Live autofluorescence in planulae of *Acropora tenuis*

Eiji FUJIWARA¹, Kanae MATSUSHIMA², and Masayuki HATTA^{2,*}

¹ Documentary Channel Co. Ltd., Tsurugaoka 851-1, Tsurugashima, Saitama 350-2204, Japan

² Graduate School of Humanities and Sciences, Ochanomizu University, Tokyo 112-8610, Japan

* Corresponding author: M. Hatta

E-mail: hatta.masayuki@ocha.ac.jp

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Planula larvae of acroporids reveal strong autofluorescence all over the body after treatment with aldehyde fixatives (Fig. 1A), but live planulae of *Acropora tenuis* show different autofluorescence. Green fluorescence by B-excitation revealed typical bipolar neurons with varicosities along axons (Fig. 1B), even though these neurons were only seen in small numbers of planulae, and only sparsely. In contrast, red fluorescence by G-excitation revealed numerous rod-like structures dotted in the ectodermal layer over the whole body (Fig. 1C–E) of all planulae so far observed (more than 30 individuals). These signals resemble the cell body of neurons visualized by immunohistochemistry targeting a neuropeptide

Fig. 1 Autofluorescence in *A. tenuis* planulae. **A** Fluorescence of a formalin-fixed planula. Upper left: green fluorescence by B-excitation. Lower right: red fluorescence by G-excitation. **B** A typical neuron detected by B-excitation in a live planula. Arrowheads indicate varicosities. **C–E** Red fluorescence by G-excitation in live planulae. **C** View from the aboral side. **D** A side view. **E** A side view in higher magnification. The ectodermal layer is indicated by a bracket. (Scale bars = 100 μ m)

(Hayward et al. 2001), although direct evidence is missing to identify the cell type of these red fluorescent signals. Roles of the fluorescence still remain in the dark since fluorescent signals are different in other species and also polymorphic (Kenkel et al. 2011). This report first detected clear neuron structures in planula of *Acropora*, and may shed light on the importance of live imaging of fluorescence in corals.

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