**Supplementary Material 2**

Terminals and GenBank accession numbers used in our phylogenetic analysis. Accession numbers in bold were obtained in this study.

**Aporocotylidae**

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| **Species** | **Accession number** | **References** |
| *Cardicola aurata* | *AM910616* | Holzer et al. (2008) |
| *Cardicola beveridgei* | *KX523188* | Yong et al. (2016) |
| *Cardicola chaetodontis* | *KX523192* | Yong et al. (2016) |
| *Cardicola forsteri* | *KT119354* | Shirakashi et al. (2016) |
| *Cardicola orientalis* | *KT119355* | Shirakashi et al. (2016) |
| *Elapicola franksi* | *KY243882* | Orelis-Ribeiro et al. (2017) |
| *Elapicola nolancribbi* | *KY243880* | Orelis-Ribeiro et al. (2017) |
| *Paradeontacylix grandispinus* | *AM489596* | Repulles-Albelda et al. (2008) |
| *Psettarium anthicum* | *KX840316* | Warren et al. (2016) |
| *Psettarium ogawai* | *KX284694* | Yong et al. (2016) |

**Schistosomatidae**

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| **Species** | **Accession number** | **References** |
| *Allobilharzia visceralis* | *EF114222* | Brant (2007) |
| *Anserobilharzia brantae* | *KC570945* | Brant et al. (2013) |
| *Austrobilharzia sp.* | *JF742195* | Al-Kandari et al. (2012) |
| *Bivitellobilharzia loxodontae* | *JN579949* | Brant et al. (2013) |
| *Bivitellobilharzia nairi* | *JQ975006* | Devkota et al. (2014) |
| *Gigantobilharzia melanoidis* | *JX875068* | Schuster et al. (2014) |
| *Heterobilharzia americana* | *Z46506* | Littlewood & Johnston (1995) |
| *Schistosoma bovis* | *FJ897156* | Hanelt et al. (2009) |
| *Schistosoma haemotobium* | *Z46521* | Littlewood & Johnston (1995) |
| *Schistosoma hippopotami* | *AY197343* | Morgan et al. (2003) |
| *Schistosoma incognitum* | *JQ408705* | Webster & Littlewood (2012) |
| *Schistosoma kisumuensis* | *FJ897155* | Hanelt et al. (2009) |
| *Schistosoma mansoni* | *Z46503* | Littlewood & Johnston (1995) |
| *Schistosoma nasale* | *KR423864* | Devkota et al. (2015) |
| *Schistosoma spindale* | *KR423856* | Devkota et al. (2015) |
| *Trichobilharzia franki* | *KJ775867* | Lawton et al. (2014) |
| *Trichobilharzia physellae* | *FJ174474* | Brant & Loker (2009) |
| *Trichobilharzia stagnicolae* | *FJ174479* | Brant & Loker (2009) |
| *Trichobilharzia szidati* | *FJ174476* | Brant & Loker (2009) |
| *Trichobilharzia sp.* | *KJ855994* | Pinto et al. (2014) |

**Spirorchiidae**

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| **Species** | **Accession number** | **References** |
| *Amphiorchis sp.* | *KU892017* | Chapman et al. (2016) |
| *Baracktrema obamai* | *KX061500* | Roberts et al. (2016) |
| *Coeuritrema platti* | *KX712243* | Roberts et al. (2016) |
| *Carettacola hawaiiensis* | *KU600068* | Chapman et al. (2016) |
| *Carettacola sp.* | *KU600069* | Chapman et al. (2016) |
| *Hapalorhynchus foliorchis* | *KX712242* | Roberts et al. (2016) |
| *Hapalorhynchus gracilis* | *AY604710* | Snyder (2004) |
| *Hapalotrema mehrai* | *AY604708* | Snyder (2004) |
| *Hapalotrema mistroides* | *KU892016* | Chapman et al. (2016) |
| *Hapalotrema mistroides* (Italy) | *LT882715* | Marchiori et al. (2017) |
| *Hapalotrema pambanensis* | *KM652620* | Chapman et al. (2015) |
| *Hapalotrema postorchis* | *KM652621* | Chapman et al. (2015) |
| *Hapalotrema synorchis* | *KM652622* | Chapman et al. (2015) |
| *Learedius learedi* (Hawaii) | *AY604707* | Snyder (2004) |
| *Learedius learedi* (Japan) | *LC455555* | Kitayama et al. (2018) |
| ***Learedius learedi* (1; Brazil)** | ***MT799867*** | This study |
| ***Learedius learedi* (2; Brazil)** | ***MT799868*** | This study |
| ***Learedius learedi* (3; Brazil)** | ***MT799869*** | This study |
| ***Learedius learedi* (4; Brazil)** | ***MT799870*** | This study |
| ***Learedius learedi* (5; Brazil)** | ***MT799871*** | This study |
| ***Learedius learedi* (6; Brazil)** | ***MT799872*** | This study |
| ***Learedius learedi* (7; Brazil)** | ***MT799873*** | This study |
| *Neospirorchis sp.* (1; Australia) | *KU600072* | Chapman et al. (2016) |
| *Neospirorchis sp.* (2; Australia) | *KU600073* | Chapman et al. (2016) |
| *Neospirorchis sp.* (3; Australia) | *KU600074* | Chapman et al. (2016) |
| ***Neospirorchis sp.* (1; Brazil)** | ***MT799874*** | This study |
| ***Neospirorchis sp.* (2; Brazil)** | ***MT799875*** | This study |
| *Neospirorchis sp.* (Italy) | *LT882716* | Marchiori et al. (2017) |
| *Platydidymus flecterosteslis* | *HE806362* | Unpublished |
| *Spirorchis artericola* | *AY604704* | Snyder (2004) |
| *Spirorchis collinsi* | *KY091664* | Roberts et al. (2016) |
| *Spirorchis haematobium* | *FJ481164* | Tkach et al. (2009) |
| *Spirorchis picta* | *KY091665* | Roberts et al. (2016) |
| *Spirorchis polesianum* | *AY604705* | Snyder (2004) |
| *Spirorchis scripta* | *KY091666* | Roberts et al. (2016) |
| *Spirorchis siamensis* | *FJ481166* | Tkach et al. (2009) |
| *Spirorchis sp.* | *KM507474* | Yonkers et al. (2014) |
| *Unicaecum sp.* | *AY604711* | Snyder (2004) |
| *Vasotrema robustum.* | *AY858883* | Brant et al. (2006) |
| *Spirorchidae sp.* | *KU600071* | Chapman et al. (2016) |
| *Spirorchiidae sp.* | *FJ550134* | Kraus et al. (2008) |
| *Spirorchiidae sp.* | *AY858884* | Brant et al. (2006) |

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