

**TABLE S1** | Gene and voucher information for tissue samples analyzed in this study. Genbank accession number is provided for each gene.

| Sort | Position | Taxon                                    | Voucher              | 12S      | 16S      | COI      | MYH6     | PTR (pichd1) | RAG1     | RAG2     | Drainage, Country                     | References                  |
|------|----------|------------------------------------------|----------------------|----------|----------|----------|----------|--------------|----------|----------|---------------------------------------|-----------------------------|
| 1    | Ingroup  | <i>Acrobrycon ipanquianus</i>            | ANSP_180771          | KF209375 | KF209698 | KF210030 | KF210277 |              | KF210780 | KF210996 | Ucayali (río Apurímac), Peru          | Thomaz <i>et al.</i> (2015) |
| 2    | Ingroup  | <i>Argopleura chocoensis</i>             | STRI_1507            | KF209377 | KF209700 |          | KF210279 |              | KF210782 | KF210998 | Atrato, Colombia                      | Thomaz <i>et al.</i> (2015) |
| 3    | Ingroup  | <i>Argopleura chocoensis</i>             | STRI_1510            | KF209378 | KF209701 | KF210032 | KF210280 |              |          | KF210999 | Atrato, Colombia                      | Thomaz <i>et al.</i> (2015) |
| 4    | Ingroup  | <i>Argopleura magdalenensis</i>          | STRI_9521            | KF209379 | KF209702 |          |          |              | KF210783 | KF211000 | Magdalena (Upper Magdalena), Colombia | Thomaz <i>et al.</i> (2015) |
| 5    | Ingroup  | <i>Attonitus bounites</i>                | AUM_T10059           | KF209380 | KF209703 |          | KF210281 | KF210568     | KF210784 | KF211001 | Madre de Dios, Peru                   | Thomaz <i>et al.</i> (2015) |
| 6    | Ingroup  | <i>Attonitus ephimeros</i>               | ANSP_180845_P4832    | KF209381 | KF209704 | KF210033 | KF210282 |              | KF210785 | KF211002 | Ucayali (río Urubamba), Peru          | Thomaz <i>et al.</i> (2015) |
| 7    | Ingroup  | <i>Attonitus irisae</i>                  | MHNG_2731.036_152.27 | KF209383 | KF209706 | KF210035 | KF210283 | KF210570     |          | KF211003 | Ucayali (río Previsto), Peru          | Thomaz <i>et al.</i> (2015) |
| 8    | Ingroup  | <i>Bryconacidnus</i> sp.                 | ANSP_190966_P4837    | KF209462 | KF209785 | KF210090 | KF210348 |              | KF210850 | KF211076 | Ucayali (río Urubamba), Peru          | Thomaz <i>et al.</i> (2015) |
| 9    | Ingroup  | <i>Bryconacidnus</i> sp.                 | MHNG_2731.035_152.13 | KF209385 | KF209708 | KF210037 | KF210285 | KF210572     |          | KF211006 | Marañón (río Huantanamo), Peru        | Thomaz <i>et al.</i> (2015) |
| 10   | Ingroup  | <i>Bryconamericus</i> aff. <i>uporas</i> | UFRGS_15032_TEC1813  | KF209387 | KF209710 |          | KF210287 | KF210573     | KF210788 | KF211008 | Uruguay (rio Marombos), Brazil        | Thomaz <i>et al.</i> (2015) |
| 11   | Ingroup  | <i>Bryconamericus</i> aff. <i>uporas</i> | UFRGS_15034_TEC1815  | KF209389 | KF209712 |          | KF210289 | KF210575     | KF210790 | KF211009 | Uruguay, Brazil                       | Thomaz <i>et al.</i> (2015) |
| 12   | Ingroup  | <i>Bryconamericus exodon</i>             | UFRGS_13571_TEC1693  | KF209412 | KF209736 | KF210060 | KF210308 | KF210589     |          | KF211031 | Paraguay (rio Cuiabá), Brazil         | Thomaz <i>et al.</i> (2015) |
| 13   | Ingroup  | <i>Bryconamericus iheringii</i>          | UFRGS_14999_TEC1781  | KF209419 | KF209741 |          | KF210312 | KF210592     | KF210813 | KF211038 | Uruguay, Brazil                       | Thomaz <i>et al.</i> (2015) |
| 14   | Ingroup  | <i>Bryconamericus ikaa</i>               | UFRGS_S/N_TEC1828B   | KF209424 | KF209746 |          | KF210316 | KF210597     | KF210817 | KF211042 | Paraná (Iguaçu), Brazil               | Thomaz <i>et al.</i> (2015) |



TABLE S1 | (Continued)

| Sort | Position | Taxon                               | Voucher              | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country                 | References                  |
|------|----------|-------------------------------------|----------------------|----------|----------|----------|----------|--------------|----------|----------|-----------------------------------|-----------------------------|
| 15   | Ingroup  | <i>Bryconamericus indefessus</i>    | UFRGS_S/N_TEC1826    | KF209665 | KF209995 | KF210245 |          | KF210766     |          | KF211229 | Bermejo, Argentina                | Thomaz <i>et al.</i> (2015) |
| 16   | Ingroup  | <i>Bryconamericus leptorhynchus</i> | UFRGS_15031_TEC1812A | KF209606 | KF209931 | KF210192 | KF210479 | KF210731     | KF210938 |          | Uruguay (rio Ibicui), Brazil      | Thomaz <i>et al.</i> (2015) |
| 17   | Ingroup  | <i>Bryconamericus lethostigmus</i>  | UFRGS_12637_TEC1372  | KF209669 | KF209999 | KF210248 | KF210542 | KF210768     | KF210976 |          | Mampituba, Brazil                 | Thomaz <i>et al.</i> (2015) |
| 18   | Ingroup  | <i>Bryconamericus microcephalus</i> | MCP_19606            | KF209428 | KF209749 | KF210067 | KF210318 |              | KF210819 |          | Ribeira de Iguape, Brazil         | Thomaz <i>et al.</i> (2015) |
| 19   | Ingroup  | <i>Bryconamericus pachacuti</i>     | MUSM_35695           | KF209429 | KF209750 | KF210068 | KF210319 |              | KF210821 | KF211047 | Ucayali (Lower Urubamba), Peru    | Thomaz <i>et al.</i> (2015) |
| 20   | Ingroup  | <i>Bryconamericus patriciae</i>     | UFRGS_12400_TEC511C  | KF209430 | KF209751 | KF210069 | KF210320 | KF210601     | KF210822 | KF211048 | Uruguay (rio Baú), Brazil         | Thomaz <i>et al.</i> (2015) |
| 21   | Ingroup  | <i>Bryconamericus pectinatus</i>    | AUM_51149_T10060     | KF209432 | KF209753 |          | KF210322 |              |          |          | Madre de Dios, Peru               | Thomaz <i>et al.</i> (2015) |
| 22   | Ingroup  | <i>Bryconamericus rubropictus</i>   | UFRGS_S/N_TEC1823    | KF209438 | KF209759 | KF210075 | KF210328 | KF210607     | KF210829 |          | Bermejo, Argentina                | Thomaz <i>et al.</i> (2015) |
| 23   | Ingroup  | <i>Bryconamericus</i> sp.           | UFRGS_12417_TEC778   | KF209446 | KF209770 | KF210079 | KF210335 | KF210616     | KF210836 | KF211064 | Paranaguá, Brazil                 | Thomaz <i>et al.</i> (2015) |
| 24   | Ingroup  | <i>Bryconamericus uporas</i>        | UFRGS_13219_TEC1606  | KF209458 | KF209781 | KF210086 | KF210344 | KF210624     | KF210847 |          | Uruguay (rio Ijuí), Brazil        | Thomaz <i>et al.</i> (2015) |
| 25   | Ingroup  | <i>Carlastyanax aurocaudatus</i>    | GO_001               | KF209459 | KF209783 | KF210088 | KF210346 | KF210627     | KF210848 | KF211074 | Magdalena (Upper Cauca), Colombia | Thomaz <i>et al.</i> (2015) |
| 26   | Ingroup  | <i>Ceratobranchia obtusirostris</i> | MUSM_35619           | KF209463 | KF209786 | KF210091 | KF210349 | KF210628     |          | KF211077 | Ucayali (Lower Urubamba), Peru    | Thomaz <i>et al.</i> (2015) |
| 27   | Ingroup  | <i>Ceratobranchia</i> sp.           | MHNG_2731.043_152.29 | KF209465 | KF209788 | KF210093 | KF210351 | KF210630     |          | KF211079 | Ucayali (río Huacamayo), Peru     | Thomaz <i>et al.</i> (2015) |
| 28   | Ingroup  | <i>Chrysobrycon myersi</i>          | MHNG_2731.033_152.1  | KF209467 | KF209790 | KF210095 | KF210353 | KF210632     |          | KF211080 | Huallaga (río Huantanamo), Peru   | Thomaz <i>et al.</i> (2015) |



