Preface

Since its early beginnings, microscopy has been instrumental in enhancing our knowledge of biological systems. Indeed, biological discovery has depended on advances in imaging techniques to a large extent, and today, various microscopic techniques have emerged as indispensable tools in the biomedical sciences.

Within the last two decades, several revolutionary advances in microscopic methodology has had an enormous impact on our understanding of biological systems, organisation and dynamics. These advances include novel methods of sample preparation, enabling, e.g., the visualisation of sub cellular structures in their native state; novel methods of visualisation that have allowed the dynamics of biological systems to be followed *in vivo*; and several novel types of microscopy such as confocal laser microscopy, atomic force microscopy, microCT and X-ray microscopy have emerged from the experimental stage to mature techniques that are available to the biomedical community around the world. Today, the field is as strong as ever, and more powerful methods of visualisation and analysis of biological systems continue to evolve.

This book covers the major microscopic methods used in modern biomedical sciences and shows their application in evaluating samples, ranging from molecules to cells up to tissues. The book is intended both as a concise introduction to the diverse

field of microscopy and a practical guide to those who need to use microscopy methods in their own research, and we hope it will be a valuable resource for graduate students and postdoctoral fellows.

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