

Burkholderia pseudomallei in Soil, US Virgin Islands, 2019

Appendix

Description of *Burkholderia pseudomallei*-Positive Soil Sample

The soil type and soil profile for this sample were very gravelly loam (Appendix Figure 2) and southgate-rock outcrop complex, respectively (Appendix Table 1). Southgate has a typical geologic profile of 0–5 inches: gravelly loam; 5–10 inches: very gravelly loam; 10–17 inches: weathered bedrock; and 17–60 inches: unweathered bedrock. The southgate landform is hillsides, mountain slopes, or ridges, and it is well drained with no flooding. Rock outcrop has a typical profile of 0–60 inches: unweathered bedrock, and a landform of ridges. These soil characteristics and landform information were obtained from the USDA National Resource Conservation Service's Web Soil Survey (1).

References:

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Appendix Table 1. Sampling sites for *Burkholderia pseudomallei*, US Virgin Islands, 2019*

| Site ID | Sample type | No. samples collected | Collection date | Island | Elevation, m | pH at site | | | Soil sampling depth, cm | USDA soil profile | Observed soil profile | Soil moisture |
|---------|-------------|-----------------------|-----------------|------------|--------------|------------|------|------|-------------------------|--------------------------|-----------------------------------|----------------------------|
| | | | | | | Average | Max | Min | | | | |
| 106 | Soil | 20 | 2019 Jan 20 | St. Thomas | 143.60 | 5.82 | 6.30 | 5.30 | 30 | Very gravelly clay loam | Sandy loam, clay | Dry |
| 107 | Soil | 20 | 2019 Jan 21 | St. Thomas | 21.04 | 7.70 | 9.80 | 6.30 | 30 | Very gravelly loam | Sandy clay loam | Dry |
| 108 | Soil | 20 | 2019 Jan 21 | St. Thomas | 10.06 | 8.47 | 9.10 | 6.70 | 20–30 | Silt loam | Sandy clay loam | Moist/wet/soaked |
| 109 | Soil | 20 | 2019 Jan 22 | St. Thomas | 14.63 | 8.78 | 9.70 | 7.30 | 30 | Very gravelly loam | Sandy clay | Dry |
| 110 | Soil | 20 | 2019 Jan 22 | St. Thomas | 10.06 | 8.72 | 9.10 | 8.20 | 15–30 | NL | Sandy loam, loam | Dry/moderately moist/moist |
| 111 | Soil | 20 | 2019 Jan 22 | St. Thomas | 10.06 | 8.66 | 9.40 | 8.20 | 15–20 | Very gravelly clay loam | Sand, sandy loam | Moist |
| 112 | Soil | 20 | 2019 Jan 23 | St. Thomas | 12.80 | 8.48 | 9.10 | 7.20 | 30 | Clay loam | Sandy loam | Moderately moist |
| 113 | Freshwater | 20 | 2019 Jan 21 | St. Thomas | 26.52 | 8.72 | 8.80 | 8.50 | NA | NA | NA | NA |
| 114 | Freshwater | 20 | 2019 Jan 21 | St. Thomas | 10.37 | 7.80 | 7.80 | 7.70 | NA | NA | NA | NA |
| 115 | Soil | 20 | 2019 Jan 23 | St. Thomas | 12.50 | 9.19 | 9.50 | 8.60 | 30 | Gravelly fine sandy loam | Sandy loam | Moist |
| 116 | Soil | 20 | 2019 Jan 24 | St. Thomas | 30.79 | 7.39 | 8.50 | 6.30 | 20–30 | Very gravelly loam | Loam, sandy clay loam | Dry/moderately moist |
| 117 | Soil | 20 | 2019 Jan 28 | St. John | 10.37 | 8.22 | 9.20 | 7.10 | 30 | Very gravelly loam | Clay, sandy clay loam, sandy loam | Moderately moist |
| 118 | Soil | 20 | 2019 Jan 28 | St. John | 7.93 | 9.42 | 9.90 | 8.60 | 30 | NL | Loam, sandy clay loam | Dry/moderately moist/moist |
| 119 | Soil | 20 | 2019 Jan 28 | St. John | 12.20 | 7.23 | 9.80 | 6.60 | 30 | Gravelly clay loam | Loam | Moderately moist |
| 120 | Soil | 20 | 2019 Jan 29 | St. John | 37.20 | 8.49 | 9.50 | 5.60 | 30 | Very gravelly clay loam | Loam | Dry/moderately moist |
| 121 | Freshwater | 20 | 2019 Jan 28 | St. John | 11.28 | 7.93 | 8.20 | 7.90 | NA | NA | NA | NA |
| 122 | Soil | 20 | 2019 Jan 29 | St. John | 75.91 | 7.8 | 8.7 | 6.7 | 20–30 | Very gravelly loam | Sandy loam | Dry/moderately moist |
| 123 | Soil | 20 | 2019 Jan 30 | St. John | 9.76 | 8.09 | 8.80 | 7.30 | 30 | Clay loam | Clay loam | Moist |
| 124 | Soil | 20 | 2019 Jan 30 | St. John | 9.76 | 7.76 | 9.20 | 6.40 | 30 | Very gravelly loam | Clay | Moist |

