Preface

This book is intended to introduce readers to stem cells: to explain what they are, what scientists do with them, what therapy is available today, and what might be reasonably expected to happen in the next few years. It deals with the science and medicine of stem cells rather than with ethics, law, or politics. There are many other books, and endless media coverage, about these other issues, but this book focuses on the science.

I hope readers will be able to take away an understanding of the difference between embryonic stem cells and tissue-specific stem cells, and of the importance and potential of the recently discovered induced pluripotent stem cells. They should also learn that present stem cell therapy is still in its infancy. Most real stem cell therapy today is some type of bone marrow transplantation, and most of the other activities going under the name (called 'aspirational stem cell therapy' in this book) have limited rationale and are probably ineffective.

The application of most of the science still lies in the future. Accordingly, I write as an optimist and I believe that future generations will reap huge rewards from current stem cell research and from regenerative medicine research more generally.

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Box 1: Essential Acronyms

In this book, abbreviations are kept to a minimum but a few are unavoidable:

ES cell: Embryonic stem cell
iPS cell: induced pluripotent stem cell
DNA: Deoxyribonucleic acid
FDA: Food and Drug Administration
HLA: Human leukocyte antigen
HSC: Haematopoietic (blood forming) stem cell
HSCT: Haematopoietic stem cell therapy

The Glossary at the end provides further explanation of these acronyms as well as definitions for all the terms introduced in *italic* text.