**Table S1.** Information on box jellyfish sequences used in phylogenetic analysis, including sample origins and GenBank accession numbers

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Taxon | Origin | 16S | 18S | 28S |
| **Carybdeida** |  |  |  |  |
| **Alatinidae** |  |  |  |  |
| *Alatina mordens* | Cairns, Queensland, Australia | GQ506980 | GQ849082 | GQ849058 |
| **Carukiidae** |  |  |  |  |
| *Carukia barnesi* | Cairns, Queensland, Australia | GQ849097 | AF358107 | GQ849059 |
| *Gerongia rifkinae* | Northern Territory, Australia | GQ849119 | AF358105 | AY920788 |
| *Morbakka virulenta* | Hiroshima, Japan | GQ849121 | GQ849083 | GQ849060 |
| *Malo kingi* | Queensland, Australia |  | GQ849084 | GQ849061 |
| **Tamoyidae** |  |  |  |  |
| *Tamoya* auct. *haplonema* | North Carolina, USA | GQ849122 | GQ849085 | GQ849062 |
| *Tamoya* cf. *haplonema* | Netherlands Antilles | GQ849095 | GQ849086 | GQ849063 |
| **Tripedaliidae** |  |  |  |  |
| *Copula sivickisi* | Wakayama, Japan | GQ849113 | GQ849087 | GQ849064 |
| *Tripedalia cystophora* | Kalimantan, Indonesia | GQ849123 | GQ849088 | GQ849065 |
| *Tripedalia cystophora* | Costa Rica | **ON615221** | **ON643464** | **ON615200** |
| *Tripedalia cystophora* | Puerto Rico | KM200334 | KM200335 |  |
| *Tripedalia maipoenesis* sp. nov. (TMBC030998) | Mai Po, Hong Kong, China | **ON615219** | **ON643462** | **ON615198** |
| *Tripedalia maipoenesis* sp. nov. (TMBC030999) | Mai Po, Hong Kong, China | **ON615220** | **ON643463** | **ON615199** |
| *Tripedalia maipoenesis* sp. nov. (TMBC031000) | Mai Po, Hong Kong, China | **ON615218** | **ON643461** | **ON615197** |
| **Carybdeidae** |  |  |  |  |
| *Carybdea arborifera* | Honolulu, O'ahu, Hawai'i | GQ849096 | GQ849091 | GQ849068 |
| *Carybdea branchi* | Cape Town, South Africa |  | GQ849089 | GQ849066 |
| *Carybdea brevipedalia* | Wakayama, Japan | GQ849106 | GQ849092 | GQ849069 |
| *Carybdea brevipedalia* | Hiroshima Bay, Japan |  | GQ849093 | GQ849070 |
| *Carybdea rastonii* | South Australiatralia, Australia | GQ849112 | AF358108 | AY920787 |
| *Carybdea* auct. *rastonii* | New South Wales, Australia | GQ849116 | GQ849094 | GQ849071 |
| *Carybdea xaymacana* | Panama, Caribbean | GQ849114 | AY920775 | GQ860995 |
| *Carybdea* auct. *xaymacna* | Panama, Caribbean | GQ849118 | AY920774 | GQ849067 |
| *Carybdea marsupialis* | Puerto Rico | AF360118 | AF358106 | GQ849072 |
| **Chirodropida** |  |  |  |  |
| **Chirodropidae** |  |  |  |  |
| *Chironex fleckeri* | Darwin, Northern Territory, Australia | GQ849101 | GQ849073 | AY920785 |
| *Chironex fleckeri* | Weipa, Queensland, Australia | GQ849102 | GQ849074 | GQ849051 |
| *Chironex fleckeri* | Townsville, Queensland, Australia |  | GQ849075 | GQ849052 |
| *Chironex yamaguchii* | Okinawa, Japan |  | GQ849076 | GQ849053 |
| *?Chironex sp.* | Palau | GQ849104 | GQ849077 | GQ849054 |
| **Chiropsalmidae** |  |  |  |  |
| *Chiropsella bronzie* | Queensland, Australia | GQ849099 | AF358103 | AY920786 |
| *Chiropsalmus quadrumanus* | Southern Brazil | GQ849111 | GQ849079 | GQ849056 |
| *Chiropsalmus quadrumanus* | Southern Brazil | GQ849110 | GQ849078 | GQ849055 |
| *Chiropsalmus quadrumanus* | North Carolina, USA | GQ849109 | GQ849081 | GQ849057 |