Endocrine Disruptive Effects of Inorganic Arsenicals

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Although inorganic arsenicals are toxic and carcinogenic in humans, inorganic arsenite has recently emerged as a highly effective chemotherapeutic agent for acute promyelocytic leukemia (APL). Recently, the number of arsenic-related publications has greatly increased, but the effects of arsenicals on the endocrine system have not been well studied. A number of in vivo studies about only inorganic-arsenical-induced endocrine-disruptor-like effects have been conducted using mouse models, and they demonstrated that inorganic arsenicals might act as an estrogen-like chemical in vivo and induce some tumors in mice. In most mammalian species, however, inorganic arsenicals are enzymatically methylated as a detoxifying metabolic response. Thus, studies of endocrine disruptive effects of methylated arsenicals are also needed for a clinical understanding of this attractive metalloid in the near future.

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