TABLE S1 | (Continued)

| Sort | Position | Taxon                                    | Voucher             | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country              | References                  |
|------|----------|------------------------------------------|---------------------|----------|----------|----------|----------|--------------|----------|----------|--------------------------------|-----------------------------|
| 29   | Ingroup  | <i>Chrysobrycon</i> sp.                  | MUSM_33860          | KF209559 | KF209886 | KF210154 | KF210436 | KF210695     | KF210915 | KF211143 | Yuruá (Upper Yuruá), Peru      | Thomaz <i>et al.</i> (2015) |
| 30   | Ingroup  | <i>Corynopoma riisei</i>                 | STRI_4269           | KF209471 | KF209795 | KF210099 | KF210357 | KF210635     | KF210852 | KF211085 | Turure, Trinidad               | Thomaz <i>et al.</i> (2015) |
| 31   | Ingroup  | <i>Creagrutus</i> aff. <i>flavescens</i> | MNRJ_34400_1675     | KF209472 | KF209796 | KF210100 | KF210358 |              | KF210853 | KF211086 | Tapajós, Brazil                | Thomaz <i>et al.</i> (2015) |
| 32   | Ingroup  | <i>Creagrutus affinis</i>                | STRI_4118           | KF209474 | KF209797 | KF210101 | KF210360 |              | KF210855 | KF211088 | Tuira (río Capeti), Panama     | Thomaz <i>et al.</i> (2015) |
| 33   | Ingroup  | <i>Creagrutus barrigai</i>               | MUSM_39470_AP_87    | KF209478 | KF209801 | KF210104 | KF210364 | KF210639     |          | KF211091 | Purus, Peru                    | Thomaz <i>et al.</i> (2015) |
| 34   | Ingroup  | <i>Creagrutus beni</i>                   | UFRGS_12811_TEC1521 | KF209480 | KF209803 | KF210106 | KF210365 |              | KF210858 | KF211093 | Madeira, Brazil                | Thomaz <i>et al.</i> (2015) |
| 35   | Ingroup  | <i>Creagrutus bolivari</i>               | AUM_53766_T09001    | KF209481 |          |          | KF210366 | KF210640     | KF210859 |          | Apure (Orinoco), Venezuela     | Thomaz <i>et al.</i> (2015) |
| 36   | Ingroup  | <i>Creagrutus brevipinnis</i>            | STRI_1479           | KF209482 | KF209804 | KF210107 |          | KF210641     |          | KF211094 | Baudó, Colombia                | Thomaz <i>et al.</i> (2015) |
| 37   | Ingroup  | <i>Creagrutus britskii</i>               | UFRGS_11352_TEC1190 | KF209484 | KF209806 | KF210109 | KF210367 | KF210643     | KF210861 |          | Tocantis (rio Paranã), Brazil  | Thomaz <i>et al.</i> (2015) |
| 38   | Ingroup  | <i>Creagrutus cerritulus</i>             | MHNG_2725.023_152.7 | KF209663 | KF209993 | KF210243 | KF210537 | KF210764     |          | KF211227 | Huallaga (río Cachiyacu), Peru | Thomaz <i>et al.</i> (2015) |
| 39   | Ingroup  | <i>Creagrutus</i> cf. <i>petilus</i>     | MNRJ_34411_2506     | KF209485 | KF209807 | KF210110 | KF210368 | KF210644     | KF210862 | KF211095 | Xingu (rio Paturi), Brazil     | Thomaz <i>et al.</i> (2015) |
| 40   | Ingroup  | <i>Creagrutus changae</i>                | MUSM_35772          | KF209486 | KF209808 | KF210111 | KF210369 |              |          | KF211096 | Ucayali (Lower Urubamba), Peru | Thomaz <i>et al.</i> (2015) |
| 41   | Ingroup  | <i>Creagrutus ignotus</i>                | MNRJ_34422_2786     | KF209487 | KF209809 | KF210112 | KF210370 | KF210645     | KF210863 | KF211097 | Xingu, Brazil                  | Thomaz <i>et al.</i> (2015) |
| 42   | Ingroup  | <i>Creagrutus maxillaris</i>             | AUM_54258_T09207    | KF209488 | KF209810 |          | KF210371 |              |          |          | Orinoco, Venezuela             | Thomaz <i>et al.</i> (2015) |



TABLE S1 | (Continued)

| Sort | Position | Taxon                         | Voucher              | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country                   | References                  |
|------|----------|-------------------------------|----------------------|----------|----------|----------|----------|--------------|----------|----------|-------------------------------------|-----------------------------|
| 43   | Ingroup  | <i>Creagrutus melanzonus</i>  | ANSP_189421_6959     | KF209492 | KF209814 |          | KF210375 | KF210647     | KF210864 |          | Litanie, Suriname                   | Thomaz <i>et al.</i> (2015) |
| 44   | Ingroup  | <i>Creagrutus muelleri</i>    | STRI_3947            | KF209493 | KF209815 |          | KF210376 | KF210648     | KF210865 | KF211098 | Río Caldero (Amazonas), Colombia    | Thomaz <i>et al.</i> (2015) |
| 45   | Ingroup  | <i>Creagrutus occidaneus</i>  | MUSM_39408_AP_125    | KF209494 | KF209817 | KF210114 | KF210378 | KF210649     | KF210866 | KF211100 | Purus, Peru                         | Thomaz <i>et al.</i> (2015) |
| 46   | Ingroup  | <i>Creagrutus phasma</i>      | ANSP_190964_T09521   | KF209497 | KF209820 |          | KF210381 | KF210651     |          |          | Ventuari (Orinoco), Venezuela       | Thomaz <i>et al.</i> (2015) |
| 47   | Ingroup  | <i>Creagrutus pila</i>        | MUSM_35432           | KF209498 | KF209821 | KF210116 |          |              |          | KF211102 | Ucayali (bajo Urubamba), Peru       | Thomaz <i>et al.</i> (2015) |
| 48   | Ingroup  | <i>Creagrutus seductus</i>    | UFRGS_12825_TEC1535  | KF209499 | KF209822 | KF210117 | KF210382 | KF210652     |          | KF211103 | Araguaia (rio das Garças), Brazil   | Thomaz <i>et al.</i> (2015) |
| 49   | Ingroup  | <i>Creagrutus</i> sp.         | ROM_1585_HLF08_41    | KF209503 | KF209826 |          | KF210385 | KF210656     | KF210871 |          | Xingu, Brazil                       | Thomaz <i>et al.</i> (2015) |
| 50   | Ingroup  | <i>Creagrutus</i> sp.         | STRI_9524            | KF209501 | KF209824 | KF210119 | KF210384 | KF210654     | KF210869 | KF211104 | Magdalena (Upper), Colombia         | Thomaz <i>et al.</i> (2015) |
| 51   | Ingroup  | <i>Creagrutus</i> sp.         | STRI_9525            | KF209502 | KF209825 | KF210120 |          | KF210655     | KF210870 | KF211105 | Magdalena (Upper), Colombia         | Thomaz <i>et al.</i> (2015) |
| 52   | Ingroup  | <i>Creagrutus unguis</i>      | AUM_51156_T10078     | KF209504 | KF209827 |          | KF210386 |              | KF210872 |          | Madre de Dios, Peru                 | Thomaz <i>et al.</i> (2015) |
| 53   | Ingroup  | <i>Diapoma alburnus</i>       | UFRGS_12471_TEC1279  | KF209509 | KF209832 | KF210123 | KF210391 | KF210657     | KF210874 | KF211108 | Patos (arroio do Pinto), Brazil     | Thomaz <i>et al.</i> (2015) |
| 54   | Ingroup  | <i>Diapoma alegetensis</i>    | UFRGS_10008_TEC714   | KF209513 | FT48982  | KF210125 | KF210396 |              |          |          | Uruguay, Brazil                     | Thomaz <i>et al.</i> (2015) |
| 55   | Ingroup  | <i>Diapoma dicropotamicus</i> | UFRGS_12727_TEC1465D | KF209515 | KF209839 | KF210128 | KF210398 | KF210660     | KF210877 |          | Patos (arroio Jararaca), Brazil     | Thomaz <i>et al.</i> (2015) |
| 56   | Ingroup  | <i>Diapoma guarani</i>        | UFRGS_12647_TEC1379A | KF209666 | KF209996 | KF210246 | KF210539 | KF210767     | KF210974 | KF211231 | Uruguay (barragem Sanchuri), Brazil | Thomaz <i>et al.</i> (2015) |



TABLE S1 | (Continued)

| Sort | Position | Taxon                             | Voucher              | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country                    | References                  |
|------|----------|-----------------------------------|----------------------|----------|----------|----------|----------|--------------|----------|----------|--------------------------------------|-----------------------------|
| 57   | Ingroup  | <i>Diapoma itaimbe</i>            | UFRGS_12603_TEC1303  | KF209517 | KF209841 | KF210130 | KF210400 |              |          | KF211113 | Mampituba, Brazil                    | Thomaz <i>et al.</i> (2015) |
| 58   | Ingroup  | <i>Diapoma lepiclastus</i>        | UFRGS_15020_TEC1801A | KF209520 |          | KF210133 | KF210403 | KF210662     | KF210878 | KF211116 | Uruguay (arroyo Dourado), Brazil     | Thomaz <i>et al.</i> (2015) |
| 59   | Ingroup  | <i>Diapoma obi</i>                | UFRGS_S/N_TEC1824    | KF209605 | KF209930 |          | KF210478 | KF210730     |          |          | Paraná, Argentina                    | Thomaz <i>et al.</i> (2015) |
| 60   | Ingroup  | <i>Diapoma pyrrhopteryx</i>       | MCP_44377            | KF209528 | KF209851 | KF210140 | KF210412 | KF210668     | KF210884 | KF211121 | Uruguay, Brazil                      | Thomaz <i>et al.</i> (2015) |
| 61   | Ingroup  | <i>Diapoma speculiferum</i>       | UFRGS_12889_TEC1069  | KF209529 | KF209852 | KF210141 | KF210413 | KF210669     | KF210885 | KF211122 | Patos (rio Capivari), Brazil         | Thomaz <i>et al.</i> (2015) |
| 62   | Ingroup  | <i>Diapoma terofali</i>           | UFRGS_12891_TEC339A  | KF209531 | KF209854 | KF210143 | KF210415 | KF210671     | KF210887 | KF211124 | Uruguay (rio Taquarembó), Uruguay    | Thomaz <i>et al.</i> (2015) |
| 63   | Ingroup  | <i>Diapoma tipiaia</i>            | UFRGS_15015_TEC1796A | KF209523 | KF209846 |          | KF210407 | KF210666     | KF210882 | KF211118 | Patos, Brazil                        | Thomaz <i>et al.</i> (2015) |
| 64   | Ingroup  | <i>Diapoma uruguayensis</i>       | UFRGS_10962_TEC393B  | KF209525 | KF209848 | KF210137 | KF210409 |              |          | KF211119 | Uruguay (arroyo Passo Fundo), Brazil | Thomaz <i>et al.</i> (2015) |
| 65   | Ingroup  | <i>Eretmobrycon bayano</i>        | STRI_7334            | KF209533 | KF209856 |          |          | KF210673     | KF210889 | KF211126 | Bayano, Panama                       | Thomaz <i>et al.</i> (2015) |
| 66   | Ingroup  | <i>Eretmobrycon brevisrostris</i> | STRI_15024           | KF209393 | KF209716 | KF210042 | KF210293 |              | KF210791 | KF211012 | Tumbes, Peru                         | Thomaz <i>et al.</i> (2015) |
| 67   | Ingroup  | <i>Eretmobrycon dahlí</i>         | STRI_9302            | KF209403 | KF209727 | KF210052 | KF210301 | KF210583     | KF210800 | KF211022 | Río Guachicono (Patia), Colombia     | Thomaz <i>et al.</i> (2015) |
| 68   | Ingroup  | <i>Eretmobrycon emperador</i>     | STRI_861             | KF209411 | KF209735 | KF210059 | KF210307 | KF210588     | KF210808 | KF211030 | San Juan, Colombia                   | Thomaz <i>et al.</i> (2015) |
| 69   | Ingroup  | <i>Eretmobrycon gonzalezi</i>     | STRI_4974            | KF209415 | KF209737 |          | KF210309 |              | KF210809 | KF211034 | Changuinola (río Bongie), Panama     | Thomaz <i>et al.</i> (2015) |
| 70   | Ingroup  | <i>Eretmobrycon miraensis</i>     | STRI_9804            |          |          |          |          | KF210600     | KF210820 | KF211046 | Mira, Colombia                       | Thomaz <i>et al.</i> (2015) |



