

Preface

Stem cell research is, undoubtedly, one of the most exiting fields of contemporary biology. A major motivation I had for undertaking the writing of this monograph is my having witnessed the development of this field over the past 38 years. I would like to share my thoughts during this lengthy period, with those who are currently studying stem cells. I believe that better understanding of the conceptual steps in the emergence of stem cell dogmas, may prompt some readers to undertake new venues of research.

The above is, however, only one reason for this undertaking. I am deeply concerned by the popularization of stem cell notions; in the interest of exposing the public to stem cell issues, intellectual compromises have been made. Some issues in stem cell biology are very difficult to convey. Major subjects in stem cell biology are therefore portrayed in a naïve manner, which is often only remotely accurate. To my dismay, several such oversimplified ideas concerning stem cells have diffused from the general public back to the research community, and affected the thinking of many. I decided therefore to write a monograph of a critical nature. It does not deal with the promotion of current conventions, but rather, presents alternatives and highlights uncertainties. Therefore, the reader may find it at times uncomfortable, to read more about open and unresolved, or controversial issues, rather than factual subjects. I am willing to take this risk, since I strongly believe that this monograph may help many in providing tools to re-evaluate different issues in stem cell biology.

It is my conviction that the use of stem cells in the therapy of human diseases will profoundly alter the face of medicine. It should, however, be realized that immediate solutions to human diseases, in the form of stem cell treatments are scarce, and biological research is a step-by-step process, involving much uncertainty and failure, and many years of trial and error. It is possible therefore that hurdles, such as those encountered in the implementation of gene therapy, may raise public antagonism. The history of hemopoietic stem cell transplantation teaches that major successes in therapy of human diseases have been achieved. Nevertheless, therapy using bone marrow transplantation is still far from perfect, despite decades of research and medical experience. This highlights the length of time needed for biological research, and more so, for the implementation of research results into human therapy modalities. This monograph is also meant to demonstrate the complexity of the issues at hand, with the aim of calling for patience.

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