| Site ID | Sample type | No. samples collected | Collection date | Island | Elevation, m | pH at site | | | Soil sampling depth, cm | USDA soil profile | Observed soil profile | Soil moisture |
|---------|-------------|-----------------------|-----------------|-----------|--------------|------------|------|------|-------------------------|--------------------|-----------------------|---------------|
| | | | | | | Average | Max | Min | | | | |
| 149 | Freshwater | 20 | 2019 Apr 16 | St. Croix | 31.10 | 8.04 | 8.20 | 7.80 | NA | NA | NA | NA |
| 150 | Soil | 20 | 2019 Apr 15 | St. Croix | 16.16 | 8.61 | 9.20 | 7.90 | 30 | Clay | Loam | Dry |
| 151 | Freshwater | 20 | 2019 Apr 16 | St. Croix | 73.17 | 8.30 | 8.40 | 8.10 | NA | NA | NA | NA |
| 152 | Soil | 20 | 2019 Apr 15 | St. Croix | 25.30 | 9.03 | 9.40 | 8.50 | 30 | Clay | Loam | Dry |
| 153 | Soil | 20 | 2019 Apr 15 | St. Croix | 43.90 | 9.29 | 9.70 | 7.70 | 30 | Clay loam | Clay loam | Dry |
| 154 | Soil | 20 | 2019 Apr 16 | St. Croix | 11.89 | 9.15 | 9.80 | 8.10 | 30 | Clay | Clay loam | Dry |
| 155 | Soil | 20 | 2019 Apr 16 | St. Croix | 28.96 | 8.73 | 9.50 | 7.80 | 30 | Very gravelly clay | Gravels | Dry |
| 156 | Soil | 20 | 2019 Apr 17 | St. Croix | 18.60 | 8.99 | 9.70 | 7.00 | 30 | Very gravelly loam | Gravels | Dry |
| 157 | Soil | 20 | 2019 Apr 17 | St. Croix | 30.49 | 8.87 | 9.50 | 7.80 | 30 | Very gravelly clay | Clay | Dry |
| 158 | Soil | 20 | 2019 Apr 17 | St. Croix | 22.26 | 7.47 | 8.90 | 6.60 | 30 | Very gravelly clay | Gravels | Dry |

*NA, not applicable; NL, not listed; min, minimum; max, maximum; USDA, US Department of Agriculture (1).

