

## **Behavior of a rare earth: lanthanum in the placenta of gestating rat.**

### **A Transmission Electron Microscopy Study**

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### **Abstract**

The placenta is a privileged organ wich has a storage function, during the first few months of pregnancy. Thus, it establishes an interface between maternal circulation and the fetus and it regulates the transport of gases, nutrients through the mother. It also acts as a filter reducing the passage of harmful substances, protecting the embryo and then the fetus from exposure to pollutants. In this work, we try to elucidate the effects of lanthanum (La), a rare earth element strongly electropositive and widely used in pharmacological as well as electronic industries, on placenta of Wistar gestating rats after its intraperitoneal administration. Using Transmission Electron Microscopy, the ultrastructural observations showed many electron-dense surcharges in the lysosomes of maternal connective tissus from maternal part of placenta as well as syncytiotrophoblast and cytotrophoblast from fetus side of placenta respectively. Moreover, some of them have lost their membrane. The intralysosomal deposits observed in those varieties of cells of lanthanum-treated rats are similar in their form and density to those observed with the same element in other varieties of cells, such as liver. Our findings also provided additional informations about the toxic effects of the administered element with the used doses. In fact, our ultrastructural studies attempting to locate subcellular lesions covered the cells of both side of the placenta. Vacuolations, expansion of the rough endoplasmic reticulum, mitochondrial sufferance were indeed highlighted. The ultrastructural study of control gestating rats showed a normal aspect of the ultrastructure of the organelles and no charged lysosomes in the two parts of placenta. Finally, the present study strongly suggests the transplacental passage wich may constitute a potential threat to fetus growth.

### **References**

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