

# Sublethal doses of dinophysistoxin-1 and okadaic acid stimulate secretion of inflammatory factors on innate immune cells: Negative health consequences

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© 2016 Elsevier Ltd One of the proposed mechanisms to explain why Diarrhetic Shellfish Poison (DSP) toxins are tumor promoters is founded on the capacity of these toxins to increase TNF- $\alpha$  secretion. Although macrophages are the principal cells in the activation of the inflammatory response, the immune profile that Okadaic acid (OA) and Dinophysistoxin-1 (DTX-1) trigger in these cells has not been fully explored. We have therefore investigated the effect of various concentrations of both toxins on the activity of several inflammatory factors. Our results demonstrate that OA and DTX-1, at sublethal doses, stimulate secretion of inflammatory factors. Nevertheless DTX-1 was more potent than OA in increasing TNF- $\alpha$  and IL-6 as well as their dependent chemokines KC, MCP-1, LIX, MIP-1 $\alpha$ , MIP-1 $\beta$  and MIP-2. On the other hand, secretion of IFN- $\gamma$  and the anti-inflammatory cytokines, IL-4 and IL-10, was unaffected. In addition, DTX-1 also raises matrix metalloproteinase-9 (MMP-9) activity. In this