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Deciphering How Alterations in DNA Repair Pathways Perturb Cancer Immune Microenvironment

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Message from the Guest Editors

Immunotherapy is now another effective arrow in the medical oncologist's bow. The chimeric-antigen receptor (CAR) strategy against specific tumoral epitopes (e.g., CD19) guarantees a prolonged response in hematological malignancy; another immunotherapeutic approach, the immune checkpoint blockade (ICB), has shown remarkable responses in melanoma, lung cancer, and mismatch repair (MMR)-deficient tumors, although only a limited fraction of patients respond to ICB treatments. Defects in the MMR machinery are the origin of genetic alterations, such as single nucleotide variants and small or large DNA deletions, which can be monitored by next-generation sequencing (NGS) and current computational methods.

This Special Issue aims to build a more solid bridge among DNA repair alterations, cancer immune responses, and immune therapies through biochemical and bioinformatics approaches. To this end, the characterization of the molecular mechanisms behind the favorable outcomes of immunotherapy-treated patients and DNA repair defects might be relevant for identifying the biomarkers of response and novel therapeutic strategies.

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Message from the Editorial Board

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