

Supplementary Materials: Evidence for the Range Expansion of Ciguatera in French Polynesia: A Revisit of the 2009 Mass-Poisoning Outbreak in Rapa Island (Australes Archipelago)

Mireille Chinain, Clémence Mahana iti Gatti, André Ung, Philippe Cruchet, Taina Revel, Jérôme Viallon, Manoëlla Sibat, Patrick Varney, Victoire Laurent, Philipp Hess and Hélène Taiana Darius

Table S1. Toxicity data of Rapa fish, according to species and sampling sites, as assessed by rRBA. Data are expressed in $\mu\text{g CTX3C eq kg}^{-1}$. Mean IC_{50} values for CTX3C and CTX1B were 0.62 and 0.26 ng mL^{-1} , respectively. Hence, a conversion factor of $\times 0.42$ should be applied to obtain rRBA CTX-like activity expressed in $\mu\text{g CTX1B eq kg}^{-1}$.

| ID # | Size (cm) | Weight (g) | Feeding type ¹ | Scientific name | Common name | Local name | rRBA |
|---------------------------------------|-----------|------------|---------------------------|----------------------------------|----------------------|--------------|-------------------|
| Akatamiro Bay and Motu Aturapa | | | | | | | |
| 01 | 33 | 656 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 3.3 |
| 02 | 26 | 230 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 4.5 |
| 03 | 31 | 590 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 3.5 |
| 04 | 28 | 460 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 2.4 |
| 05 | 30 | 545 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 4.1 |
| 06 | 27 | 410 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 3.4 |
| 07 | 27 | 255 | 3 | <i>Priacanthus hamrur</i> | Crescent-tail Bigeye | mata ana ana | 2.7 |
| 08 | 30 | 420 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 4.5 |
| 09 | 34 | 535 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 5.6 |
| 10 | 34 | 440 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 2.2 |
| 11 | 35 | 740 | 3 | <i>Parupeneus ciliatus</i> | Whitelined Goatfish | katuri | 3.3 |
| 12 | 30 | 475 | 3 | <i>Parupeneus ciliatus</i> | Whitelined Goatfish | katuri | 5.4 |
| 13 | 31 | 500 | 3 | <i>Parupeneus ciliatus</i> | Whitelined Goatfish | katuri | 0.9 |
| 14 | 35 | 810 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 3.8 |
| 15 | 36 | 950 | 3 | <i>Caranx ignobilis</i> | Giant Jack | pa'aihere | 3.7 |
| 16 | 32 | 555 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 1.5 |
| 17 | 33 | 540 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 3.8 |
| 18 | 25 | 360 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.4 |
| 19 | 25 | 340 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.0 |
| Turoa Pari Ati Bay | | | | | | | |
| 20 | 25 | 278 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | 4.0 |
| 21 | 22 | 237 | 1 | <i>Scarus psittacus</i> | Palenose Parrotfish | pahoro | 4.3 |
| 22 | 26 | 286 | 3 | <i>Goniistius plessisi</i> | Plessis' Morwong | pakakea | 8.4 |
| 23 | 26 | 353 | 3 | <i>Parupeneus ciliatus</i> | Whitelined Goatfish | katuri | 5.8 |
| 24 | 28 | 340 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 4.3 |
| 25 | 22 | 327 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 3.3 |
| 26 | 22 | 275 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 3.7 |
| 27 | 33 | 537 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 4.5 |
| 28 | 33 | 548 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 5.3 |
| 29 | 32 | 582 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 4.1 |
| 30 | 35 | 789 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 4.5 |
| 31 | 25 | 339 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.5 |
| 32 | 26 | 445 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.7 |
| 33 | 32 | 887 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | 1.2 |
| 34 | 36 | 813 | 3 | <i>Coris aygula</i> | Clown Coris | haupa | <LOD ² |
| Tapuaki Bay | | | | | | | |
| 35 | 19 | 183 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 1.3 |
| 36 | 23 | 278 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 2.8 |
| 37 | 28 | 315 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 4.9 |
| 38 | 33 | 600 | 3 | <i>Caranx ignobilis</i> | Giant Jack | pa'aihere | 2.1 |
| 39 | 27 | 385 | 3 | <i>Goniistius plessisi</i> | Plessis' Morwong | pakakea | 8.6 |
| 40 | 26 | 290 | 3 | <i>Parupeneus multifasciatus</i> | Manybar Goatfish | atiatia | 1.3 |
| 41 | 30 | 593 | 3 | <i>Parupeneus multifasciatus</i> | Manybar Goatfish | atiatia | 2.7 |
| 42 | 23 | 246 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.9 |
| 43 | 27 | 442 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.8 |
| 44 | 27 | 325 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 4.4 |
| 45 | 27 | 382 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 4.4 |
| 46 | 29 | 430 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 3.3 |
| 47 | 23 | 213 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | <LOD |
| 48 | 37 | 980 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | 0.8 |
| 49 | 44 | 1180 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 2.7 |

