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Inhibition of DNA Repair Enzymes as a Valuable Pharmaceutical Approach

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Message from the Guest Editors

The cytotoxic effect of chemotherapy and radiotherapy of cancer is associated with their capacity to generate DNA damage. The ability of cancer cells to recognize DNA damage and initiate DNA repair is a key mechanism for therapeutic resistance to chemotherapy. Therefore, the targeting of DNA repair enzymes can be used as a strategy to potentiate the cytotoxicity of the currently available DNA damaging agents toward cancer cells. Inhibitors of PARP1 (poly ADP ribose polymerase 1, the enzyme involved in DNA repair) such as olaparib, rucaparib, and niraparib are in clinical use already. Thus, the search and study of therapeutic targets among DNA repair enzymes and factors, as well as development of new inhibitors of DNA repair enzymes, is an important and topical task. Medicinal chemists, bioorganic chemists, physical chemists, biologists, and pharmacologists contribute significantly to these multidisciplinary studies. A Special Issue of the International Journal of Molecular Sciences provides a great opportunity for a thorough discussion of the state of the art in this area.

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Message from the Editor-in-Chief

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