Abstract
Exposure to endotoxin, a component of gram-negative bacterial cell walls, is widespread in many industrial settings and in the ambient environment. Heavy-exposure environments include livestock farms, cotton textile facilities, and saw mills. In this article, we review epidemiologic, clinical trial, and experimental studies pertinent to the hypothesis that endotoxin prevents cancer. Since the 1970s, epidemiologic studies of cotton textile and other endotoxin-exposed occupational groups have consistently demonstrated reduced lung cancer risks. Experimental animal toxicology research and some limited therapeutic trials in cancer patients offer additional support for an anticarcinogenic potential. The underlying biological mechanisms of anticarcinogenesis are not entirely understood but are thought to involve the recruitment and activation of immune cells and proinflammatory mediators (e.g., tumor necrosis factor α; and interleukin-1 and -6). In view of the current state of knowledge, it would be premature to recommend endotoxin as a cancer-chemopreventive agent. However, further epidemiologic and experimental investigations that can clarify further dose-effect and exposure-timing relations could have substantial public health and basic biomedical benefits.

Keywords
Cancer, Carcinogenesis, Endotoxin, Epidemiology, Lipopolysaccharide, LPS, Lung cancer, Occupational epidemiology.