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EDITORIAL

Human exposure science: a field of growing importance

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In January of this year, we changed the name of our journal to include the term ''exposure science'' to represent our broadened scope which was intended to cover all aspects of human exposure science. This name change reflected our belief that the term ''exposure analysis'' did not adequately encompass all areas of exposure science that were of importance in the 21st century or the high-quality research that is conducted by our readership. Simply put and as defined by the *Journal*, **human exposure science** studies *human contact with chemical, physical or biological agents occurring in their environments, and advances knowledge of the mechanisms and dynamics of events either causing or preventing adverse health outcomes*.

Human exposure science is a critical component of the risk assessment process and is essential for establishing solid links in the environmental source-to-health outcome continuum. I had the privilege of attending the National Academies Institute of Medicine (IOM) Roundtable on Environmental Health Sciences, Research and Medicine held in Washington, DC in September. It was rewarding hearing the leaders in environmental health extol the virtues of human exposure science, which has been evolving since the ''white book'' was published on exposure by the National Research Council in 1991. In particular, it was refreshing to hear their viewpoints on future areas of development needed in the field. In order to address ''real world'' issues such as complex chemical mixture exposures, innovative tools to inform human exposure science are necessary. These tools include the development and application of innovative biomarkers of exposure or early effects, advancing ''omics'' technologies, and the use of computational toxicology and systems biology. Most speakers conveyed that it was imperative to have solid partnerships among environmental health professionals from all sectors to meet the future challenges of exposure science.

Dr David Schwartz, Director of the National Institutes of Health (NIH), National Institute of Environmental Health Sciences (NIEHS) and National Toxicology Program, spoke at the Roundtable about the role of NIH's Gene-Environment Initiative (GEI) in human exposure science. We are fortunate to have a guest editorial from Dr Schwartz, in this issue, focusing on the GEI and also on interactions between the environment and epigenome. Dr Schwartz outlines a broad spending plan of the GEI which includes $14 million per year for 5 years for the development of new exposure assessment tools. The importance of human exposure science is highlighted in this editorial. Furthermore, human exposure science has been highlighted in numerous meetings such as the IOM Roundtable. In some instances, the science has outgrown our ability to interpret the results we obtain with traditional analysis tools. This opens up new areas of research that allow us to parse through existing data and extract the most meaningful and useful elements. Clearly, we have just seen the tip of the iceberg in human exposure science. It is a broad-based field growing in both number and importance. I hope that we can continue to grow the field and evolve with the science and that our papers reflect the highest quality research in the years ahead.

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Editor-in-Chief