| Cluster 91 | Cf\_putative | - | - |
| Cluster 92 | Cf\_putative | - | - |
| Cluster 93 | Cf\_putative | - | - |
| Cluster 94 | Cf\_putative | - | - |
| Cluster 95 | Cf\_putative | - | - |
| Cluster 96 | Cf\_putative | A40926 (3% of genes show similarity) | BGC0000289\_c1 |
| Cluster 97 | Cf\_putative | Meilingmycin (2% of genes show similarity) | BGC0000093\_c1 |
| Cluster 98 | Cf\_putative | Polyoxypeptin (8% of genes show similarity) | BGC0001036\_c1 |
| Cluster 99 | Cf\_putative | - | - |
| Cluster 100 | Cf\_putative | - | - |
| Cluster 101 | Cf\_putative | - | - |
| Cluster 102 | Terpene | Fluorometabolite (33% of genes show similarity) | BGC0000903\_c1 |
| Cluster 103 | Cf\_putative | - | - |
| Cluster 104 | Cf\_putative | - | - |
| Cluster 105 | Cf\_saccharide-T1PKS | - | - |
| Cluster 106 | OtherKS-T1PKS | Meilingmycin (3% of genes show similarity) | BGC0000093\_c1 |
| Cluster 107 | NRPS | Scabichelin (90% of genes show similarity) | BGC0000423\_c1 |
| Cluster 108 | Cf\_saccharide-NRPS-T1PKS | Nostopeptolide (25% of genes show similarity) | BGC0001028\_c1 |
| Cluster 109 | T1PKS | Tallysomycin (5% of genes show similarity) | BGC0001048\_c1 |
| Cluster 110 | Cf\_putative | - | - |
| Cluster 111 | Cf\_saccharide | Arginomycin (10% of genes show similarity) | BGC0000883\_c1 |
| Cluster 112 | OtherKS | - | - |
| Cluster 113 | Cf\_putative | Azinomycin\_B (4% of genes show similarity) | BGC0000960\_c1 |
| Cluster 114 | Lassopeptide | SF2575 (6% of genes show similarity) | BGC0000269\_c1 |
| Cluster 115 | Cf\_saccharide | Roseoflavin (50% of genes show similarity) | BGC0000927\_c1 |
| Cluster 116 | Cf\_saccharide | Esmeraldin (8% of genes show similarity) | BGC0000935\_c1 |
| Cluster 117 | Cf\_putative | - | - |
| Cluster 118 | Lantipeptide | - | - |
| Cluster 119 | Cf\_putative | Salinomycin (4% of genes show similarity) | BGC0000144\_c1 |
| Cluster 120 | Cf\_fatty\_acid | - | - |
| Cluster 121 | Cf\_saccharide | - | - |
| Cluster 122 | Cf\_saccharide | - | - |
| Cluster 123 | Cf\_saccharide | - | - |
| Cluster 124 | Cf\_saccharide | Meilingmycin (2% of genes show similarity) | BGC0000093\_c1 |
| Cluster 125 | Cf\_saccharide | Kinamycin (5% of genes show similarity) | BGC0000236\_c1 |
| Cluster 126 | Cf\_saccharide | - | - |
| Cluster 127 | Cf\_putative | - | - |
| Cluster 128 | Cf\_putative | - | - |
| Cluster 129 | Cf\_putative | - | - |
| Cluster 130 | Cf\_fatty\_acid | Asukamycin (3% of genes show similarity) | BGC0000187\_c1 |
| Cluster 131 | Cf\_putative | - | - |
| Cluster 132 | Cf\_putative | - | - |
| Cluster 133 | Cf\_saccharide | - | - |
| Cluster 134 | T1PKS | Amphotericin (47% of genes show similarity) | BGC0000015\_c1 |
| Cluster 135 | T1PKS | - | - |
| Cluster 136 | T1PKS | Indanomycin (21% of genes show similarity) | BGC0000079\_c1 |
| Cluster 137 | Cf\_saccharide | - | - |
| Cluster 138 | Cf\_putative | - | - |
| Cluster 139 | Cf\_putative | - | - |
| Cluster 140 | Cf\_putative | - | - |