Appendix Table 2. *Burkholderia pseudomallei* genomes from GenBank*

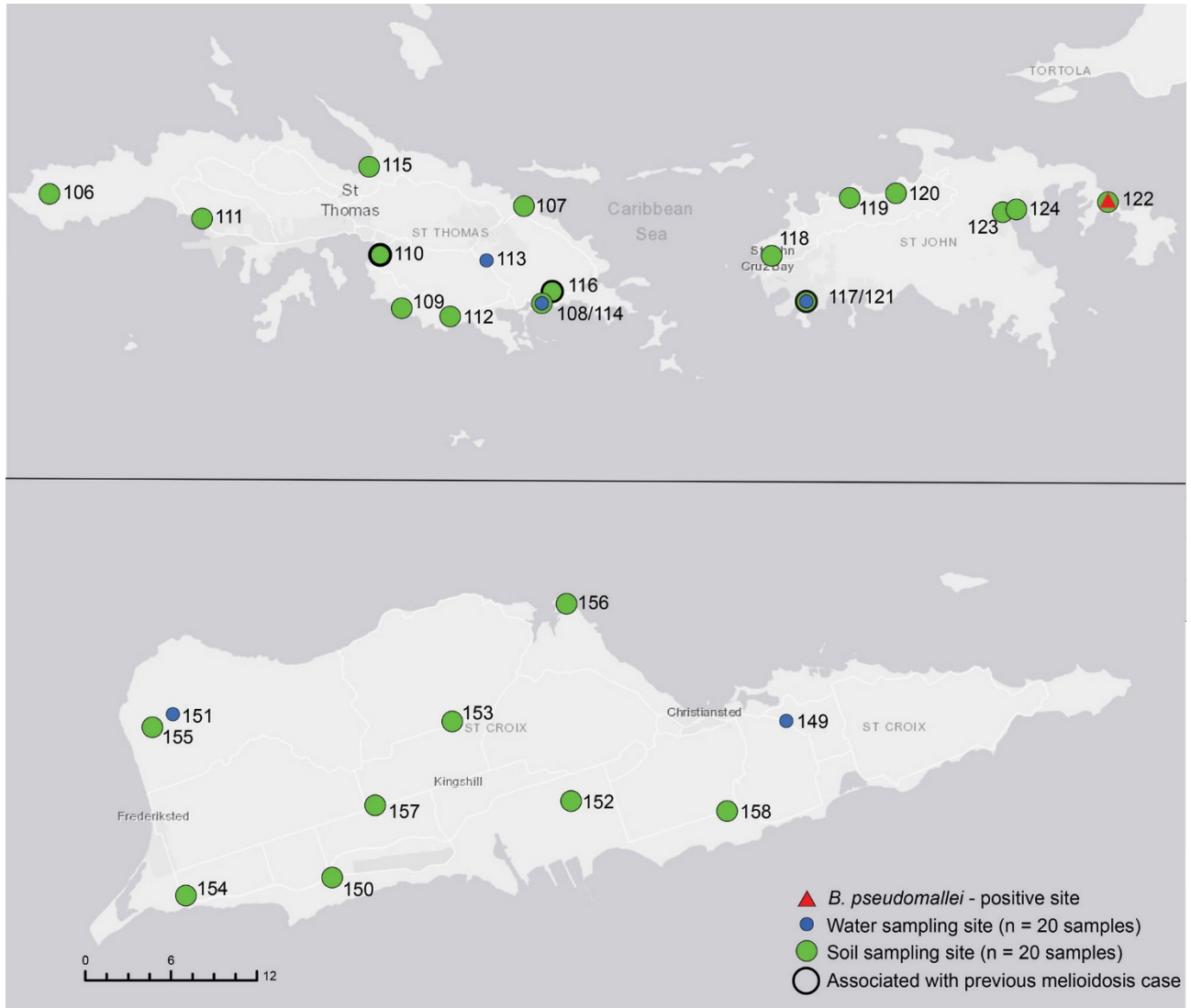
| Strain | Country | Year | Isolate source | GenBank accession no. | Multilocus sequence type | ITS type (2) | Presence of YLF and BTFC gene clusters (3) | LPS type† (4) | Observed variant of <i>bimA</i> ‡ (5) | Biosample no. |
|---------------|----------------|------|----------------|-----------------------|--------------------------|--------------|--------------------------------------------|---------------|---------------------------------------|---------------|
| MSHR6969 | Chad | 1956 | NA | ERR298347 | ST82 | C | YLF | A | <i>bimA-Bm</i> | SAMEA1920075 |
| H101180656 | Nigeria | 2010 | NA | ERR298772 | ST707 | C | YLF | A | <i>bimA-Bm</i> | SAMEA1920046 |
| BF103 | Burkina Faso | 2012 | Human | SRR3145394 | ST1121 | G | YLF | A | <i>bimA-Bm</i> | SAMN04376904 |
| BF111 | Burkina Faso | 2012 | Human | SRR3145395 | ST1122 | C | YLF | A | <i>bimA-Bm</i> | SAMN04376905 |
| 2014002816 | Africa | 2013 | Human | GCA_002113945 | ST1053 | C | YLF | A | <i>bimA-Bm</i> | SAMN06007575 |
| IS42705 | Kenya | 2010 | NA | ERR351984 | ST1540 | E | YLF | A | <i>bimA-Bm</i> | SAMEA2163737 |
| BEL2013 | Madagascar | 2013 | Human | SRR3145396 | ST1043 | E | YLF | A | <i>bimA-Bm</i> | SAMN04376903 |
| 11-1617 | Madagascar | 2012 | Human | SRR3145392 | ST1054 | C | YLF | Negative | <i>bimA-Bm</i> | SAMN04376901 |