TABLE S1 | (Continued)

| Sort | Position | Taxon                             | Voucher            | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country                 | References                  |
|------|----------|-----------------------------------|--------------------|----------|----------|----------|----------|--------------|----------|----------|-----------------------------------|-----------------------------|
| 71   | Ingroup  | <i>Eretmobrycon peruanus</i>      | STRI_15003         | KF209433 | KF209754 | KF210071 | KF210323 | KF210603     | KF210824 | KF211050 | Cañete, Peru                      | Thomaz <i>et al.</i> (2015) |
| 72   | Ingroup  | <i>Eretmobrycon scleroparius</i>  | STRI_4999          | KF209443 | KF209765 |          | KF210332 |              | KF210834 | KF211059 | Changuinola (río Bongie), Panama  | Thomaz <i>et al.</i> (2015) |
| 73   | Ingroup  | <i>Eretmobrycon</i> sp.           | STRI_9801          | KF209447 |          |          |          | KF210617     | KF210837 | KF211065 | Río Telembi (Patia), Colombia     | Thomaz <i>et al.</i> (2015) |
| 74   | Ingroup  | <i>Eretmobrycon</i> sp.           | STRI_9803          | KF209448 | KF209771 |          |          |              | KF210838 |          | Río Telembi (Patia), Colombia     | Thomaz <i>et al.</i> (2015) |
| 75   | Ingroup  | <i>Eretmobrycon terrabensis</i>   | STRI_2012          | KF209455 | KF209778 |          | KF210342 | KF210622     | KF210844 | KF211071 | Coto (río Esquena), Costa Rica    | Thomaz <i>et al.</i> (2015) |
| 76   | Ingroup  | <i>Gephyrocharax atracaudatus</i> | STRI_18760         | KF209550 | KF209877 |          |          | KF210689     | KF210906 | KF211135 | Tuira (río Chucunaque), Panama    | Thomaz <i>et al.</i> (2015) |
| 77   | Ingroup  | <i>Gephyrocharax chocoensis</i>   | STRI_1695          | KF209556 | KF209883 | KF210153 | KF210435 | KF210693     | KF210912 | KF211140 | Cuadi, Panama                     | Thomaz <i>et al.</i> (2015) |
| 78   | Ingroup  | <i>Gephyrocharax chocoensis</i>   | STRI_1515          | KF209555 | KF209882 |          |          |              | KF210911 | KF211139 | Atrato, Colombia                  | Thomaz <i>et al.</i> (2015) |
| 79   | Ingroup  | <i>Gephyrocharax intermedius</i>  | STRI_18600         | KF209557 | KF209884 |          |          |              | KF210913 | KF211141 | Santa Maria (río Lajas), Panama   | Thomaz <i>et al.</i> (2015) |
| 80   | Ingroup  | <i>Gephyrocharax valenciae</i>    | AUM_54039_T08977   | KF209562 | KF209889 |          | KF210439 |              |          |          | Apure (Orinoco), Venezuela        | Thomaz <i>et al.</i> (2015) |
| 81   | Ingroup  | <i>Glandulocauda melanopleura</i> | UFRGS_12885_TEC831 | KF209570 | KF209898 | KF210159 | KF210447 | KF210702     | KF210920 | KF211149 | Upper Tietê, Brazil               | Thomaz <i>et al.</i> (2015) |
| 82   | Ingroup  | <i>Hemibrycon beni</i>            | GO_043             |          |          | KF210160 |          |              | KF210921 |          | Beni, Bolivia                     | Thomaz <i>et al.</i> (2015) |
| 83   | Ingroup  | <i>Hemibrycon boquiae</i>         | GO_008             | KF209571 | KF209899 | KF210161 | KF210448 | KF210703     | KF210922 | KF211150 | Upper Cauca (Magdalena), Colombia | Thomaz <i>et al.</i> (2015) |
| 84   | Ingroup  | <i>Hemibrycon caucanus</i>        | STRI_9099          | KF209396 | KF209719 | KF210045 | KF210295 | KF210577     | KF210794 | KF211015 | Río Cauca (Magdalena), Colombia   | Thomaz <i>et al.</i> (2015) |



TABLE S1 | (Continued)

| Sort | Position | Taxon                                 | Voucher              | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country                   | References                  |
|------|----------|---------------------------------------|----------------------|----------|----------|----------|----------|--------------|----------|----------|-------------------------------------|-----------------------------|
| 85   | Ingroup  | <i>Hemibrycon</i> cf. <i>polyodon</i> | STRI_Pe1             | KF209577 | KF209905 | KF210166 | KF210453 |              |          | KF211156 | Amazonas, río Comainas, Peru        | Thomaz <i>et al.</i> (2015) |
| 86   | Ingroup  | <i>Hemibrycon cristiani</i>           | STRI_9404            | KF209401 | KF209725 | KF210050 |          |              | KF210798 | KF211020 | Ariari (Orinoco), Colombia          | Thomaz <i>et al.</i> (2015) |
| 87   | Ingroup  | <i>Hemibrycon dariensis</i>           | STRI_74              | KF209578 | KF209909 | KF210170 | KF210457 | KF210710     | KF210929 | KF211160 | Tabasara, Panama                    | Thomaz <i>et al.</i> (2015) |
| 88   | Ingroup  | <i>Hemibrycon galvisi</i>             | STRI_9074            | KF209413 |          |          |          | KF210590     |          | KF211032 | Amazonas, Colombia                  | Thomaz <i>et al.</i> (2015) |
| 89   | Ingroup  | <i>Hemibrycon helleri</i>             | ANSP_180775_4509     | KF209585 | KF209912 | KF210173 | KF210461 | KF210714     |          | KF211164 | Ucayali (Urubamba), Peru            | Thomaz <i>et al.</i> (2015) |
| 90   | Ingroup  | <i>Hemibrycon huambonicus</i>         | MHNG_2731_041_152.31 | KF209586 | KF209913 | KF210174 | KF210462 | KF210715     |          | KF211168 | Huallaga (río Monzon), Peru         | Thomaz <i>et al.</i> (2015) |
| 91   | Ingroup  | <i>Hemibrycon inambari</i>            | ANSP_180774          | KF209589 | KF209916 | KF210177 | KF210465 | KF210718     | KF210930 | KF211171 | Madre de Dios (Inambari), Peru      | Thomaz <i>et al.</i> (2015) |
| 92   | Ingroup  | <i>Hemibrycon jabonero</i>            | ANSP_188918_7404     | KF209591 | KF209918 | KF210178 | KF210467 | KF210720     | KF210931 | KF211172 | Upper Guatapé (Magdalena), Colombia | Thomaz <i>et al.</i> (2015) |
| 93   | Ingroup  | <i>Hemibrycon jelskii</i>             | MUSM_39537_AP_126    | KF209595 | KF209922 | KF210182 | KF210470 | KF210723     | KF210932 | KF211175 | Purus, Peru                         | Thomaz <i>et al.</i> (2015) |
| 94   | Ingroup  | <i>Hemibrycon loisae</i>              | STRI_9403            | KF209425 |          | KF210065 | KF210317 | KF210598     | KF210818 | KF211043 | Río Acacias (Orinoco), Colombia     | Thomaz <i>et al.</i> (2015) |
| 95   | Ingroup  | <i>Hemibrycon plutarcoi</i>           | GO_054               | KF209435 | KF209756 | KF210073 | KF210325 | KF210605     | KF210826 | KF211052 | Magdalena, Colombia                 | Thomaz <i>et al.</i> (2015) |
| 96   | Ingroup  | <i>Hemibrycon taeniurus</i>           | GO_045               | KF209602 | KF209929 | KF210189 | KF210476 | KF210728     | KF210936 | KF211182 | Caroni (Guanapo River), Trinidad    | Thomaz <i>et al.</i> (2015) |
| 97   | Ingroup  | <i>Hemibrycon virolinica</i>          | GO_053               | KF209604 |          | KF210191 |          |              |          | KF211184 | Cauca (Magdalena), Colombia         | Thomaz <i>et al.</i> (2015) |
| 98   | Ingroup  | <i>Hollandichthys taramandahy</i>     | UFRGS_11792_TEC841A  | KF209543 | KF209867 |          | KF210426 | KF210681     | KF210898 |          | Mampituba, Brazil                   | Thomaz <i>et al.</i> (2015) |



