

Table S1. Sequences from GenBank used for phylogenetic analysis in the present study.

Family	Species	Host	GenBank accession numbers		Reference (s)
Out Group			LSU	<i>cox1</i>	
Haploporidae	<i>Saccocoelioides lamothei</i> Aguirre-Macedo & Violante-González, 2008	<i>Poecilia gillii</i>		MW283228	González-García et al. 2021
Deropristidae	<i>Skrjabinopsolus nudidorsalis</i> Sokolov, Voropaeva & Atopkin, 2020	<i>Acipenser ruthenus</i>	MN700996		Sokolov et al. 2020
Lissorchiidae	<i>Asaccotrema vietnamiense</i> Sokolov & Gordeev, 2019	<i>Rasbora paviana</i>	MK863409		Sokolov and Gordeev, 2019
	<i>Asymphylogora perccotti</i> Besprozvannykh, Ermolenko & Atopkin, 2012	<i>Perccottus glenii</i>	FR822715		Besprozvannykh et al. 2012
	<i>Asymphylogora progenetica</i> Serkova & Bykhovskii, 1940	<i>Carpiodes cyprinus</i>	MT103400		Petkeviciute et al. 2020
	<i>Palaeorchis incognitus</i> Szidat, 1943		MT103408		Petkeviciute et al. 2020
	<i>Lissorchis kritskyi</i> Barnhart & Powell, 1979	<i>Rutilus rutilus</i>	AY222250		Olson et al. 2003
Monorchiidae					
Anamonorchiinae	<i>Cableia pudica</i> Bray, Cribb & Barker, 1996	<i>Cantherhines pardalis</i>	AY222251		Olson et al. 2003
Hurleytrematinae	<i>Helicometroides gabrieli</i> Wee, Cribb, Shirakash & Cutmore, 2022	<i>Plectorhinchus chrysotaenia</i>	OM230129	OM156428	Wee et al. 2022
	<i>Helicometroides longicollis</i> Yamaguti, 1934 Lineage 1	<i>Diagramma pictum labiosum</i>	KJ658287	OM156435	Searle et al. 2014
	<i>Helicometroides longicollis</i> Yamaguti, 1934 Lineage 2	<i>D. pictum</i>	OM230134	OM156437	Searle et al. 2014
	<i>Helicometroides murakamii</i> Wee, Cribb, Shirakash & Cutmore, 2022	<i>D. pictum</i>	OM230128	OM156426	Searle et al. 2014

<i>Helicometroides wardae</i> Wee, Cribb, Shirakash & Cutmore, 2022	<i>Plectorhinchus flavomaculatus</i>	OM230130	OM156429	Searle et al. 2014
<i>Hurleytrematoides bartolii</i> Nahhas & Grewal, 1999	<i>Heniochus sing</i>		JN969442	McNamara et al. 2014
<i>Hurleytrematoides boucheti</i> McNamara, Adlard, Bray, Sasal & Cribb, 2012	<i>Heniochus chrysostomus</i>		JN969444	McNamara et al. 2014
<i>Hurleytrematoides combesi</i> McNamara, Adlard, Bray, Sasal & Cribb, 2012	<i>Chaetodon unimaculatus</i>		JN969446	McNamara et al. 2014
<i>Hurleytrematoides coronatus</i> Manter & Pritchard, 1961	<i>Chaetodon vagabundus</i>		JN969457	McNamara et al. 2014
<i>Hurleytrematoides chaetodonti</i> (Manter, 1942) Yamaguti, 1954	<i>Chaetodon striatus</i>	MH244116		Andres et al. 2018
<i>Hurleytrematoides deblocki</i> McNamara, Adlard, Bray, Sasal & Cribb, 2012	<i>Forcipiger flavissimus</i>		JN969462	McNamara et al. 2014
<i>Hurleytrematoides faliexae</i> McNamara & Cribb, 2011	<i>Chaetodon ephippium</i>		JN969469	McNamara et al. 2014
<i>Hurleytrematoides fijiensis</i> Nahhas & Grewal, 1999	<i>Chaetodon citrinellus</i>		JN969474	McNamara et al. 2014
<i>Hurleytrematoides galzini</i> McNamara & Cribb, 2011	<i>Forcipiger flavissimus</i>	MK501988		Wee et al. 2019
<i>Hurleytrematoides justinei</i> McNamara & Cribb, 2009	<i>Canthigaster valentini</i>		JN969476	McNamara et al. 2014
<i>Hurleytrematoides kulbickii</i> McNamara, Adlard, Bray, Sasal & Cribb, 2012	<i>Chaetodon citrinellus</i>		JN969478	McNamara et al. 2014
<i>Hurleytrematoides loi</i> McNamara & Cribb, 2011	<i>Chelmon rostratus</i>	MK501989	JN969481	Wee et al. 2019; McNamara et al. 2014
<i>Hurleytrematoides</i>	<i>Chaetodon</i>	MZ323087	MZ318261	Wee et al. 2021

