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# Supplementary Material to "Expanding the mitochondrial genomic toolkit for Polyneoptera: New mitogenomes and evaluation of reduced marker sets for phylogeny and DNA barcoding"

**Table S2** - List of mitochondrial primers identified through a literature review for each taxonomic group analyzed, including primer sequences, original sources, and documented usage in Polyneoptera.

| Gene | Forward ID | Forward Sequence | Reverse ID | Reverse Sequence | Original source (Author, year) | Original source (DOI/PMID) | Polyneoptera usage (Author, year) | Polyneoptera usage (DOI/PMID) |
|---|---|---|---|---|---|---|---|---|
| | | | | **Blattodea** | | | | |
| *16S* | primer_A | CGCCTGTTTATCAAAAACAT | primer_B | CTCCGGTTTGAACTCAGATC | Xiong and Kocher, 1991 | https://doi.org/10.1139/g91-050 | Park et al., 2019 | https://doi.org/10.1093/jee/toz097 |
| *16S* | Chiar16SF | TARTYCAACACGRCGTC | Chiar16SR | CYGTRCDAAGGTAGCATA | Marquina et al., 2019 | https://doi.org/10.1111/1755-0998.12942 | Nagaraju et al., 2021 | https://doi.org/10.1007/s42690-020-00287-5 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Folmer et al., 1994 | 7881515 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Park et al., 2019 | https://doi.org/10.1093/jee/toz097 |
| *COX1* | LepF1 | ATTCAACCAATCATAAAGATAT | LepR1 | TAAACTTCTGGATGTCCAAAAA | Hebert et al., 2004 | https://doi.org/10.1073/pnas.0406166101 | Schapeer et al., 2017 | https://doi.org/10.1016/j.rbe.2017.02.001 |
| *COX1* | AUS[F] | ATCAATTTCCATATTTGGCTT | AUS[R] | GCTGATGTAAAATAAGCTCGTG | Ma et al., 2019 | https://doi.org/10.1002/ece3.5777 | Ma et al., 2019 | https://doi.org/10.1002/ece3.5777 |
| *COX1* | H[F] | TTACCTTCGAATCTGTTATGC | H[R] | GCTGATGTAAAATAAGCTCGTG | Ma et al., 2019 | https://doi.org/10.1002/ece3.5777 | Ma et al., 2019 | https://doi.org/10.1002/ece3.5777 |
| *COX1* | Q[F] | CTCAGCCATTCTACTAACTTTGC | Q[R] | CTATAATAGGAGATGCTCTGTCTTG | Ma et al., 2019 | https://doi.org/10.1002/ece3.5777 | Ma et al., 2019 | https://doi.org/10.1002/ece3.5777 |
| *COX1* | wg550F83 | ATGCGTCAGGARTGYAARTGYCAYGGYATGTC | wgcockR | AACATGCACGCACACCTCTGCACCACGGACACC | Ma et al., 2019 | https://doi.org/10.1002/ece3.5777 | Ma et al., 2019 | https://doi.org/10.1002/ece3.5777 |
| *COX1* | COI-F2 | CAACAAATCATAAAGATATTGGAAC | COI-R2 | TAAACTTCTGGATGACCAAAAAATCA | Yang et al., 2019 | https://doi.org/10.3897/zookeys.851.31403 | Luo et al., 2023 | https://doi.org/10.3897/zookeys.1146.90817 |
| *COX1* | COI-F3 | CAACYAATCATAAAGANATTGGAAC | COI-R3 | TAAACTTCAGGGTGACCAAARAATCA | Yang et al., 2019 | https://doi.org/10.3897/zookeys.851.31403 | Luo et al., 2023 | https://doi.org/10.3897/zookeys.1146.90817 |

| Gene | Forward ID | Forward Sequence | Reverse ID | Reverse Sequence | Original source (Author, year) | Original source (DOI/PMID) | Polyneoptera usage (Author, year) | Polyneoptera usage (DOI/PMID) |
|---|---|---|---|---|---|---|---|---|
| *COX2* | A-tLeu | CAGATAAGTGCATTGGATTT | B-tLys | GTTTAAGAGACCAGTACTTG | Liu and Beckenbach, 1992 | https://doi.org/10.1016/1055-7903(92)90034-E | Zaman et al, 2022 | https://doi.org/10.3390/f13050674 |
| *COX2* | COII-2a | ATAGAKCWTCYCCHTTAATAGAACA | COII-9b | GTACTTGCTTTCAGTCATCTWATG | Whiting, 2002 | https://doi.org/10.1046/j.0300-3256.2001.00095.x | Park et al., 2019 | https://doi.org/10.1093/jee/toz097 |
