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Perspective of *Dose-Response*: New Chapter With New "Exposome" and "-omics"

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Abstract

This is an editorial from the new editor-in-chief, EIC, who starts his role in March 2024. Due to the remarkable advance of various research fields in terms of its concepts and technology, the emerging concepts of "Exposome" and associated "Exposomics" have been introduced into the toxicology research. Therefore, the mission of *"Dose-Response"* will remain adhered to the original goals but will incorporate with these new concepts as the next chapter's principle and strategies. Accordingly, although it remains with special interest in the biological response to low-dose (level) ranges of stresses. The types and contents of interested manuscripts will be extended with more diverse, newer concepts from a wide range of disciplines. We wish this journal can open a door for various discipline scientists and researchers to share their state-of-the-art discoveries to shed new insight to understand the impact of environmental and toxicological medicine and develop more specific and effective intervention strategies.

Keywords

dose-effect, dose-dependent response, linear relationship, non-linear relationship, exposome, exposomics

Editorial

It is an honor for me to be appointed as the new EIC for the journal "*Dose-Response"* (Formerly Nonlinearity in Biology, Toxicology and Medicine) because I have been its royal fan and served as one of its editorial board members since 2003 under the leadership of Dr. Edward J. Calabrese, the previous EIC.[1] Dr. Calabrese has established a solid fundamental base for this journal to grow and attract many excellent scientists, toxicologists, and physicians who have made great contribution to the field and strong advocacy to the big readership. Therefore, I would like to express my great appreciation first to him since he brought me into this journal and this friendly and dedicated community, composed of many authors and readers.

What does dose-response research do? Apparently, it should study the relationship between the amount of exposure and the responses of microbiology and biology individuals. In terms of exposure, a new concept has been emerged after successfully mapping the human genome, the "exposome" that has been extensively adopted by CDC and NIEHS now. The exposome means the measure of all the exposures of an individual in a lifetime and exposures related to health impact.[2,3] Now, when we talk about exposure, we should consider an individual's exposure stage of life before and/or after birth, which includes not only from environmental and occupational sources but also from our diet, lifestyle, etc. Therefore, how the interact of these comprehensive external insults with our own unique characteristics such as genetics, physiology, and epigenetics impact our health is what the exposome will be articulated.[2,3] Meanwhile, the new term "Exposomics" refers to the study of the exposome with both internal and external exposure assessment methods.[4,5] The former is based on the study such as genomics, metabonomics,

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lipidomics, transcriptomics, and proteomics since these fields share 3 commonalities (1) to use biomarkers to determine exposure, effect of exposure, disease progression, and susceptibility factors; (2) to use technologies that result in large amounts of data; and (3) to use data mining techniques to find statistical associations between exposures, effect of exposures, and other factors such as genetics with disease.[4,5] In contrast, the latter is based on measuring environmental insults.

Considering the previous name of the journal, "Nonlinearity in Biology, Toxicology and Medicine" and these new concepts, the new chapter of this journal "*Dose-Response"* will still adhere to the original goals by incorporating with these new concepts as the next chapter's principle and strategies. This journal will publish high quality, original findings, clinical observation or report, epidemiological analysis, comprehensive or narrative review, letter to the Editor, and editorial specifically for the original work accompanied by the same issue, on the occurrence of dose–response relationships across a broad range of disciplines.[1] These will include the dose–response investigation in the genomics, epigenetics, biochemistry, molecular biology, physiology and toxicology, pharmacology, medicine, experimental biology, as well as environmental and related sciences, for the responses of these biological variables to environmental chemical, factors, radiation, climate changes (heat, air pollution, and geographic variation), lifestyle change, and even biological stress, and the underlying mechanisms by which nonlinear dose–response occurs. The specific topics are provided in the author guidance.

Finally, we wish this journal can open a door for various discipline scientists and researchers to share their state-of-the-art discoveries to shed new insight to understand the impact of environmental and toxicological medicine and develop more specific and effective intervention strategies.

Declaration of Conflicting Interests

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