# Contents

**Preface** .......................................................... v  
**Contributors** .................................................... ix  

1. Functions of Single-Strand DNA-Binding Proteins in DNA Replication, Recombination, and Repair ................................. 1  
   *Aimee H. Marceau*  

2. Structural Diversity Based on Variability in Quaternary Association.  
   A Case Study Involving Eubacterial and Related SSBs .................. 23  
   *S.M. Arif and M. Vijayan*  

3. SSB Binding to ssDNA Using Isothermal Titration Calorimetry .......... 37  
   *Alexander G. Kozlov and Timothy M. Lohman*  

4. SSB–DNA Binding Monitored by Fluorescence Intensity and Anisotropy ...... 55  
   *Alexander G. Kozlov, Roberto Galletto, and Timothy M. Lohman*  

5. Single-Molecule Analysis of SSB Dynamics on Single-Stranded DNA .......... 85  
   *Ruobo Zhou and Taekjip Ha*  

6. Sample Preparation Methods to Analyze DNA-Induced Structural Changes in Replication Protein A ..................................... 101  
   *Chris A. Brosey, Susan E. Tsutakawa, and Walter J. Chazin*  

7. Structural Studies of SSB Interaction with RecO .......................... 123  
   *Mikhail Ryzhikov and Sergey Korolev*  

8. Investigation of Protein–Protein Interactions of Single-Stranded DNA-Binding Proteins by Analytical Ultracentrifugation ................. 133  
   *Natalie Naue and Ute Curth*  

9. Ammonium Sulfate Co-precipitation of SSB and Interacting Proteins ........ 151  
   *Aimee H. Marceau*  

10. Analyzing Interactions Between SSB and Proteins by the Use of Fluorescence Anisotropy ....................................... 155  
    *Duo Lu*  

11. Far Western Blotting as a Rapid and Efficient Method for Detecting Interactions Between DNA Replication and DNA Repair Proteins ............. 161  
    *Brian W. Walsh, Justin S. Lenhart, Jeremy W. Schroeder, and Lyle A. Simmons*  

12. Methods for Analysis of SSB–Protein Interactions by SPR ................ 169  
    *Asher N. Page and Nicholas P. George*  

13. Use of Native Gels to Measure Protein Binding to SSB .................... 175  
    *Jin Inoue and Tsutomu Mikawa*
14 Identification of Small Molecules That Disrupt SSB–Protein Interactions
Using a High-Throughput Screen ........................................ 183
Douglas A. Bernstein

15 Detection of Posttranslational Modifications of Replication Protein A ........ 193
Cathy S. Hass, Ran Chen, and Marc S. Wold

16 Detecting Posttranslational Modifications of Bacterial SSB Proteins .......... 205
Dusica Vujaklija and Boris Macek

17 Fluorescent SSB as a Reagentless Biosensor for Single-Stranded DNA ........ 219
Katy Hedgethorne and Martin R. Webb

18 Fluorescent Single-Stranded DNA-Binding Proteins Enable In Vitro
and In Vivo Studies. .................................................... 235
Piero R. Bianco, Adam J. Stanenas, Juan Liu, and Christopher S. Cohan

19 Use of Fluorescently Tagged SSB Proteins in In Vivo Localization
Experiments ........................................................... 245
Rodrigo Reyes-Lamothe

Index ........................................................................... 255
Single-Stranded DNA Binding Proteins
Methods and Protocols
Keck, J.L. (Ed.)
2012, X, 259 p., Hardcover
ISBN: 978-1-62703-031-1
A product of Humana Press