	<i>morandi</i> McNamara & Cribb, 2011	<i>lunula</i>			
		<i>Chaetodon</i>		JN969498	McNamara et al. 2014
		<i>vagabundus</i>			
	<i>Hurleytrematoides</i>	<i>Heniochus</i>		JN969500	McNamara et al. 2014
	<i>pasteuri</i> McNamara, Adlard, Bray, Sasal & Cribb, 2012	<i>acuminatus</i>			
	<i>Hurleytrematoides prevoti</i> Nahhas & Grewal, 1999	<i>Chaetodon</i>		JN969501	McNamara et al. 2014
		<i>lineolatu</i>			
	<i>Hurleytrematoides sasali</i> McNamara & Cribb, 2011	<i>Coradion</i>		JN969505	McNamara et al. 2014
		<i>altivelis</i>			
	<i>Hurleytrematoides</i>	<i>Heniochus</i>		JN969507	McNamara et al. 2014
	<i>zebrasomae</i> Nahhas & Grewal, 1999	<i>chrysostomus</i>			
	<i>Hurleytrematoides</i> sp.	<i>Chaetodon</i>		JN969509	McNamara et al. 2014
		<i>melannotus</i>			
	<i>Provitellus chaometra</i> Wee, Cutmore & Cribb, 2019	<i>Gnathanodon</i>	MK501984		Wee et al. 2019
		<i>speciosus</i>			
	<i>Provitellus infibrova</i> Wee, Cutmore & Cribb, 2019	<i>Gnathanodon</i>	MK501986		Wee et al. 2019
		<i>speciosus</i>			
	<i>Provitellus infrequens</i> Wee, Cutmore & Cribb, 2019	<i>Gnathanodon</i>	MK501985		Wee et al. 2019
		<i>speciosus</i>			
	<i>Provitellus turrum</i> Dove & Cribb, 1998	<i>Pseudocaranx</i>	AY222253		Olson et al. 2003
		<i>dentex</i>			
	<i>Pseudohurleytrema yolandae</i> Wee, Crouch, Cutmore & Cribb, 2020	<i>Tripodichthys</i>	MT649300	MT648485-86	Wee et al. 2020
		<i>angustifrons</i>			
Monorchiinae	<i>Allobacciger annulatus</i> Wee, Cutmore, Sasal & Cribb, 2020	<i>Centropyge</i>	MK955782	MK975248-49	Wee et al. 2020
Odhner, 1911		<i>tibicen</i>			
	<i>Allobacciger brevicirrus</i> Wee, Cutmore, Sasal & Cribb, 2020	<i>Scolopsis</i>	MK955781	MK975247	Wee et al. 2020
		<i>bilineata</i>			
	<i>Allobacciger centropygis</i> Machida & Uchida, 2001	<i>Centropyge</i>		JN969510	McNamara et al. 2014
		<i>flavissimus</i>			
	<i>Allobacciger polynesiensis</i> Wee, Cutmore, Sasal & Cribb, 2020	<i>Centropyge</i>	MK955780	MK975245	Wee et al. 2020
		<i>flavissima</i>			
	<i>Ancylocoelium typicum</i> Nicoll, 1912		AY222254		Olson et al.