| *COX2* | COII-F-leu | TCTAATATGGCAGATTAGTGC | COII-R-lys | GAGACCAGTACTTGCTTTCAGTCATC | Whiting, 2002 | https://doi.org/10.1046/j.0300-3256.2001.00095.x | Park et al., 2019 | https://doi.org/10.1093/jee/toz097 |
| *COX2* | MODA | CAGATAAGTGCATTGGATTT | ILYSB | GTTTAAGAGACCAGTACTTG | Ondo et al., 2023 | https://doi.org/10.1111/jbi.14671 | Ondo et al., 2023 | https://doi.org/10.1111/jbi.14671 |
| | | | | **Phasmatodea** | | | | |
| *COX1* | Jerry | CAACATTTATTTTGATTTTTTGG | Tom2 | ARGGGAATCATTGAATAAAWCC | Simon et al., 1994; Ribera et al., 2010 | https://doi.org/10.1093/aesa/87.6.651; doi: 10.1186/1471-2148-10-29 | Glaw et al., 2019 | https://doi.org/10.3389/fevo.2019.00105 |
| | | | | **Plecoptera** | | | | |
| *16S* | Inse01-F | RGACGAGAAGACCCTATARA | Inse01-R | ACGCTGTTATCCCTAARGTA | Taberlet et al., 2018 | https://doi.org/10.1111/j.1365-294X.2012.05542.x | Ficetola et al, 2021 | https://doi.org/10.1111/mec.15632 |
| *COX1* | C1-J-1718 | GGAGGATTTGGAAATTGATTAGTTCC | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Simon et al., 1994;Folmer et al., 1994 | https://doi.org/10.1093/aesa/87.6.651; 7881515 | Avelino-Capistrano et al, 2016 | https://doi.org/10.11646/zootaxa.4079.3.5 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Zhou et al., 2009 | https://doi.org/10.1186/1742-9994-6-30 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Elwess, 2018 | https://doi.org/10.1080/00219266.2017.1403359 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Brian et al, 2014 | https://doi.org/10.1086/674526 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Maribet and Monaghan 2014 | https://doi.org/10.1080/01650424.2015.1013038 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Mynott, 2015 | https://doi.org/10.1071/IS14043 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Cruz et al., 2016 | https://doi.org/10.11646/zootaxa.4193.1.4 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Gattolliati et al., 2016 | https://doi.org/10.11646/zoosymposia.11.1.15 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Cordero et al., 2017 | https://doi.org/10.1007/s00300-016-2062-3 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Morinière et al., 2017 | https://doi.org/10.1111/1755-0998.12683 |

| Gene | Forward ID | Forward Sequence | Reverse ID | Reverse Sequence | Original source (Author, year) | Original source (DOI/PMID) | Polyneoptera usage (Author, year) | Polyneoptera usage (DOI/PMID) |
|---|---|---|---|---|---|---|---|---|
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Giersch et al, 2017 | https://doi.org/10.1111/gcb.13565 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Teslenko et al., 2019 | https://doi.org/10.11646/zootaxa.4585.3.9 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Fochetti et al., 2019 | https://doi.org/10.11646/zootaxa.4661.3.4 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Chen et al., 2020 | https://doi.org/10.11646/zootaxa.4751.2.9 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Uchida et al., 2020 | https://doi.org/10.7717/peerj.9176 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Ge et al., 2021 | https://doi.org/10.1002/ece3.7470 