| | | | | | | | |
|---------------------|----|------|---|--------------------------------|----------------------|--------------|------|
| 50 | 33 | 746 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 1.7 |
| 51 | 38 | 1110 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 0.7 |
| Anganau Bay | | | | | | | |
| 52 | 35 | 630 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 4.2 |
| 53 | 30 | 412 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 2.9 |
| 54 | 26 | 315 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.7 |
| 55 | 26 | 370 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.8 |
| 56 | 23 | 235 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.9 |
| 57 | 23 | 315 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 0.7 |
| 58 | 20 | 210 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 1.0 |
| 59 | 25 | 247 | 3 | <i>Priacanthus hamrur</i> | Crescent-tail Bigeye | mata ana ana | <LOD |
| 60 | 24 | 175 | 3 | <i>Priacanthus hamrur</i> | Crescent-tail Bigeye | mata ana ana | 1.0 |
| Iripau Bay | | | | | | | |
| 61 | 39 | 1050 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | <LOD |
| 62 | 42 | 1190 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 1.0 |
| 63 | 42 | 1315 | 1 | <i>Kyphosus vaigiensis</i> | Lowfin Chub | karamami ume | 2.2 |
| 64 | 31 | 535 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.1 |
| 65 | 36 | 690 | 3 | <i>Parupeneus ciliatus</i> | Manybar Goatfish | katuri | 1.3 |
| 66 | 36 | 985 | 3 | <i>Parupeneus ciliatus</i> | Manybar Goatfish | katuri | 1.1 |
| 67 | 35 | 620 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 1.6 |
| 68 | 36 | 695 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 1.4 |
| 69 | 29 | 335 | 3 | <i>Lutjanus kasmira</i> | Bluelined Snapper | ta'ape | 1.6 |
| 70 | 28 | 405 | 3 | <i>Goniistius plessisi</i> | Plessis' Morwong | pakakea | 4.8 |
| 71 | 24 | 280 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 1.5 |
| 72 | 22 | 255 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 1.5 |
| 73 | 23 | 310 | 1 | <i>Ctenochaetus striatus</i> | Striated Surgeonfish | maito | 1.0 |
| 74 | 22 | 250 | 1 | <i>Ctenochaetus striatus</i> | Striated Surgeonfish | maito | 7.3 |
| Ana Rua Bay | | | | | | | |
| 75 | 48 | 1700 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 1.1 |
| 76 | 40 | 1170 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | <LOD |
| 77 | 30 | 465 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | <LOD |
| 78 | 30 | 400 | 3 | <i>Parupeneus ciliatus</i> | Manybar Goatfish | katuri | 1.4 |
| 79 | 35 | 690 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 1.5 |
| 80 | 29 | 325 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 1.2 |
| 81 | 42 | 1590 | 1 | <i>Kyphosus vaigiensis</i> | Lowfin Chub | karamami ume | 2.4 |
| 82 | 35 | 765 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.8 |
| 83 | 29 | 420 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | <LOD |
