Preface

While our notion of the existence of stem cells has been extant for more than 50 years, deciphering details of regulation of their self-renewal and maintenance potential has been an ongoing effort. The concept that a protected and nurturing location or environment was key to this regulation was first proposed by R. Scholfied in 1978. Since then, numerous—both physical and biological—potential components have been investigated, and a large number of so-called stem cell niche components have now been identified. As importantly, how systemic or epigenetic factors, or injury or disease states, or even normal aging can modulate functional aspects of the stem cell niche have become key questions over the last decade. Deconstruction of the stem cell niche and its reconstruction as biomimetic or engineered constructs in potential regenerative medicine applications are now also hot topics. Authors of chapters in this volume have tackled a range of these topics, summarizing advances made and challenges and opportunities lying ahead. I thank all the contributors for sharing their expertise and time in putting together their chapters and for making this a unique and state-of-the-art volume.

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