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Hlebec et al, 2021 | https://doi.org/10.3897/zookeys.1078.66382 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Schröder et al., 2021 | https://doi.org/10.1111/fwb.13854 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Hlebec et al., 2022 | https://doi.org/10.7717/peerj.13213 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Vuataz et al., 2024 | https://doi.org/10.1038/s41598-024-56930-5 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Chen, 2024 | https://doi.org/10.1016/j.jcz.2024.02.003 |
| *COX1* | Jerry | CAACATTTATTTTGATTTTTTGG | PAT | TCCAATGCACTNNAATCTGCCATATTA | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Mynott, 2015 | https://doi.org/10.1071/IS14043 |
| *COX1* | LepF | ATTCAACCAATCATAAAGATATTGG | LepR | TAAACTTCTGGATGTCCAAAAAATCA | Hebert et al., 2004 | https://doi.org/10.1073/pnas.0406166101 | Gill1 et al., 2014 | https://doi.org/10.1086/674526 |
| *COX1* | LepF | ATTCAACCAATCATAAAGATATTGG | LepR | TAAACTTCTGGATGTCCAAAAAATCA | Hebert et al., 2004 | https://doi.org/10.1073/pnas.0406166101 | Hlebec et al, 2021 | https://doi.org/10.3897/zookeys.1078.66382 |
| *COX1* | LepF | ATTCAACCAATCATAAAGATATTGG | LepR | TAAACTTCTGGATGTCCAAAAAATCA | Hebert et al., 2004 | https://doi.org/10.1073/pnas.0406166101 | Hlebec et al, 2021 | https://doi.org/10.7717/peerj.13213 |
| *COX1* | LepF | ATTCAACCAATCATAAAGATATTGG | LepR | TAAACTTCTGGATGTCCAAAAAATCA | Hebert et al., 2004 | https://doi.org/10.1073/pnas.0406166101 | Zieritz et al, 2022 | https://doi.org/10.1111/fwb.13926 |
| *COX1* | FL_rück1 | TAAGCTCGGGTATCAACGTCTAT | LCO_mod | TTCTACAAATCATAAAGATATTGGAAC | Leese, 2004 | https://hdl.handle.net/11858/00-001M-0000-000F-C7AF-1 | Morinière et al, 2017 | https://doi.org/10.1111/1755-0998.12683 |
| *COX1* | LCO1490-L | GGTCWACWAATCATAAAGATATTGG | HCO2198-L | TAAACTTCWGGRTGWCCAAARAATCA | Nelson et al., 2007 | https://doi.org/10.1111/j.1365-2915.2007.00664.x | Boumans and Baumann, 2012 | https://doi.org/10.11646/zootaxa.3537.1.5 |

| Gene | Forward ID | Forward Sequence | Reverse ID | Reverse Sequence | Original source (Author, year) | Original source (DOI/PMID) | Polyneoptera usage (Author, year) | Polyneoptera usage (DOI/PMID) |
|---|---|---|---|---|---|---|---|---|
| *COX1* | LCO1490-JJ | CHACWAAYCATAAAGATATYGG | HCO2198-JJ | AWACTTCVGGRTGVCCAAARAATCA | Astrin and Stüben, 2008 | https://doi.org/10.1071/IS07057 | Zizka et al, 2019 | https://doi.org/10.1139/gen-2018-0048 |
| *COX1* | BE_F | CCIGAYATRGCITTYCCICG | BE_R | GTRATIGCICCIGCIARIAC | Hajibabaei et al, 2012 | https://doi.org/10.1186/1472-6785-12-28 | Emilson et al, 2017 | https://doi.org/10.1038/s41598-017-13157-x |
| *COX1* | FoldF | CCNGAYATRGCNTTYCCNCG | FoldR | TANACYTCNGGRTGNCCRAARAAYCA | Yu et al, 2012 | https://doi.org/10.1111/j.2041-210X.2012.00198.x | Rahman et al., 2022 | https://doi.org/10.1111/1365-2664.14174 |
| *COX1* | mlCOIintF | GGWACWGGWTGAACWGTWTAYCCYCC | jgHCO2198 | TAIACYTCIGGRTGICCRAARAAYCA | Leray et al., 2013 | https://doi.org/10.1186/1742-9994-10-34 | Zieritz et al, 2022 | https://doi.org/10.1111/fwb.13926 |
| *COX1* | mlCOIintF | GGWACWGGWTGAACWGTWTAYCCYCC | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Leray et al., 2013;Folmer et al., 1994 | https://doi.org/10.1186/1742-9994-10-34; 7881515 | Keck et al, 2022 | https://doi.org/10.3897/mbmg.6.79351 |
