Special Issue

Phosphorus-Based Compounds in Medicinal and Agricultural Chemistry

Message from the Guest Editor

Phosphorus-based compounds have emerged as a significant class of therapeutic agents in medicinal chemistry, owing to their unique structural and functional attributes. These compounds can be categorized into various classes, including phosphotriesters, phosphonates, phosphinates, phosphine oxides, phosphoric amides, bisphosphonates, and phosphoric anhydrides. Phosphonates and phosphinates are often utilized as stable analogs of phosphate groups, enhancing the metabolic stability of drug candidates. Similarly, α-aminophosphonates and α-aminophosphinates have demonstrated remarkable potential as inhibitors of enzymes like aminopeptidases and proteases. Their structural resemblance to natural amino acids allows them to interfere with enzymatic pathways, offering therapeutic avenues for managing diseases such as hypertension and cancer. The issue aims to explore the latest advancements in the design, synthesis, and application of these compounds. It will highlight their role in developing novel therapeutics, emphasizing structure-activity relationships, biological evaluations, and potential clinical applications.

Guest Editor

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As the premier open access journal dedicated to molecular chemistry, now in its 30th year of publication, the papers published in *Molecules* span from classical synthetic methodology to natural product isolation and characterization, as well as physicochemical studies and the applications of these molecules as pharmaceuticals, catalysts, and novel materials. Pushing the boundaries of the discipline, we invite papers on all major fields of molecular chemistry and multidisciplinary topics bridging chemistry with biology, physics, and materials science, as well as timely reviews and topical issues on cutting-edge fields in all of these areas.

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