TABLE S1 | (Continued)

| Sort | Position | Taxon                                | Voucher              | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country              | References                       |
|------|----------|--------------------------------------|----------------------|----------|----------|----------|----------|--------------|----------|----------|--------------------------------|----------------------------------|
| 99   | Outgroup | <i>Megalamphodus eques</i>           | UFRGS_12666_TEC1400A | KF209544 | KF209869 |          |          | KF210683     | KF210900 |          | Paraguay, Brazil               | Thomaz <i>et al.</i> (2015)      |
| 100  | Ingroup  | <i>Knodus</i> aff. <i>megalops</i> A | LBP_12566            |          |          | MH003214 |          |              |          |          | Amazonas (Marañón)             | García-Melo <i>et al.</i> (2019) |
| 101  | Ingroup  | <i>Knodus</i> aff. <i>megalops</i> C | LBP_12475            |          |          | MH003215 |          |              |          |          | Aquário Stingray               | García-Melo <i>et al.</i> (2019) |
| 102  | Ingroup  | <i>Knodus alpha</i>                  | IAvH_CT_23183        |          | PX972042 | PX961896 | PX965196 |              | PZ020407 | PZ020392 | Meta (Orinoco), Colombia       | This study                       |
| 103  | Ingroup  | <i>Knodus alpha</i>                  | STRI_9347            | KF209390 | KF209713 | KF210040 | KF210290 |              |          | KF211010 | Upper Meta (Orinoco), Colombia | Thomaz <i>et al.</i> (2015)      |
| 104  | Ingroup  | <i>Knodus alpha</i>                  | STRI_9348            | KF209391 | KF209714 | KF210041 | KF210291 |              |          | KF211011 | Upper Meta (Orinoco), Colombia | Thomaz <i>et al.</i> (2015)      |
| 105  | Ingroup  | <i>Knodus alpha</i>                  | AUM_54052_T08970     | KF209392 | KF209715 |          | KF210292 |              |          |          | Apure (Orinoco), Venezuela     | Thomaz <i>et al.</i> (2015)      |
| 106  | Ingroup  | <i>Knodus borki</i>                  | LBP_12472            |          |          | MH003218 |          |              |          |          | Aquário Stingray               | García-Melo <i>et al.</i> (2019) |
| 107  | Ingroup  | <i>Knodus breviceps</i> A            | LBP_7705             |          |          | MH003219 |          |              |          |          | Tocantins (Araguaia)           | García-Melo <i>et al.</i> (2019) |
| 108  | Ingroup  | <i>Knodus breviceps</i> B            | LBP_1843             |          |          | MH003220 |          |              |          |          | Tocantins (Araguaia)           | García-Melo <i>et al.</i> (2019) |
| 109  | Ingroup  | <i>Knodus caquetae</i>               | MPUJ_11073           |          |          | MH003221 |          |              |          |          | Caquetá (Amazonas), Colombia   | García-Melo <i>et al.</i> (2019) |
| 110  | Ingroup  | <i>Knodus caquetae</i>               | STRI_9431            | KF209395 | KF209718 | KF210044 | KF210294 | KF210576     | KF210793 | KF211014 | Orteguaza (Amazonas), Colombia | Thomaz <i>et al.</i> (2015)      |
| 111  | Ingroup  | <i>Knodus</i> cf. <i>chapadae</i>    | LBP_1872             |          |          | MH003022 |          |              |          |          | Tocantins (Araguaia), Brazil   | García-Melo <i>et al.</i> (2019) |
| 112  | Ingroup  | <i>Knodus</i> cf. <i>chapadae</i>    | LBP_8419             |          |          | MH003224 |          |              |          |          | Paraguay                       | García-Melo <i>et al.</i> (2019) |



TABLE S1 | (Continued)

| Sort | Position | Taxon                                 | Voucher            | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country                  | References                       |
|------|----------|---------------------------------------|--------------------|----------|----------|----------|----------|--------------|----------|----------|------------------------------------|----------------------------------|
| 113  | Ingroup  | <i>Knodus</i> cf. <i>chapadae</i>     | MCP_33074          | KF209609 | KF209934 | KF210195 | KF210482 |              | KF210940 | KF211185 | Tapajós, Brazil                    | Thomaz <i>et al.</i> (2015)      |
| 114  | Ingroup  | <i>Knodus</i> cf. <i>chapadae</i> C   | LBP_7671           |          |          | MH003231 |          |              |          |          | Coxipó, Paraguay                   | García-Melo <i>et al.</i> (2019) |
| 115  | Ingroup  | <i>Knodus</i> cf. <i>delta</i>        | LBP_10152          |          |          | MH003225 |          |              |          |          | Amazonas, Acre, Brazil             | García-Melo <i>et al.</i> (2019) |
| 116  | Ingroup  | <i>Knodus</i> cf. <i>delta</i> B      | LBP_10152          |          |          | MH003226 |          |              |          |          | Amazonas, Acre, Brazil             | García-Melo <i>et al.</i> (2019) |
| 117  | Ingroup  | <i>Knodus</i> cf. <i>ortegasae</i> B  | LBP_4126           |          |          | MH003228 |          |              |          |          | Amazonas (Juruá), Brazil           | García-Melo <i>et al.</i> (2019) |
| 118  | Ingroup  | <i>Knodus</i> cf. <i>ortegasae</i> A  | LBP_7881           |          |          | MH003227 |          |              |          |          | Amazonas (Juruá), Brazil           | García-Melo <i>et al.</i> (2019) |
| 119  | Ingroup  | <i>Knodus</i> cf. <i>savanensis</i> A | LBP_16694          |          |          | MH003230 |          |              |          |          | Amazonas (Xingu), Brazil           | García-Melo <i>et al.</i> (2019) |
| 120  | Ingroup  | <i>Knodus</i> cf. <i>savanensis</i> B | LBP_15335          |          |          | MH003229 |          |              |          |          | Tocantins, Brazil                  | García-Melo <i>et al.</i> (2019) |
| 121  | Ingroup  | <i>Knodus cinarukoense</i>            | ANSP_191136_BO6130 | KF209400 | KF209724 |          | KF210300 |              |          | KF211019 | Ventuari (Orinoco), Venezuela      | Thomaz <i>et al.</i> (2015)      |
| 122  | Ingroup  | <i>Knodus cismontanus</i>             | MPUJ_688           |          |          | MH002949 |          |              |          |          | Orinoco, Colombia                  | García-Melo <i>et al.</i> (2019) |
| 123  | Ingroup  | <i>Knodus deuterodonoides</i>         | IAvH_CT_23173      |          | PX972043 | PX959745 | PX965191 |              | PZ020404 | PZ020388 | Caño Gazaguancito (Meta), Colombia | This study                       |
| 124  | Ingroup  | <i>Knodus deuterodonoides</i>         | STRI_VZ130         | KF209407 | KF209731 | KF210056 |          |              | KF210804 | KF211026 | Aroa, Venezuela                    | Thomaz <i>et al.</i> (2015)      |
| 125  | Ingroup  | <i>Knodus diaphanus</i>               | LBP_15513          |          |          | MH002956 |          |              |          |          | Amazonas                           | García-Melo <i>et al.</i> (2019) |
| 126  | Ingroup  | <i>Knodus heteresthes</i>             | MNRJ_34410_2306    | KF209612 | KF209937 | KF210198 | KF210485 | KF210735     | KF210942 | KF211187 | Tapajós (Teles-Pires), Brazil      | Thomaz <i>et al.</i> (2015)      |



TABLE S1 | (Continued)

| Sort | Position | Taxon                       | Voucher              | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country                         | References                       |
|------|----------|-----------------------------|----------------------|----------|----------|----------|----------|--------------|----------|----------|-------------------------------------------|----------------------------------|
| 127  | Ingroup  | <i>Knodus heteresthes</i>   | MNRJ_34678_1342      | KF209613 | KF209938 | KF210199 | KF210486 |              | KF210943 | KF211188 | Xingu, Brazil                             | Thomaz <i>et al.</i> (2015)      |
| 128  | Ingroup  | <i>Knodus heteresthes</i>   | MCP_32303            | KF209611 | KF209936 | KF210197 | KF210484 | KF210734     | KF210941 | KF211186 | Tapajós, Brazil                           | Thomaz <i>et al.</i> (2015)      |
| 129  | Ingroup  | <i>Knodus heteresthes</i> A | LBP_13870            |          |          | MH003232 |          |              |          |          | Amazonas (Tapajós), Brazil                | García-Melo <i>et al.</i> (2019) |
| 130  | Ingroup  | <i>Knodus heteresthes</i> B | LBP_7959             |          |          | MH003233 |          |              |          |          | Amazonas (Tapajós), Brazil                | García-Melo <i>et al.</i> (2019) |
| 131  | Ingroup  | <i>Knodus hypopterus</i>    | MUSM_33830           | KF209614 | KF209939 | KF210200 | KF210487 |              | KF210944 | KF211189 | Upper Yuruá, Peru                         | Thomaz <i>et al.</i> (2015)      |
| 132  | Ingroup  | <i>Knodus macarenae</i>     | MPUJ_1559            |          |          | MH002998 |          |              |          |          | Orinoco (Guaviare), Colombia              | García-Melo <i>et al.</i> (2019) |
| 133  | Ingroup  | <i>Knodus macarenae</i>     | IAvH_CT_23998        |          | PX972041 | PX959746 | PX965199 |              | PZ020412 | PZ020397 | Caño La Cristalina (Meta), Colombia       | This study                       |
| 134  | Ingroup  | <i>Knodus megalops</i>      | MHNG_2731.039_152.23 | KF209596 | KF209923 | KF210183 | KF210471 | KF210724     |          | KF211176 | Ucayali (río Huyhuantal), Peru            | Thomaz <i>et al.</i> (2015)      |
| 135  | Ingroup  | <i>Knodus megalops</i> B    | LBP_12566            |          |          | MH003234 |          |              |          |          | Amazonas (Marañón)                        | García-Melo <i>et al.</i> (2019) |
| 136  | Ingroup  | <i>Knodus meridae</i>       | LBP_7569             |          |          | MH003235 |          |              |          |          | Orinoco                                   | García-Melo <i>et al.</i> (2019) |
| 137  | Ingroup  | <i>Knodus meridae</i>       | CZUT_IC_19041        |          | PX972037 |          | PX965189 |              | PZ020402 | PZ020390 | Río Peralonso (Catatumbo), Colombia       | This study                       |
| 138  | Ingroup  | <i>Knodus meridae</i>       | CZUT_IC_19099        |          | PX972038 |          | PX965190 |              | PZ020403 | PZ020391 | Quebrada La Mestiza (Catatumbo), Colombia | This study                       |
| 139  | Ingroup  | <i>Knodus meridae</i>       | STRI_VZ83            | KF209426 | KF209747 | KF210066 |          | KF210599     |          | KF211044 | Muyapá (Maracaibo), Venezuela             | Thomaz <i>et al.</i> (2015)      |
| 140  | Ingroup  | <i>Knodus moenkhausii</i>   | UFRGS_14912_TEC1055A | KF209618 | KF209943 |          | KF210491 | KF210737     | KF210945 | KF211191 | São Francisco, Brazil                     | Thomaz <i>et al.</i> (2015)      |