| *COX1* | LepF | ATTCAACCAATCATAAAGATATTGG | LepR | TAAACTTCTGGATGTCCAAAAAATCA | Hebert et al., 2004 | https://doi.org/10.1073/pnas.0406166101 | Morinière et al, 2017 | https://doi.org/10.1111/1755-0998.12683 |
| *COX1* | mod_LCO1490 | TYTCAACAAATCAYAARGAYATTGG | mod_HCO2198 | TAYACYTCWGGRTGMCCAAAAAATCA | Giersch et al., 2015 | https://doi.org/10.1086/679490 | Giersch et al., 2015 | https://doi.org/10.1086/679490 |
| *COX1* | fwhF2 | GGDACWGGWTGAACWGTWTAYCCHCC | fwhR2n | GTRATWGCHCCDGCTARWACWGG | Elbrecht et al., 2017 | https://doi.org/10.1111/2041-210X.12789 | Remmel et al, 2024 | https://doi.org/10.1111/icad.12710 |
| *COX1* | BF2 | GCHCCHGAYATRGCHTTYCC | BR2 | TCDGGRTGNCCRAAARAAAYCA | Elbrecht and Leese, 2017 | https://doi.org/10.3389/fenvs.2017.00011 | Zizka et al, 2020 | https://doi.org/10.1016/j.ecolind.2020.106383 |
| *COX1* | BF2 | GCHCCHGAYATRGCHTTYCC | BR2 | TCDGGRTGNCCRAAARAAAYCA | Elbrecht and Leese, 2017 | https://doi.org/10.3389/fenvs.2017.00011 | Beermann et al, 2020 | https://doi.org/10.1016/j.scitotenv.2020.141969 |
| *COX1* | BF2 | GCHCCHGAYATRGCHTTYCC | BR2 | TCDGGRTGNCCRAAARAAAYCA | Elbrecht and Leese, 2017 | https://doi.org/10.3389/fenvs.2017.00011 | Ficetola et al, 2021 | https://doi.org/10.1111/mec.15632 |
| *COX1* | BF2 | GCHCCHGAYATRGCHTTYCC | BR2 | TCDGGRTGNCCRAAARAAAYCA | Elbrecht and Leese, 2017 | https://doi.org/10.3389/fenvs.2017.00011 | Rivera et al, 2021 | https://doi.org/10.1016/j.scitotenv.2020.144208 |
| *COX1* | BF2 | GCHCCHGAYATRGCHTTYCC | BR2 | TCDGGRTGNCCRAAARAAAYCA | Elbrecht and Leese, 2017 | https://doi.org/10.3389/fenvs.2017.00011 | Turunen, et al, 2021 | https://doi.org/10.1111/fwb.13678 |
| | | | | **Orthoptera** | | | | |
| *12S* | 12Sai | AAACTAGGATTAGATACCCTATTAT | 12Sbi | AAGAGCGACGGGCGATGTGT | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Allegrucci et al, 2021 | https://doi.org/10.1080/24750263.2021.1902005 |
| *12S* | 12Sai | AAACTAGGATTAGATACCCTATTAT | 12Sbi | AAGAGCGACGGGCGATGTGT | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Allegrucci et al, 2014 | https://doi.org/10.3897/zookeys.437.7917 |
| *16S* | 16Sar | CGCCTGTTTAACAAAAACAT | 16Sbr | CCGGTCTGAACTCAGATCACGT | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Allegrucci et al, 2014 | https://doi.org/10.3897/zookeys.437.7917 |
| *16S* | 16Sar | CGCCTGTTTAACAAAAACAT | 16Sbr | CCGGTCTGAACTCAGATCACGT | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Allegrucci et al, 2021 | https://doi.org/10.1080/24750263.2021.1902005 |

| Gene | Forward ID | Forward Sequence | Reverse ID | Reverse Sequence | Original source (Author, year) | Original source (DOI/PMID) | Polyneoptera usage (Author, year) | Polyneoptera usage (DOI/PMID) |
|---|---|---|---|---|---|---|---|---|
| *16S* | LR-J-13417 | ATGTTTTTGTTAAACAGGCG | SR-N-14588 | AAACTAGGATTAGATACCCTATTAT | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Trewick, 2008 | https://doi.org/10.1111/j.1096-0031.2007.00174.x |
| *16S* | LR-J-13417 | ATGTTTTTGATAAACAGGCG | SR-N-14275 | AAGGTGGATTTGATAGTAAT | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Yassin et al, 2009 | https://doi.org/10.1016/j.ympev.2009.06.012 |
