



## Society for Integrative and Comparative Biology

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### Meeting Abstract

**P3.171** Tuesday, Jan. 6 **The patchy distribution of zooxanthellae in the gastrodermal landscape of symbiotic anemones** MERZ, R.A. \*; HUSSAIN, F.N.; STOCKBOWER, K.A.; TASHUK, F.O.; YARETT, I.R.; SANTOS, S.R.; XIANG, Y.; VALLEN, E.A.; Swarthmore College; Swarthmore College; Swarthmore College; Swarthmore College; Swarthmore College; Auburn University; Auburn University; Swarthmore College [rmerz1@swarthmore.edu](mailto:rmerz1@swarthmore.edu)

The intimate symbiotic association of cnidarians and intracellular photosynthetic dinoflagellates produces local sinks and sources of materials different from adjacent symbiont-free cells. Are these metabolically active symbionts evenly distributed in the gastrodermal tissue of tentacles? We examined the density of *Symbiodinium* clade B cells in the tentacles of wild sea anemones (putatively *Aiptasia* sp.) from Beaufort, N.C.. Using confocal microscopy to view the naturally fluorescing zooxanthellae in the tentacles of 30 animals, we examined the distribution of algal cells in three regions of each tentacle (adjacent to the oral disc, near the tip of the tentacle and midway between the two points). At each site we counted algal cells in replicate microquadrants within the gastrodermal layer (n=30 counts per tentacle). In more than half the tentacles from recently collected animals, there were significant differences in the density of algal cells in different regions of tentacles (densities from 0 to 30 algal cells per 160  $\mu^2$ ). This distribution was not predictable, the highest or lowest algal density could fall at any place along a tentacle. In addition two tentacles (selected at random) from the same animal were significantly different in their algal densities in about a third of the animals. Intra-tentacular regional differences were least common in the darkest animals and may therefore reflect something about the mechanism by which the host dynamically acquires, evicts or regulates cell division of algal cells.