

## **Distribution and elimination of brevetoxin metabolites**

Tod Leighfield<sup>1,2</sup> and John Ramsdell<sup>1,2</sup>

<sup>1</sup> Marine Biomedicine and Environmental Sciences Center, Medical University of South Carolina, , Charleston, SC

<sup>2</sup> NOAA National Ocean Service, CCEHBR, Marine Biotoxins Program, Charleston, SC

Brevetoxins are potent neurotoxins produced by dinoflagellates during harmful algal blooms. Accumulation and metabolism of these toxins are risks to human health resulting from the consumption of contaminated shellfish and the inhalation of toxic aerosols. After exposure to brevetoxins, metabolic transformation results in the production of brevetoxin intermediates of varying potencies and concentrations. *In vivo* disposition studies of brevetoxin metabolites have been hampered by the lack of sufficient quantities of purified brevetoxin metabolites. Here we describe findings from an *in vivo* exposure study and measure brevetoxin metabolite distribution and elimination using radiolabeled analogues of three shellfish metabolites synthesized specifically for this study. Differences in the elimination rates and distribution of these metabolites suggest that observed differences in cellular toxicities of each metabolite may be augmented by the retention and distribution of the toxin in the body. This research will provide a better understanding into the adverse effects of exposure to brevetoxin and its metabolites in marine animals and humans.

This work is supported by NOAA/NOS