| 84 | 23 | 280 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | <LOD |
| 85 | 19 | 170 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | <LOD |
| 86 | 22 | 310 | 1 | <i>Ctenochaetus striatus</i> | Striated Surgeonfish | maito | <LOD |
| 87 | 23 | 280 | 1 | <i>Ctenochaetus striatus</i> | Striated Surgeonfish | maito | <LOD |
| Agaira'o Bay | | | | | | | |
| 88 | 42 | 1425 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | <LOD |
| 89 | 35 | 775 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 0.2 |
| 90 | 28 | 345 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 2.2 |
| 91 | 25 | 290 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 2.0 |
| 92 | 44 | 1370 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 0.3 |
| 93 | 38 | 675 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 0.2 |
| 94 | 37 | 746 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 0.6 |
| 95 | 35 | 610 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 0.6 |
| 96 | 38 | 990 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 1.6 |
| 97 | 31 | 550 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | <LOD |
| 98 | 30 | 553 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.4 |
| 99 | 30 | 530 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.6 |
| 100 | 28 | 510 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.4 |
| 101 | 29 | 335 | 3 | <i>Goniistius plessisi</i> | Plessis' Morwong | pakakea | 10.0 |
| 102 | 29 | 430 | 3 | <i>Parupeneus ciliatus</i> | Manybar Goatfish | katuri | 2.0 |
| 103 | 19 | 192 | 1 | <i>Ctenochaetus striatus</i> | Striated Surgeonfish | maito | 6.0 |
| 104 | 18 | 170 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 1.0 |
| Piriauta Bay | | | | | | | |
| 105 | 50 | 1720 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 1.3 |
| 106 | 44 | 1625 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 0.7 |
| 107 | 40 | 1280 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 2.5 |
| 108 | 64 | 2740 | 3 | <i>Seriola lalandi</i> | King Fish | ma'aki | 0.9 |
| 109 | 50 | 2160 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 1.4 |
| 110 | 45 | 1580 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 2.1 |
| 111 | 37 | 1340 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | 0.9 |
| 112 | 36 | 1060 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | 2.2 |
| 113 | 36 | 670 | 3 | <i>Parupeneus ciliatus</i> | Manybar Goatfish | katuri | 1.8 |
| 114 | 35 | 705 | 3 | <i>Parupeneus ciliatus</i> | Manybar Goatfish | katuri | 1.8 |
| 115 | 33 | 765 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.4 |
| 116 | 31 | 714 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.5 |
| 117 | 37 | 750 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | <LOD |
| 118 | 34 | 565 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | <LOD |
| 119 | 36 | 690 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 3.5 |

