

Supporting Information

Newcomb et al. 10.1073/pnas.1201877109

Table S1. Abbreviated Nudipleura taxonomy with reference to swimming

Taxonomy	Swim type	Source
Nudibranchia		
Cladobranchia		
Aeolidida		
Aeolidioidea		
Aeolidiidae		
<i>Aeolidiella alba</i>	BS	1, 2
Glaucidae		
<i>Hermisenda crassicornis</i>	LR	5
Flabellinoidea		
Flabellinidae		
<i>Flabellina cynara</i>	BS	1, 7
<i>Flabellina iodinea</i>	LR	1, 8
<i>Flabellina telja</i>	LR	1, 7, 9
<i>Flabellina trophina</i>	NS	*
<i>Cumanotus beaumonti</i>	BS	11
<i>Cumanotus cuenoti</i>	BS	12
Arminoidea		
<i>Armina californica</i>	NS	*
Dendronotida [†]		
Bornellidae		
<i>Bornella Anguilla</i>	LU	13
<i>Bornella calcarata</i>	LR	14
<i>Bornella stellifer</i>	LR	1, 15, 16
Dendronotidae		
<i>Dendronotus albopunctatus</i>	LR	18
<i>Dendronotus albus</i>	LR	1, 19
<i>Dendronotus dalli</i>	LR	19
<i>Dendronotus diversicolor</i>	LR	19
<i>Dendronotus frondosus</i>	LR	1, 19
<i>Dendronotus iris</i>	LR	1, 7, 19, 27, 28
<i>Dendronotus nanus</i>	LR	1, 7, 18
<i>Dendronotus rufus</i>	LR	19
<i>Dendronotus subramosus</i>	LR	1, 19
Lomanotidae		
<i>Lomanotus genei</i>	LR	34, 35
Phylliroidea		
Phylliroë		
<i>Phylliroë atlantica</i>	LU	38
<i>Phylliroë bucephala</i>	LU	38
<i>Cephalopyge trematoides</i>	LU	38, 41
Scyllaeidae		
<i>Notobryon wardi</i>	LR	43
<i>Scyllaea pelagica</i>	LR	1, 2, 44
Tethydidae		
<i>Melibe bucephala</i>	LR	45
<i>Melibe engeli</i>	LR	46
<i>Melibe fimbriata</i>	LR	48
<i>Melibe japonica</i>	LR	16
<i>Melibe leonina</i>	LR	1, 52–54
<i>Melibe megaceras</i>	LR	55
<i>Melibe pilosa</i>	LR	1, 21, 33
<i>Tethys fimbria</i>	LR	1, 2
Dironidae		
<i>Dirona picta</i>	NS	*
<i>Dirona albolineata</i>	NS	*
Tritoniidae		
<i>Marionia blainvillea</i>	DV [‡]	56

Table S1. Cont.

Taxonomy	Swim type	Source
<i>Marionia tethydes</i>	DV [‡]	28
<i>Tritonia diomedea</i>	DV	57, 58
<i>Tritonia festiva</i>	DV	59
<i>Tritonia hombergii</i>	DV	60
Euctenidiacea		
Doridacea		
Doridoidea		
Dorididae		
<i>Aphelodoris antillensis</i>	DV	3
<i>Aphelodoris brunnea</i>	DV	4
<i>Aphelodoris gigas</i>	DV	6
<i>Aphelodoris karpa</i>	DV	6
<i>Aphelodoris varia</i>	NS	6
Discodorididae		
<i>Diaulula sandiegensis</i>	NS	*
<i>Discodoris evelinae</i>	DV	7, 10
<i>Discodoris pusae</i>	DV	10
<i>Sebadoris nubilosa</i>	DV/DU [§]	1, 7
Chromodoridae		
<i>Archidoris odhneri</i>	NS	*
<i>Archidoris montereyensis</i>	NS	*
<i>Hypselodoris picta</i>	NS	*
<i>Cadlina luteomarginata</i>	NS	*
Onchidoridoidea		
Goniodorididae		
<i>Trapania velox</i>	LR [¶]	1, 17
Polyceroidae		
Hexabranthidae		
<i>H. aureomarginatus</i>	DV/DU [§]	1, 20, 21
<i>Hexabranthus morsomus</i>	DV/DU [§]	22, 23
<i>Hexabranthus sanguineus</i>	DV/DU [§]	1, 22, 24–26
<i>Hexabranthus tinkeri</i>	DV/DU [§]	1, 21
Polyceridae		
<i>Nembrotha megalocera</i>	LR	29
<i>Plocamopherus ceylonicus</i>	LR	16, 30
<i>Plocamopherus imperialis</i>	LR	16, 31, 32
<i>Plocamopherus maculatus</i>	LR	33
<i>Plocamopherus maderae</i>	LR	36
<i>Plocamopherus tilesii</i>	LR	30, 37
<i>Tambja blackii</i>	LR	39
<i>Tambja eliora</i>	LR	1, 40
<i>Tambja morose</i>	LR	32
<i>Triopha fulgurans</i>	LR	1, 42
<i>Triopha catalinae</i>	NS	*
Pleurobranchomorpha		
Pleurobranchidae		
<i>Euselenops luniceps</i>	F	1, 47
<i>Pleurobranchaea californica</i>	DV	49, 50
<i>Pleurobranchus membranaceus</i>	AU	1, 51

This taxonomy is based upon that of Bouchet and Rocroi (61). AU, asymmetric undulation; BS, breast stroke; DU, dorsal-ventral undulation; DV, dorsal-ventral flexion; F, flapping; LR, left-right flexion; LU, left-right undulation; NS, nonswimmer.

*Tested with mechanical and salt stimuli in our laboratories.

[†]Paraphyletic group (62).

[‡]Farmer (1) reported that *Marionia* swim via left-right flexions and cited a German reference (28). However, a translation of this reference into English, by P. Katz, indicates that Haefelfinger and Kress reported dorsal-ventral flexions.

[§]Farmer (1) categorized swimming in *Sebadoris* and *Hexabranthus* as “flapping”. However, swimming in these species appears to include dorsal-ventral flexions of the body, in addition to undulations of the mantle.

[¶]Farmer (1) classified *Trapania velox* as a LR swimmer. However, see text for additional discussion.

^{||}Video observation.

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