

Live confocal imaging of cytoplasmic structure and calcification processes in *Amphisorus kudakajimensis*

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Although complex processes of calcification processes have been reported in Foraminifera, details of the cellular events generating organic templates and causing calcification are still unknown. To better understand cellular mechanisms in foraminiferal calcification, it is important to observe the molecular dynamics in vivo (e.g., calcium ion, matrix proteins). Here we report confocal microscopic observations of cytoplasmic structures in a live cell of a *porcelaneous symbiotic foraminifer Amphisorus kudakajimensis* and discuss the application of calcium imaging combined with pharmacological manipulations to study intracellular calcium dynamics. In addition, we succeeded in observing the elevated pH (pH 9.0) in organic templates, and lowered pH (pH 6.0) around thread-like cells using a cell-impermeable fluorescent pH indicator (HPTS).

Keywords: calcification, calcium imaging, Live-cell imaging, confocal microscopy