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|----------------------|----|------|---|--------------------------------|----------------------------|------------------|------|
| 120 | 33 | 545 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 1.7 |
| 121 | 23 | 300 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | <LOD |
| 122 | 21 | 235 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 1.3 |
| 123 | 23 | 269 | 3 | <i>Myripristis</i> sp. | Soldierfish | i'ih | 2.7 |
| 124 | 22 | 266 | 3 | <i>Myripristis</i> sp. | Soldierfish | i'ih | 2.7 |
| Motu Tarakoi | | | | | | | |
| 125 | 56 | 2540 | 3 | <i>Epinephelus tauvina</i> | Greasy Grouper | faroa | <LOD |
| 126 | 44 | 1480 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 1.2 |
| 127 | 34 | 800 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 1.5 |
| 128 | 37 | 760 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 1.5 |
| 129 | 36 | 680 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 1.6 |
| 130 | 42 | 1290 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 0.8 |
| 131 | 40 | 980 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 0.6 |
| 132 | 37 | 1250 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | 1.2 |
| 133 | 36 | 1160 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | 2.0 |
| 134 | 24 | 270 | 1 | <i>Ctenochaetus striatus</i> | Striated Surgeonfish | maito | 1.7 |
| 135 | 23 | 270 | 1 | <i>Ctenochaetus striatus</i> | Striated Surgeonfish | maito | 4.2 |
| 136 | 33 | 810 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.6 |
| 137 | 30 | 540 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.9 |
| 138 | 25 | 305 | 3 | <i>Myripristis</i> sp. | Soldierfish | i'ih | 4.0 |
| 139 | 25 | 430 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 0.8 |
| 140 | 20 | 190 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 1.3 |
| Motu Ta'una | | | | | | | |
| 141 | 72 | 7750 | 1 | <i>Kyphosus vaigiensis</i> | Lowfin Chub | ume | 1.0 |
| 142 | 63 | 5150 | 1 | <i>Kyphosus vaigiensis</i> | Lowfin Chub | ume | 0.5 |
| 143 | 38 | 1365 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | 1.4 |
| 144 | 36 | 970 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | 1.0 |
| 145 | 45 | 1430 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 1.4 |
| 146 | 44 | 1670 | 1 | <i>Chlorurus frontalis</i> | Tan-faced Parrotfish | uhu naonao | <LOD |
| 147 | 38 | 970 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 0.7 |
| 148 | 32 | 645 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu royal | 1.3 |
| 149 | 34 | 856 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | <LOD |
| 150 | 31 | 575 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | <LOD |
| 151 | 37 | 1070 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 1.5 |
| 152 | 35 | 690 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 0.7 |
| 153 | 37 | 780 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | 0.8 |
| 154 | 26 | 425 | 3 | <i>Myripristis</i> sp. | Soldierfish | i'ih | 1.9 |
| 155 | 24 | 320 | 3 | <i>Myripristis</i> sp. | Soldierfish | i'ih | 1.3 |
| 156 | 26 | 310 | 3 | <i>Goniistius plessisi</i> | Plessis' Morwong | pakakea | 14.5 |
| 157 | 22 | 300 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 1.5 |
| 158 | 20 | 215 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | <LOD |
| Akaomua Bay | | | | | | | |
| 159 | 56 | 3450 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | pakavai | <LOD |
| 160 | 52 | 3015 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | pakavai | <LOD |
| 161 | 41 | 1290 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | <LOD |
| 162 | 36 | 760 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | <LOD |
| 163 | 37 | 785 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | <LOD |
| 164 | 34 | 590 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | <LOD |
| 165 | 34 | 635 | 3 | <i>Parupeneus ciliatus</i> | Manybar Goatfish | katur | <LOD |
| 166 | 28 | 570 | 3 | <i>Parupeneus ciliatus</i> | Manybar Goatfish | katur | 0.8 |
| 167 | 34 | 530 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | <LOD |
| 168 | 29 | 355 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | <LOD |
| 169 | 29 | 530 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | <LOD |
| 170 | 24 | 310 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | <LOD |
| 171 | 19 | 235 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | <LOD |
| 172 | 18 | 180 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | <LOD |
| 173 | 25 | 200 | 3 | <i>Priacanthus hamrur</i> | Crescent-tail Bigeye | mata ana ana | <LOD |
| Makatea Peak | | | | | | | |
| 174 | 66 | 2300 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | <LOD |
| 175 | 37 | 730 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | <LOD |
| 176 | 48 | 2010 | 1 | <i>Scarus altipinnis</i> | Filament-finned Parrotfish | haumeretue | <LOD |
| 177 | 46 | 1460 | 1 | <i>Scarus altipinnis</i> | Filament-finned Parrotfish | roro | <LOD |
| Anatakuri Bay | | | | | | | |
| 178 | 39 | 160 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | 1.2 |
| 179 | 36 | 1280 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | 0.7 |
| 180 | 44 | 1240 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | <LOD |
| 181 | 36 | 700 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 0.5 |
| 182 | 42 | 1345 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 1.0 |
| 183 | 42 | 1250 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | <LOD |
| 184 | 35 | 870 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | <LOD |
| 185 | 33 | 800 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.5 |
| 186 | 37 | 720 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 0.5 |
| 187 | 33 | 615 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 1.9 |
| 188 | 33 | 450 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | <LOD |
| 189 | 61 | 2300 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 1.3 |

