
Contents

<i>Preface</i>	<i>v</i>
<i>Contributors</i>	<i>xi</i>

PART I INTRODUCTION

1 Current Thoughts on the Therapeutic Potential of Stem Cell	3
<i>Pranala Rameshwar</i>	

PART II STEM CELL STUDY IN LOWER ORGANISM

2 A Unique FACS Method to Isolate Stem Cells in Planarian.	29
<i>Tetsutaro Hayashi and Kiyokazu Agata</i>	
3 Identification of Neural Stem Cells in the <i>Drosophila</i> Larval Brain.	39
<i>Mo Weng, Hideyuki Komori, and Cheng-Yu Lee</i>	
4 Generation and Staining of Intestinal Stem Cell Lineage in Adult Midgut.	47
<i>Shree Ram Singh, Manoj K. Mishra, Maduri Kango-Singh, and Steven X. Hou</i>	

PART III STEM CELL STUDY IN MURINE AND HUMAN MODEL

5 Developing a Quantitative In Vivo Tissue Reconstitution Assay to Assess the Relative Potency of Candidate Populations of Mouse Oesophageal Epithelial Cells	73
<i>Daniel Croagh, Rick Redvers, Wayne A. Phillips, and Pritinder Kaur</i>	
6 Identification, Isolation, and Culture of Intestinal Epithelial Stem Cells from Murine Intestine	89
<i>A.D. Gracz, B.J. Puthoff, and S.T. Magness</i>	
7 Isolation and Characterization of Distal Lung Progenitor Cells	109
<i>Barbara Driscoll, Alex Kikuchi, Allison N. Lau, Joeeun Lee, Raghava Reddy, Edwin Jesudason, Carla F. Kim, and David Warburton</i>	
8 Transplantation of Mouse Fetal Liver Cells for Analyzing the Function of Hematopoietic Stem and Progenitor Cells	123
<i>Kristbjorn Orri Gudmundsson, Steven W. Stull, and Jonathan R. Keller</i>	
9 Convenient and Efficient Enrichment of the CD133+ Liver Cells from Rat Fetal Liver as a Source of Liver Stem/Progenitor Cells	135
<i>Weihui Liu, Nan You, and Kefeng Dou</i>	
10 Assessing the Potential Clinical Utility of Transplantations of Neural and Mesenchymal Stem Cells for Treating Neurodegenerative Diseases	147
<i>Laurent Lescaudron, C. Boyer, Virginie Bonnamain, K.D. Fink, X. L��v��que, J. Rossignol, V. Nerri��re-Daguin, A.C. Malouet, F. Lelan, N.D. Dey, D. Michel-Monigadon, M. Lu, I. Neveu, S. von H��rsten, P. Naveilhan, and G.L. Dunbar</i>	

