

855 Secondary Metabolites From Marine Sponge Influence Intracellular Calcium Signals

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Despite decades of natural products isolation and structure elucidation, little is known about ecological functions of secondary metabolites from marine sponges. For example, previous studies have indicated that Caribbean reef sponges of the genus *Agelas* are chemically defended from fish predators by brominated pyrrole alkaloids (Assmann et al., 2000). Among other natural products in this series, 4,5-dibromopyrrole-2-carboxylic acid was unpalatable at natural concentrations to a common generalist reef fish, *Thalassoma bifasciatum*, in aquarium assays (Chanas et al., 1996). However, the physiological effects of bromopyrrole alkaloids to function as a feeding deterrent on a cellular basis are not yet understood. Therefore, we tested brominated pyrrole alkaloids for cell physiological effects in PC12 grown on collagen coated cover slips and in acutely isolated neurons from *Aplysia punctata*. Preliminary results indicate an interaction of 4,5-dibromopyrrole-2-carboxylic acid with cellular calcium signals. Calcium levels were measured using Fura II as a calcium indicator. When applied in high concentrations (300 μ m) 4,5-dibromopyrrole-2-carboxylic acid seem to reduce depolarization (high potassium) induced calcium elevations. In general, cellular calcium plays a crucial role in many processes as in cellular signaling and secretion. One mode of antifeedant activity of bromopyrrole alkaloids against reef fish may be an interaction with the cellular calcium levels of sensory cells.

- 1) Assmann M., Lichte E., Pawlik J. R., Köck M. (2000). Chemical defenses of Caribbean sponges *Agelas wiedenmayeri* and *Agelas conifera*. *Mar. Ecol. Prog. Ser.*, 207: 255-262.
- 2) Chanas B., Pawlik J. R., Lindel T., Fenical W. (1996). Chemical defense of the Caribbean sponge *Agelas clathrodes* (Schmidt). *J. Exp. Mar. Biol. Ecol.*, 208 (1-2): 185-196.

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