TABLE S1 | (Continued)

| Sort | Position | Taxon                   | Voucher          | 12S      | 16S      | COI      | MYH6     | PTR (ptchd1) | RAG1     | RAG2     | Drainage, Country              | References                       |
|------|----------|-------------------------|------------------|----------|----------|----------|----------|--------------|----------|----------|--------------------------------|----------------------------------|
| 141  | Ingroup  | <i>Knodus ortegusae</i> | MUSM_35485       | KF209624 | KF209950 | KF210205 | KF210497 | KF210741     | KF210950 | KF211198 | Ucayali (Lower Urubamba), Peru | Thomaz <i>et al.</i> (2015)      |
| 142  | Ingroup  | <i>Knodus ortegusae</i> | MUSM_39412_AP_45 | KF209622 | KF209948 | KF210203 | KF210496 | KF210740     | KF210949 | KF211196 | Purus, Peru                    | Thomaz <i>et al.</i> (2015)      |
| 143  | Ingroup  | <i>Knodus smithi</i>    | MUSM_35458       | KF209630 | KF209956 | KF210211 | KF210503 | KF210743     | KF210955 | KF211204 | Ucayali (Lower Urubamba), Peru | Thomaz <i>et al.</i> (2015)      |
| 144  | Ingroup  | <i>Knodus smithi</i>    | MUSM_33796_      | KF209627 | KF209953 | KF210208 | KF210500 |              | KF210953 | KF211201 | Upper Yuruá, Peru              | Thomaz <i>et al.</i> (2015)      |
| 145  | Ingroup  | <i>Knodus</i> sp.       | LBP_2534         |          |          | MH003025 |          |              |          |          | Purus (Amazonas)               | García-Melo <i>et al.</i> (2019) |
| 146  | Ingroup  | <i>Knodus</i> sp.       | LBP_9312         |          |          | MH003040 |          |              |          |          | Guamá (Amazonas)               | García-Melo <i>et al.</i> (2019) |
| 147  | Ingroup  | <i>Knodus</i> sp.       | LBP_10172        |          |          | MH003045 |          |              |          |          | Apure (Orinoco), Venezuela     | García-Melo <i>et al.</i> (2019) |
| 148  | Ingroup  | <i>Knodus</i> sp.       | LBP_18316        |          |          | MH003051 |          |              |          |          | Rio Negro (Amazonas)           | García-Melo <i>et al.</i> (2019) |
| 149  | Ingroup  | <i>Knodus</i> sp.       | MPUJ_1259        |          |          | MH003054 |          |              |          |          | Guaviare (Orinoco), Colombia   | García-Melo <i>et al.</i> (2019) |
| 150  | Ingroup  | <i>Knodus</i> sp.       | MPUJ_1323        |          |          | MH003057 |          |              |          |          | Guaviare (Orinoco), Colombia   | García-Melo <i>et al.</i> (2019) |
| 151  | Ingroup  | <i>Knodus</i> sp.       | LBP_5256         |          |          | MH003243 |          |              |          |          | Jari (Amazonas), Colombia      | García-Melo <i>et al.</i> (2019) |
| 152  | Ingroup  | <i>Knodus</i> sp.       | LBP_9517         |          |          | MH003248 |          |              |          |          | Tocantins, Brazil              | García-Melo <i>et al.</i> (2019) |
| 153  | Ingroup  | <i>Knodus</i> sp.       | LBP_2465         |          |          | MH003252 |          |              |          |          | Tocantins (Araguaia), Brazil   | García-Melo <i>et al.</i> (2019) |
| 154  | Ingroup  | <i>Knodus</i> sp.       | LBP_9500         |          |          | MH003253 |          |              |          |          | Tocantins, Brazil              | García-Melo <i>et al.</i> (2019) |



TABLE S1 | (Continued)

| Sort | Position | Taxon             | Voucher             | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country              | References                       |
|------|----------|-------------------|---------------------|----------|----------|----------|----------|--------------|----------|----------|--------------------------------|----------------------------------|
| 155  | Ingroup  | <i>Knodus</i> sp. | LBP_16045           |          |          | MH003255 |          |              |          |          | Amazonas (Xingu), Brazil       | García-Melo <i>et al.</i> (2019) |
| 156  | Ingroup  | <i>Knodus</i> sp. | LBP_12454           |          |          | MH003259 |          |              |          |          | Ampiyacu (Amazonas), Peru      | García-Melo <i>et al.</i> (2019) |
| 157  | Ingroup  | <i>Knodus</i> sp. | STRI_9480           |          | KF209768 | KF210077 | KF210333 | KF210615     |          | KF211062 | Orteguaza (Amazonas), Colombia | Thomaz <i>et al.</i> (2015)      |
| 158  | Ingroup  | <i>Knodus</i> sp. | ANSP_185191_4748    | KF209637 | KF209963 |          | KF210508 |              | KF210957 |          | Madre de Dios, Peru            | Thomaz <i>et al.</i> (2015)      |
| 159  | Ingroup  | <i>Knodus</i> sp. | ANSP_185191_4755    | KF209638 | KF209964 |          | KF210509 | KF210746     |          | KF211209 | Madre de Dios, Peru            | Thomaz <i>et al.</i> (2015)      |
| 160  | Ingroup  | <i>Knodus</i> sp. | AUM_54433_T09651    | KF209450 | KF209773 |          | KF210337 |              |          |          | Ventuari (Orinoco), Venezuela  | Thomaz <i>et al.</i> (2015)      |
| 161  | Ingroup  | <i>Knodus</i> sp. | MNRJ_34377_1627     | KF209449 | KF209772 | KF210080 | KF210336 | KF210618     | KF210839 | KF211066 | Tapajós, Brazil                | Thomaz <i>et al.</i> (2015)      |
| 162  | Ingroup  | <i>Knodus</i> sp. | MUSM_35422          | KF209644 | KF209970 | KF210220 | KF210515 |              |          |          | Ucayali (Lower Urubamba), Peru | Thomaz <i>et al.</i> (2015)      |
| 163  | Ingroup  | <i>Knodus</i> sp. | STRI_9082           | KF209445 | KF209767 | KF210076 |          | KF210614     |          | KF211061 | Río Orito (Amazonas), Colombia | Thomaz <i>et al.</i> (2015)      |
| 164  | Ingroup  | <i>Knodus</i> sp. | UFRGS_13581_TEC1703 | KF209641 | KF209967 | KF210217 | KF210512 | KF210747     | KF210958 | KF211212 | Tapajós, Brazil                | Thomaz <i>et al.</i> (2015)      |
| 165  | Ingroup  | <i>Knodus</i> sp. | ANSP_191283_T09606  | KF209633 | KF209959 |          | KF210505 |              |          |          | Ventuari (Orinoco), Venezuela  | Thomaz <i>et al.</i> (2015)      |
| 166  | Ingroup  | <i>Knodus</i> sp. | AUM_54446_T09658    | KF209632 | KF209958 |          | KF210504 |              |          |          | Ventuari (Orinoco), Venezuela  | Thomaz <i>et al.</i> (2015)      |
| 167  | Ingroup  | <i>Knodus</i> sp. | MNRJ_34688_2361     | KF209639 | KF209965 | KF210216 | KF210510 |              |          | KF211210 | Rio Paturi (Xingu), Brazil     | Thomaz <i>et al.</i> (2015)      |
| 168  | Ingroup  | <i>Knodus</i> sp. | MNRJ_34712_2102     | KF209642 | KF209968 | KF210218 | KF210513 |              | KF210959 | KF211213 | Tapajós (Teles-Pires), Brazil  | Thomaz <i>et al.</i> (2015)      |



TABLE S1 | (Continued)

| Sort | Position | Taxon               | Voucher             | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country                            | References                       |
|------|----------|---------------------|---------------------|----------|----------|----------|----------|--------------|----------|----------|----------------------------------------------|----------------------------------|
| 169  | Ingroup  | <i>Knodus</i> sp.   | MNRJ_34750_1432     | KF209646 | KF209972 | KF210222 | KF210516 | KF210750     |          | KF211216 | Xingu, Brasil                                | Thomaz <i>et al.</i> (2015)      |
| 170  | Ingroup  | <i>Knodus</i> sp.   | MUSM_33816          | KF209636 | KF209962 | KF210215 | KF210507 | KF210745     | KF210956 | KF211208 | Upper Yuruá, Peru                            | Thomaz <i>et al.</i> (2015)      |
| 171  | Ingroup  | <i>Knodus</i> sp.   | STRI_416            | KF209634 | KF209960 | KF210213 |          |              |          | KF211206 | Amazonas, Peru                               | Thomaz <i>et al.</i> (2015)      |
| 172  | Ingroup  | <i>Knodus</i> sp.   | UFRGS_13539_TEC1661 | KF209640 | KF209966 |          | KF210511 |              |          | KF211211 | Tapajós, Brazil                              | Thomaz <i>et al.</i> (2015)      |
| 173  | Ingroup  | <i>Knodus</i> sp.n. | MPUJ_11108          |          |          | MH003212 |          |              |          |          | Orinoco, Colombia                            | García-Melo <i>et al.</i> (2019) |
| 174  | Ingroup  | <i>Knodus</i> sp.n. | MPUJ_11110          |          |          | MH003237 |          |              |          |          | Meta (Orinoco), Colombia                     | García-Melo <i>et al.</i> (2019) |
| 175  | Ingroup  | <i>Knodus</i> sp.n. | MPUJ_11111          |          |          | MH003238 |          |              |          |          | Meta (Orinoco), Colombia                     | García-Melo <i>et al.</i> (2019) |
| 176  | Ingroup  | <i>Knodus</i> sp.n. | MPUJ_10938          |          |          | MH003246 |          |              |          |          | Guaviare (Orinoco)                           | García-Melo <i>et al.</i> (2019) |
| 177  | Ingroup  | <i>Knodus</i> sp.n. | IAvH_CT_22988       |          | PX972039 | PX959749 | PX965197 |              | PZ020405 | PZ020398 | Guayabero (Orinoco), Colombia                | This study                       |
| 178  | Ingroup  | <i>Knodus</i> sp.n. | IAvH_CT_22040       |          | PX972050 | PX959747 | PX965192 |              |          | PZ020398 | Guayabero (Orinoco), Colombia                | This study                       |
| 179  | Ingroup  | <i>Knodus</i> sp.n. | IAvH_CT_22987       |          | PX972036 | PX959744 | PX965188 |              | PZ020401 | PZ020389 | Guayabero (Orinoco), Colombia                | This study                       |
| 180  | Ingroup  | <i>Knodus</i> sp.n. | IAvH_CT_22192       |          | PX972040 | PX959748 | PX965198 |              | PZ020406 | PZ020399 | Guayabero (Orinoco), Colombia                | This study                       |
| 181  | Ingroup  | <i>Knodus</i> sp.n. | IAvH_CT_23071       |          | PX972044 | PX959750 | PX965193 |              | PZ020408 | PZ020393 | Quebrada La Concordia, (Magdalena), Colombia | This study                       |
| 182  | Ingroup  | <i>Knodus</i> sp.n. | IAvH_CT_23072       |          | PX972045 | PX959751 | PX965202 |              | PZ020411 |          | Quebrada La Concordia, (Magdalena), Colombia | This study                       |