| 11-1696 | Madagascar | 2012 | Human | SRR3145393 | ST1053 | C | YLF | Negative | <i>bimA-Bm</i> | SAMN04376902 |
| 3000015237 | Mexico | 2014 | Human | GCA_002111045 | ST951 | G | YLF | A | neither | SAMN06007576 |
| 3000015486 | Mexico | 2015 | Human | GCA_002111385 | ST92 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007577 |
| 2013746776 | Mexico | 2013 | Human | GCA_002111185 | ST297 | G | YLF | A | neither | SAMN06007568 |
| VB976100 | Czech Republic | 2014 | Iguana | GCA_001885195 | ST436 | G | YLF | A | <i>bimA-Bm</i> | SAMN05930279 |
| 3000465972 | Panama/Peru | 2015 | Human | GCF_002111305 | ST436 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007579 |
| 2013746878 | Guatemala | 2013 | Human | GCA_002111005 | ST1038 | G | YLF | A | neither | SAMN06007572 |
| 2013746877 | Guatemala | 2013 | Human | GCA_002111245 | ST1038 | G | YLF | A | neither | SAMN06007571 |
| H061740680 | Brazil | 2006 | NA | ERR298754 | ST92 | G | YLF | A | <i>bimA-Bm</i> | SAMEA1920028 |
| 4900CFPatient | Brazil | NA | Human | GCA_000648355 | ST92 | G | YLF | A | <i>bimA-Bm</i> | SAMN02044373 |
| 2002734728 | USA | 2007 | Iguana | GCA_002111105 | ST518 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007559 |
| 2013746777 | USA | 2007 | Iguana | GCA_002111205 | ST518 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007569 |