| *16S* | 16Sb | CCGGTCTGAACTCAGATCACGT | 16Sar | CGCCTGTTTATCAAAAACAT | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Iorgu et al, 2023 | https://doi.org/10.1093/zoolinnean/zlab084 |
| *COX1* | C1-J-1859 | GGAACnGGATGAACAGTAT | C1-N-2329 | ACTGTAAATATATGATGAGCTCA | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Bonelli et al, 2019 | http://www.bulletinofinsectology.org/pdfarticles/vol72-2019-103-114bonelli.pdf |
| *COX1* | C1-N-2195 | TTGATTTTTTGGTCATCCAGAAGT | C1-J-3014 | TCCAATGCACTAATCTGCCATATTA | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Trewick, 2008 | https://doi.org/10.1111/j.1096-0031.2007.00174.x |
| *COX1* | LCO1490 (Folmer J) | GGTCACAAATCATAAAGATATTGG | HCO2198 (Folmer N) | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Zhou et al, 2013 | https://doi.org/10.1071/IS12019 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Allegrucci et al, 2014 | https://doi.org/10.3897/zookeys.437.7917 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Pedraza-Lara et al, 2015 | https://doi.org/10.1016/j.ympev.2015.01.001 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Vitale et al, 2015 | https://doi.org/10.1016/j.micron.2015.08.002 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Kang et al, 2016 | https://doi.org/10.3109/19401736.2015.1022730 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | De Jesús-Bonilla et al, 2017 | https://doi.org/10.1080/14772000.2017.1313792 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Ortega-Morales et al, 2017 | https://doi.org/10.11646/zootaxa.4258.2.9 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Zhou et al, 2019 | https://doi.org/10.1186/s12862-019-1404-5 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Kim et al, 2020 | https://doi.org/10.1111/1748-5967.12433 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Ahmad et al, 2020 | https://dx.doi.org/10.17582/journal.pjz/20200501020521 |

| Gene | Forward ID | Forward Sequence | Reverse ID | Reverse Sequence | Original source (Author, year) | Original source (DOI/PMID) | Polyneoptera usage (Author, year) | Polyneoptera usage (DOI/PMID) |
|---|---|---|---|---|---|---|---|---|
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Allegrucci et al, 2021 | https://doi.org/10.1080/24750263.2021.1902005 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Tlil et al, 2021 | https://doi.org/10.5252/zoosystema2020v42a31 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Warchalowska-Sliwa et al, 2021 | https://doi.org/10.1038/s41598-021-02110-8 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Kang et al, 2022 | https://doi.org/10.1111/1748-5967.12619 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Iorgu et al, 2023 | https://doi.org/10.1093/zoolinnean/zlab084 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Guerrero and Cayabyab, 2024 | https://doi.org/10.18474/JES23-36 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | Ill_C_R | GGIGGRTAIACIGTTCAICC | Folmer et al., 1994;Shokralla et al., 2015 | 7881515; https://doi.org/10.1038/srep09687 | Pina et al, 2024 | https://doi.org/10.3897/BDJ.12.e118010 |
| *COX1* | LCO1490 | TCWACWAAYCAYAARGAYATYGG | COmfd_R | GGDGGRTANAHHGTTCAHCCNGTHCC | Folmer et al., 1994; Kurata et al , 2024 | 7881515; https://doi.org/10.3897/bdj.12.e117014 | Kurata et al , 2024 | https://doi.org/10.3897/bdj.12.e117014 |
