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Fundamental Importance of Ionic Interactions in the Liquid Phase: A Review of Recent Studies of Ionic Liquids in Biomedical and Pharmaceutical Applications

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Abstract

In recent years, research on ions and ionic interactions in solution has become a leading scientific direction, and this advance has been especially pronounced in the field of ionic liquids, particularly coupled with the studies on their toxicity and biological activity. The focus of these studies has clearly shifted from environmental dangers to feasible applications of these unique substances in biotechnology and pharmacy. In this review, we address the rapidly developing area of ionic liquid-related research and discuss the most recent studies to emphasize the state-of-the-art tendencies. Fundamental research on ionic species in the liquid phase drives new conceptual development of ionic drugs and pharmaceutical substances. Mechanistic knowledge on ionic interactions in aqueous media stimulates the appearance of innovative projects in medicine and biochemistry.

Keywords: ionic liquids, ionic interactions, biological activity, toxicity, drug development

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