diseased samples from the sea fans *Gorgonia ventalina* and *G. flabellum*. We present tissue sections in which amoebocytes stain positively with Luna's, Giemsa, and Phosphotungstic acid haematoxylin (PTAH) special stains. Additionally, the cytoplasm of amoebocytes is strongly immunoreactive to anti-lysozyme and weakly immunoreactive to anti-myeloperoxidase. These amoebocyte special staining and immunohistochemical properties most closely resemble those for granules found in mammalian eosinophils and neutrophils, respectively. Attempts to utilize anti-human complement C3 antibody and anti-human CD23 antibodies (Millectin) with epitope specificity to conserved regions of published Anthozoan cDNA sequence were unsuccessful. Histological tools such as these will contribute to an improved understanding of immune system function in marine species, facilitating correlations between disease and environmental perturbation.

16C Immune defenses of coral reef organisms
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Can sediment stress affect coral immunity?

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Diseases are increasingly affecting tropical corals worldwide, and are in part due to the influence of various environmental and anthropogenic factors including elevating sea surface temperatures and eutrophication. These factors have been shown to promote both coral disease prevalence and pathogen virulence. A recent study highlighted that land runoff and its associated effects such as increased particulate organic matter (POM) and lowered salinity, could also play a role in promoting coral disease. Sediments associated with terrestrial runoff and seabed sediment resuspension can affect scleractinian corals through several mechanisms including increases in POM, dissolved inorganic nutrients, sedimentation, and light reduction. Sediment deposits on corals have also been suggested to act as a reservoir of coral pathogens and can lead to coral tissue necrosis. Though sediments deposited on corals can generally be removed through mucus production and ciliary beating, such actions increase metabolic costs and could impact on the coral's immune potential and health, making it more susceptible to infections. In order to explore the effects of sediment deposition on coral health and immunity, 2 coral species were inoculated with marine sediments under controlled conditions. The effects of this inoculation were assayed through monitoring several coral health and immunity proxies including phenoloxidase activity, immune cell counts, and energy stores by measuring lipid content.

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Variability in antimicrobial chemical resistance to *Montipora* White Syndrome

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Corals possess a diversity of innate immune defenses against pathogenesis, and phenotypic or genotypic variability in these defenses is likely responsible for differential susceptibility to disease. Antimicrobial chemical defenses are one type of innate immunity expressed by corals, and variability in these innate chemical defenses has been demonstrated among species, populations, and individual colonies. We assessed variability in antibacterial chemical defenses in the Hawaiian coral *Montipora capitata*, which is susceptible to the tissue loss disease, *Montipora* White Syndrome (MWS). Antibacterial activity and chemical profiles from healthy and diseased tissues on colonies of *M. capitata* affected by MWS were compared with those from healthy neighboring colonies. Colonies of *M. capitata* exhibiting signs of MWS produced different levels of antibacterial chemical defenses than did healthy conspecific neighbors. Chemical fingerprints of *M. capitata* identified 2 compounds that differed in concentrations between healthy and diseased coral tissue. *Montipora capitata* occurs in 2 color morphs (red and orange) and orange colonies are significantly more susceptible to MWS than are red colonies from the same location. Extracts from the red color morph inhibited the growth of a greater diversity of bacteria than did the orange morph, and chemical profiles of the 2 color morphs also exhibited differences. Antibacterial chemical defenses may thus play a role in protecting *M. capitata* from disease. Differences in levels and types of antibacterial chemical defenses might enable particular colonies, populations or species to have an