| *COX1* | COmfd_F | CCNCGRHTRAAYAAYATRAGWTTYTG | HCO2198 | ACTTCDGGRTGNCCAAARAAYCA | Kurata et al , 2024; Folmer et al., 1994 | https://doi.org/10.3897/bdj.12.e117014; 7881515 | Kurata et al , 2024 | https://doi.org/10.3897/bdj.12.e117014 |
| *COX1* | Ill_B_F | CCIGAYATRGCITTYCCICG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Shokralla et al., 2015;Folmer et al., 1994 | https://doi.org/10.1038/srep09687; 7881515 | Pina et al, 2024 | https://doi.org/10.3897/BDJ.12.e118010 |
| *COX1* | UEA1 | GAATAATTCCCATAAATAGATTTACA | UEA10 | TCCAATGCACTAATCTGCCATATTA | Lunt et al., 1996 | https://doi.org/10.1111/j.1365-2583.1996.tb00049.x | Allegrucci et al, 2014 | https://doi.org/10.3897/zookeys.437.7917 |
| *COX1* | UEA5 | AGTTTTAGCAGGAGCAATTACTAT | UEA10 | TCCAATGCACTAATCTGCCATATTA | Lunt et al., 1996 | https://doi.org/10.1111/j.1365-2583.1996.tb00049.x | Allegrucci et al, 2014 | https://doi.org/10.3897/zookeys.437.7917 |
| *COX1* | ACOIAF | CWAATCAYAAAGATATTGGAAC | ACOIAR | AATATAWACTTCWGGGTGACC | Colgan et al., 2001 | https://doi.org/10.1017/S0025315401004576X | Iorgu et al, 2023 | https://doi.org/10.1093/zoolinnean/zlab084 |
| *COX1* | MhemF | GCATTYCCACGAATAAATAAYATAAG | dgHCO2198 | TAAACTTCAGGGTGACCAAARAAYCA | Park, D. S., 2011;Meyer, C. P., 2003 | https://doi.org/10.1371/journal.pone.0018749; https://doi.org/10.1046/j.1095-8312.2003.00197.x | Beng et al, 2016 | https://doi.org/10.1038/srep24965 |
| *COX1* | LepF1 | ATTCAACCAATCATAAAGATATTGG | LepR1 | TAAACTTCTGGATGTCCAAAAAATCA | Hebert et al., 2004 | https://doi.org/10.1073/pnas.0406166101 | Ahmed et al, 2024 | https://doi.org/10.35495/ajab.2023.333 |

| Gene | Forward ID | Forward Sequence | Reverse ID | Reverse Sequence | Original source (Author, year) | Original source (DOI/PMID) | Polyneoptera usage (Author, year) | Polyneoptera usage (DOI/PMID) |
|---|---|---|---|---|---|---|---|---|
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Huang et al, 2013 | https://doi.org/10.1371/journal.pone.0082400 |
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Guo et al, 2016 | https://doi.org/10.3897/zookeys.596.8669 |
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Zhao et al, 2016 | https://doi.org/10.3897/zookeys.582.6301 |
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Hawlitschek et al, 2017 | https://doi.org/10.1111/1755-0998.12638 |
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Kundu et al, 2020 | https://doi.org/10.1080%2F23802359.2020.1830725 |
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Hafayed et al, 2023 | https://doi.org/10.1080/15627020.2023.2263498 |
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Zheng et al, 2023 | https://doi.org/10.3897/asp.81.e104772 |
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Hou et al, 2024 | https://doi.org/10.3897/zookeys.1193.117612 |
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Kim et al, 2024 | https://doi.org/10.1016/j.aspen.2024.102249 |
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Kock et al, 2024 | https://doi.org/10.3390/insects15020128 |
| *COX1* | COBU | TYTCAACAAAYCAYA ARGATATTGG | COBL | TAAACTTCWGGRTGWC CAAARAATCA | Pan et al. 2006 | Entomotaxonomia. 28:103–110 | Zhang et al, 2024 | https://doi.org/10.1002/arch.22070 |
