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Title: Incorporating Population-Level Genetic Variability within Laboratory Models in Toxicology:
From the Individual to the Population

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Abstract

Humans respond to chemical exposures differently due to many factors, such as previous and concurrent stressors, age, sex, and genetic background. The vast majority of laboratory-based toxicology studies, however, have not considered the impact of population-level variability within dose-response relationships. The lack of data dealing with the influence of genetic diversity on the response to chemical exposure provides a difficult challenge for risk assessment as individuals within the population will display a wide-range of responses following toxicant challenge. Notably, the genetic background of individuals plays a major role in the variability seen in a population-level response to a drug or chemical and, thus, there is growing interest in including genetic diversity into laboratory-models. Here we outline several laboratory-based

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