Preface

This book evolved from a symposium held at the Joint Southeast Southwest Regional meeting of the American Chemical Society in December, 2010 in New Orleans, LA. The symposium, hosted by the Division of Biological Chemistry, focused on the latest cutting edge research in nucleic acids. Although "Frontiers in Nucleic Acids" has always been a symposium at SERMACS meeting and at the five year joint meetings of the southwest and southeast regions, this represents the first time that the proceedings of the symposium have been published.

The first four chapters of the book focus on the conformational properties of DNA quadruplexes: Prof. David uses SPR to monitor the inhibition of helicase activity on a DNA quadruplex; a facile fluorescence based assay for quadruplex DNA cleavage is presented in the next chapter by Prof. Kerwin; the structure, stability and ligand binding properties of DNA quadruplexes found in promoter regions of some oncogenes is discussed by Prof. Lewis; and the fourth chapter examines the influence of sequence context on the structure of DNA quadruplexes as presented by Prof. Sheardy. The next chapter, by Prof. Bishop, is an interesting computational tour de force examining nucleosomal DNA. Prof. Marky discusses the thermodynamics of unfolding DNA hairpins. Chapter 7, by Prof. Wartell, also considers thermodynamics but now for the interactions of Hfq with RNA. The final three chapters deal with ligand-DNA interactions: Prof. Williams examines the interactions of proteins with the grooves of DNA; the irreversible binding of aflatoxin to DNA is examined by Prof. Stone; and the final chapter focuses on the interactions of restriction nucleases with various DNAs as presented by Prof. Winkle.

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