| *COX1* | Teleogryllus_1F | CTATCGCCTATTATTC AGCCACT | Teleogryllus_1R | GGGGAGATGATCTATTT TGTAGA | Ye et al., 2008 | https://doi.org/10.3724/SP.J.1141.2008.03236 | Kim et al, 2022 | https://doi.org/10.1016/j.aspen.2022.101959 |
| *COX1* | Teleogryllus_2F | CACTTTATCGCAACGA TGATTAT | Teleogryllus_2R | GCACTTTTCTGCCATATT AGTAG | Ye et al., 2008 | https://doi.org/10.3724/SP.J.1141.2008.03236 | Kim et al, 2022 | https://doi.org/10.1016/j.aspen.2022.101959 |
| *COX1* | Anabrus J | GGTTACTACAAATAAA GTGGTATTGG | Anabrus N | TAAACTGCAGGGTGACC AAAAAATCA | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x |
| *COX1* | Locusta J | GGTCACCAGCTATAAA GACATTGG | Locusta N | TAAACTTCAGGGTGACC GAAAAATGA | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x |
| *COX1* | Myrmecophilus J | GGTCACAAATCATAAA GATATCAGG | Myrmecophilus N | TAAATTTCAGGGTGACT AAAAAATCA | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x |
| *COX1* | Schistocerca J | GGTCACAAATCCGCAA AGATATTGG | Schistocerca N | TAAACTTCAGGGTGACC AAAAAATGA | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x |
| *COX1* | Orthoptera-specific J | GGTCACAAATCATAAA GCGTATTGG | Orthoptera-specific N | TAAACTTCAGGGTGACC GGAAAATCA | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x |

| Gene | Forward ID | Forward Sequence | Reverse ID | Reverse Sequence | Original source (Author, year) | Original source (DOI/PMID) | Polyneoptera usage (Author, year) | Polyneoptera usage (DOI/PMID) |
|---|---|---|---|---|---|---|---|---|
| *COX1* | Orthoptera-specific J | GGTCACAAATCATAAAGCGTATTGG | Orthoptera-specific N | TAAACTTCAGGGTGACCGGAAAATCA | Moulton et al, 2010 | https://doi.org/10.1111/j.1755-0998.2009.02823.x | Gutiérrez-Rodríguez et al, 2022 | https://doi.org/10.1071/IS21022 |
| *COX1* | COI-F | CCATCTTACCGCAAAAATGAT | COI-R | CTGGGTGWCCAAAGAATCAAA | Husemann et al. , 2012 | http://dx.doi.org/10.1111/j.1463-6409.2012.00548.x | Moussi et al, 2018 | https://doi.org/10.1080/15627020.2018.1463172 |
| *COX1* | COI-F | CCATCTTACCGCAAAAATGAT | COI-R | CTGGGTGWCCAAAGAATCAAA | Husemann et al. , 2012 | http://dx.doi.org/10.1111/j.1463-6409.2012.00548.x | Sofrane et al, 2022 | https://www.redalyc.org/journal/3220/322070162008/322070162008.pdf |
| *COX1* | mICOIintF | GGWACWGGWTGAACWGTWTAYCCYCC | jgHCO2198 | TANACYTCNGGRTGNCCRAARAAYCA | Leray et al., 2013 | https://doi.org/10.1186/1742-9994-10-34 | Li et al, 2023 | https://doi.org/10.1002/ece3.10031 |
| *COX1* | MDG-F | TYTCAACWAAYCAYAARGAYATYGG | MDG-R | TADACTTCWGGRTGWCCRAARAATCA | Sofrane et al, 2015 | https://doi.org/10.1080/00379271.2015.1054647 | Sofrane et al, 2015 | https://doi.org/10.1080/00379271.2015.1054647 |
| *COX1* | OTLCOF | TCAACAAACCATAAGGACATTGG | OTHCOR | ATATGTGAAATAATACCAAATCCTGG | Kang et al, 2016 | https://doi.org/10.3109/19401736.2015.1022730 | Kang et al, 2016 | https://doi.org/10.3109/19401736.2015.1022730 |
| *COX1* | MDG-F | TYTCAACWAAYCAYAARGAYATYGG | MDG-R | TADACTTCWGGRTGWCCRAARAATCA | Sofrane et al, 2022 | https://www.redalyc.org/journal/3220/322070162008/322070162008.pdf | Sofrane et al, 2022 | https://www.redalyc.org/journal/3220/322070162008/322070162008.pdf |
| *COX1* | COX1-F | CTCRACRAATCATAAAGATATYGG | COX1-R2 | GTRTCWACATCTATWCCTACAG | Suastes-Jiménez et al, 2023 | https://doi.org/10.22201/ib.20078706e.2023.94.5184 | Suastes-Jiménez et al, 2023 | https://doi.org/10.22201/ib.20078706e.2023.94.5184 |
