Preface

Since the launch of the first edition of this manual in 2004, there has been growing emphasis in biomedical research towards the direct study of human samples whenever technically and ethically possible. This is likely the most direct strategy to adopt to ensure victory in our fight against human diseases. In this respect, the importance of primary human cells cannot be emphasised more. However, despite advances in cell culture techniques, it can still be a challenge to isolate and maintain primary human cells for experimental, diagnostic or even therapeutic purposes because of variations in donors' age, medical conditions and possibly genetic makeup.

In this manual, we provide the fundamental principles and steps for establishing primary human cell cultures based on established laboratory protocols and our own practical experience. Protocols for specific cell types, out of over 200 different cell types in the human body, were selected from major tissue groupings in the body. We would like to reiterate that the content of this manual is by no means exhaustive. Readers are encouraged to use it as a starting guide and thereon experiment, explore and establish niche protocols for their specific needs. As with the first edition, we have left lots of space for notes such that it can be continuously upgraded and extended. For practicality, we have retained the same physical format, allowing the manual to fit into the pocket of a lab coat, adapted from the same concept of the clinical checklists for residents and trainees in medicine.

In this new edition, we have updated the various protocols included in First Edition. We have also added a section on stem cell culture, in line with the growing popularity of stem cell research. Furthermore, we have enhanced and included sections on techniques and characterisation such as transfection and quantifying gene and protein expression to describe the subjects more thoroughly and to give the reader more complete information prior to conducting experiments with primary human cells.

In addition to those who have contributed directly or indirectly to the success of First Edition, we would like to acknowledge the new contributors to this edition, whose names are specifically mentioned in the respective sections.

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