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## Preface

This edition of *Peroxisomes: Methods and Protocols* assembles a volume of easily accessible protocols particularly useful for those already working on peroxisomes (and other membrane-bound organelles) as well as for those who would like to start working on this fascinating organelle. Due to their growing importance in health and development, there is increasing interest in the study of peroxisomes. Furthermore, peroxisomes combine properties which render them suitable model organelles to study diverse molecular processes in eukaryotic cells.

This edition assembles a comprehensive collection of methods, techniques and strategies to investigate the molecular and cellular biology of peroxisomes in different organisms. It aims to provide valuable instructions, guidelines and protocols for molecular cell biologists, biochemists and biomedical researchers with an interest in peroxisome biology.

Protocols addressing peroxisomes in humans, yeast, fungi and plants are covered. Chapters illustrating the isolation of peroxisomes, investigation of properties of membrane proteins, biochemical assays to measure peroxisome metabolic function or protocols to investigate and manipulate peroxisomes in cellular systems have been included. Other chapters address the detection of peroxisomes, including immunofluorescence, cytochemistry, cryo-immuno-electron microscopy and live cell imaging approaches. More specialised chapters deal with peroxisomal redox measurements, determination of pH, peroxisome biogenesis, import of peroxisomal proteins, protein modification or pexophagy, to name a few. Finally, the clinical and laboratory diagnosis of peroxisomal disorders and the use of patient fibroblasts are addressed.

I would like to express my sincerest appreciation to all of the authors who contributed chapters to this volume. They were a pleasure to work with, providing state-of-the-art protocols (and one review) in a timely fashion, while cheerfully responding to all of my queries. I would also like to thank Professor John Walker, editor of the *Methods in Molecular Biology* series, for his invaluable advice and input in all aspects of the formulation of this book.

This is truly an exciting time to be involved in peroxisome research, as vital functions of this dynamic organelle in humans, plants and fungi are being discovered. I hope you will get excited about peroxisome biology, that you will take advantage of the methods, techniques and strategies provided and that this volume of protocols will serve you well to tackle peroxisome- and organelle-based research questions.

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Peroxisomes

Methods and Protocols

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