

When Does the Window Close?: The Onset of Allogeneic Fusion 2-3 Years Post-Settlement in the Scleractinian Coral, *Echinophyllia aspera*

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Scleractinian corals are known to have a well-developed self/nonself recognition system where self (isogenic) encounters result in tissue fusion, whereas nonself (allo- or xenogeneic) encounters result in various histoincompatible reactions (Rinkevich 2004). However, there is a window in ontogeny before the self/nonself recognition system fully functions, when allo- and xenogeneic juveniles fuse and form chimeras (Frank et al. 1997, Hidaka et al. 1997, Nozawa and Loya 2005). Previous studies reported that the window may close before 4 mo post-settlement (Frank et al. 1997, Nozawa and Loya 2005). So far, few instances of the onset of chimerism have been documented after that window in scleractinian corals.

However, we observed the onset of allogeneic fusion 1-2 (1 pair) and 2-3 yr (3 pairs) post-settlement in juveniles of *Echinophyllia aspera*, as a result of an encounter by lateral growth of adjacent juveniles (Fig. 1). Tissue fusion in the 4 pairs was confirmed histologically (Fig. 1B). Juveniles originating from gametes of 3 parental colonies have been monitored annually for 3 yr post-settlement in the field at Kochi, Japan. The pair that fused 1-2 yr post-settlement has maintained the fusion state for at least 1 yr. New evidence reported here suggests a much-slower maturation of the allorecognition system in scleractinian corals than previously suggested. Although the consequence, generality, and stability of the chimerism are largely unknown, the slow maturation may result in enhanced occurrence of chimeras in the field by increasing the number of encounters between adjacent juveniles. <http://zoolstud.sinica.edu.tw/Journals/50.3/396.pdf>

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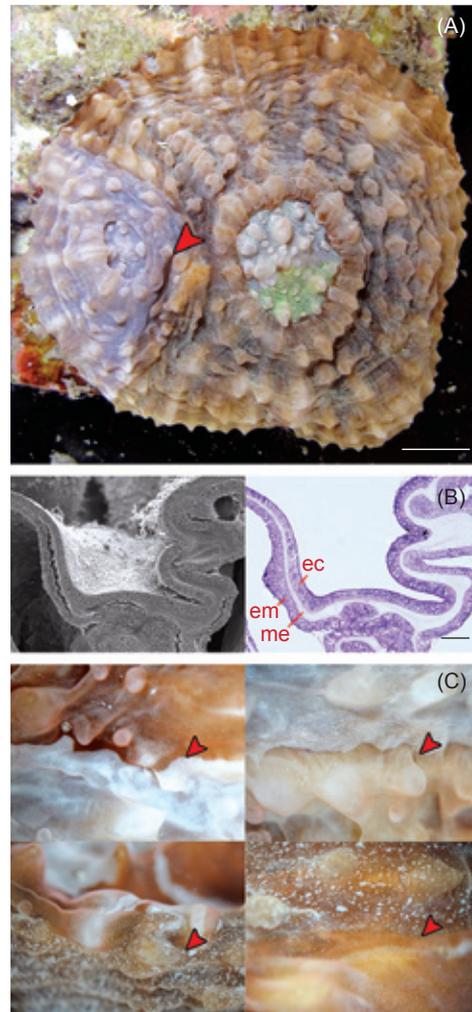


Fig. 1. (A) A fused allogeneic pair of 3-yr-old juveniles of *Echinophyllia aspera*. Scale bar = 5 mm. This pair has been fused since 1-2 yr post-settlement. (B) A pair of histological images of the resin section (right) (ec, ectoderm; en, endoderm; me, mesoglea) and scanning electron micrograph (left) of the fused tissue region indicated by an arrow in A. Scale bar = 100 μ m. (C) Close-up images of fused tissue regions in the 4 allogeneic pairs of 3-yr-old juveniles of *E. aspera*. Arrows indicate the boundary of contact.

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