

Preface

A HISTORIC MEETING ON RESTRICTION ENZYMES at Cold Spring Harbor Laboratory (CSHL) in 2013 was the impetus for this book. But who could have predicted back in 1953—when the first review on restriction enzymes appeared (Luria 1953) and the structure of DNA was published (Watson and Crick 1953)—that this baby girl would be born (Leiden, The Netherlands) and grow up to become a science writer? Imagine my delight to have been asked by Rich Roberts, who founded the REBASE website, to chronicle the history of these enzymes that revolutionized molecular science.

In many respects, 2018 is a memorable year: Sixty years ago Matt Meselson and Frank Stahl provided the first experimental proof for the semiconservative nature of DNA replication (Meselson and Stahl 1958); 50 years ago Matt Meselson and Bob Yuan published their classic paper on EcoKI (Meselson and Yuan 1968), the restriction enzyme of the workhorse of molecular biology, *E. coli* K12; and 40 years ago Werner Arber, Ham Smith, and Dan Nathans were awarded the Nobel Prize in Physiology or Medicine for their discovery of restriction enzymes. That same year, I went to Leicester for a PhD and succeeded, thanks to the efforts of Bill Brammar; and 30 years ago I started my investigation into the role of CD27 in lymphocyte development, making good use of my extensive knowledge of DNA cloning. Lack of funding, however, led me to return to the restriction enzyme field, which resulted in the Survey and Summary in *Nucleic Acids Research* that celebrated 50 years of research on EcoKI in 2003; this review was made possible with the extensive help of Noreen Murray and David Dryden.

This book is divided into chapters covering periods of roughly a decade, using the 2013 meeting and early reviews (about 60 years apart) as ending and starting points, the comprehensive *Restriction Endonucleases* (edited by Alfred Pingoud in 2004), and more recent reviews by experts who studied or study different aspects of restriction enzymes, including genetics, DNA cloning, biochemistry, biophysics, microscopy, X-ray crystallography, and nanotechnology.

The 2013 meeting that started this book was sponsored by Life Technologies (<http://www.lifetechnologies.com/>); New England Biolabs (<http://www.neb.com/>); ThermoFisher Scientific (<http://www.thermofisher.com/>); Promega (<http://worldwide.promega.com/>); Genentech (<http://www.gene.com/>); TAKARA/Clontech (<http://www.clontech.com/>); Nippon (<http://nippon.gene.com/>); and Molecular Biology Resources (<http://molbiores.com/>). This book was funded by the Genentech Center for the History of Molecular Biology and Biotechnology (GCHMBB).

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