**Table S1** Summary data for the amphistomid isolates used in the molecular analyses. Sequences generated *de novo* in bold.

|  |  |  |  |
| --- | --- | --- | --- |
| **Taxon** | **Host species (group)** | **Acc. Nº** **(28S gene)** | **Reference** |
| **Cladorchiidae** |  |  |  |
| *Amurotrema dombrowskajae* | *Ctenopharyngodon idella* (fish) | KT321869 | Sokolov et al. (2016) |
| *Dadaytrema gracile* | *Pimelodella gracilis* (fish) | MK604792 | Pantoja et al. (2019) |
| *Dadaytrema minimum* | *Tocantinsia piresi* (fish) | MK604800 | Pantoja et al. (2019) |
| *Dadaytrema oxycephalum* | *Pterodoras granulosus* (fish) | MK604790 | Pantoja et al. (2019) |
| *Doradamphistoma bacuense* | *Megalodoras uranoscopus* (fish) | MK604803 | Pantoja et al. (2019) |
| *Doradamphistoma parauchenipteri* | *Trachelyopterus galeatus* (fish) | MK604807 | Pantoja et al. (2019) |
| *Goeldamphistomum peruanum* | *Duopalatinus peruanus* (fish) | MK604832 | Pantoja et al. (2019) |
| *Helostomatis* cf. *helostomatis* | *Labiobarbus siamensis* (fish) | MK604798 | Pantoja et al. (2019) |
| *Iquitostrema papillatum* | *Hassar orestis* (fish) | MK604819 | Pantoja et al. (2019) |
| *Megalodiscus* sp. 1 |  *Lithobates* sp. (frog) | MK648269 | Pérez-Ponce de León and Hernández-Mena (2019)  |
| *Megalodiscus* sp. 2 | *Lithobates brownorum* (frog) | MK648270 | Pérez-Ponce de León and Hernández-Mena (2019) |
| *Megalodiscus temperatus* | *Lithobates catesbeianus* (frog) | AB818375 | Hasegawa et al. (2013) |
| *Pisciamphistoma stunkardi* | *Lepomis megalotis* (fish) | MK604794 | Pantoja et al. (2019) |
| *Pseudocladorchis nephrodorchis* | *Tometes kramponhah* (fish) | MK604805 | Pantoja et al. (2019) |
| *Pseudocladorchis romani* | *Oxydoras niger* (fish) | MK604796 | Pantoja et al. (2019) |
| *Solenorchis travassosi* | *Dugong dugon* (marine mammal) | AY222213 | Olson et al. (2003) |
| **Diplodiscidae** |  |  |  |
| *Catadiscus marinholutzi* | *Leptodactylus podicipinus* (frog) | **XXXXXX** | Present study |
| *Catadiscus marinholutzi* | *Drepanotrema lucidum* (snail) | **XXXXXX** | Present study |
| *Diplodiscus japonicus* | *Rana dybowskii* (frog) | KX506855 | Besprozvannykh et al. (2018) |
| *Diplodiscus mehrai* | *Rana dybowskii* (frog) | KX506856 | Besprozvannykh et al. (2018) |
| *Diplodiscus subclavatus* | *Pelophylax ridibundus* (frog) | AY222212 | Olson et al. (2003) |
| **Gastrodiscidae** |  |  |  |
| *Gastrodiscoides hominis* | *Sus scrofa domestica* (terrestrial mammal) | JX678246 | Shylla et al. (2013) |
| *Homalogaster paloniae* | *Bos indicus* (terrestrial mammal) | JX678247 | Shylla et al. (2013) |
| **Gastrothylacidae** |  |  |  |
| *Carmyerius spatiosus* | *Bos indicus* (terrestrial mammal) | JX518958 | Ghatani et al. (2014) |
| *Fischoederius elongatus* | *Bos indicus* (terrestrial mammal) | JX518964 | Ghatani et al. (2014) |
| *Fischoederius cobboldi* | *Capra hircus* (terrestrial mammal) | JX518962 | Ghatani et al. (2014) |
| *Gastrothylax crumenifer* | *Bos indicus* (terrestrial mammal) | JX518969 | Ghatani et al. (2014) |
| *Gastrothylax crumenifer* | *Capra hircus* (terrestrial mammal) | KY786331 | Kaur et al. (2018) |
| *Velasquezotrema tripurensis* | *Bos indicus* (terrestrial mammal) | JX518957 | Ghatani et al. (2014) |
| **Mesometriidae\*** |  |  |  |
| *Mesometra* sp.  | *Sarpa salpa* (fish) | AY222216 | Olson et al. (2003) |
| **Microscaphidiidae\*** |  |  |  |
| *Hexangium* sp.  | *Siganus fuscescens* (fish) | AY222215 | Olson et al. (2003) |
| *Neohexangitrema zebrasomatis*  | *Zebrastoma scopas* (fish) | AY222214 | Olson et al. (2003) |
| *Octangioides ujati*  | *Vieja melanura* (fish) | MK648300 | Pérez-Ponce de León and Hernández-Mena (2019) |
| **Olveriidae** |  |  |  |
| *Olveria bosi* | *Capra hircus* (terrestrial mammal) | JX678274 | Shylla et al. (2013) |
| *Olveria indica* | *Capra hircus* (terrestrial mammal) | JX678275 | Shylla et al. (2013) |
| **Paramphistomidae** |  |  |  |
| *Calicophoron calicophorum* | *Bos indicus* (terrestrial mammal) | JX678282 | Shylla et al. (2013) |
| *Calicophoron shillongensis* | *Bos indicus* (terrestrial mammal) | JX678276 | Shylla et al. (2013) |
| *Cotylophoron cotylophorum* | *Bos indicus* (terrestrial mammal) | JX678278 | Shylla et al. (2013) |
| *Explanatum explanatum* | *Bos indicus* (terrestrial mammal) | JX678248 | Shylla et al. (2013) |
| *Orthocoelium orthocoelium* | *Bos indicus* (terrestrial mammal) | JX678279 | Shylla et al. (2013) |
| *Orthocoelium streptocoelium* | *Bos indicus* (terrestrial mammal) | JX678277 | Shylla et al. (2013) |
| *Orthocoelium* sp. | *Bos frontalis* (terrestrial mammal) | JX678281 | Shylla et al. (2013) |
| *Paramphistomum cervi* | “Sheep” (terrestrial mammal) | KJ459936 | Zheng et al. (2014) |
| *Paramphistomum epiclitum* | *Bos indicus* (terrestrial mammal) | JX628580 | Shylla et al. (2013) |
| **Zygocotylidae** |  |  |  |
| *Wardius zibethicus* | *Ondatra zibethicus* (semiaquatic mammal) | JQ670847 | Detwiler et al. (2012) |
| *Zygocotyle lunata* | “mice”\*\* (terrestrial mammal) | MT514525 | Alves et al. (2020) |

\*Outgroup. **\*\***Experimentally infected.

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