

Special Issue

Recent Advances in Non-Canonical Nucleic Acid Structures

Message from the Guest Editors

In the current far more dynamic view, the cellular functions of both DNA and RNA rely not only on their sequences but also, and above all, on their tertiary structures, which are diverse (two-, three-, four-stranded architectures), dynamic (moulded by chaperone proteins, unfolded by resolving enzymes), and involved in intricate cellular regulation networks (with a remarkably broad spectrum of biological processes, from gene expression to genome maintenance). In this Special Issue, we wish to provide a snapshot of the current state of the field, focusing on the structural characterization of DNA, RNA, and DNA/RNA non-canonical structures (e.g., G-quadruplexes, i-motifs, three-way DNA junctions), novel methodologies to assess their existence and functional relevance in human cells (e.g., next generation sequencing, optical detection methods), as well as the strategies implemented to gain control over the key cellular events controlled by the non-canonical nucleic acid structures using ever more accurate and versatile molecular tools.

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