<i>Diplomonorchis leiostomi</i> Hopkins, 1941	<i>Leiostomus xanthurus</i>	AY222252		2003 Olson et al. 2003
<i>Genolopa ampullacea</i> Linton, 1910	<i>Haemulon macrostomum</i>	MN984474		Panyi et al. 2020
<i>Genolopa minuscula</i> Panyi, Curran & Overstreet, 2020	<i>Anisotremus surinamensis</i>	MN984472		Panyi et al. 2020
<i>Genolopa vesca</i> Panyi, Curran & Overstreet, 2020	<i>Haemulon sciurus</i>	MN984471		Panyi et al. 2020
<i>Gerricola queenslandensis</i> Wee, Cutmore & Cribb, 2021	<i>Gerres oyena</i>	MZ271999	MZ295281	Wee et al. 2021
	<i>Gerres subfasciatus</i>		MZ295277	
<i>Infundiburictus arrhichostoma</i> (Searle, Cutmore & Cribb, 2014) Wee, Cutmore, Pérez-del-Olmo & Cribb, 2020	<i>D. pictum labiosum</i>	KJ658289		Searle et al. 2014
<i>Lasiotocus mulli</i> (Stossich, 1883) Odhner, 1911	<i>Mullus surmuletus</i>	MT669011	MT665981	Wee et al. 2020
<i>Lasiotocus trachinoti</i> Overstreet & Brown, 1970	<i>Trachinotus carolinus</i>	MN984478		Panyi et al. 2020
	<i>Donax fossor</i> (Cercariae)		MW628338	Hill-Spanik et al. 2021
' <i>Lasiotocus sp</i> '	<i>Menidia menidia</i>	MN984477		Panyi et al. 2020
<i>Lasiotocus choanura</i> (Hopkins, 1958) Hill-Spanik, Sams, Connors, Bricker & de Buron, 2021	<i>Donax cf. fossor</i>		MN389451-52	Hill-Spanik et al. 2021
<i>Lobucirruatus infloresco</i> Wee, Cribb & Cutmore, 2022	<i>Parupeneus spilurus</i>	OM891782	OM868215	Wee et al. 2022
<i>Madhavia fellaminuta</i> Wee, Cutmore & Cribb, 2018	<i>Upeneus tragula</i>	MG920219		Wee et al. 2018

	<i>Monorchis lewisi</i> Cribb, Wee, Bray & Cutmore, 2018	<i>Acanthopagrus australis</i>	MF503309		Cribb et al. 2018
	<i>Monorchis monorchis</i> (Stossich, 1890) Looss, 1902	<i>Diplodus vulgaris</i>	AF184257		Tkach et al. 2001
	<i>Ovipusillus geminus</i> Wee, Cutmore & Cribb, 2019	<i>Gnathanodon speciosus</i>	MF501987		Wee et al. 2019
	<i>Ovipusillus mayu</i> Dove & Cribb, 1998	<i>Gnathanodon speciosus</i>	MF503310		Cribb et al. 2018
	<i>Paralasiotocus abstrusus</i> Wee, Cribb & Cutmore, 2022	<i>Plectorhinchus albovittatus</i>	OM891779	OM868212	Wee et al. 2022
	<i>Paralasiotocus tectus</i> Wee, Cribb & Cutmore, 2022	<i>Plectorhinchus albovittatus</i>	OM891778	OM868214	Wee et al. 2022
	<i>Postmonorchis orthopristis</i> Hopkins, 1941	<i>Haemulon flavolineatum</i>	MN984475		Panyi et al. 2020
	<i>Proctotrema addisoni</i> Searle, Cutmore & Cribb, 2014	<i>D. pictum labiosum</i>	KJ658291		Searle et al. 2014
	<i>Proctotrema prominens</i> Wee, Cribb y Cutmore, 2022	<i>Plectorhinchus albovittatus</i>	OM891777	OM868216	Wee et al. 2022
	<i>Retroporomonorchis pansho</i> Wee, Cribb, Cutmore & Martin, 2020	<i>Lutjanus fulvus</i>	MT672340	MT671498	Wee et al. 2020
	<i>Sinistroporomonorchis glebulentus</i> (Overstreet, 1971) Wee, Cutmore, Pérez-del-Olmo & Cribb, 2020	<i>Mugil curema</i>	MN984476		Panyi et al. 2020
	<i>Sinistroporomonorchis lizae</i> (Liu, 2002) Wee, Cutmore, Pérez-del-Olmo & Cribb, 2020	<i>Moolgarda perusii</i>	LN831720		Atopkin et al. 2017
Unknown	<i>Parachrisomon delicatus</i> (Manter & Pritchard, 1961) Madhavi, 2008	<i>Upeneus tragula</i>	MG920218		Wee et al. 2017
	<i>Monorchiidae</i> sp.	<i>Jactellina clathrata</i>	MZ272001	MZ295282	Wee et al. 2020
