
Preface

TEN YEARS AGO, ELIZABETH BLACKBURN and Carol Greider assembled the first monograph on telomeres. In an era focused on gene expression, telomeres were beginning to attract wider attention, largely because of the emerging link between telomerase and cancer. The first edition lent gravitas to this young field, so small at that time that the majority of its members were contributors to the monograph. As telomeres became the focus of interest for an increasing number of investigators, the first edition served as a unique and valuable compendium.

Over the past decade, the field has advanced rapidly. Whereas there were 2,553 publications on telomeres and telomerase by the end of 1995, PubMed informs us that this number is 13,378 today. The telomerase reverse transcriptase, TERT, was cloned and shown to immortalize human cells. The complex role of telomere dynamics in human cancer became clear, in great part because of modeling in the mouse. Mutations leading to diminished telomerase activity were found in patients with progressive bone marrow failure. The t-loop structure of mammalian telomeres was revealed. The mechanism by which telomerase is recruited to chromosome ends emerged in fine detail in budding yeast, and the principles of telomere length homeostasis became known in broad strokes in several settings. New telomeric proteins were identified in yeast, plants, and mammals, and the consequences of telomere dysfunction were established in many systems.

It was obvious to us that simple revision of the first edition was not the right strategy for the current version. The second edition is a completely new compilation of essays with no relationship to the structure of the previous edition other than a focus on telomeres. Thankfully, the fivefold expansion of the literature is not directly reflected in the number of pages of this volume, but the body of knowledge is significantly larger now and so is this book. This edition features a historical treatise, followed by ten chapters on the general attributes of telomeres and telomerase and

aspects of telomere biology related to human health. The last six chapters describe telomere biology in the best-studied systems (budding yeast, mammals, *Drosophila*, ciliates, plants, and fission yeast) to highlight both the common themes and the vast differences in telomere biology in different eukaryotes. By necessity, we had to omit several important issues that did not (yet) merit their own chapters but will, we hope, be featured in the third edition.

This collection of essays was brought together through the efforts of the contributing authors, some of whom worked under considerable duress. We thank the authors who delivered on time for doing so and those who were late for working fast after deadlines had passed. The crew at Cold Spring Harbor Laboratory Press, including Kathleen Bubbeo, Inez Sialiano, and Danny deBruin, was instrumental in converting our drafts into coherent texts. This monograph was initiated by Alex Gann, who functioned as navigator and commander, making us stay the course, and moving several (small) mountains.

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