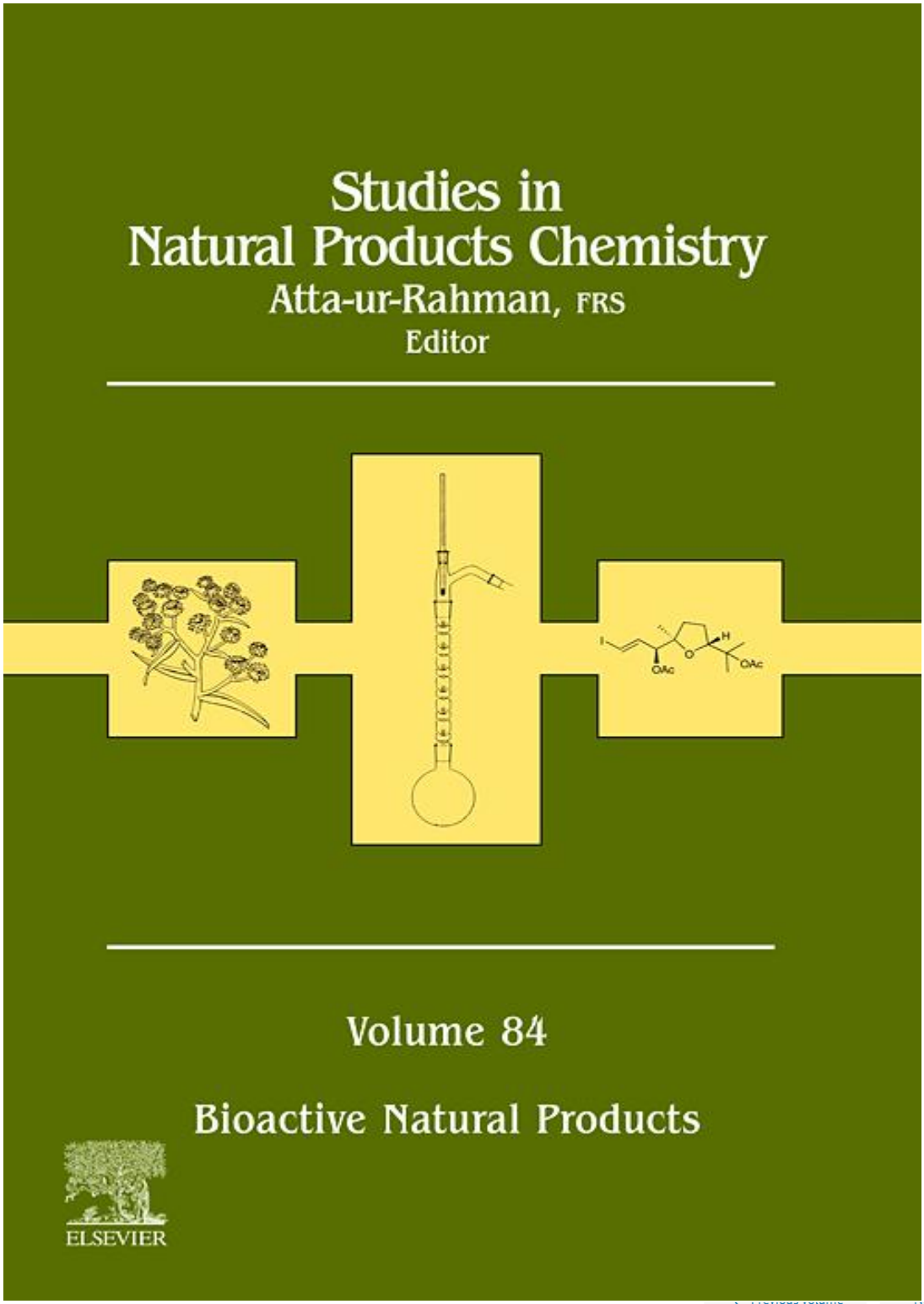

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Chapter 13 - Marine-Derived Natural Products Inhibiting Specific Inflammatory Cytokines

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Abstract

Inflammation is one of the earliest innate immune responses to tissue injury soluble mediators, including reactive oxygen and nitrogen species, chemokines, lipid mediators, and cytokines. Several cytokines play key roles in mediating acute inflammatory reactions—namely, interleukin-1 (IL-1), tumor necrosis factor-α (TNF-α), IL-6, IL-11, and IL-8. Therefore, inhibiting the expression and production of these powerful mediators using antiinflammatory components could represent a preventive or therapeutic target and may be used to develop antiinflammatory agents for health promotion and disease prevention. Current therapies to treat inflammatory diseases caused due to overproduction of IL-6 or TNF-α mainly include monoclonal antibodies such as tocilizumab (IL-6 antagonist), adalimumab, infliximab, certolizumab, and golimumab (all TNF antagonists). Small-molecule drugs that can regulate cytokine levels of activity might provide a cost-effective alternative to protein-based therapeutics. To date, most attention has been paid to marine ecosystems as a rich source of pharmacologically active substances from which drugs can be developed. In this regard, the chapter will cover marine natural products that are potential inhibitors of these specific inflammatory cytokines and give details on studies about the isolation and activities.