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## Preface

A gap of 40 years separates the first identification of telomeres and the discovery of the telomerase. Our knowledge of the telomerase and how telomeres are maintained, however, has undergone exponential growth since then. The telomeres are coming into sharper focus as we look deeper and wider at how telomere maintenance is critically linked to cell growth, proliferation, aging, and diseases such as cancer. For example, in the majority of human cancers, normal telomere maintenance is often bypassed. And in many human cell types, telomere erosion is thought to limit the proliferative capacity of transformed cells. This book has come at an exciting time when the 2009 Nobel Prize in Physiology or Medicine was just awarded to Drs. Elizabeth H. Blackburn, Carol W. Greider, and Jack W. Szostak for their pioneer work on telomeres and telomerase.

New and rapid advances in technology have equipped us with a variety of tools and platforms to ask fundamental questions of telomere regulation and have allowed investigators to carry out experiments using diverse model systems. For example, proteomic, genomic, and molecular approaches have afforded us unprecedented insight into the complex protein interaction networks at work on the telomere chromatin and the detailed information regarding telomere dynamics in response to stress or stimuli.

While the first volume of *Telomeres and Telomerase: Methods and Protocols* (MiMB Vol. 191) focused mostly on telomerase assays, this volume expands the scope to encompass many different assays that allow investigators to query the function of telomere proteins and the responses of the telomere DNA. Biochemical, molecular, and proteomic approaches are detailed so that investigators may easily follow these protocols. It is our belief that this work will prove useful and informative.

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