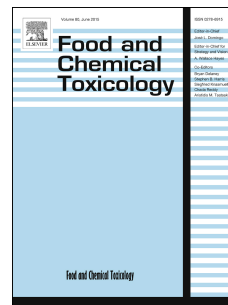


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Maternal cadmium exposure and impact on foetal gene expression through methylation changes

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## **Maternal cadmium exposure and impact on foetal gene expression through methylation changes**

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### **Abstract**

Cadmium (Cd) exposure is not easily avoidable; it is a common contaminant found in many food sources, accumulates throughout life and, in high doses, is a significant health hazard for humans. Women are highly vulnerable to Cd because of their relatively higher absorption rate than men. High levels of Cd accumulated in the mother could potentially cause harm to both the mother and new-born child. The foetal genome is vulnerable to external signals; Cd partially crosses the placental barrier and can impact on foetal development, potentially, through epigenetic mechanisms causing changes to foetal gene expression. This review explores current research on Cd induced methylation changes to maternal and foetal genomes. Cd is significantly associated with differential methylation of both maternal and foetal genomes. Some studies have described infant sex-specific changes in DNA methylation in association with maternal Cd burden. However, research on methylation changes to the foetal genome due to prenatal Cd exposure is scarce. More research is required to explore the impact of maternal Cd accumulation on differential methylation of the foetal genome.

**Key words:** - Cadmium, foetal, maternal, methylation, new-born, prenatal

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