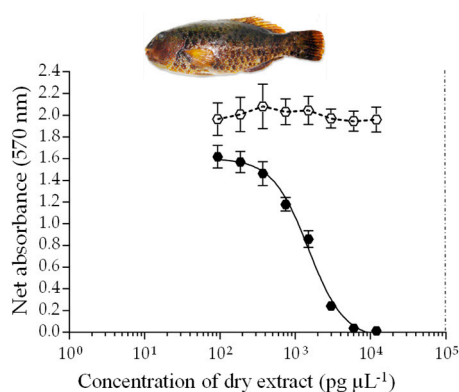
| | | | | | | | |
|----------------------|----|------|---|--------------------------------|---------------------------|------------------|------|
| 190 | 42 | 1460 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu royal | 1.1 |
| 191 | 47 | 1540 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | <LOD |
| 192 | 38 | 800 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 1.0 |
| 193 | 44 | 1530 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 0.6 |
| 194 | 35 | 1080 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | 0.5 |
| 195 | 34 | 810 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.7 |
| 196 | 32 | 465 | 3 | <i>Goniistius plessisi</i> | Plessis' Morwong | pakakea | 6.3 |
| 197 | 29 | 375 | 3 | <i>Goniistius plessisi</i> | Plessis' Morwong | pakakea | 6.3 |
| 198 | 37 | 1250 | 3 | <i>Monotaxis grandoculis</i> | Bigeye Emperor | mu | <LOD |
| 199 | 35 | 545 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | <LOD |
| 200 | 35 | 575 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 0.7 |
| 201 | 39 | 810 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | 0.6 |
| 202 | 34 | 535 | 3 | <i>Epinephelus fasciatus</i> | Blacktip Grouper | rari | 0.6 |
| 203 | 26 | 370 | 1 | <i>Naso unicornis</i> | Brown Unicornfish | ume tara | 2.9 |
| 204 | 20 | 268 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 1.5 |
| 205 | 20 | 230 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 2.6 |
| Motu Rapa Iti | | | | | | | |
| 206 | 69 | 7200 | 1 | <i>Kyphosus vaigiensis</i> | Lowfin Chub | ume | 5.7 |
| 207 | 52 | 3140 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | pakavai | 1.2 |
| 208 | 47 | 2100 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 9.4 |
| 209 | 43 | 1450 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 7.8 |
| 210 | 48 | 1890 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | <LOD |
| 211 | 43 | 1320 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 1.0 |
| 212 | 37 | 800 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 1.4 |
| 213 | 37 | 1000 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | nanue | <LOD |
| 214 | 39 | 910 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 5.0 |
| 215 | 37 | 700 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 2.0 |
| 216 | 28 | 490 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 0.6 |
| 217 | 30 | 485 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | <LOD |
| 218 | 31 | 400 | 3 | <i>Goniistius plessisi</i> | Plessis' Morwong | pakakea | 8.5 |
| 219 | 29 | 360 | 3 | <i>Goniistius plessisi</i> | Plessis' Morwong | pakakea | 10.8 |
