PREFACE

Proteins interact with one another and with other biological macromolecules such as nucleic acids (DNA and RNA) and lipids. These interactions form a functional network that mediates signaling and metabolic pathways in individual cells, tissues, and organisms. While nucleic acids are primarily involved in coding and transcription of genetic information, proteins play a central role in biological function controlling the mechanisms that keep organisms in a healthy state. However, due to mutations/polymorphisms in proteins or imbalance in their expression, organisms develop metabolic and signaling dysfunction that leads to a state of disease. Thus, the molecular basis of diseases can be elucidated by in-depth study of protein interaction networks. The knowledge about the functioning of these interaction networks can lead to the design of new methods for diagnosis, prevention, and treatment of diseases that would lack or have minimal adverse effects.

This volume of the *Advances in Protein Chemistry and Structural Biology* is dedicated to protein–protein interactions in human disease. This thematic volume describes multidisciplinary approaches in applying cutting-edge techniques in detection and analysis of protein–protein interactions. The application of these techniques in identifying molecular mechanisms underlying different human diseases and disorders as well as in the design of new therapeutic strategies targeting these mechanisms is described in depth. Hence, we hope that articles in this volume would inspire new ideas in researchers and specialists from a wide number of fields such as protein chemists, pharmacologists, medical doctors, cell biologists, biomedical researchers, immunologists, structural biologists, computational biochemists, and other researchers working in this exciting field. This volume is also intended as a scholarly material for use by students with interest in the above topics.

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