

Table 1. Larval and embryonic morphology data matrix.

Taxon	Characters																																			
	1						2						3						4						5						6					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6						
hypothetical ancestor	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Arachnoides placenta</i>	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Asthenosoma ijimai</i>	2	2	1	1	2	0	2	1	1	2	0	2	1	1	2	0	2	1	1	1	2	0	2	1	1	1	2	0	2	1	1	1	2	0	2	1
<i>Brisaster latifrons</i>	1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0
<i>Clypeaster rosaceus</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dendraster excentricus</i>	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Echinus esculentus</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Encope michelini</i>	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Euclidaris tribuloides</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Glyptocidaris crenularis</i>	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Heliocidaris erythrogramma</i>	2	2	1	0	2	0	2	1	1	2	0	2	1	1	2	0	2	1	1	1	2	0	2	1	1	1	2	0	2	1	1	1	2	0	2	1
<i>Holopneustes purpureescens</i>	2	2	1	0	2	0	2	1	1	2	0	2	1	1	2	0	2	1	1	1	2	0	2	1	1	1	2	0	2	1	1	1	2	0	2	1
<i>Lytechinus variegatus</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Ophiopholis aculeata</i>	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Peronella japonica</i>	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Phyllacanthus imperialis</i>	2	2	1	1	0	1	2	1	1	2	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Phyllacanthus parvispinus</i>	2	2	1	1	2	0	2	1	1	2	0	2	1	1	2	0	2	1	1	1	2	0	2	1	1	1	2	0	2	1	1	1	2	0	2	1
<i>Spatangus purpureus</i>	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Strongylocentrotus purpuratus</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Temnopleurus hardwickii</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Tripluella gratilla</i>	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0