| 220 | 23 | 315 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 1.3 |
| 221 | 23 | 280 | 1 | <i>Acanthurus leucopareius</i> | Whitebar Surgeonfish | maamaa | 2.3 |
| Ahurei Bay | | | | | | | |
| 222 | 62 | 3680 | 3 | <i>Plectropomus laevis</i> | Blacksaddle Coralgroupier | tonu | 2.1 |
| 223 | 48 | 1875 | 3 | <i>Plectorhinchus picus</i> | Spotted Sweetlips | matuatua | 1.5 |
| 224 | 47 | 1605 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 1.9 |
| 225 | 40 | 990 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 2.4 |
| 226 | 31 | 615 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 2.5 |
| 227 | 31 | 570 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 2.0 |
| 228 | 27 | 240 | 3 | <i>Epinephelus merra</i> | Honeycomb Grouper | tarao | <LOD |
| 229 | 26 | 245 | 3 | <i>Epinephelus merra</i> | Honeycomb Grouper | tarao | 1.4 |
| 230 | 27 | 310 | 3 | <i>Epinephelus merra</i> | Honeycomb Grouper | tarao | <LOD |
| 231 | 28 | 300 | 3 | <i>Epinephelus merra</i> | Honeycomb Grouper | tarao | <LOD |
| 232 | 32 | 535 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 1.1 |
| 233 | 25 | 270 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 1.0 |
| 234 | 53 | 2610 | 3 | <i>Caranx ignobilis</i> | Giant Jack | pa'aihere | 1.7 |
| 235 | 50 | 2260 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 10.7 |
| 236 | 42 | 1680 | 1 | <i>Chlorurus microrhinos</i> | Steephead Parrotfish | uhu raepuu | 8.8 |
| 237 | 34 | 680 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 12.4 |
| 238 | 34 | 610 | 1 | <i>Leptoscarus vaigiensis</i> | Seagrass Parrotfish | komokomo | 2.7 |
| 239 | 27 | 415 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.2 |
| 240 | 26 | 345 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | 1.8 |
| 241 | 32 | 470 | 3 | <i>Goniistius plessisi</i> | Plessis' Morwong | pakakea | 9.7 |
| 242 | 40 | 1175 | 3 | <i>Caranx ignobilis</i> | Giant Jack | pa'aihere | 0.6 |
| 243 | 29 | 430 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 2.0 |
| 244 | 29 | 385 | 3 | <i>Pseudocaranx dentex</i> | Thicklipped Jack | matu | 1.6 |
| 245 | 34 | 420 | 2 | <i>Crenimugil crenilabis</i> | Fringelip Mullet | tehu | 1.5 |
| 246 | 27 | 330 | 3 | <i>Priacanthus hamrur</i> | Crescent-tail Bigeye | mata ana ana | 1.1 |
| 247 | 24 | 213 | 3 | <i>Priacanthus hamrur</i> | Crescent-tail Bigeye | mata ana ana | 1.4 |
| 248 | 27 | 385 | 3 | <i>Lutjanus kasmira</i> | Bluelined Snapper | ta'ape | 1.1 |
| 249 | 23 | 255 | 1 | <i>Kyphosus cinerascens</i> | Highfin Chub | karamami | <LOD |
| 250 | 40 | 856 | 2 | <i>Crenimugil crenilabis</i> | Fringelip Mullet | tehu | <LOD |
| 251 | 33 | 628 | 2 | <i>Crenimugil crenilabis</i> | Fringelip Mullet | tehu | 1.7 |