TABLE S1 | (Continued)

| Sort | Position | Taxon                         | Voucher              | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country                            | References                       |
|------|----------|-------------------------------|----------------------|----------|----------|----------|----------|--------------|----------|----------|----------------------------------------------|----------------------------------|
| 183  | Ingroup  | <i>Knodus</i> sp.n.           | IAvH_CT_23073        |          | PX972046 | PX959752 | PX965201 |              | PZ020410 | PZ020394 | Quebrada La Concordia, (Magdalena), Colombia | This study                       |
| 184  | Ingroup  | <i>Knodus</i> sp.n.           | IAvH_CT_23074        |          | PX972047 | PX959753 | PX965200 |              | PZ020409 | PZ020395 | Quebrada La Concordia, (Magdalena), Colombia | This study                       |
| 185  | Ingroup  | <i>Knodus</i> sp.n.           | IAvH_CT_23075        |          | PX972048 | PX959754 | PX965194 |              |          | PZ020396 | Quebrada La Concordia, (Magdalena), Colombia | This study                       |
| 186  | Ingroup  | <i>Knodus</i> sp.n.           | IAvH_CT_23076        |          | PX972049 |          | PX965195 |              |          |          | Quebrada La Concordia, (Magdalena), Colombia | This study                       |
| 187  | Ingroup  | <i>Knodus</i> sp.n.           | LBP_5581             |          |          | MH003240 |          |              |          |          | Parnaíba                                     | García-Melo <i>et al.</i> (2019) |
| 188  | Ingroup  | <i>Knodus</i> sp.n.2          | LBP_13750            |          |          | MH003242 |          |              |          |          | Tapajós (Amazonas), Brazil                   | García-Melo <i>et al.</i> (2019) |
| 189  | Ingroup  | <i>Knodus tanaothoros</i>     | LBP_15767            |          |          | MH003048 |          |              |          |          | Xingu (Amazonas), Brazil                     | García-Melo <i>et al.</i> (2019) |
| 190  | Ingroup  | <i>Knodus tanaothoros</i>     | MCP_40399            | KF209386 | KF209709 | KF210038 | KF210286 |              | KF210787 |          | Xingu, Brazil                                | Thomaz <i>et al.</i> (2015)      |
| 191  | Ingroup  | <i>Knodus tiquiensis</i>      | LBP_6885             |          |          | MH003272 |          |              |          |          | Negro (Amazonas), Brazil                     | García-Melo <i>et al.</i> (2019) |
| 192  | Ingroup  | <i>Knodus victoriae</i>       | LBP_5607             |          |          | MH003273 |          |              |          |          | Parnaíba                                     | García-Melo <i>et al.</i> (2019) |
| 193  | Ingroup  | <i>Lepidocharax burnsi</i>    | MNRJ_31854_1076      | KF209650 | KF209976 | KF210226 | KF210520 | KF210754     | KF210963 | KF211219 | São Francisco, Brazil                        | Thomaz <i>et al.</i> (2015)      |
| 194  | Ingroup  | <i>Lepidocharax burnsi</i>    | MNRJ_31822_1050      | KF209648 | KF209974 | KF210224 | KF210518 | KF210753     | KF210961 | KF211218 | São Francisco, Brazil                        | Thomaz <i>et al.</i> (2015)      |
| 195  | Ingroup  | <i>Lophiobrycon weitzmani</i> | MNRJ_31626_833       | KF209654 | KF209982 | KF210232 | KF210526 | KF210758     | KF210967 | KF211223 | Paraná (rio Grande), Brazil                  | Thomaz <i>et al.</i> (2015)      |
| 196  | Ingroup  | <i>Mimagoniates inequalis</i> | UFRGS_12525_TEC1343B | KF209657 | KF209987 | KF210237 | KF210531 | KF210763     |          | KF211225 | Patos, Brazil                                | Thomaz <i>et al.</i> (2015)      |



TABLE S1 | (Continued)

| Sort | Position | Taxon                                      | Voucher              | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country               | References                    |
|------|----------|--------------------------------------------|----------------------|----------|----------|----------|----------|--------------|----------|----------|---------------------------------|-------------------------------|
| 197  | Ingroup  | <i>Mimagoniates rheocharis</i>             | UFRGS_12640_TEC1375  | KF209661 | KF209991 | KF210241 | KF210535 |              |          |          | Araranguá, Brazil               | Thomaz <i>et al.</i> (2015)   |
| 198  | Ingroup  | <i>Piabarchus analis</i>                   | LBP8514_38382        |          | HQ171412 |          | HQ289120 |              | HQ289313 | HQ289505 | Upper Amazon, Paraguay          | Oliveira <i>et al.</i> (2011) |
| 199  | Ingroup  | <i>Piabarchus stramineus</i>               | MNRJ_31729_957       | KF209451 | KF209774 | KF210081 | KF210338 | KF210619     | KF210840 | KF211067 | São Francisco, Brazil           | Thomaz <i>et al.</i> (2015)   |
| 200  | Ingroup  | <i>Piabina argentea</i>                    | MCP_42401            | KF209671 | KF210001 | KF210250 | KF210544 |              | KF210978 | KF211235 | São Francisco, Brazil           | Thomaz <i>et al.</i> (2015)   |
| 201  | Ingroup  | <i>Piabina thomasi</i>                     | STRI_2529            | KF209457 | KF209780 | KF210085 |          |              | KF210846 |          | Paraguay, Argentina             | Thomaz <i>et al.</i> (2015)   |
| 202  | Ingroup  | <i>Pseudocorynopoma doriae</i>             | MCP_21286            | KF209680 | KF210011 | KF210260 |          |              | KF210984 | KF211244 | Patos (rio Jacuí), Brazil       | Thomaz <i>et al.</i> (2015)   |
| 203  | Ingroup  | <i>Pseudocorynopoma heterandria</i>        | LBP2862_18570        |          | HQ171268 |          | HQ288978 |              | HQ289175 | HQ289365 | Brazil                          | Oliveira <i>et al.</i> (2011) |
| 204  | Ingroup  | <i>Rhinobrycon negrensis</i>               | UFRGS_12680_TEC1417  | KF209683 | KF210015 | KF210263 | KF210555 |              | KF210987 | KF211246 | Negro, Brazil                   | Thomaz <i>et al.</i> (2015)   |
| 205  | Ingroup  | <i>Scopaeocharax</i> sp.                   | MHNG_2731.34_152.1   | KF209686 | KF210018 | KF210266 | KF210558 | KF210773     |          | KF211249 | Huallaga (rio Huantanamo), Peru | Thomaz <i>et al.</i> (2015)   |
| 206  | Ingroup  | <i>Xenobrycon</i> cf. <i>coracoralinae</i> | MNRJ_35234_2362      | KF209692 | KF210024 | KF210271 |          | KF210778     | KF210991 | KF211253 | Xingu (rio paturi), Brazil      | Thomaz <i>et al.</i> (2015)   |
| 207  | Ingroup  | <i>Xenobrycon heterodon</i>                | MUSM_39520_AP_116    | KF209694 | KF210026 | KF210273 | KF210564 | KF210779     | KF210993 | KF211255 | Purus, Peru                     | Thomaz <i>et al.</i> (2015)   |
| 208  | Ingroup  | <i>Xenobrycon polyancistrus</i>            | UFRGS_12845_TEC1555A | KF209696 | KF210028 | KF210275 | KF210566 |              | KF210994 | KF211257 | Guaporé, Brazil                 | Thomaz <i>et al.</i> (2015)   |
| 209  | Outgroup | <i>Aphyocharax dentatus</i>                | UFRGS_13585_TEC1707A | KF209535 | KF209858 |          | KF210417 | KF210675     |          |          | Paraguay (rio Manso), Brazil    | Thomaz <i>et al.</i> (2015)   |
| 210  | Outgroup | <i>Brycon</i> sp.                          | UFRGS_11377_TEC1215  | KF209538 | KF209862 | KF210146 | KF210421 | KF210678     | KF210893 |          | São Francisco, Brazil           | Thomaz <i>et al.</i> (2015)   |



