

Special Issue

Nanomaterial Complexes Used in Cancer Therapies: Opportunities and Challenges

Message from the Guest Editor

Conventional cancer therapeutics have limited effectiveness and low selectivity due to their poor solubility, inadequate biodistribution, low stability, and high toxicity. The most promising path to overcoming these limitations is through the use of smart nanomaterials. In recent years, quantum dots, metallic nanoparticles, liposomes, dendrimers, micelles, and polymeric nanoparticles have been used to engineer the composition, synthesis methods, size, morphology, and surface chemistry of therapeutic drugs. However, some limitations, including toxicity, the uniform size/shape of nanomaterials, and limited biocompatibility with specific cell membranes, need to be resolved. Today, studies mainly use universal nanoparticles that are able to incorporate drugs and genes simultaneously or separately and allow their release spatially or temporally. Overall, stimuli-responsive smart nanomaterials hold great potential for improving the efficacy of cancer diagnosis and therapy, and new strategies should be developed to address the challenges in designing precise nanomedicines.

Guest Editor

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Editor-in-Chief

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