¹Feeding type codes: (1) mainly plants/detritus - (2) plants/detritus + animals - (3) mainly animals.

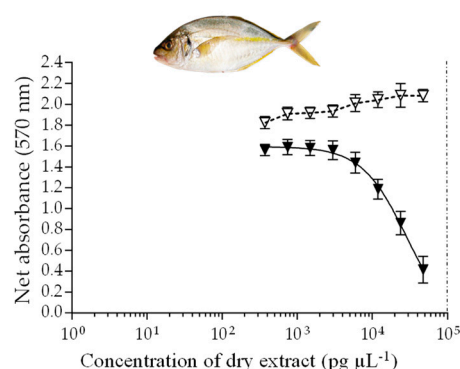
²Fish samples with a CTX-like activity < 0.31 µg CTX3C eq kg⁻¹.

Table S2. Selected *m/z* transitions and LC-MS/MS instrument parameters used for the scheduled MRM method.

| Compound | Detection window (min) | Precursor ion (Q1) <i>m/z</i> | Product ion (Q3) <i>m/z</i> | DP (eV) | CE (eV) | CXP (eV) | |
|---|------------------------|--|-----------------------------|---------|---------|----------|----|
| CTX1B | 3.1 ± 1 | 1128.6 [M+NH ₄] ⁺ | 1093.6 | 105 | 20 | 12 | |
| | | | 1075.6 | 105 | 30 | 12 | |
| | | | 95.1 | 105 | 90 | 20 | |
| M- <i>seco</i> -CTX3C | 4.7 ± 1 | 1041.6 [M+H] ⁺ | 1023.6 | 105 | 30 | 12 | |
| | | | 1005.6 | 105 | 20 | 12 | |
| | | | 125.1 | 105 | 50 | 18 | |
| 2-hydroxyCTX3C and 3-hydroxyCTX3C | 5.4 ± 1 | 1058.6 [M+NH ₄] ⁺ | 1023.6 | 105 | 30 | 12 | |
| | | | 1005.6 | 105 | 20 | 12 | |
| | | | 125.1 | 105 | 50 | 18 | |
| 2,3-dihydroxyCTX3C | 6.0 ± 1 | 1074.6 [M+NH ₄] ⁺ | 1039.6 | 105 | 30 | 12 | |
| | | | 1057.6 [M+H] ⁺ | 1039.6 | 105 | 20 | 12 |
| | | | 125.1 | 105 | 50 | 18 | |
| 51-hydroxyCTX3C | 6.3 ± 1 | 1056.6 [M+NH ₄] ⁺ | 1021.6 | 105 | 30 | 12 | |
| | | | 1039.6 [M+H] ⁺ | 1021.6 | 105 | 20 | 12 |
| | | | 1003.6 | 105 | 20 | 12 | |
| M- <i>seco</i> -CTX4A/B | 6.5 ± 1 | 1096.6 [M+NH ₄] ⁺ | 1043.7 | 105 | 30 | 12 | |
| | | | 1079.6 [M+H] ⁺ | 1043.7 | 105 | 20 | 12 |
| | | | 125.1 | 105 | 50 | 18 | |
| 52- <i>epi</i> -54-deoxyCTX1B and 54-deoxyCTX1B | 6.8 ± 1 | 1112.6 [M+NH ₄] ⁺ | 1077.6 | 105 | 20 | 12 | |
| | | | 1059.6 | 105 | 30 | 12 | |
| | | | 95.1 | 105 | 90 | 20 | |
| CTX3C isomers (1), (2) and (3) | 7.6 ± 1 | 1040.6 [M+NH ₄] ⁺ | 1005.6 | 105 | 30 | 12 | |
| | | | 1023.6 [M+H] ⁺ | 1005.6 | 105 | 20 | 12 |
| | | | 125.1 | 105 | 20 | 12 | |
| CTX3C, CTX3B and CTX3C isomer (4) | 10.5 ± 1 | 1040.6 [M+NH ₄] ⁺ | 1005.6 | 105 | 30 | 12 | |
| | | | 1023.6 [M+H] ⁺ | 1005.6 | 105 | 20 | 12 |
| | | | 125.1 | 105 | 50 | 18 | |
| CTX4A and CTX4B | 12.2 ± 1 | 1078.6 [M+NH ₄] ⁺ | 1043.6 | 105 | 30 | 12 | |
| | | | 1061.6 [M+H] ⁺ | 1043.6 | 105 | 20 | 12 |
| | | | 125.1 | 105 | 50 | 18 | |



(a)



(b)