| *COX3* | COX3_fwd | CCTTGACCATTAACAGGAGCAATTGGA | COX3_rev | TGTCAGTATCATGCTGCTGCTTCAA | Pereira et al, 2021 | https://doi.org/10.1111/jzs.12446 | Pereira et al, 2021 | https://doi.org/10.1111/jzs.12446 |
| *CYTB* | CB-J10933 | GTTTTACCATGAGGTCAAATATC | CB-N11526 | TTCTACTGGTCGRGCTCCAATTCA | Simon et al., 1994 | https://doi.org/10.1093/aesa/87.6.651 | Zhou et al, 2013 | https://doi.org/10.1071/IS12019 |
| *CYTB* | CB1 | TATGTACTACCATGAGGACAAATATC | CB2 | ATTACACCTCCTAATTTATTAGGAAT | Jermiin & Crozier, 1994 | https://doi.org/10.1007/bf00176090 | Pedraza-Lara et al, 2015 | https://doi.org/10.1016/j.ympev.2015.01.001 |
| *CYTB* | CB1 | TATGTACTACCATGAGGACAAATATC | CB2 | ATTACACCTCCTAATTTATTAGGAAT | Jermiin & Crozier, 1994 | https://doi.org/10.1007/bf00176090 | De Jesús-Bonilla et al, 2017 | https://doi.org/10.1080/14772000.2017.1313792 |
| *CYTB* | CYTB_fwd | CGAACACTACACGCAAATGGAGCA | CYTB_rev | AGGTTCTTCAACTGGTCGTTTTCCA | Pereira et al, 2021 | https://doi.org/10.1111/jzs.12446 | Pereira et al, 2021 | https://doi.org/10.1111/jzs.12446 |
| *ND2* | ND2A | CGTTGATGATAGGAACGTACC | ND2B | GGTGTCTAATTGATGATTATGC | Tokuda et al., 2010 | https://doi.org/10.1111/j.1095-8312.2010.01386.x | Tlili et al, 2021 | https://doi.org/10.5252/zoosystema2020v42a31 |
| | | | | **Mantodea** | | | | |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Govorov t al, 2024 | https://doi.org/10.1371/journal.pone.0304163 |

| Gene | Forward ID | Forward Sequence | Reverse ID | Reverse Sequence | Original source (Author, year) | Original source (DOI/PMID) | Polyneoptera usage (Author, year) | Polyneoptera usage (DOI/PMID) |
|---|---|---|---|---|---|---|---|---|
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Battiston et al, 2014 | https://doi.org/10.11646/zootaxa.3797.1.8 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Scherrer, 2014 | https://doi.org/10.11646/zootaxa.3797.1.15 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Porter et al, 2014 | https://doi.org/10.1111%2F1755-0998.12240 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | HCO2198 | TAAACTTCAGGGTGACCAAAAAATCA | Folmer et al., 1994 | 7881515 | Maioglio et al, 2023 | https://doi.org/10.1080/00379271.2023.2171487 |
| *COX1* | LCO1490 | GGTCAACAAATCATAAAGATATTGG | Nancy-R | CCCGGTAAAATTAAAATATAAACTTC | Folmer et al., 1994; Simon et al., 1994 | 7881515; https://doi.org/10.1093/aesa/87.6.651 | de Alcantara Viana, et al, 2023 | https://doi.org/10.1038/s41598-023-46204-x |
| *COX1* | C_LepFolF | ATTCAACCAATCATAAAGATAT | C_LepFolR | TAAACTTCTGGATGTCCAAAAA | Hebert et al., 2004 | https://doi.org/10.1073/pnas.0406166101 | Moulin , 2020 | https://doi.org/10.3897/zookeys.917.39270 |
| *COX1* | CO1–C02 | AYTCAACAAATCATAAAGATATTGG | CO1–C04 | ACYTCRGGRTGACCAAAAAATCA | Che et al., 2012 | https://doi.org/10.1111/j.1755-0998.2011.03090.x | Song et al, 2020 | https://doi.org/10.1016/j.jep.2020.112574 |
| *COX1* | COH6 | TADACTTCDGGRTGDCCAAARAAYCA | COL6b | ACAAATCATAAAGATATYGG | Mantelatto et al, 2016 | https://doi.org/10.1590/2358-2936e2016030 | Govorov et al, 2024 | https://doi.org/10.1371/journal.pone.0304163 |

* The colors indicate that the same primer sets were used across different studies.