| Strain | Country | Year | Isolate source | GenBank accession no. | Multilocus sequence type | ITS type (2) | Presence of YLF and BTFC gene clusters (3) | LPS type† (4) | Observed variant of <i>bimA</i> ‡ (5) | Biosample no. |
|------------|-------------------------------|------|----------------|-----------------------|--------------------------|--------------|--------------------------------------------|---------------|---------------------------------------|---------------|
| 2002721684 | USA | 2004 | Human | GCA_002110925 | ST297 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007558 |
| 3000047530 | Mexico | 2014 | Human | GCA_002111285 | ST92 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007578 |
| SID1615 | Brazil | 2003 | NA | ERR298753 | ST92 | G | YLF | A | <i>bimA-Bm</i> | SAMEA1920029 |
| BCC215 | Brazil | NA | NA | GCA_000170595 | ST1355 | G | YLF | A | <i>bimA-Bm</i> | SAMN02470671 |
| 2002721183 | Unknown | NA | Animal | GCA_001976195 | ST11 | G | YLF | A | neither | SAMN04208558 |
| 7894 | Ecuador | 1962 | Human | GCA_000959265 | ST11 | G | YLF | A | neither | SAMN03075630 |
| 2002721184 | Ecuador | 1960 | Human | GCA_002111085 | ST11 | G | YLF | A | neither | SAMN06007557 |
| 2008724644 | Aruba | 2012 | Human | GCA_002115385 | ST698 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007560 |
| 2010007509 | Costa Rica | 2009 | Human | GCA_002111145 | ST518 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007564 |
| 2002721171 | Venezuela | 1976 | Human | GCA_002111345 | ST12 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007556 |
| 3001161892 | St. John, US Virgin Islands | 2017 | Human | GCA_003584055 | ST92 | G | YLF | A | <i>bimA-Bm</i> | SAMN09941299 |
| MShR7398 | Martinique | 2010 | Human | ERR298357 | ST92 | G | YLF | A | <i>bimA-Bm</i> | SAMEA1920085 |
| MShR7400 | Martinique | 2010 | Human | ERR298359 | ST92 | G | YLF | A | <i>bimA-Bm</i> | SAMEA1920088 |
| 2011756189 | Martinique | 2010 | Human | GCA_002111165 | ST92 | G | YLF | A | neither | SAMN06007574 |
| 3001546678 | St. Thomas, US Virgin Islands | 2018 | Human | GCA_007995115 | ST1492 | G | YLF | A | <i>bimA-Bm</i> | SAMN12500044 |
| 3001161891 | St. Thomas, US Virgin Islands | 2017 | Human | GCA_003584065 | ST951 | G | YLF | A | <i>bimA-Bm</i> | SAMN09941298 |
| BpOH2018 | British Virgin Islands | 2018 | Human | SRS5472236 | ST92 | G | YLF | A | <i>bimA-Bm</i> | SAMN12905775 |
| Bp9801 | St. John, US Virgin Islands | 2019 | Soil | SRR10148518 | ST1492 | G | YLF | A | <i>bimA-Bm</i> | SAMN12784135 |
| H065460522 | British Virgin Islands | 2007 | Human | ERR298778 | ST1492 | G | YLF | A | <i>bimA-Bm</i> | SAMEA1920053 |
| 2011756296 | Puerto Rico | 2012 | Human | GCA_002110985 | ST297 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007567 |
| 2013833055 | Puerto Rico | 2013 | Soil | GCA_002111025 | ST297 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007573 |
| 2013833057 | Puerto Rico | 2013 | Soil | GCA_002111265 | ST297 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007574 |
| 2011756295 | Trinidad | 2012 | Human | GCA_002110965 | ST297 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007566 |
| 2002721123 | Puerto Rico | 1998 | Human | GCA_002111325 | ST92 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007555 |
| 2002721100 | Puerto Rico | 1982 | Human | GCA_002111065 | ST95 | G | YLF | A | <i>bimA-Bm</i> | SAMN06007554 |
| Bp9039 | Puerto Rico | 2017 | Soil | SRR7457394 | ST297 | G | YLF | A | <i>bimA-Bm</i> | SAMN09073285 |
| Bp9110 | Puerto Rico | 2017 | Soil | SRR7457423 | ST297 | G | YLF | A | <i>bimA-Bm</i> | SAMN09073352 |