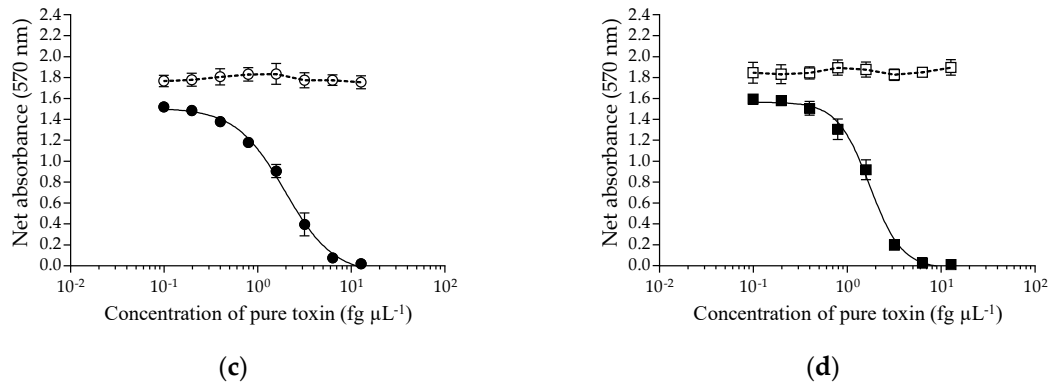



Figure S1. Composite toxicity dose-response curves of N2a cells in OV- (open symbols) and OV+ (solid symbols) conditions when exposed to increasing concentrations of LF100 extracts and pure Pacific CTXs. (a) *Leptoscarus vaigiensis* #214; (b) *Pseudocaranx dentex* #211; (c) CTX3C; (d) CTX1B. Data represent the mean \pm SD of three independent experiments, each concentration run in triplicate ($n = 9$). The dotted vertical line corresponds to the maximum concentration of LF100 dry extracts for matrix interference (MCE = 50,000 $\text{pg } \mu\text{L}^{-1}$). Mean EC_{50} values for CTX3C and CTX1B were 1.91 ± 0.22 and $1.72 \pm 0.17 \text{ fg } \mu\text{L}^{-1}$ (from three independent experiments).



French Polynesia Ciguatera and seafood poisoning Surveillance Network

DECLARATION FORM

PATIENT

Age years Sex: F M

CONTEXT OF POISONING

Date of consumption

Local name of marine product responsible for the poisoning

Part(s) consumed Flesh Head Viscera Eggs

Specify the fishing spot (Mark with a cross on the map)

Region/town Island

bought on the roadside bought at the market / store (specify)

CLINICAL DATA

| INTENSITY | | | For information: if the patient presents with fever patient and / or allergic reactions and / or skin rash, the diagnosis of ciguatera must be rejected. |
|---------------------------------------|--------------------------|--------------------------|--|
| Mild | Moderate | High | |
| CARDIOVASCULAR SIGNS | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Bradycardia |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Tachycardia |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Hypotension |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Hypertension |
| DIGESTIVE SIGNS | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Nausea |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Vomiting |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Diarrhea |
| GENERAL AND NEUROLOGICAL SIGNS | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Tingling extremities (hands, feet) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Touch, neuro-sensitives disturbances |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Dysesthesia (in contact with cold / hot) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Itching |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Asthenia |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Headache |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Dizziness / Balance or walking disorders (underline) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Vision disorders |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Muscular disorders (pain, cramps, weaknesses ...) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Joint pain |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Hypothermia : Temperature <input type="text"/> °C |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Burn / tingling of lips, mouth, throat |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Orofacial pain (teeth, jaw, face) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Dysgueusia (taste alteration) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Urogenital discomfort/ itching / burning |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Hallucinations |

Other symptoms/Observations

Time elapsed between the meal and the onset of symptoms < 30 min < 2h < 12h > 12h

Number of previous CFP/PSP

Number of other person(s) also concerned by the poisoning (in addition to the patient)

MEDICAL STRUCTURE IDENTIFICATION

Date of consultation Island/ Town

Medical structure First aid post Infirmary Medical Center Hospital Private Other

Please send the form to
 LMT - Institut Louis Malardé BP 30 98713 TAHITI | Tél: (689) 40 416 411 - Fax: (689) 40 416 406 | Mail: veille.ciguatera@ilm.pf
 Vous avez également la possibilité de faire la déclaration directement en ligne sur www.ciguatera.pf

Figure S2. Standardized declaration form for Ciguatera and seafood poisoning cases.