**Table S3**

List of species involved in chimaeras in the alignment used to evaluate the impact of contaminations.

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|  | **Final OTU** | **Species (percent of files including the species)** |
| **Outgroup** | Lineus viridis | Lineus viridis, Cerebratulus lacteus |
| Terebratalia transversa | Terebratalia transversa, Novocrania anomala |
| Paralvinella sulfincola | Paralvinella sulfincola, Alvinella pompejana |
| Helobdella robusta | Helobdella robusta, Haementeria depressa |
| Riftia pachyptila | Riftia pachyptila, Ridgeia piscesae |
| Platynereis dumerilii | Platynereis dumerilii, Eulalia clavigera |
| Lumbrineris zonata | Lumbrineris zonata, Onuphis iridescens, Eurythoe complanata |
| **Molluscs** | Chaetoderma nitidulum | Chaetoderma nitidulum, Scutopus ventrolineatus |
| Chaetopleura apiculata | Chaetopleura apiculata, Hanleya sp., Lepidochitona cinerea, Acanthopleura hirtosa |
| Antalis entalis | Antalis entalis, Antalis vulgaris |
| Gadila tolmiei | Gadila tolmiei, Polyschides dalli |
| Euprymna scolopes | Euprymna scolopes, Idiosepius paradoxus, Loligo bleekeri, Loligo vulgaris, Doryteuthis pealeii |
| Aplysia californica | Aplysia californica, Aplysia kurodai |
| Plakobranchus ocellatus | Plakobranchus ocellatus, Elysia timida |
| Littorina littorea | Littorina littorea, Littorina saxatilis |
| Biomphalaria glabrata | Biomphalaria glabrata, Lymnaea stagnalis, Radix balthica |
| Haliotis asinina | Haliotis asinina, Haliotis diversicolor, Haliotis discus |
| Crassostrea gigas | Crassostrea gigas, Crassostrea virginica |
| Mizuhopecten yessoensis | Mizuhopecten yessoensis, Chlamys farreri, Pecten maximus, Argopecten irradians, Argopecten purpuratus |
| Pinctada margaritifera | Pinctada margaritifera, Pinctada maxima, Pinctada martensi, Pinctada fucata |
| Ruditapes philippinarum | Ruditapes philippinarum, Venerupis decussatus, Venerupis philippinarum |
| Mytilus galloprovincialis | Mytilus galloprovincialis, Mytilus californianus, Mytilus edulis, Mytilus coruscus, Bathymodiolus azoricus |
| **Contaminators** | Cryptosporidium muris | Cryptosporidium muris, Cryptosporidium parvum, Cryptosporidium hominis |
| Symbiodinium sp. kb8 | Symbiodinium sp. kb8, Symbiodinium sp. mf0105b01, Symbiodinium sp. C3 |
| Bigelowiella natans ccmp2755 | Bigelowiella natans ccmp2755, Bigelowiella natans |
| Guillardia theta ccmp2712 | Guillardia theta ccmp2712 |
| Giardia lamblia | Giardia lamblia, Giardia lamblia p15, Giardia intestinalis |
| Drosophila melanogaster | Drosophila melanogaster, Drosophila willistoni, Drosophila virilis |
| Schistosoma mansoni | Schistosoma mansoni, Schistosoma japonicum |
| Homo sapiens | Homo sapiens, Callithrix jacchus, Macaca mulatta, Pan troglodytes, Pongo abelii, Macaca fascicularis |