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## mRNA and miRNA expression patterns associated to pathways linked to metal mixture health effects

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Metals are a major category of globally distributed pollutants that tend to accumulate in select tissues. Metal mixtures are a potential threat to human health by increasing disease risk. Recently, experimental data have linked altered miRNA expression with exposure to several metals, including As, Cd and Pb. Although, several human populations are exposed to low concentrations of As-Cd-Pb mixture, there are few data at respect to miRNA expression patterns. Thus, this study aims to evaluate global miRNA and mRNA expression changes induced by a metal mixture (NaAsO<sub>2</sub>, CdCl<sub>2</sub> and Pb(C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)•3H<sub>2</sub>O) to explore the role of miRNA-222 as a post-transcriptional regulator of *RAD51C*, a gene involved in homologous recombination of double-strand break DNA repair. Our results show that miRNA expression profile responsible for the mRNA expression changes induced by metal mixture exposure are involved in cellular processes, including DNA repair, cell death, growth and proliferation related to the metal-associated pathologies (cardiovascular diseases and cancer). On the other hand, we found that miR-222 directly negatively regulates *RAD51C* expression and impairs homologous recombination of double-strand break DNA repair, generating genetic instability that could be related with cell transformation.

## Biography

Rojas E has completed his PhD from UNAM, Mexico. He is a Full Professor in Biomedical Research Institute. He has published more than 75 papers in reputed journals that has been cited more than 4500 times, and had been serving as an Editorial Board Member of *Mutation Research Reviews* and *Mutation Research Genetic Toxicology and Environmental Mutagenesis*.

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