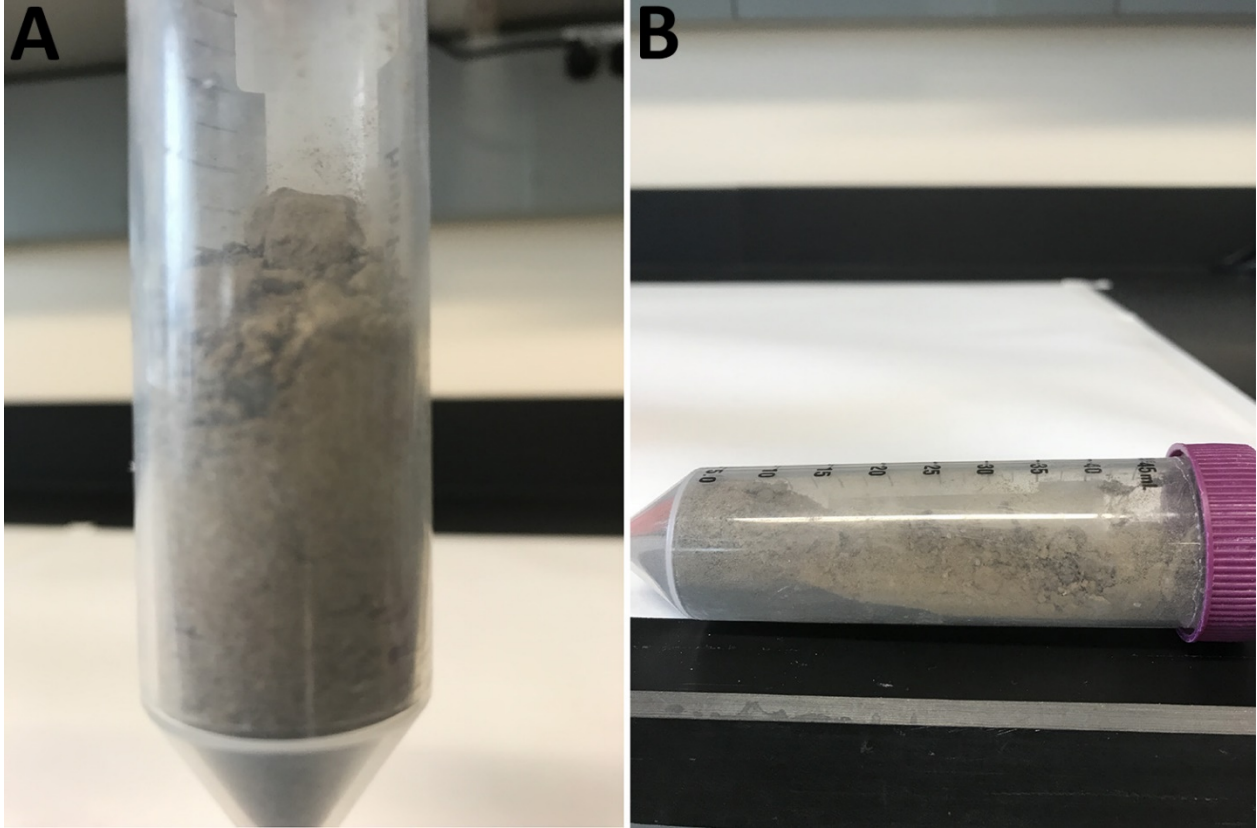
**bimA*, *Burkholderia* intracellular motility A gene; BTFC, *B. thailandensis*-like flagellum and chemotaxis; ITS, 16S–23S internal transcribed spacer; LPS, lipopolysaccharide; LS-BSR, large-scale Blast Score Ratio; NA, not available; YLF, *Yersinia*-like fimbrial. Genome assemblies were screened for genotypes by using the LS-BSR method (6) with a 0.95 BSR (7) threshold.

†GenBank gene references: LPS A (BPSL2676), LPS B (BBK_2267), and LPS B2 (BTI_920).

‡GenBank gene references: *bimA-Bp* (BURPS668_A2118), *bimA-Bm* (BPSS1492).



Appendix Figure 1. Sampling sites for *Burkholderia pseudomallei*, US Virgin Islands, 2019. Numbers indicated site IDs. Map created with ArcGIS software by Esri.



Appendix Figure 2. Photographs of *Burkholderia pseudomallei*-positive soil sample, US Virgin Islands, 2019.