TABLE S1 | (Continued)

| Sort | Position | Taxon                              | Voucher              | 12S      | 16S      | COI      | MYH6     | PTR (p1chd1) | RAG1     | RAG2     | Drainage, Country             | References                  |
|------|----------|------------------------------------|----------------------|----------|----------|----------|----------|--------------|----------|----------|-------------------------------|-----------------------------|
| 211  | Outgroup | <i>Bryconops caudomaculatus</i>    | UFRGS_12678_TEC1415  | KF209537 | KF209861 | KF210145 | KF210420 |              | KF210892 | KF211128 | Negro, Brazil                 | Thomaz <i>et al.</i> (2015) |
| 212  | Outgroup | <i>Charax stenopterus</i>          | UFRGS_12611_TEC1311  | KF209539 | KF209863 | KF210147 | KF210422 |              | KF210894 | KF211129 | Mampituba, Brazil             | Thomaz <i>et al.</i> (2015) |
| 213  | Outgroup | <i>Cheirodon ibicuiensis</i>       | UFRGS_12508_TEC1326A | KF209541 | KF209865 | KF210149 | KF210424 | KF210680     | KF210896 | KF211131 | Patos, Brazil                 | Thomaz <i>et al.</i> (2015) |
| 214  | Outgroup | <i>Microschemobrycon melanotus</i> | AUM_54259_T09199     | KF209546 | KF209871 |          | KF210428 |              |          |          | Orinoco, Venezuela            | Thomaz <i>et al.</i> (2015) |
| 215  | Outgroup | <i>Moenkhausia ceros</i>           | ANSP_191367_T09522   | KF209536 | KF209860 |          | KF210419 | KF210677     | KF210891 |          | Ventuari (Orinoco), Venezuela | Thomaz <i>et al.</i> (2015) |
| 216  | Outgroup | <i>Moenkhausia lepidura</i>        | ANSP_190883_T09125   | KF209547 | KF209872 |          | KF210429 |              |          |          | Orinoco, Venezuela            | Thomaz <i>et al.</i> (2015) |
| 217  | Outgroup | <i>Nematobrycon palmeri</i>        | GO_091               | KF209548 | KF209873 |          | KF210430 | KF210685     | KF210902 | KF211133 | Atrato, Colombia              | Thomaz <i>et al.</i> (2015) |
| 218  | Outgroup | <i>Oligosarcus brevioris</i>       | UFRGS_14994_TEC1778B |          | KF209875 | KF210152 | KF210432 | KF210687     | KF210904 |          | Uruguay, Brazil               | Thomaz <i>et al.</i> (2015) |
| 219  | Outgroup | <i>Paracheirodon axelrodi</i>      | GO_213               | KF209549 | KF209876 |          | KF210433 | KF210688     | KF210905 | KF211134 | Orinoco, Colombia             | Thomaz <i>et al.</i> (2015) |
| 220  | Outgroup | <i>Prodontocharax</i> sp.          | MHNG_2725.025_152.5  | KF209564 | KF209892 | KF210156 | KF210441 | KF210698     |          |          | Huallaga, Peru                | Thomaz <i>et al.</i> (2015) |
| 221  | Outgroup | <i>Roeboides descavadensis</i>     | UFRGS_13496_TEC1618A | KF209566 | KF209894 |          | KF210443 |              |          |          | Paraguay, Brazil              | Thomaz <i>et al.</i> (2015) |
| 222  | Outgroup | <i>Serrasalmus</i> sp.             | UFRGS_12672_TEC1410  | KF209568 | KF209896 | KF210158 | KF210445 |              | KF210919 | KF211147 | Paraguay, Brazil              | Thomaz <i>et al.</i> (2015) |
| 223  | Outgroup | <i>Tetragonopterus chalceus</i>    | ROM_1437_HLF08_36    | KF209569 | KF209897 |          | KF210446 | KF210701     |          | KF211148 | Xingu, Brazil                 | Thomaz <i>et al.</i> (2015) |

REFERENCES

- **García-Melo JE, Oliveira C, Silva GJC, Ochoa-Orrego LE, Pereira LHG, Maldonado-Ocampo JA.** Species delimitation of Neotropical characins (Stevardiinae): implications for taxonomy of complex groups. *PLoS ONE*. 2019b; 14(6):e0216786. <https://doi.org/10.1371/journal.pone.0216786>
- **Oliveira C, Avelino GS, Abe KT, Mariguela TC, Benine RC, Ortí G et al.** Phylogenetic relationships within the speciose family Characidae (Teleostei: Ostariophysi: Characiformes) based on multilocus analysis and extensive ingroup sampling. *BMC Evol Biol*. 2011; 11:275. <https://doi.org/10.1186/1471-2148-11-275>

- **Thomaz AT, Arcila D, Ortí G, Malabarba LR.** Molecular phylogeny of the subfamily Stevardiinae Gill, 1858 (Characiformes: Characidae): classification and the evolution of reproductive traits. *BMC Ecol Evol*. 2015; 15:146. <https://doi.org/10.1186/s12862-015-0403-4>

TABLE S2 | List of primers used in this study.

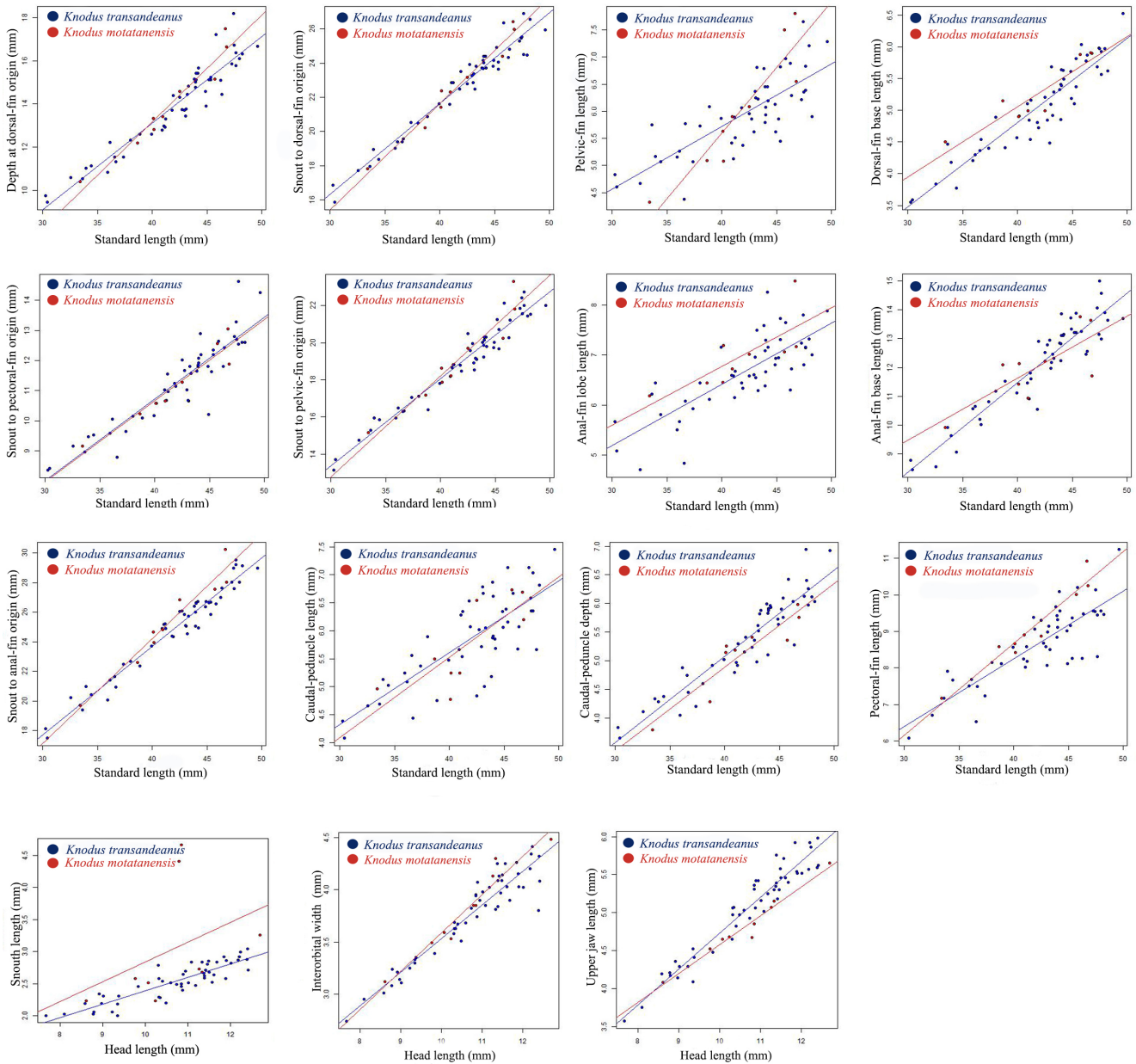
|   | Gene |               | Primer name | Origin       | Sequence                                    | Bases | References                    |
|---|------|---------------|-------------|--------------|---------------------------------------------|-------|-------------------------------|
| 1 | Myh6 | 1st PCR       | F329        | Nuclear      | CCGCMTGGATGATCTACAC                         | 19    | Li <i>et al.</i> (2007)       |
|   | Myh6 | 1st PCR       | A3R1        | Nuclear      | ATTCTCACCACCATCCAGTTGAA                     | 23    | Li <i>et al.</i> (2007)       |
|   | Myh6 | 2nd PCR       | A3F2        | Nuclear      | GGAGAATCARTCKGTGCTCATCA                     | 23    | Li <i>et al.</i> (2007)       |
|   | Myh6 | 2nd PCR       | A3R2        | Nuclear      | CTCACCACCATCCAGTTGAACAT                     | 23    | Li <i>et al.</i> (2007)       |
| 2 | Rag1 | 1st PCR       | 2510F       | Nuclear      | TGGCCATCCGGGTMAACAC                         | 19    | Li, Ortí (2007)               |
|   | Rag1 | 2nd PCR       | 4090R       | Nuclear      | CTGAGTCCTTGTGAGCTTCCATRAAYTT                | 28    | Lopez <i>et al.</i> (2004)    |
|   | Rag1 | 1st PCR       | Rag1CR1     | Nuclear      | CGTCGGAAGAGCTTGTGTC                         | 20    | Oliveira <i>et al.</i> (2011) |
|   | Rag1 | 2nd PCR       | Rag1CR2     | Nuclear      | TGTTGCCAGACTCATTGCCCTC                      | 22    | Oliveira <i>et al.</i> (2011) |
| 3 | Rag2 | 1st PCR       | 164F        | Nuclear      | AGCTCAAGTCGCGGCCAT                          | 19    | Oliveira <i>et al.</i> (2011) |
|   | Rag2 | 1st PCR       | RAG2-R6     | Nuclear      | TGRTCCARGCAGAAGTACTTG                       | 21    | Lovejoy, Collette (2001)      |
|   | Rag2 | 2nd PCR       | 176R        | Nuclear      | GYGCCATCTCATTCTCCAACA                       | 21    | Oliveira <i>et al.</i> (2011) |
|   | Rag2 | 2nd PCR       | Rag2Ri      | Nuclear      | AGAACAAAAGATCATTGCTGGTCGGG                  | 26    | Oliveira <i>et al.</i> (2011) |
| 4 | 16S  |               | 16SA-L      | Mithocondria | CGCTGTATTATCAAAAACAT                        | 20    | Palumbi <i>et al.</i> (1991)  |
|   | 16S  |               | 16SB-H      | Mithocondria | CCGGTCTGAACTCAGATCACGT                      | 22    | Palumbi <i>et al.</i> (1991)  |
| 5 | COI  | Fish Cocktail | VF2_t1      | Mithocondria | TGTAACACGACGGCCAGTCAACCAACCACAAAGACATTGGCAC | 43    | Ivanova <i>et al.</i> (2007)  |
|   | COI  | Fish Cocktail | FR1d_t1     | Mithocondria | CAGGAAACAGCTATGACACCTCAGGGTGTCCGAARAAYCARAA | 43    | Ivanova <i>et al.</i> (2007)  |
|   | COI  | Fish Cocktail | FishF2_t1   | Mithocondria | TGTAACACGACGGCCAGTCGACTAATCATAAAGATATCGGCAC | 43    | Ivanova <i>et al.</i> (2007)  |
|   | COI  | Fish Cocktail | FishR2_t1   | Mithocondria | CAGGAAACAGCTATGACACTTCAGGGTGACCGAAGAATCAGAA | 43    | Ivanova <i>et al.</i> (2007)  |
| 6 | Cytb |               | LNF         | Mithocondria | GACTTGAACAAACAYCGTGT                        | 21    | Oliveira <i>et al.</i> (2011) |
|   | Cytb |               | H08R2       | Mithocondria | GCTTTGGGAGTTAGDGGTGGGAGTTAGAATC             | 31    | Oliveira <i>et al.</i> (2011) |

