

---

# Contents

<i>Preface</i> . . . . .	<i>v</i>
<i>Contributors</i> . . . . .	<i>ix</i>
PART I OVERVIEW	
1 Muscle Stem Cells: A Model System for Adult Stem Cell Biology . . . . . <i>DDW Cornelison and Eusebio Perdiguero</i>	3
PART II MUSCLE STEM CELLS (SATELLITE CELLS)	
2 Isolation of Muscle Stem Cells from Mouse Skeletal Muscle . . . . . <i>Barbara Gayraud-Morel, Francesca Pala, Hiroshi Sakai, and Shahragim Tajbakhsh</i>	23
3 Primary Mouse Myoblast Purification using Magnetic Cell Separation . . . . . <i>Marie Claude Sincennes, Yu Xin Wang, and Michael A. Rudnicki</i>	41
4 Isolation, Culture, and Immunostaining of Skeletal Muscle Myofibers from WildType and Nestin-GFP Mice as a Means to Analyze Satellite Cells . . . . . <i>Pascal Stuelsatz, Paul Keire, and Zipora Yablonka-Reuveni</i>	51
5 Characterization of Drosophila Muscle Stem Cell-Like Adult Muscle Precursors . . . . . <i>Guillaume Lavergne, Cedric Soler, Monika Zmojdzian, and Krzysztof Jagla</i>	103
6 Using Transgenic Zebrafish to Study Muscle Stem/Progenitor Cells . . . . . <i>Phong D. Nguyen and Peter D. Currie</i>	117
PART III OTHER MUSCLE INTERSTITIAL STEM CELLS	
7 Muscle Interstitial Cells: A Brief Field Guide to Non-satellite Cell Populations in Skeletal Muscle . . . . . <i>Francesco Saverio Tedesco, Louise A. Moyle, and Eusebio Perdiguero</i>	129
8 Isolation and Characterization of Vessel-Associated Stem/Progenitor Cells from Skeletal Muscle . . . . . <i>Rossana Tonlorenzi, Giuliana Rossi, and Graziella Messina</i>	149
9 Fibro/Adipogenic Progenitors (FAPs): Isolation by FACS and Culture . . . . . <i>Marcela Low, Christine Eisner, and Fabio Rossi</i>	179
10 Single Cell Gene Expression Profiling of Skeletal Muscle-Derived Cells . . . . . <i>Sole Gatto, Pier Lorenzo Puri, and Barbora Malecova</i>	191

## PART IV ASSAYS FOR STEM CELL FUNCTIONALITY

11	Engraftment of FACS Isolated Muscle Stem Cells into Injured Skeletal Muscle . . . . .	223
	<i>Matthew Tierney and Alessandra Sacco</i>	
12	Transplantation of Skeletal Muscle Stem Cells . . . . .	237
	<i>Monica N. Hall, John K. Hall, Adam B. Cadwallader, Bradley T. Pawlikowski, Jason D. Doles, Tiffany L. Elston, and Bradley B. Olwin</i>	
13	Simultaneous Measurement of Mitochondrial and Glycolytic Activity in Quiescent Muscle Stem Cells. . . . .	245
	<i>James G. Ryall</i>	
14	Monitoring Autophagy in Muscle Stem Cells . . . . .	255
	<i>Laura García-Prat, Pura Muñoz-Cánoves, and Marta Martínez-Vicente</i>	

## PART V CELL CULTURE, IN VITRO, AND IN SILICO STUDIES

15	Mimicking Muscle Stem Cell Quiescence in Culture: Methods for Synchronization in Reversible Arrest . . . . .	283
	<i>Reety Arora, Mohammed Rumman, Nisha Venugopal, Hardik Gala, and Jyotsna Dhawan</i>	
16	Methods for Observing and Quantifying Muscle Satellite Cell Motility and Invasion In Vitro . . . . .	303
	<i>Dane K. Lund, Patrick McAnulty, Ashley L. Siegel, and DDW Cornelison</i>	
17	Effects of Macrophage Conditioned-Medium on Murine and Human Muscle Cells: Analysis of Proliferation, Differentiation, and Fusion . . . . .	317
	<i>Marielle Saclier, Marine Theret, Rémi Mounier, and Bénédicte Chazaud</i>	
18	Optimization of Satellite Cell Culture through Biomaterials . . . . .	329
	<i>Sadegh Davoudi and Penney M. Gilbert</i>	
19	Systematic Identification of Genes Regulating Muscle Stem Cell Self-Renewal and Differentiation. . . . .	343
	<i>Krishnamoorthy Sreenivasan, Thomas Braun, and Johnny Kim</i>	
20	Bioinformatics for Novel Long Intergenic Noncoding RNA (lincRNA) Identification in Skeletal Muscle Cells . . . . .	355
	<i>Xianlu Peng, Kun Sun, Jiajian Zhou, Hao Sun, and Huating Wang</i>	
	<i>Index</i> . . . . .	363

Muscle Stem Cells

Methods and Protocols

Perdiguero, E.; Cornelison, D. (Eds.)

2017, XII, 365 p. With online files/update., Hardcover

ISBN: 978-1-4939-6769-8

A product of Humana Press