11	Functional Identification of Neural Stem Cell-Derived Oligodendrocytes	165
	<i>Sofia Grade, Fabienne Agasse, Liliana Bernardino, and João O. Malva</i>	
12	Stem/Progenitor Cells in Murine Mammary Gland: Isolation and Functional Characterization	179
	<i>Abhik Bandyopadhyay, Qiaoxiang Dong, and Lu-Zhe Sun</i>	
13	A Reporter Assay to Detect Transfer and Targeting of miRNAs in Stem Cell-Breast Cancer Co-cultures	195
	<i>Steven J. Greco, Shyam A. Patel, and Pranela Rameshwar</i>	
14	Isolation, Culture, and Osteogenic/Chondrogenic Differentiation of Bone Marrow-Derived Mesenchymal Stem Cells	203
	<i>Susanne Grässel, Sabine Stöckl, and Zsuzsa Jenei-Lanzl</i>	
15	Obtaining Freshly Isolated and Cultured Mesenchymal Stem Cells from Human Adipose Tissue	269
	<i>Andrew C. Boquest and Philippe Collas</i>	
16	Collection, Processing, and Banking of Umbilical Cord Blood Stem Cells for Transplantation and Regenerative Medicine	279
	<i>Michael S. Badowski and David T. Harris</i>	
17	Generation of Functional Islets from Human Umbilical Cord and Placenta Derived Mesenchymal Stem Cells	291
	<i>Sachin Kadam, Vijayendran Govindasamy, and Ramesh Bhonde</i>	
18	Isolation and Characterization of Human Prostate Stem/Progenitor Cells	315
	<i>Changyong Guo, Baohui Zhang, and Isla P. Garraway</i>	
19	Isolation and Expansion of Adult Cardiac Stem/Progenitor Cells in the Form of Cardiospheres from Human Cardiac Biopsies and Murine Hearts	327
	<i>Isotta Chimenti, Roberto Gaetani, Lucio Barile, Elvira Forte, Vittoria Ionta, Francesco Angelini, Giacomo Frati, Elisa Messina, and Alessandro Giacomello</i>	
20	Isolation and Differentiation of Human Cardiomyocyte Progenitor Cells into Cardiomyocytes	339
	<i>Anke M. Smits, Angelique A. van Oorschot, and Marie-José Goumans</i>	
21	Isolation, Expansion, and Characterization of Human Islet-Derived Progenitor Cells	351
	<i>Mugdha V. Joglekar and Anandwardhan A. Hardikar</i>	
22	Isolation and Characterization of Resident Mesenchymal Stem Cells in Human Glomeruli	367
	<i>Stefania Bruno and Giovanni Camussi</i>	
23	Endothelial Colony-Forming Progenitor Cell Isolation and Expansion	381
	<i>Nicole A. Hofmann, Andreas Reinisch, and Dirk Strunk</i>	
24	Isolation and Characterization of Stem Cell-Enriched Human and Canine Hair Follicle Keratinocytes	389
	<i>Manabu Ohyama and Tetsuro Kobayashi</i>	
25	Human Salivary Gland Stem Cells: Isolation, Propagation, and Characterization	403
	<i>Silke Schwarz and Nicole Rotter</i>	

26	Identification, Isolation, Characterization, and Banking of Human Dental Pulp Stem Cells.	443
	<i>Virginia Tirino, Francesca Paino, Alfredo De Rosa, and Gianpaolo Papaccio</i>	
27	Isolation and Differentiation Potential of Fibroblast-Like Stromal Cells Derived from Human Skin	465
	<i>Hsing-I Huang and Chung-Zu Wu</i>	
28	Immortalization of Human Mesenchymal Stromal Cells with Telomerase and Red Fluorescence Protein Expression	471
	<i>Chao-Ling Yao and Shiaw-Min Hwang</i>	
29	Genetic Modification of Mesenchymal Stem Cells.	479
	<i>Andréia Escosteguy Vargas, Melissa Medeiros Markoski, Andrés Delgado Cañedo, Flávia Helena da Silva, and Nance Beyer Nardi</i>	
30	Methodology, Biology and Clinical Applications of Human Mesenchymal Stem Cells.	491
	<i>Melissa Camassola, Luisa Maria Gomes de Macedo Braga, Pedro Cesar Chagastelles, and Nance Beyer Nardi</i>	
31	In Vitro Production of Enucleated Red Blood Cells from Hematopoietic Stem and Progenitor Cells	505
	<i>Kenichi Miharada and Yukio Nakamura</i>	
32	Methods for Cancer Stem Cell Detection and Isolation	513
	<i>Virginia Tirino, Vincenzo Desiderio, Francesca Paino, Gianpaolo Papaccio, and Mario De Rosa</i>	
33	Biocompatible Nanoparticle Labeling of Stem Cells and Their Distribution in Brain.	531
	<i>Ashish K. Rehni, Thakur Gurjeet Singh, Mansi Chitkara, and I.S. Sandhu</i>	
	<i>Index</i>	539