## REFERENCES

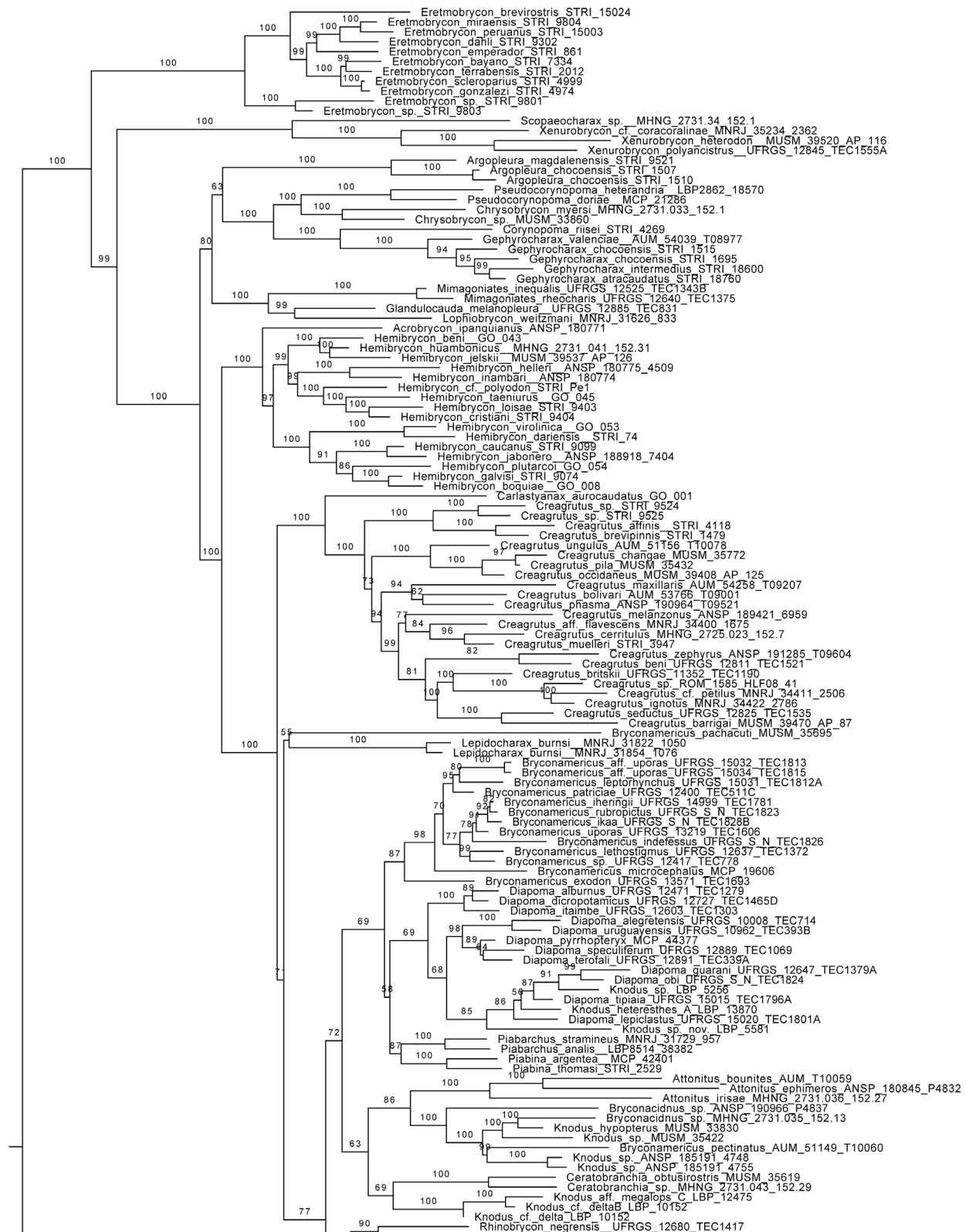
- **Ivanova NV, Zemlak TS, Hanner RH, Hebert PD.** Universal primer cocktails for fish DNA barcoding. *Mol Ecol Notes*. 2007; 7(4):544–48. <https://doi.org/10.1111/j.1471-8286.2007.01748.x>
- **Li C, Ortí G.** Molecular phylogeny of Clupeiformes (Actinopterygii) inferred from nuclear and mitochondrial DNA sequences. *Mol Phylogenet Evol*. 2007; 44(1):386–98. <https://doi.org/10.1016/j.ympev.2006.10.030>
- **Li C, Ortí G, Zhang G, Lu G.** A practical approach to phylogenomics: the phylogeny of ray-finned fish (Actinopterygii) as a case study. *BMC Evol. Biol.* 2007; 7(44):1–11. <https://doi.org/10.1186/1471-2148-7-44>
- **López AJ, Chen W-J, Ortí G.** Esociform phylogeny. *Copeia*. 2004; 2004(3):449–64. <https://doi.org/10.1643/CG-03-087R1>
- **Lovejoy NR, Collette BB.** Phylogenetic relationships of New World needlefishes (Teleostei: Belontiidae) and the biogeography of transitions between marine and freshwater habitats. *Copeia*. 2001; 2001(2):324–38. [https://doi.org/10.1643/0045-8511\(2001\)001\[0324:PRO NWN\]2.0.CO;2](https://doi.org/10.1643/0045-8511(2001)001[0324:PRO NWN]2.0.CO;2)
- **Oliveira C, Avelino GS, Abe KT, Mariguela TC, Benine RC, Ortí G et al.** Phylogenetic relationships within the speciose family Characidae (Teleostei: Ostariophysi: Characiformes) based on multilocus analysis and extensive ingroup sampling. *BMC Evol Biol*. 2011; 11:275. <https://doi.org/10.1186/1471-2148-11-275>
- **Palumbi SR.** Nucleic acids II: the polymerase chain reaction. In: Hillis DM, Moritz C, Mable BK, editors. *Molecular Systematics*. Sunderland: Sinauer Associates; 1996. p.205–47.

**TABLE S3** | Scores of ANCOVA test for a reduced subset of morphometric variables in *Knodus motatanensis* and *K. transandeanus*.

| Variable                             | p-value  | F-value | Slopes        |
|--------------------------------------|----------|---------|---------------|
| Depth at dorsal-fin origin           | 0.218    | 223.2   | Homogeneous   |
| Snout to dorsal-fin origin           | 0.126    | 335.3   | Homogeneous   |
| Snout to pectoral-fin origin         | 0.391    | 177.9   | Homogeneous   |
| Snout to pelvic-fin origin           | 0.640    | 284.4   | Homogeneous   |
| Snout to anal-fin origin             | 0.195    | 305.2   | Homogeneous   |
| Caudal-peduncle depth                | 0.655    | 153.7   | Homogeneous   |
| Caudal-peduncle length               | << 0.001 | 53.2    | Homogeneous   |
| Pectoral-fin length                  | << 0.001 | 90.3    | Homogeneous   |
| Pelvic-fin length                    | << 0.001 | 58.2    | Homogeneous   |
| Dorsal-fin base length               | << 0.001 | 145.1   | Homogeneous   |
| Anal-fin base length                 | 0.162    | 151.5   | Homogeneous   |
| Anal-fin lobe length                 | << 0.001 | 55.2    | Homogeneous   |
| Eye to dorsal-fin origin             | 0.173    | 266.5   | Homogeneous   |
| Dorsal-fin origin to caudal-fin base | 0.420    | 299.0   | Homogeneous   |
| Head length                          | 0.732    | 254.0   | Homogeneous   |
| Horizontal eye diameter              | << 0.001 | 122.5   | Homogeneous   |
| Interorbital width                   | 0.235    | 260.5   | Homogeneous   |
| Upper jaw length                     | 0.321    | 231.0   | Homogeneous   |
| Snout length                         | 0.04     | 35.5    | Heterogeneous |



**FIGURE S4** | Scatterplots for morphometric variables between *Knodus motatanensis* and *K. transandeanus*, against their respective covariate (either SL or HL).

FIGURE S5 | Phylogenetic placement of *Knodus transandeanus* within Stevardiidae without collapsing genera.



OPEN  ACCESS



Distributed under  
Creative Commons CC-BY 4.0

 Official Journal of the  
Sociedade Brasileira de Ictiologia

- **Albornoz-Garzón JG, Pulido-Santacruz P, García-Melo JE, Torres M, DoNascimento C. A** relict from the water: a new species from the río Magdalena basin (Colombia) of the mostly cis-Andean diversified genus *Knodus* (Characiformes: Stevardiidae). *Neotrop Ichthyol.* 2026; 24(2):e250170. <https://doi.org/10.1590/1982-0224-2025-0170>