

**A low dose effect of environmental endocrine disruptors on female mouse thymus, with special reference to T cell apoptosis**

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The effect of environmental estrogens (EE) on the thymus tissues from castrated female mice was examined by molecular biologic, microscopic and flow cytometric techniques. Our findings were as follows: (a) using a monoclonal antibody to estrogen receptor-alpha (ER), ER level in the EE-treated animals was almost 1.5\_`3 times that oil-treated controls; (b) an electron microscopic observation indicated EE treatment to bring about apoptosis of thymocytes (T cell) which were embraced by thymic stromal cells; (c) flow cytometric analysis demonstrated EE to induce the change of T cell subsets: an increase in helper/inducer (CD4+ CD8\_) cells with decrease in the double positive (CD4+CD8+) cells.

It follows from the above findings that EE may cause morphologic changes in the thymus closely related to T cell differentiation. In addition, these changes appear to derive mainly from EE-induced tissue-specific gene expression. The results of the present study suggest that we must recognize the possibility that a low-dose EE can affect the various immune responses in the capacity of immune disruptors.

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