

# Impact of Cadmium Exposure during Pregnancy on Hepatic Glucocorticoid Receptor Methylation and Expression in Rat Fetus

Castillo, Paula

Ibáñez, Freddy

Guajardo, Angélica

Llanos, Miguel N.

Ronco, Ana M.

Adverse fetal environment due to maternal undernutrition or exposure to environmental chemicals alters glucocorticoid (GC) metabolism increasing the risk of metabolic disorders in adulthood. In this study, we investigated the effects of maternal exposure to cadmium (Cd, 50 ppm) during pregnancy in the methylation of fetal hepatic glucocorticoid receptor promoter (GR) and the correlation with its expression and that of the DNA methyltransferases (DNMT1a and 3a). We also studied the expression of liver phosphoenolpyruvate carboxykinase (PEPCK) and acyl-CoA oxidase (AOX), two enzymes involved in the metabolism of carbohydrates and lipids respectively. The methylation of the rat GR gene exon 110 (GR110) in nucleotides -2536 to -2361 was analyzed by pyrosequencing. Quantitative real time PCR was used to assess hepatic GR, PEPCK and AOX mRNA, and their protein levels using Western blotting analysis. Differential methylation was noted across groups at all CpG sites in the GR exon 110 in a sex