

Table S1. Mitogenomes used in phylogenetic analyzes.

Family	Scientific name	Acession number	Reference	Length (bp)
Characidae	<i>Hyphessobrycon heterorhabdus</i>	OQ857750	This study	17,021
Characidae	<i>Pristella maxillaris</i>	MW742325	[23]	16,753
Characidae	<i>Hyphessobrycon amandae</i>	MT484069	[24]	16,701
Characidae	<i>Hemigrammus erythrozonus</i>	MT484070	[24]	16,701
Characidae	<i>Hasemanina nana</i>	AB861475	[25]	16,581
Lebiasinidae	<i>Lebiasina astrigata</i>	MH921292	[26]	16,899
Characidae	<i>Gephyrocharax atracaudatus</i>	MT484070	[27]	17,049
Characidae	<i>Hyphessobrycon roseus</i>	MW315749	[28]	17,046
Characidae	<i>Moenkhausia costae</i>	MW366831	[29]	15,811
Characidae	<i>Hyphessobrycon pulchripinnis</i>	MW315750	[28]	17,020
Characidae	<i>Hyphessobrycon sweglesi</i>	MW315751	[28]	16,080
Characidae	<i>Hyphessobrycon megalopterus</i>	MT185596	[30]	16,773
Characidae	<i>Hyphessobrycon socolofi</i>	MW742323	[10]	17,132
Characidae	<i>Hemigrammus bleheri</i>	LC074360	[31]	17,021
Characidae	<i>Paracheirodon axelrodi</i>	AB898197	[32]	17,100
Characidae	<i>Paracheirodon innesi</i>	KT783482	[33]	16,962
Characidae	<i>Psalidodon rivularis</i>	MT428070	[34]	16,812
Characidae	<i>Psalidodon fasciatus</i>	BK013061	[34]	16,626
Characidae	<i>Hyphessobrycon anisitsi</i>	MW768878	[10]	16,920
Characidae	<i>Oligosarcus argenteus</i>	MF805814	Unpublished	16,711
Characidae	<i>Astyanax aeneus</i>	BK013055	[34]	16,769
Characidae	<i>Astyanax mexicanus</i>	AP011982	[34]	16,768
Characidae	<i>Astyanax lacustris</i>	MT428067	[34]	16,763
Characidae	<i>Astyanax altiparanae</i>	MT428072	[34]	16,730
Characidae	<i>Grundulus bogotensis</i>	KM677190	[35]	17,123
Characidae	<i>Hyphessobrycon amapaensis</i>	MW742322	[10]	16,920

Characidae	<i>Hemigrammus armstrongi</i>	MW742324	[10]	18,141
Characidae	<i>Hyphessobrycon hebertaxelrodi</i>	MT769327	[36]	17,417
Characidae	<i>Nematobrycon palmeri</i>	MN861079	[37]	17,340
Characidae	<i>Hyphessobrycon elachys</i>	MW315747	[28]	17,224
Characidae	<i>Inpaichthys kerri</i>	MW342758	Unpublished	17,032
Characidae	<i>Hyphessobrycon flammeus</i>	MW315748	[28]	16,008
Characidae	<i>Hemigrammus ocellifer</i>	MW768877	[10]	18,141
Characidae	<i>Thayeria boehlkei</i>	MW366638	Unpublished	16,624
Characidae	<i>Moenkhausia sanctafilomenae</i>	MW407181	[29]	18,435
