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## **Gestational exposure to cadmium alters crucial offspring rat brain enzyme activities: the role of cadmium-free lactation.**

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### **Abstract**

The present study aimed to shed more light on the effects of gestational (in utero) exposure to cadmium (Cd) on crucial brain enzyme activities of Wistar rat offspring, as well as to assess the potential protective/restorative role that a Cd-free lactation might have on these effects. In contrast to earlier findings of ours regarding the pattern of effects that adult-onset exposure to Cd has on brain AChE, Na(+),K(+)- and Mg(2+)-ATPase activities, as well as in contrast to similar experimental approaches implementing the sacrificing mode of anaesthesia, in utero exposure to Cd-chloride results in increased AChE and Na(+),K(+)-ATPase activities in the newborn rat brain homogenates that were ameliorated through a Cd-free lactation (as assessed in the brain of 21-day-old offspring). Mg(2+)-ATPase activity was not found to be significantly modified under the examined experimental conditions. These findings could provide the basis for a further evaluation of the herein discussed neurotoxic effects of in utero exposure to Cd, in a brain region-specific manner.

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### **KEYWORDS:**

Acetylcholinesterase; Brain; Cadmium; Mg(2+)-ATPase; Na(+),K(+)-ATPase; Neurotoxicity