

Preface to the Second Edition

The second edition of *Essentials of Stem Cell Biology* incorporates the latest advances in the field of stem cells, with new chapters on clinical translation, cancer stem cells, and direct reprogramming—including chapters by the scientists whose groundbreaking research ushered in the era of induced pluripotent stem (iPS) cells. While the second edition offers a comprehensive—and much needed—update of the rapid progress that has been achieved in the field in the last half decade, we have retained those facts and subject matter which, while not new, is pertinent to the understanding of this exciting area of biology.

Like the original volume, the second edition of *Essentials of Stem Cell Biology* is presented in an accessible format, suitable for students and general readers interested in following the latest advances in stem cells. The organization of the book remains largely unchanged, combining the prerequisites for a general understanding of embryonic, fetal, and adult stem cells; the tools, methods, and experimental protocols needed to study and characterize stem cells and progenitor populations; as well as

a presentation by the world's leading scientists of what is currently known about each specific organ system.

No topic in the field of stem cells is left uncovered, including basic biology/mechanisms, early development, ectoderm, mesoderm, endoderm, methods (such as detailed descriptions of how to generate both iPS and embryonic stem cells), application of stem cells to specific human diseases, regulation and ethics, and a patient perspective by Mary Tyler Moore. The second edition also includes a Foreword by 2007 Nobel laureate Sir Martin Evans (who is credited with discovering embryonic stem cells). The result is a comprehensive reference that we believe will be useful to students and experts alike, and that represents the combined effort of eight editors and more than 200 scholars and scientists whose pioneering work has defined our understanding of stem cells.

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